Ministry of Education and Science of Ukraine

National Mining University

E N G L I S H
for Study and Work
A Coursebook for Mining Engineers

Svitlana Kostrytska, Iryna Zuyenok, Olena Shvets, Nelly Poperechna

Part II
Self-study Resourses

Dnipropetrovsk

2010

Міністерство освіти і науки України
НАЦІОНАЛЬНИЙ ГІРНИЧИЙ УНІВЕРСИТЕТ

С.І. Кострицька, І.І. Зуєнок, О.Д. Швець, Н.В. Поперечна

АНГЛІЙСЬКА МОВА
ДЛЯ НАВЧАННЯ І РОБОТИ

Навчальний посібник з англійської мови
за професійним спрямуванням для студентів і фахівців галузі знань
0503 Розробка корисних копалин

Том ІІ
Ресурси для самостійної роботи

Рекомендовано Міністерством освіти і науки України
як навчальний посібник для студентів вищих навчальних закладів
(лист №1/11-5206 від 16.06.10)

Дніпропетровськ
2010

УДК 811.111(075.8)
ББК 81.2я73

Рекомендовано Міністерством освіти і науки України як навчальний посібник для студентів вищих навчальних закладів (лист №1/11-5206 від 16.06.10).

Рецензенти: О.М. Кузьменко - доктор технічних наук, професор, голова науково-методичної ради Національного гірничого університету,
Т.Ю. Введенська, кандидат філологічних наук, професор, зав. кафедри перекладу, Національний гірничий університет,
Н.О.Голівер, кандидат педагогічних наук, доцент, зав. кафедри іноземних мов, Криворізький технічний університет,
О.Г.Каверіна, кандидат філологічних наук, доцент, зав. кафедри англійської мови, Донецький національний технічний університет

А 64 **English for Study and Work** (A Coursebook for Mining Engineers) (Англійська мова для навчання і роботи) / Навчальний посібник з англійської мови за професійним спрямуванням для студентів і фахівців галузі знань 0503 Розробка корисних копалин (в трьох томах). / Колектив авторів: С.І. Кострицька, І.І. Зуєнок, О.Д. Швець, Н.В. Поперечна – Д.: Національний гірничий університет, 2010. – Т 2. – 254 с.

Колектив авторів: С.І. Кострицька, проф. (PREFACE, Part III Grammar Review and Practice);
І.І. Зуєнок, доц. (PREFACE, INTRODUCTION, Part I In-class Activities: Module 1, Module 2, References, Index; Part II Self-study Resources: Module 1, Module 2, Bibliography, Index);
О.Д. Швець, доц. (INTRODUCTION, Part I In-Class Activities: Module 3, Module 5 (Units 2 - 4, 7-9, 13) Index, Part II Self-study Resources: Module 3, Module 5 (Units 5.1 (5.1.2, 5.1.3), 5.2, 5.4, 5.5).
Н.В. Поперечна, доц. (Part I In-class Activities: Module 4, Module 5 (Units 1, 5, 6, 10 -12), Part II Self-study Resources: Module 4, Module 5 (Units 5.1 (5.1.1, 5.1.4), 5.3).

У посібнику представлені всі види діяльності студентів з вивчення англійської мови, спрямовані на розвиток мовної поведінки, необхідної для ефективного спілкування в академічному та професійному середовищах. Навчальний посібник містить завдання і вправи, типові для різноманітних академічних та професійних сфер і ситуацій. Структура організації змісту – модульна і охоплює загальні мовленнєві вміння інженерів. Зразки текстів – автентичні, взяті з реального життя, містять цікаву та актуальну інформацію про видобувничу промисловість, особливості навчання за кордоном, традиції та звичаї країн, мова яких вивчається. Ресурси для самостійної роботи (Том ІІ) містять глосарій термінів, завдання та вправи для розвитку словарного запасу та розширення діапазону функціональних зразків, необхідних для виконання певних функцій, та завдання, які спрямовані на розвиток навичок самооцінювання і організації свого навчання. Граматичні явища і вправи для їх засвоєння наводяться в томі ІІІ. Наприкінці кожної частини наведено алфавітно-предметні покажчики. Багато ілюстрацій та різних візуальних засобів подання інформації.

Навчальний посібник призначений для студентів технічних університетів гірничого профілю.

Може використовуватися для самостійного вивчення англійської мови викладачами, фахівцями і науковцями різних інженерних галузей.

A coursebook includes all the activities of students' work at ESP course aimed at development of language behaviour necessary for effective communication of students in their study and specialism areas. The tasks and activities given in the coursebook are typical for students' academic and professional domains and situations. The content is organized in modules that covers generic job-related language skills of engineers. The authentic texts taken from real life contain interesting up-to-date information about mining, peculiarities of study abroad, customs and traditions of English-speaking countries. Pack of self-study resources given in Part II contains Glossary of mining terms, tasks and activities aimed at developing a range of vocabulary necessary for mining, different functions and functional exponents to be used in academic and professional environment as well as tasks developing self-awareness, self-assessment and self-organisation skills. Testing points for different grammar structures are given in Part III. Indices at the end of each part easify the use of the coursebook. The coursebook contains illustrations, various samples of visualizing technical information.

The coursebook is designed for ESP students of non-linguistic universities. It can be used as teaching/learning materials for ESP Courses for Mining Engineers as well as for self-study of subject and specialist teachers, practicing mining engineers and researchers in Engineering.

УДК 811.111(075.8)
ББК 81.2я73
А 64

CONTENTS

MODULE 2 OBTAINING AND PROCESSING INFORMATION FOR SPECIFIC PURPOSES

MODULE 3 DISCUSSING PROFESSIONALLY-ORIENTED TEXTS

MODULE 4 PLANNING AND GIVING PRESENTATIONS

MODULE 5 COMMUNICATING IN WRITING

ВСТУП

Том 2 «***Self-study Resources***» (Ресурси для самостійної роботи) входить до складу навчального посібнику «**Англійська мова для навчання і роботи»,** розробленого для навчання дисципліни «Англійська мова за професійним спрямуванням» студентів вищих навчальних закладів технічного профілю.

Головна мета посібника: формувати у студентів загальні та професійно-орієнтовані комунікативні мовленнєві компетенції (лінгвістичну, соціолінгвістичну і прагматичну) для забезпечення їхнього ефективного спілкування в академічному та професійному середовищах.

Хоча навчальний посібник розглядається як система, яка охоплює всі види діяльності студентів з вивчення англійської мови як в аудиторії під час практичних занять, так і під час самостійної роботи, Том 2 може використовуватися як окремий навчальний посібник, спрямований на розвиток загальних і професійно-орієнтованих мовленнєвих вмінь і навичок самостійно. Зміст навчального посібника розроблено таким чином, щоб допомогти студентам оволодіти англійською мовою на рівні B2, необхідного для освітньо-професійного рівня бакалавра. Він охоплює професійний і академічний зміст (галузь знань тобто Розробка корисних копалин), ситуативний зміст, який наближено до реального життя та прагматичний зміст: практичні та корисні вміння та навички, включаючи вміння використовувати інформаційно-комунікаційні технології.

Том 2 являє собою пакет матеріалів, які зібрані з різних джерел інформації за допомогою студентів і фахівців галузі. Запропоновані ресурси опрацьовуються кожним студентом індивідуально у процесі їхньої самостійної роботи.

Структура змісту модульна. Кожний розділ «Ресурсів для самостійної роботи» навчального посібника відповідає модулям

визначеним в Томі 1 “***In-class Activities***”, які охоплюють вміння, загальні для майбутніх інженерів.

Навчальні матеріали кожного розділу організовано у підрозділи, кожний з яких відповідає певним вмінням, що розвиваються протягом модуля, і включає в себе мовні зразки та англомовні тексти різних жанрів, що типові для академічних і професійних ситуацій, та перелік завдань, які рекомендуються для виконання.

Кожний підрозділ починається з очікуваних результатів, тобто з того, *що саме студенти зможуть робити* наприкінці підрозділу. В підрозділах наводяться завдання, які базуються на введенні **Input**, отриманому в аудиторії під час практичних занять. Для розширення знань, необхідних для майбутньої професії, та обізнаності про країни, мова яких вивчається, й їх культурні особливості, в навчальному посібнику подаються тексти для додаткового читання із завданнями для відпрацьовування тих чи інших вмінь і навичок з розвитку мови. Низки завдань різної складності допоможуть студентам розвинути свою мовну компетенцію, зокрема, відповідні до фаху загальні вміння.

Головна *мета* цієї частини: розвинути вміння вчитися самостійно і удосконалити загальні та мовленнєві вміння, розвинуті під час практичних занять, а також сприяти формуванню навичок пізнавальної діяльності, розвитку когнітивних здібностей і стратегій навчання студентів, включаючи організацію свого навчання.

Залежно від кроків навчання кожного студента та його просування протягом всього курсу або модуля, а також у відповідності до потреб і прогалин в навчанні, деякі завдання Тому 2 можуть використовуватися викладачами для аудиторної роботи.

Кожний розділ закінчується самооцінюванням (**Self-assessment)**, за допомогою якого студенти можуть перевірити свій прогрес у вивченні мови, використовуючи ключі до вихідного модульного тесту Тому 1.

Правильні відповіді в ключах супроводжується поясненнями, що може розглядатися як додаткове введення нового матеріалу.

Усі підрозділи використовуються вибірково в міру виникнення проблем у студентів та/або у порядку, визначеному викладачем для виконання домашнього завдання або з метою додаткового введення нового матеріалу та практики.

Наведені вищі особливості побудови навчального посібника допоможуть фахівцям та іншим особам, зацікавленим у вивченні англійської мови для подальшого навчання і кар'єри, користуватись підручником самостійно.

INTRODUCTION

Part II 'Self-Study Resources' is a constituent of the coursebook *'English for Study and Work'* designed for the students non-linguistic higher educational institutions in Ukraine. *The overall aim* of it is to develop general and professionally-oriented communication language competences in English (linguistic, sociolinguistic and pragmatic) to allow the university students to communicate effectively in their academic and professional environments.

Although the coursebook can be seen as 'a system' or 'a complex' the structure of which covers all kinds of students' activities both in class and while individual work and self-study, *Part II* is aimed at independent and autonomous learning of general and professionally-oriented English and developing communicative language competences.

The content of the coursebook is designed to help students to achieve target B2 language proficiency level as required for Bachelor' Degree. It covers professional and academic content (area of subject knowledge, i.e. Mining), situational content which is close to real life and pragmatic content: necessary practical and useful skills including study and soft skills, ability to use ICT. It follows the modular organisation of the coursebook wherein the modules are congruent to the ESP Syllabus for Mining Engineers.

Part II is a pack of self-study resources (compiled from various sources with the help of students and subject teachers) to be used by students individually during their self-study. Being a modular in its organization, each module in this part is relevant to those in *Part I*. All the resources are organised in sections each of which corresponds to the specific skill developed by mining engineers through the module.

The main aim of this part is to develop study skills within the students as well as to enhance their job-related skills developed in the class, develop cognitive skills and learning strategies of each of them, including self-organisation.

Each section starts with the expected outcome, i.e. what students *should be able to do* by the end of the section and includes a series of tasks to be done within the section based on **Input** made in class. Sometimes students can find additional **Input** texts with the tasks to practice this or that skill or develop their language. There are a number of supplementary texts for reading aimed at developing working knowledge in the area of specialization and raising students' socio-cultural awareness of the countries and organizations they will find themselves in future. The chain of tasks for different levels will help students to develop their language communicative competence and the specific job-related skill, in particular.

Some tasks can be used for in-class activities when there is a necessity or time allows. It depends on the paces of each of the students as well as their needs and lacks. All the sections are used randomly as soon as a problem appears and/or the tasks may be prescribed by the teacher as an additional input and practice.

Each section finishes with **Self-assessment** section with the help of which students can check their progress by using the key-answers to the end-of-module test. The **Key-answers** are accompanied with the explanations and can be seen as an additional **Input.**

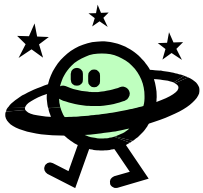
Bearing in mind the peculiarities of the part described above, the course book can be used for self-study of specialists who are interested in learning English for their study and career.

Module 1

Socialising in Academic and Professional Environment

By the end of this module you can:

- behave and react appropriately in common social, academic and professional situations in everyday life.



Section 1.1 Language to Go (A Pocket Guide)

1.1.1 Socialising in Oral

By the end of this section you will:

- be able to behave and react appropriately in common social, academic and professional situations in everyday life, and know rules of how people should interact in these situations
- be able to participate appropriately in common social, academic and professional settings (e.g. meeting, coffee break, party etc.)
- have a working knowledge of language forms appropriate to formal and colloquial academic and professional registers

Tasks to do.

1. Read the phrases used in typical real-life situations while socialising and put Ukrainian equivalents in the right-hand column to the English ones given on the left.

2. Learn the phrases and be ready to use them during your classes and/or real-life situations.

3. If you wish, put any pictures or signs to make your work with the Guide easier.

Attracting attention: • Excuse me. • Hallo… • I say…	

Greeting people: • Good morning/ afternoon/ evening. • Hallo, … How ***are*** you? *(informal)* • How are you doing/ keeping/ getting on?	
Replying to a greeting: *If in normal health.* • (I'm) fine/ very well (thank you). How are ***you***? *If in poor health.* • Well, so-so (thank you). *If recovering from illness, etc.* • (Much) better, thank you. How are ***you***?	
Addressing: *a friend or relative* • Hallo, John. How are you keeping? *an acquaintance* • Yes, Dr Brown. • Good morning, Mr./ Mrs./ Miss Jones, how are you today? • Yes, Sir John. *a stranger (official, customer, member of public, etc.)* • Professor/Doctor/Officer/Captain – I was driving at 50 m.p.h., Officer • Sir/Madam – that will be 25 pounds, Sir.	

Asking for and giving personal information • What's your name? • How old are you? • Have you got…? • What do you do? • Do you like…? • Which…do you like best? • Where do you live? • Have you ever…?	
Asking for repetition • (I'm sorry). Could you repeat it, please? • (I'm sorry). I didn't (quite) catch that.	
Making introductions *formal* • Professor Smith, may I introduce Dr Antony Brown? • Ms. Alexander, I'd like you to meet Nazar Shevchenko. *informal* • Jane, this is Andrew Black. • Oksana, meet Mike. • Mike, meet Oksana. • (Good morning/afternoon/evening). How do you do. (Mike).	

• How do you do. (Oksana). • My name is Bill Brown. • How do you do, Bill (*while handshaking*)	
Introducing oneself • I'm/My name is Peter Sidorenko. • (*informal*) Hallo, I'm Peter. • How do you do. • (It's) nice/good to meet you. • I'm (very) pleased to meet you. *When being introduced or when someone is introduced to you* • Do you know each other? • Mrs. Petrenko, do you know Professor Ivanov? • I think you know each other (don't you?) • Have you already met?	
Making someone welcome • Welcome! • Do come in. • Make yourself at home.	
Inviting • I'd like to invite you…(*to dinner*). • Would you like to join us for…? • How about joining us?	

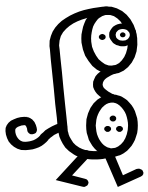
• Would you like…(*to go to the theatre*)? • What about…(*going for a walk*)? *guests to serve themselves* • (Please,) help yourself.	
Accepting (a proposal, idea etc.) • Thank you. That would be nice. • Thank you. I'd enjoy that. • Thanks. I'd love to. • That's a good idea.	
Declining (a proposal, idea etc.) • I'd love to, but… • That's kind of you, but… • Unfortunately. I won't be able to. • Thanks, but (I can't. I'm too busy).	
Proposing a toast • Cheers! • Your (very) good health. • Here's to (*the bride and groom*)/(*Organising Committee*).	
Congratulating someone • (Many) congratulations! • Well done! • Brilliant!	
Good wishes *on birthday and at festival times* • Many happy returns (of the day)!	

• Happy birthday! • Merry Christmas! • Happy New Year! *Wishing someone success* • Good/the best luck! • Hope it/all goes well! • Cross fingers! *When someone is going out or on holiday* • Enjoy yourself/yourselves. • Have a good time! • All the best! *When parting from someone* • Keep well. • Take care. • Look after yourself. • (Do) keep in touch. • Let's be hearing from you. • Have a good journey/ trip/ holiday/ flight!	
Taking leave *formal* • Good morning/ afternoon/ evening/ night. *informal* • It's been nice meeting you. • See you (again/later). • See you next month/week/Monday.	

• Goodbye for now. *colloquial* • So long. • Bye-bye! • Cheerio! *(If you are not expecting meeting again)* • Goodbye.	
Welcoming a visitor *The visitor's journey* • Did you have a good/nice flight? • How was the journey? • How was the trip? • Hope you had a good trip. • How long was the flight? • Did you have any problems finding us? *The visit* • Is this your first visit to… (*Dnipropetrovsk*)? • Have you ever been to…(*Dnipropetrovsk*) before? • What do you think of…(*the city/the university*)? • Do you like…(*Ukrainian traditional dishes*)? • Are you here on business or holiday? • How long are you here? • How long are you planning to stay in…?	

• Where are you staying? *Accommodation* • What's your hotel like? • I hope everything is OK at the hotel/hall of residence?	
Sympathising • Oh, bad luck. • Oh, dear, I'm sorry to hear that. • Oh, poor you! • Oh, that's terrible. • Oh, what a pity! • That's awful. • That's terrible! • That's too bad. • What a shame.	

1.1.2 Telephoning



By the end of this section you will:

- be able to make telephone calls for specific purpose related to academic or professional area and react adequately to non-routine telephone conversations
- be able to take messages from telephone
- have a working knowledge of language forms appropriate to formal telephoning

Task 1. Learn the phrases typical for telephone calls in English. If necessary translate them into your native language.

Making contact

- Hello. This is…(*Volodymyr Bondarenko*).
- Is that…(*Olesia*)? – Yes, speaking.
- Who's that? This is…(*Professor Brown from London)* is calling.
- Could I speak to…(*Professor Bondarenko*)? – Who's calling, please?
- I'm calling/ phoning about…(*the meeting*).
- I'm sorry the line is busy. Will you hold?
- I'm afraid…(*the Dean*) isn't available now/today.

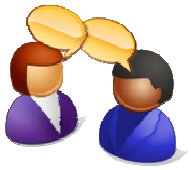
Leaving a message

- Would you like to leave a message?
- Shall I ask…(*him/her*) to ring you?
- Could I leave a message?
- Could you ask/ tell him/ her to call…(*Professor Brown*)? / …that (*Mr. Brown*) called?
- Could you spell…(*your name*), please?

Making an appointment

- When would be convenient for you?
- When would suit you?
- When would be possible for you?
- What time could we meet?
- What time are you free?
- Would…(*Tuesday*) be convenient? – Yes, …(*Tuesday*) would be fine.
- Can you make it…(*in the afternoon*)? No, I'm afraid I'm not available/I'm busy then.

Changing an appointment	• I'm sorry, I have to cancel the appointment on… . • I'm afraid I can't manage our meeting (*next week*). • I'm sorry, but…(*Nick*) isn't available…(*at that time)*. • Could we arrange another time?



1.1.3 Exchanging Ideas and Information

By the end of this section you will:

- be able to participate in clear argument on topical issue in academic and professional areas (e.g. seminars, discussions, debates, etc.)
- be able to explain viewpoints on a topical issue within the subjects of the field of study giving advantages and disadvantages of various options at seminars and workshops, during discussions
- have a working knowledge of language forms appropriate to formal and colloquial academic and professional registers

Tasks to do.

1. Use the phrases given below when preparing to the discussions or debates and/or meetings.
2. Regroup the phrases if necessary.
3. Learn the phrases used when exchanging information and/or ideas.
4. Find Ukrainian equivalents to the English phrases given on the left. If necessary, use a dictionary.
5. Put the Ukrainian equivalents in the right-hand column opposite the English ones.
6. Fill in the gaps with the examples of your own using a pencil. Some of the *examples* have been given to you.

Asking I'd like some information on _____? I'd like to ask you about _____? I'd like to know _____? Could you tell me _____? Do you know (*if the flight from London has arrived yet*)? Do you happen to know (*what time the airport bus/ the train to Kyiv will leave*)?	
Asking for clarification By _____, do you mean _____? Could you explain what you mean by ___?	
Asking for more information You say _____. Could you explain in what way_____? Earlier you referred to _____. Could you describe how? So if _____, then _____?	
Asking for opinions What are your views on _____? What's your opinion on _____? What do you think about_____? How do you feel about _____? Do you think _____(*we need more information*)?	
Checking You did say _____, didn't you? – Yes, that's right. That's _____, is it?	

Sorry did you say _____? _____ I said _____ .	
Checking facts Are you sure (that _____)? Do you think so? Is that all right? So, what do **you** think? Sure? Will that do?	
Correcting Eh, that's not quite correct. Sorry, I made a mistake. It's _____, not _____ . Sorry, that's not correct. It should be _____ . Well, I didn't exactly (*mean*) _____ . Excuse me, I didn't mean.	
Agreeing Yes, I agree completely. Yes, definitely. I agree. I'd go along with that. Yes, you have a point there.	
Disagreeing In my opinion that's out of question. I'm afraid I disagree completely. I'm afraid I can't agree with you/that idea. Sorry, but I don't agree. I'm afraid I don't really agree. I'm afraid that's not how I see it.	

Oh, surely not. I'm not sure I agree with you. I mean… . I see what you mean, but… . Yes, but on the other hand… .	
Expressing reservations and doubt I agree up to a point, but… (*we need more information)*. You could be right, but _____ . Maybe, but _____ .	
Giving confirmation Absolutely. Exactly. Correct. I'll say it is. Yes, definitely. You must be right.	
Hesitating Let me see… Let me think (*on it*). Let's see .	
Showing surprise (That's) Incredible! What a surprise! Unbelievable! Well, that's amazing! How strange/odd/amazing that _____? Really! I'd no idea.	

1.1.4 Socialising in Writing. Writing a Letter.

By the end of this section you will:

- be able to write personal letters and e-mails conveying degrees of emotion and highlighting the significance of events and experiences
- be able to write business correspondence (letters, e-mails, memos, etc.) highlighting the personal significance of events and experiences in academic and vocational life and commenting on the correspondent's news and views
- have a working knowledge of language forms appropriate to formal and informal correspondence

Tasks to do.

1. Below are some phrases used when writing a letter. Make any rearrangements if necessary to follow the structure of a typical English letter.
2. Find Ukrainian equivalents to the English phrases. Pay attention to the examples given in brackets.
3. Compare the language of an English letter with a typical Ukrainian one.

Explaining the reason for writing	I'm writing to inquire about _____/inform you that_____/ confirm _____ .
Making reference	Thank you for your letter from _____ . Further to your telephone enquiry _____ . With reference to your fax of _____ .
Apologizing	I am sorry about _____ . I apologize for _____ (*not replying soon*).

Requesting	We (I) would appreciate if you _____ (*send us further details*). Could you please _____ (*reserve two double rooms*)? Please, confirm the receipt. Would you kindly _____?
Agreeing to requests	I would be pleased to _____ (*visit your university*). I would be delighted to _____ (*lecture at your university*).
Giving good news	I am pleased to inform you that _____ (*your application has been approved*). I am delighted to tell you that _____ (*you have won the competition*).
Giving bad news	Unfortunately _____ (*the hotel is fully booked*). I am afraid _____ (*the trip to London has been delayed*).
Explaining reasons	This is the result of _____ (*an urgent meeting in Brussels*).

	This is due to _____ (*annual conference here this month*).
Enclosing documents	Please, find enclosed/ the attached _____ . Find the _____ attached/ enclosed to this letter. I enclose _____ (*a copy of the Certificate*).
Closing remarks	Please pass on my best wishes to _____ . Please contact us (again) if _____ . Please feel free to contact us if _____ .
Referring to future contact	Looking forward to hear from you (soon/ASAP). I look forward to see you (soon). I very much look forward to (meeting you again).
Closing/Farewell phrase	Sincerely Yours(,) Best wishes/regards(,) Warmest wishes (from Ukraine) (,) Regards (,)

Section 1.2 Applying for a Conference/Study/Certificate/Job

By the end of this section you will:

- be able to fill in various forms for academic or professional purposes with high degree of accuracy

Task 1. Fill in the Sample Application Forms given below with your personal data.

1.2.1 Application to Attend Examination

COAL MINING QUALIFICATIONS BOARD

APPLICATION TO ATTEND EXAMINATION FOR CERTIFICATE OF COMPETENCY AS OPEN CUT EXAMINER

Mail to: The Secretary, Coal Mining Qualifications Board
PO Box 344 Hunter Region Mail Centre NSW 2310
ABN 51 734 124 190
Phone 02 4931 6625 Toll Free 1300 736 122 Fax 02 4931 6790

Coal Mines Regulation Act, 1982

PERSONAL DETAILS OF APPLICANT

Name:_____
(Surname in BLOCK letters) (Given Names)

Address:

_____

_____

Postcode:

Mine at which you are employed:_____

Date of Birth: Place of Birth:_____

Contact Ph No/s Home: Work: Mobile Ph. No:_____

Email Address: Fax No:_____

INSTRUCTIONS TO APPLICANTS

(1) The minimum age at which a person will be issued with a Certificate is 21.
(2) All applicants must submit themselves to an examination. Complete applications to sit for the
examination must reach the Secretary, Coal Mining Qualifications Board NSW, Department of Primary Industries Mineral Resources Division, PO Box 344, Hunter Region Mail Centre 2310, before the advertised closing date, prior to the examination.
(3) Applicants have successfully completed MNC40104 Certificate IV Surface Coal Mining (Open Cut Examiner) or a degree or diploma in engineering accredited by the Coal Mining Qualifications Board.
(4) Applicants must have proof of practical experience outlined in the *rules for examination* and verified as provided in this application. Rules are located:
www.minerals.nsw.gov.au/safety/authorization
(5) Applicants must provide proof they possess a current certificate in first aid.

Privacy Notice

The information you provide in this application is collected by the Department of Primary Industries Mineral Resources NSW in accordance with the Privacy and Personal Information Protection Act 1998, under which you have rights of access and correction. Details of persons granted a Certificate of Competency will be included in a Public Register as evidence of the attainment.

TERTIARY EDUCATION

DOCUMENTS ENCLOSED
NOTE: A copy of the following documents must be supplied. Each document must be signed as a true copy of the original document by a JP or Mine Manager.

Degree/Diploma_____ dated_____
Certificate/s_____dated_____
First Aid Certificate_____dated_____
Birth Certificate_____dated_____

Title of Final
Qualification:_____
Institution Attended:_____
Month & Year of
Final Examination:_____ Duration of Course:_____
Years
Title of Final
Qualification:_____
Institution Attended:_____
Month & Year of
Final Examination:_____Duration of Course:_____
years

DOCUMENTS ENCLOSED

NOTE: A copy of the following documents must be supplied. Each document must be signed as a true copy of the original document by a JP or Mine Manager.
Degree/Diploma_____ dated_____
Certificate/s_____dated_____
First Aid Certificate_____dated_____
Birth Certificate_____dated_____

TESTIMONIAL

I_____
Of_____
do hereby certify that I have known_____
of_____ for_____years
immediately preceding the date hereof, and that I believe him/her to be of general good conduct. I should be pleased to advise further if required.

Signature_____
Profession or Occupation_____
Dated_____

1.2.2 An Application for a Scholarship

Centenary Master's Scholarships for International Students 2008-2009

All applicants for the Scholarships must have submitted an application for a full-time place on one of the Institute's Master's degrees programmes (excluding distance learning programmes) by **17 April 2008.**

Applications for the Scholarship must be received by **15 May 2008**. Consideration for a scholarship will be contingent upon a candidate being eligible for entry to a Master's programme.

1. PERSONAL DETAILS

Surname or family name Other names in full Nationality Country of domicile	
Full postal address at which you can be contacted	
Email Address	

1. PROPOSED PROGRAMME OF STUDY

Master's programme(s)
(please state your course choices in order of preference)
1.
2.
3.

Intended start date
(Please note: some Master's Degrees may only be started in October 2008)
Have you already been accepted/conditionally accepted on to the above programme?
Yes _ No _
If you have been conditionally accepted, please indicate the conditions you have to fulfil:
English Language Test
Qualifying Essay
Pass Current Course
_
_

Qualifying Portfolio
References
Other (please state)

3. STATEMENT

A statement in support of your application should be included below. This should indicate how your studies will assist in your professional / career development and how they may be of benefit to your home country (to a maximum of 500 words).

4. SIGNATURE OF APPLICANT AND DATE

Signature: ----------Date: ----------

Please return this application form to:
Scholarships
Recruitment and Admissions
Registry
Institute of Education, University of London
20 Bedford Way, London WC1H 0AL
United Kingdom.

Email: admissions@ioe.ac.uk

1.2.3 An Application Form for a Students' Conference

Ministry of Education and Science of Ukraine
National Mining University (Dnipropetrovsk)
Department of Foreign Languages

International Students' Forum

"WIDENING OUR HORIZONS"

18-19 April 2009

Speaker Proposal Form

DETAILS OF PRESENTER

Name _____ Surname _____

Place of study _____

Faculty, year of study, group _____

Postal address (home) _____

Tel/E-mail: _____

Title of presentation _____

DETAILS OF RESEARCH SUPERVISOR

Name _____ Surname _____

Middle name (patronymic) _____

Place of work and position _____

Address (work) _____

Tel (work) _____ (home)_____

E-mail: _____

INTEREST SECTIONS: (tick one)

□ Smart Solutions in IT

□ Innovations in Engineering

□ Challenges in Environmental Protection

□ Economic Reforms in Action

□ Marketing of Today

□ Legal Issues

Time required (please circle): 5 min 7 min 10 min

Equipment required: (Please tick):

Cassette player □ OHP □ VCR □ PC □

Please submit an electronic and paper versions of your entitled abstract – 1 full page: (Word 6,0 for Windows); format A4; font Times New Roman; size – 14; 1 line interval. The model of the heading is given below.

↕20

Ivan Petrenko
O. P. Kovrov, research supervisor
S. V. Sidorenko, language adviser
National Mining University, Dnipropetrovsk

Environmental Impact on Mining

(TEXT)

↔20 20↔

↕20

To: Department of Foreign Languages

Address: National Mining University,
19, Karl Marx Avenue
Dnipropetrovsk, 49027

Tel.: (0562) 470205;
E-mail: Kostrytskas@nmu.org.ua

Deadline for proposals is 15 March 2009.

Notes:

1. Participants are asked to make transportation arrangements by their own.
2. Travelling and housing expenses will not be reimbursed.
3. Hotel or Residence Hall (hostel) information will be included in the invitation at your request.

Section 1.3 Reading

By the end of this section you will:

- be able to identify writer's purpose and appreciate the impact of writing (e.g. memos, letters, diaries etc.)
- be able to understand details in complex instructions, assessment requirements, advertising materials
- understand different corporate cultures within specific academic and professional contexts and how they relate to each other

1.3.1 Tapescripts to Units 1 - 7

1. Use the tapescripts given below when necessary.

Unit 2. Making Friends

Speaker 1:

I met my best friend when I was at university studying. He lived in the next door, and always listened to strange, very loud music. I was studying

Geology, which was a real challenge for me. Sometimes I thought, ‘He is having a much better time than me!’ It happened so that after the first term we became friends with him. Although, we graduated from the university, we are still in touch and always have much to talk about when we meet.

Speaker 2:

I want to tell you about Daryna, my wife. She was my university groupmate. Before meeting her most of my friends were boys and I didn’t have any girl-friends. We met at university disco and began studying together, especially when preparing to modular control papers, and going out together from time to time.

We developed our own tips and tricks how to pass tests successfully. We basically spent evenings drinking juice or coffee and testing each other. The results were encouraging that made us to spend more time together. By the end of my university studies I realized I couldn’t live without Daryna we were like two halves of an apple. So, I made her a proposal, and as soon as we received our diplomas we got married. We have a wonderful 2-year son Bogdan that means ‘Given by the Lord’.

Speaker 3:

I’ve just met a new friend. Thomas, on the Internet. I was too bored with searching information for an English class, so I started surfing Internet, visiting different social networks like ‘Odnoklassniki’, ‘V Kontakte’, ‘Moi krug’ etc. until I faced an unknown foreign network of pen-palls. There were a plenty of various messages introducing girls and boys from different countries, but I like Thomas’ picture and his message full of humour and optimism. Thomas is from Germany, he is a student of Mining School like me. We have found we have a lot in common. We are facing the same problems, listening to the same music…, though we live in different countries. This summer we are planning our meeting in Ukraine.

Unit 3. Meeting People. Describing People and Objects

Olga: Hi, Peter! Where are you running so fast?

Peter: Hi, Olga! I'm really in a hurry. I have to meet a student from Poland who is coming to our university to spend a term with us.

Olga: It sounds good. What does he look like?

Peter: Well, he's quite tall and very well-built.

Olga: How exciting? Come on. You must tell me everything!

Peter: OK! He's teenaged as he's a first-year student. He's got an oval face and gorgeous blue eyes. His hair is short and brown. He wears jeans and T-shirt – you know, casual clothes.

Olga: Tell me more about him!

Peter: According to his Application he is good-humoured. He wrote he liked jokes. He's quite imaginative and creative. He's never boring.

Olga: Hope, it's true. For me, he sounds too good to be true.

Peter: Well, I suppose he is outgoing person. You can judge by yourself if you join me.

Olga: I'd love to!

Unit 5. Making Arrangements by Phone.

Call # 1

Answering Person: 6750831

Caller: Hallo is that Brown and Sons?

Answering Person: Yes. It is. Can I help you?

Caller: I'd like to speak to Mr. Brown.

Answering Person: Mr. Brown? I'm not sure he's in…

Caller: Will you find him?

Answering Person: OK. Will you hold on a moment?

Caller: Yes, I will.

Answering Person: Are you there?

Caller: Yes, I'm with you.

Answering Person: Mr. Brown is having meeting now. He can't speak at the moment. Will you leave a message?

Caller: No, I think I'll call back. When will the meeting be finished?

Answering Person: In four o'clock.

Caller: Perhaps I'll even come round. Do you think Mr. Brown will be available to have a talk with him?

Answering Person: I think so. Your name, please?

Caller: John Steel.

Answering Person: Can you spell it?

Caller: J-O-H-N S – T – double E – L.

Answering Person: OK. John Steel at four o'clock.

Call # 2

Receptionist: Good morning Forum Bank. Can I help you?

Richard: Yes, I'd like to speak to Sarah Moon, please.

Receptionist: Who's calling, please?

Richard: My name is Richard Silver.

Receptionist: OK, hold on, please. I'll try to put you through… Oh, Mr. Silver, I'm afraid she's on the other line. Would you like to hold?

Richard: Yes, thank you. How long will it take me?

Receptionist: I think not more than 5 minutes.

Richard: Oh, no. Could *she* call me back in 5 minutes? My number is 380612344759.

Receptionist: OK. I'll leave her a message: Call Richard Silver 380612344759 at 4.05 p.m.

Richard: Thank you. I will be waiting for her call in 5 minutes.

Call # 3

Liza: Hello. Who's that?

Bob: Oh, hi. It's Bob. Is Mary there?

Liza: No, it's me, Liza's speaking.

Bob: Hello, Liza. How are you?

Liza: Fine, thanks. Hang on, I'll go and get Mary.

…

Mary: Hello.

Bob: Hi! It's me.

Mary: You got my message then. I thought you've forgotten about me.

Bob: Don't be silly. Of course, I haven't forgotten you. I simply have forgotten your mobile number. Can you remind it for me?

Mary: 806733217856.

Bob: OK, I'll call your number in a moment.

…

Bob: 806733217856? Is Mary there?

Mary: Yes, it's me. Speaking.

Bob: I have bought tickets to the night club for tonight. Would you like to go with me?

Mary: I'd love to. When and where will we meet?

Bob: 8 p.m. near bookshop down the Main Street.

Mary: OK, 8 p.m., bookshop down the Main Street.

1.3.2 Supplementary Materials for Reading

Task 1. Read the text about culture and its impact on professional and business communication. You may use this information while doing Project work and/or in real life situations.

DEFINING CULTURE

What is culture?

Macmillan English Dictionary for Advanced Learners (2002) defines it as:

‘**2** a set of ideas, beliefs and ways of behaviour of a particular organization or group of people: *The two firms have very different cultures.*| *Some organizations encourage a culture of secrecy.*

2a a society that has its own set of ideas beliefs and ways of behaving: *people from different cultures*

2b a set of ideas, beliefs and ways of behaving of a particular society: *society that share the same language and culture*’ (338).

Longman Dictionary of Contemporary English (2003) defines **culture**:

‘1 **IN A SOCIETY** as the beliefs, way of life, art and customs that are shared and accepted by people in a particular society: *We speak Danish at home so that the boys don’t loose touch with their language and culture.* | *In our culture it is rude to ask someone how much they earn.*| *I love working abroad and meeting people from different countries.*

2 **IN A GROUP** as the attitudes and beliefs about something that are shared by a particular group of people or in a particular organization: *Every government department has its own particular culture.* |

corporate/business/company culture *Changing the corporate culture is a long and difficult process.*| *In the field of drug development, the culture of secrecy is deep and strong.* | *modern American* ***youth culture*** **|** *the* ***drug culture*** *that is destroying so many young lives today’* (383)…

So as you see the word ‘culture’ in English has several levels of meaning. One definition is the sum total of beliefs, values and behaviours shared by a group of people, e.g. in a country or in a company. Another definition is culture is ‘the way we do things round here’.

In the context of ‘cross cultural communications’ it embraces many aspects of human behaviour and characteristics.

“Differences between people divide them, commonalities bring them together”.

Below are some parameters of culture.

Ideas	**Behaviour**	**Products**
beliefs	language	literature
values	gestures	folklore
institutions	customs/habits	art & music

For you to know that **perception (first impressions) may be based on**:

Feature	***Example***
Physical cues	*dress*
Language	*directness*
Non-verbal	*eye-contact*
Character	*doctors, professors*
Events	*flowers*
Perception of self	*inflated*

Some examples of possible cultural misunderstandings are given below:

1. Different assumptions. *Eg. role of wives*
2. Different way of structuring information. *Eg. American vs Japanese*
3. Different ways of speaking. *Eg. small talk*
4. Different customs. *Eg. paying*.

Task 2.1 Some typical cultural contrasts or two extremes are given on each of the lines below. Put a tick (√) or cross (x) on the line as appropriate for you. Remember there are no right decisions as well as positive or negative connotations.

Outgoing _____ Reserved/Private

Live to work _____ Work to live

Hierarchical _____ Democratic

Neutral _____ Emotional

Order _____ Flexibility

Welcoming risk _____ Avoiding risk

Innovative _____Traditional

Individualist _____Collectivist

Pride in your country _____ Foreign is best

Task 2.2 Compare the results of your work with the others, discuss them within a group and make a decision on the Ukrainian national culture.

Task 3.1 Read Ammanda's diary given below and answer the questions that follow.

Monday 15th March

Had a big row mum and dad today. They will treat me like I'm at school even though I'm 20 now. It' not my fault that I have to live at home.

I would have loved to have gone to the university in Scotland – Glasgow or St Andrew's – but there's no way we would have afforded it.

Tuesday 16th March

Went the job centre today to look for a part-time job. I have to start saving some money for my future – after all, I'll have a £12,000 loan to pay off when I graduate. I've got interviews with McDonald's and a pub, so I can work after my lectures are finished. And then I can do more studying when I finish work.

Wednesday 17th March

Went into the uniLibrary to study than went to see Kate and Ali in their flat. They're really lucky – I'm really jealous of my friends who have their own accommodation. But their rent is £120 a week.

Thursday 18th March

Another row with mum. To be honest, I think she resents me being here. She thinks that I'm too old to be living at home. It was OK when she was a student in the 70s. She got a grant from government, so she had more freedom to choose her university and her accommodation. Anyway, I've got my interview at McDonald's tomorrow. Perhaps something will come of that.

*Sharman, E. (2005) *Across Cultures.* Edinburgh: Pearson Education Limited, p. 66.

- What accommodation does Ammanda live in?
- What accommodation do Ammanda's friends live in?
- What is the rent of her friends' flat?
- How was the situation different when her mum was at university?

Task 3.2 Discuss the information you have got from Ammanda's diary with your partner or within a group.

Task 3.3 Think on what is common and different if compared to you as a Ukrainian student. Share your ideas with a partner or within a group.

Task 4. Read this short guide, then take the self-quiz at
http://www.albion.com/netiquette/netiquiz.html
(Copy address and paste into a browser window if need be.)

Don't worry, there are no grades on this test, but a good score indicates you are ready to participate in an online course.

A SHORT GUIDE TO NETIQUETTE

Before you hit SEND, check these 10 golden rules:

(1) Read all unread messages in your inbox, to avoid sending superfluous messages.
(2) Think before you write. Is your message relevant and appropriate?
(3) Think after you write. Re-read your message. Is it clear, concise and (again) relevant? Off-topic comments (sometimes flagged OT in the subject line) may be acceptable in some online communities, but not in others.
(4) Write properly. Many people will not take you seriously if you write messages without capitalization or punctuation (i dont like that). Use abbreviations only if you are sure everyone will understand them ("imho" "btw, "for example).
(5) Break your writing into paragraphs: screenfuls of text are off-putting. "White space" separates your ideas, makes it easier to quote selectively (see #9 below) and encourages recipients to read your message in full.
(6) If you have nothing to say, say nothing. Unless your fellow users are very patient, emails that just say "me too", "me neither", "I agree" or (worse) "I don't know anything about this subject, but ..." are likely to irritate. Such messages might be better sent as a private email to the sender (do this by copying and pasting the private party's address into your mailer - most YahooGroups are set to reply to the whole list).
(7) Give your message a clear subject title. If you read your messages as a daily digest, try to refer to the subject of the thread to which you are replying, rather than digest #4203, as appropriate.
(8) Do not quote lengthy messages or entire digests in your reply. It is more annoying than you probably realize for users who read their messages in a daily digest, and it increases the time and cost of downloads for others. Similarly, a two line "signature" should suffice -- especially if you are frequent correspondent (we all know who you are! - and put your profile into the Yahoo Group site so we do!).
(9) Write for the lowest common denominator. Assume your reader is using telnet across a 12k dial-up modem on a slow 386 or an Apple II. Don't use

html, don't use fancy graphics and colours and don't assume that links are clickable. Remember that internet access is expensive in some parts of the world, and many people pay per minute.

(10) Break one of these rules rather than go against your COMMON SENSE -- the best guide to (n)etiquette ever discovered.

This guide was prepared by Nigel Caplan for EV Online 2003 (with a few edits and changes by Elizabeth Hanson-Smith), and may be freely distributed, providing this acknowledgement is included.

Nigel Caplan (nigelcaplan@yahoo.com)
University of Pennsylvania English Language Programs

THE CORE RULES OF NETIQUETTE

---

*The Core Rules of Netiquette are excerpted from the book ***Netiquette*** by Virginia Shea.

Task 5.1 Read the fire notice below. Answer the questions that follow by using NO MORE THAN THREE WORDS from the passage.
Write your answers in boxes 1 – 4 on the Answer Sheet.

WHAT TO DO IF THE FIRE ALARM SOUNDS

If you hear the fire alarm (this is a long, loud, continuous ringing tone), please leave the building immediately following the **GREEN FIRE EXIT** signs. All those in the West Wing should evacuate building by staircase **J**. Rooms 1 – 199 are in the West Wing. All others should use staircase **A**. The **ASSEMBLY AREA** for occupants of the West Wing is the staff car park at the rear of the building. All others assemble in the front courtyard.
Evacuate the building even if the alarm stops.

DO NOT RE-ENTER THE BUILDING UNTIL YOU ARE TOLD

IT IS SAFE TO DO SO BY A COLLEGE OFFICIAL

If you discover a fire, shout “FIRE” and operate the nearest fire alarm. Attack the fire with an extinguisher but do not take any risks. Inform reception by dialing 3333.

1 You are in Room 101. Which staircase should you take to evacuate the building?

2 You are in Room 201. Where should you wait outside after evacuating the building.

3 What should you do if the alarm stops?

4 Who should you contact if you discover a fire?

Answer Sheet		
Question No	Your answer	Correct answer
1		
2		
3		
4		

Task 5.2 Draw a Plan of Evacuation the building to illustrate the fire notice above.

Section 1.4 Writing

By the end of this section you will:

- be able write clear, detailed texts for variety of purposes related to personal and professional areas (e.g. letter of application, etc.)
- be able to draft and produce personal and business correspondence
- be able to write clear, detailed descriptions of the events and experiences in the academic and/or vocational life, marking the relationship between ideas, and following established conventions of the genre concerned
- be able to develop individual study plan

Task 1. Fulfill all the written tasks given in **Follow-up**s of the **Units**.

The list of tasks is given below.

Week 1	Task 1. Task 2.	1. Write a list of questions you would like to ask your groupmates. 2. Write a letter to your friend about your groupmates using the information you have got from interviewing them. Your letter should be not less than 100 words. Write a short e-mail message introducing yourself to a pen pal. Try to be as brief as possible.
Week 2	Task 3.	Write a response to an e-mail you were interested in.
Week 3	Task 4. Task 5.	Write a letter to your friend describing your new university friend. Follow the schemes and tables given in Unit 3. 1. Write down as many adjectives describing personal qualities as you know. You may use a dictionary if necessary. 2. Classify them into three main groups: Positive Qualities (+), Negative Qualities (-) and Neutral Qualities (±). 3. Put the ticks (√) near the qualities you possess. 4. Write a short paragraph describing your character. Focus mostly on your positive features.
Week 4	Task 6. Task 7.	Write a letter to your friend describing your daily routine. Describe your experience of learning English focusing on what you know and can do using English.

Week 5	Task 8.	Make your Action Plan for the whole course and for this module, in particular.
Week 6	Task 9.	Write a short article for the university students' newspaper about your impressions on your university as a fresher.
Week 7	Task 10.	Write 'Tips for Adjusting to the University Life' for newcomers to the university.
Week 8	Task 11. Task 12.	Write a letter of complaint to the accommodation officer. (For details see Unit 7, Task 8). Write a Review of your learning experience during Module 1.

Task 2. Change the colours in WBM (Work Breakdown Matrix) as soon as you fulfill a writing task. Control your progress by yourself.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Task 1								
Task 2								
Task 3								
Task 4								
Task 5								
Task 6								
Task 7								
Task 8								
Task 9								
Task 10								
Task 11								
Task 12								

Section 1.5 Self-assessment

By the end of this section you will be able to:

- understand assessment requirements, including continuous assessment
- understand marking criteria used for tests and assignments
- read and understand rubrics for tests, etc.
- self-assess appropriately

Answer Keys to Unit 8 Part I Check Your Progress

Task 1. Check yourself using the correct answers given below. Read the explanation, when necessary.

(see Part I **IN-CLASS ACTIVITIES**, **MODULE 1 SOCIALISING IN ACADEMIC AND PROFESSIONAL ENVIRONMENT**).

1. b)

a) *A presentation* is usually given by one student to other members of the course and a tutor who then go on to discuss the issues raised.

b) In ***a lecture***, the professor or lecturer talks to a large group of students in a lecture theatre. The students listen and take notes and may ask questions at the end. **Correct.**

c) In *a seminar*, a small group of students meets with their tutor on a weekly basis to discuss an aspect of the course.

d) *A tutorial* is a one-to-one meeting with a tutor to discuss the student's progress on the course and whether they are having any problems.

2. c)

a) You can *study a book*, but which verb means to study hard?

b) You can *read a book*, but which verb means to study hard?

c) If you ***'hit the books'*** you study very hard – note that this is used more in American English and is informal. **Correct.**

d) Which verb means to study hard?

3. c)

c) In ***a seminar***, a small group of students meets with their tutor on a weekly basis to discuss an aspect of the course. **Correct.**

4. d)

d) ***A tutorial*** is a one-to-one meeting with a tutor to discuss the student's progress on the course and whether they are having any problems. **Correct.**

5. a)

B is for Bachelors Degree

M is for Masters Degree awarded after you have finished postgraduate courses and submitted thesis (dissertation). You can enter postgraduate courses only after you have got Bachelors Degree which is considered the First Degree in the UK.

Task 2. Check yourself using the correct answers given below. Read the explanation, when necessary.

1. a.

a. Correct. '***Cheerio***' is an informal way of saying *goodbye*.

b. Wrong. 'Cheers' or 'Thanks' can be used to mean thank you.

c. Wrong. 'Hi' is an informal word for 'hello'.

d. Wrong.

2. d.

a. Wrong. "Cheer up" is a suitably nice thing to say.

b. Wrong. "Don't worry" is a suitably nice thing to say.

c. Wrong. “Look on the bright side” is a suitably nice thing to say.

d. Correct. “***Get a grip***” is a bit unfriendly, and shows little sympathy.

3. c.

a. Wrong. “Sorry, it isn’t much but…” could be said when giving the present.

b. Wrong. “Make a wish!” could be said when the candles on the cake are blown out.

c. Correct. “***Commiserations***” is usually said to show sympathy for someone. However it could be used in a joking way at a birthday to say that the person is getting old.

d. Wrong. “Many happy returns!” means “Happy birthday!”

4. d.

a. Wrong. “In my opinion…” is quite formal.

b. Wrong. “I believe…” is quite formal.

c. Wrong. “ I think…” can be informal, but is not the most informal.

d. Correct. “***I reckon***…” means “*I think*…” but is very informal.

5. c.

a. Wrong. “Yes, of course” would mean here that you think it is NOT OK.

b. Wrong. “I’ll take it” means you want to buy something in a shop.

c. Correct. “***No, of course not***” means you think it is *OK*.

d. Wrong. “Help yourself” means take something e.g. “Is this seat free?”.

6. a.

a. Correct. This means we should do something as there is nothing better to do and no reason not to do it.

7. d.

8. b.

9. a.

a. Correct. You can use for most formal letters.

b. Wrong. This sounds bossy & rude, even a little angry.

c. Wrong. This sounds too bossy for a job application.

d. Wrong. This sounds too informal.

10. b.

a. Wrong. You would say 'Will you marry me?' or 'Will you be my wife?'

b. Correct. '***A ring***' is an informal word for *a telephone call*.

c. Wrong. This is possible but a very literal interpretation.

d. Wrong.

Task 3. Check yourself using the correct answers given below.

1. C
2. C
3. C
4. A
5. B

Task 4. Check yourself using the correct answers given below.

1. are generally thinking
2. a considerable amount
3. adult education
4. the two oldest
5. the tutorial system
6. were needed
7. were set up
8. technical colleges.

Task 5. Check yourself using the correct answers and explanation given below.

Let me see.	2
You see.	4
Right.	5
Listen.	3
Well.	1
Mind you.	6

Explanation:

We use '**Let me see**' as *a hesitation*, to gain some time before answering the question.

We use '**You see**' to introduce *an explanation about something*, e.g. I can't afford to go out, you see, I lost my job last week.

We use '**Right**' to get people's attention – to say '*Let's begin*'

We often use '**Listen**' *to introduce an offer or suggestion*, e.g. 'Listen, why don't we…?'

We use '**Well**' to show someone you are not giving the 'yes' answer expected. e.g. Do you speak French? Well, a little.

We use '**Mind you**' to *introduce an afterthought*, e.g. He looks old, mind you, he is 60!

Section 1.6 CROSS-CULTURAL AWARENESS

By the end of this section you will be able to:

- understand how core values, beliefs and behaviour in Ukrainian academic or professional environment differ from culture to culture (international, national, institutional)

- understand different corporate cultures within specific professional contexts and how they relate to each other
- apply intercultural insights while interacting orally or in writing to immediate academic and professional situations

1.6.1 Project Work 'Profiling National Culture'

Culture shows itself in many areas of activities. Some areas considered to be significant are given below.

Task 1. Add any other areas that you consider important in profiling Ukrainian culture.

Task 2. Make a profile of Ukrainian culture. Be ready to brief a foreigner coming to live and work in Ukraine by listing the key points to be included within each area.

Task 3. Try to make profiles of cultures of the countries you visited or are aware of. If necessary use interviewing foreigners, mass media, Internet etc.

Task 4. Fill in the Worksheet given below with the results of your team-work. Be ready to present the results of your Project work to the whole class and/or write an article.

WORKSHEET 1.1

Areas of activity	Ukraine (*Notes)*	*Notes on* _____ *(Name of country)*
STRUCTURAL Geography		

Climate Attitudes to government Attitudes to authority Attitudes to centralization Regional differences Industrial relations The role of the family *Roles in the family*		
WORK Company organization The importance of hierarchy Respect for leadership Delegation Planning Cooperation vs competition		

Team vs individual International attitudes The working day Organisation and running of meetings Company communication: • written/spoken • tone/style		
SOCIAL Roles of sexes Priorities of personal life and work Dress Punctuality Ways of addressing others Openness of conversation		

Formality Taboos Humour		
PHYSICAL Space between people Contact Handshakes Gestures Exposure of body Facial expression Speech: volume, speed Acknowledgement of speech Smells		

Module 2

Obtaining and Processing Information for Specific Purposes

By the end of this module you can:

- preview a magazine/journal article in engineering and/or mining by reading rapidly using various reading strategies
- obtain general and detailed information from the subject-related sources to use them in academic discussions, seminars, formal talks, etc.

Section 2.1 Text-types

By the end of this section you will:

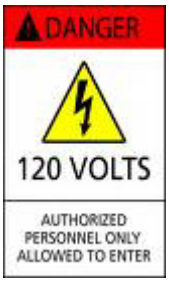
- be able to identify and classify information from subject-related sources
- be able to preview subject-related texts focusing on headings, first lines of paragraphs, etc.
- be able to scan through different texts locating relevant details
- be able to identify different text-types and text genres
- be able to locate specific information

Tasks to do.

1. Identify the text-types of the samples given below and fill in the gaps in **A - M**. You may consult the ***Checklist*** given in Unit 1. **Part *I In-Class Activities.***

2. Write down the name of the author or organization of the text, date of its publication, where possible. Be ready to explain your decision.

Example: 0____Warning and Safety Instruction_____



A _____

WHAT TO DO IF THE FIRE ALARM SOUNDS

If you hear the fire alarm (this is a long, loud, continuous ringing tone), please leave the mine immediately following the **GREEN FIRE EXIT** signs. Make your way around the outside of the main building to **ASSEMBLY POINT 1**

(see the attached map)

Once at ASSEMBLY POINT 1, please wait for further instructions

DO NOT RE-ENTER THE MINE UNTIL YOU ARE TOLD IT IS SAFE TO DO SO BY A MINE FIRE OFFICIAL

B_____

References

NSW Legislation

- Occupational Health and Safety Act 2000, General Duty of Care.
- Clause 46 of the Mines Inspection Act 1901, General Rule 2000 requires the general manager to ensure that any foreseeable risks to the health and safety of persons at the mine are identified and assessed and that such risks are eliminated or minimised to the fullest extent that is reasonably practicable.
- Clause 9 of the Mines Inspection Act 1901, General Rule 2000 requires the general manager to prepare, communicate and regularly review a Mine Safety Management Plan.
- Clause 11 of the Mines Inspection Act 1901, General Rule 2000 requires the contractor to comply with a Mine Safety Management Plan which is approved by the general manager.
- Clause 19 of the Mines Inspection Act 1901, General Rule 2000 requires the general manager to deal with risk by eliminating the risk, controlling the risk at the source or minimise the risk and with the remaining risk provide personal protective equipment.
- Clause 37 Coal Mines Regulation Act 1982, requires the manager to have full charge and control of operations at a mine.
- Note: The Mines Inspection Act 1901 and the Coal Mines Regulation Act 1982 will be replaced by new legislation in NSW soon after printing. However, similar clauses to those mentioned above will be in force.

NSW Department of Primary Industries publications

- MDG 1010 *Risk Management Handbook*
- *Minerals Industry Safety Handbook* – July 2002
- *Mine Safety Management Plan Workbook*

Other references

• Australian Centre for Geomechanics. December 2004. *Monitoring cave-related seismicity at Ridgeway Gold Mine*, ACG Newsletter, Vol. 23.
• Brown, E.T. 2003. *Block Caving Geomechanics*, Brisbane: Julius Kruttschnitt Mineral Research Centre.
• Duplancic, P. 2001. *Characterisation of caving mechanisms through analysis of stress and seismicity*. Unpublished PhD Thesis, Department of Civil and Resource Engineering, University of Western Australia. 227 pages.
• Fowler JCW and Hebblewhite BK. November 2003. *Managing the hazard of wind blast / airblast in caving operations in Australian underground mines*. UNSW presentation papers for 1st AGCM Conference 10-13.
• Logan A. 2004. *Air Inrush Risk Assessment for Caving Mines*, Paper Presented at MassMin 2004 Santaigo. Newcrest Mining Ltd, Melbourne, Australia.
• Potvin, Y, Thomas, E. and Fourie, A. 2005. *Handbook on Mine Fill*. Australian Centre for Geomechanics,
Nedlands, Western Australia, Australia.
• Ross, I and van As, A. 2005. *Northparkes Mines —Design, Sudden Failure, Air-Blast and Hazard Management*
at the E26 Block Cave Paper Presented at 9th AusIMM Underground Operator's Conference 2005, Perth, Western Australia.

C

CONTENTS

D

Purpose and scope

This Guideline is intended to assist mine managers and contractors in the management of the risk of an airblast occurring in an underground mine.

The scope of this Guideline includes:

- an outline of the factors or elements that are necessary for an airblast to occur
- the safety considerations surrounding those factors
- matters for consideration that could assist in effectively eliminating or minimising the risk of an airblast occurring
- matters for consideration to mitigate the effects of an airblast are also provided.

An airblast is a major hazard. Should it occur it could cause many fatalities within a mine and extensive damage to equipment and infrastructure. For this reason it is very important to investigate the most appropriate means to prevent an airblast from occurring and possibly also plan to mitigate the consequences should an airblast still occur.

To assist in this process an example of a TARP (trigger action response plan) is provided in the appendix of this Guideline. This TARP itemises examples of issues that could be monitored to prevent or mitigate the effects of an airblast in a caving mine.
Note that:
• Adherence to Guidelines does not of itself assure compliance with the general Duty of Care.
• Mine operators deviating from Guidelines should document a risk assessment supporting the alternative arrangements. However, the risk assessment should always be current, relevant and be regularly reviewed.

E

Guideline for Managing the Risk of an Airblast in an Underground Mine

MDG 1031

NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Produced by
Mine Safety Operations Division
New South Wales
Department of Primary Industries

September 2006

NSW Department of Primary Industries
516 High Street, Maitland NSW 2320
PO Box 344
Hunter Region Mail Centre NSW 2310
Phone 02 4931 6666
Fax 02 4931 6790
Website www.dpi.nsw.gov.au/minerals
E-mail for orders: orders@minerals.nsw.gov.au

FIRST PUBLISHED: SEPTEMBER 2006

FOREWORD

The NSW Department of Primary Industries document MDG 1031 TR – *Technical Reference Material for Managing the Risk of an Airblast* is attached to this Guideline. It provides supporting reference material.

This is a Published Guideline. Further information on the status of a Published Guideline in the range of OHS instruments is available through the NSW Department of Primary Industries Legislation Update
Number 2/2001 which is included in this Guideline.

The range of instruments includes:

- Acts of Parliament
- Regulations made under the Act
- Conditions of Exemption or Approval *(Coal Mines)*
- Standards (AS, ISO, IEC)
- Approved Industry Codes of Practice (under the OHS Act)
- Applied Codes, Applied Guidelines or Standards (under clause 14 of the Coal Mines (General) Regulation 1999)
- Published Guidelines
- Guidance Notes
- Technical Reference documents
- Safety Alerts

The principles stated in this document are intended as general guidelines only for the assistance of owners and managers in devising safety standards for the working of mines. Owners and managers should rely upon their own advice, skills and experience in applying safety standards to be observed in individual workplaces.

The State of New South Wales and its officers or agents including individual authors or editors will not be held liable for any loss or damage whatsoever (including liability for negligence and consequential losses) suffered by any person acting in reliance or purported reliance upon this Guideline.

The MDG 1031 *Guideline for Managing the Risk of an Airblast in an Underground Mine,* has been distributed to industry for consultation and comment through a representative working group, the Metalliferous Industry Safety Advisory Committee and the Coal Safety Advisory Committee.

The NSW Department of Primary Industries has a review time set for each Guideline that it publishes. This can be brought forward if required. Input and comment from industry representatives would be much appreciated. The Feedback Sheet at the end of this document can be used to provide input and comment.

ROB REGAN
Director, Mine Safety Operations
Chief Inspector of Mines
Chief Inspector of Coal Mines____

F _____

Glossary of terms and abbreviations

For the purpose of this document the following terms and abbreviations apply:

Airblast
An airblast is a rapid displacement of large quantities of air, often under pressure, in a constrained underground environment caused by a fall of ground or other material. The extent of the consequences of such an airblast depends on the amount of air that is compressed and the rate of that compression. Note: An airblast in coal mines is called a windblast.

Bulkhead
A bulkhead is usually a solid structure built across a drive or opening that would seal the drive or opening from the effects of an airblast or mitigate the effects of such an airblast from the rest of the mine. A bulkhead can also be known as a stopping or plug.

CMS
Cavity monitoring systems

Drive
A drive is a tunnel or long excavation underground. Also known as a drift, especially in coal mines.

LEL
Lower explosives limit

MSMP
Mine Safety Management Plan

Seismogenic zone
The seismogenic zone is an active seismic front caused by failure of the rockmass primarily through shearing and intact rock fracturing (Duplancic, 2001).

TARP
Trigger Action Response Plan (see an example in Appendix 1).

TDR
Time domain reflectometer

G _____

Fig. 1, below shows an illustration of a Open Pit Surface Mine. The definition of a open pit mine is "an excavation or cut made at the surface of the ground

for the purpose of extracting ore and which is open to the surface for the duration of the mine's life." To expose and mine the ore, it is generally necessary to excavate and relocate large quantities of waste rock. The main objective in any commercial mining operation is the exploitation of the mineral deposit at the lowest possible cost with a view of maximizing profits. The selection of physical design parameters and the scheduling of the ore and waste extraction program are complex engineering decisions of enormous economic significance. The planning of an open pit mine is, therefore, basically an exercise in economics, constrained by certain geologic and mining engineering aspects.

A bench may be defined as a ledge that forms a single level of operation above which mineral or waste materials are mined back to a bench face. The mineral or waste is removed in successive layers, each of which is a bench. Several benches may be in operation simultaneously in different parts of, and at different elevations in the open pit mine.

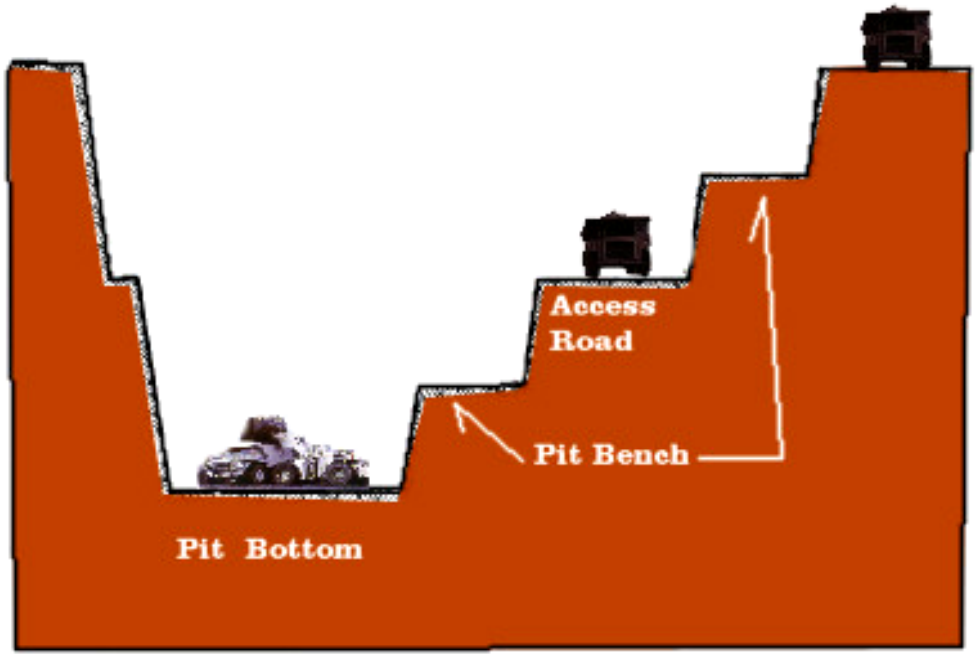
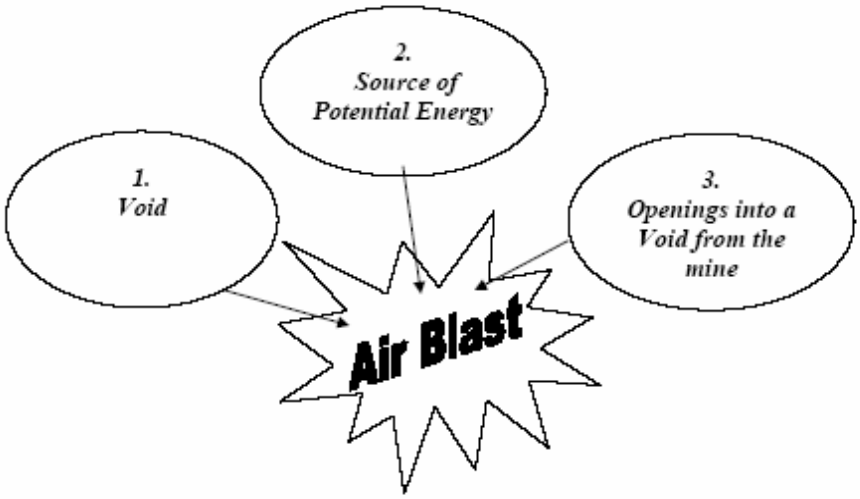


Fig. 1

Guideline Content

Part A

The three headings considered in part A to manage the risk of an airblast are: *Void, Source of Potential Energy, and Openings into a Void from the Mine*.



These three elements are contributing factors thatneed to exist for an airblast to occur.

Part B

The one element considered in part B is mitigating the effects of an airblast under the heading: *Mitigating the potential effects of an airblast.*

Airblast – elements and considerations

Part A

1. Void or underground Opening

Required outcomes

 Plan and manage the shape and dimensions of a void or underground opening so as not to contribute to an increased risk of releasing potential energy above the opening or in providing a potential linkage to the rest of the mine and then lead to an airblast occurring. A second outcome is to control the content of the air within the void to minimise any risk of an explosion should an airblast occur. It is recommended that management consider using Trigger Action Response Plans to systematically manage the monitoring and control of all elements that could otherwise gradually lead to an unacceptable level of risk of an airblast occurring.

Main risks

 The dimensions of a void can affect potential energy and linkage to mine workings that can combine to lead to an airblast occurring

 A void's dimensions can inadvertently change, thereby creating an unacceptable risk of an airblast occurring.

 The content of the air within voids or in a goaf may be conducive to causing an explosion after an airblast occurs, creating an even worse incident.

Main risk considerations

 When seeking to fulfil the required outcomes, consider carrying out documented risk assessments and communicate the results and resultant controls to all persons involved.

 Plan to minimise the size and dimensions of a void.

 Investigate and assess the risk of an airblast by determining the dimensions and volume of any voids underground.

 It is difficult to obtain accurate dimensions of a void due to restrictions of access

 Regularly monitor the size and dimensions of a void to detect any changes that may alter the risk of an airblast occurring or its consequences if one did occur

2. Source of potential energy

Required outcomes

Rock or material above a void or underground opening is a source of potential energy. The main outcome is to understand the risk level of this energy being released and to control this risk.

Main risks

 Potentially unstable rock or material that could result in a mass failure into a void or any underground opening causing a piston effect compressing the air which then travels through a mine as an airblast.

 Larger than necessary spans of openings can expose more joints and geological structures than necessary creating unacceptable levels of risk of unstable ground. This would not apply to caving operations which deliberately aim for unstable spans to cave.

 Voids or openings in close proximity to the surface or close to other underground openings may have the potential for the surrounding rock to become unstable. The proximity of voids or openings to inherently weaker layers of rock can create
unstable ground.

 The higher the potential fall the greater the potential energy and its consequences, even within a small area.

Main risk considerations

 When seeking to fulfil the required outcomes, consider carrying out documented risk assessments and communicate the results and resultant controls to all persons involved.

 The risk of an airblast should be understood and controlled.

 Have sufficient geological, geotechnical and hydrological information to accurately assess the potential instability of ground around voids and to develop predictive models.

 Excavate underground openings to inherently stable shapes in situations that may apply and that require this stability.

 Understand and monitor static loads above and alongside voids or openings.

 Investigate caveability of roof strata and pillar failures in coal mines.

 Assess caveability of ground taking into account varied rock types and occurrences of dominant structures.

□ Determine the amount of broken material and its swell factor which may impact on the size of the void and the resultant risks associated with the void.	□ To minimise massive failure, induced caving could be an option at certain stages so failure is controlled.

I _____

Date 01/09/2008

From Prof. Brown *To: Prof. Bondarenko*

Topic: Meeting with the first-year students.

Reminder: The meeting will held in the Students' Club at 10 a.m.

J _____

Chapter Eight

Breakthrough!

The breakthrough came Saturday at 10:15 p.m.

After days of effort and a broken bit, the rescue drill punched through into the trapped miners' dank quarters. The drill rig operator pumped his fist in the air, then jumped up and started yelling. The escape shaft, through which the capsule carrying the miners to safety would travel, was finally in place.

The moment of breakthrough -- the instant people above ground had waited for like 1969 America waited for the astronauts' first steps on the moon -- initially wasn't noticed by the miners, 24 stories underground.
They had been taking turns every 10 or 15 minutes walking 250 feet down the passageway to pound nine times on the 6-inch air pipe and check the area where the drilling sounds were coming from.

Saturday at 10:15 p.m., Hileman and Foy made the trek. Their cap lamps were dim and just about out of juice.

That's when they found the drill opening.

Back on high ground, the other miners were lying down, trying to stave off the cold, when Hileman came bounding back.

"We found the hole!" he screamed. "Everyone get down there!"

No one needed a second invitation. They bolted toward Entry No. 4 with energy they never knew they had.

Hileman then found Unger, who was separated from the rest of the group. "You want to go home tonight, John?" he asked casually.

"Yes, I wouldn't mind going," Unger replied.

"Well, grab your stuff," Hileman yelled. "We found the hole!"

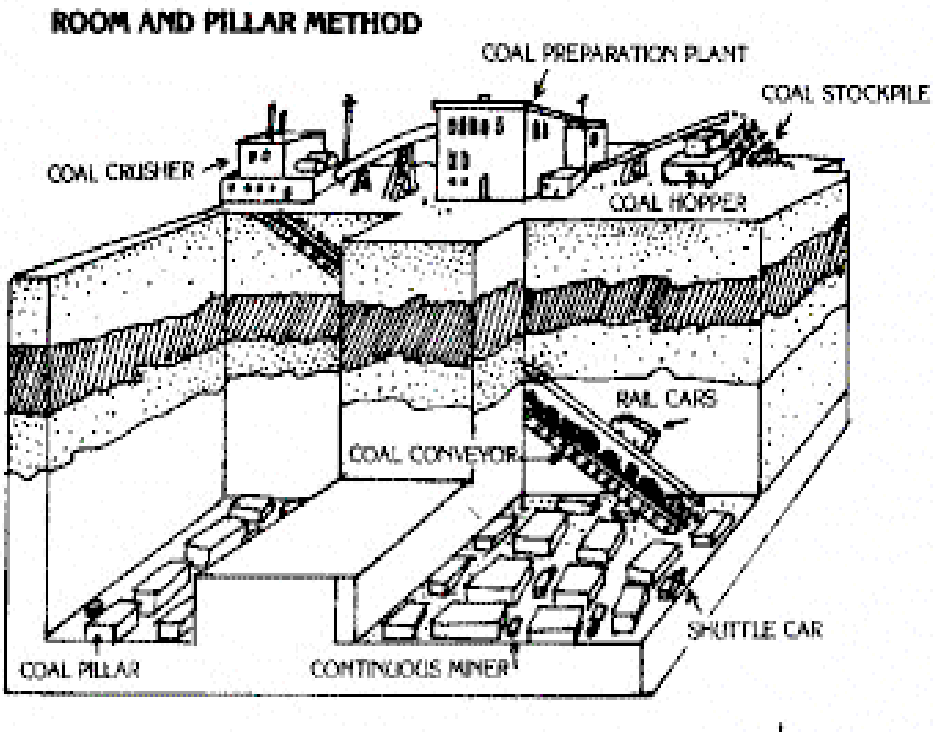
Mayhugh unbuckled his mining belt as he ran toward the hole. He knew he'd never use it again.

The drill had touched down about 300 feet away, across two crosscuts.

When the miners got there, they began yelling, "Get us out! Help us! Please get us out."

K_____

L_____


ROOM AND PILLAR METHOD
COAL PREPARATION PLANT
COAL STOCKPILE
COAL CRUSHER
COAL HOPPER
RAIL CARS
COAL CONVEYOR
SHUTTLE CAR
COAL PILLAR
CONTINUOUS MINER

M_____

UNIVERSITY ENGLISH LANGUAGE CENTRE

CLASS TIMES

9.00am – 10.30am 11.00am – 12.30pm 5.00pm – 6.30pm

The Language Centre is open Monday to Friday. Each class has one afternoon free per week. On the first day go to the University Hall to check your timetable.

ATTENDANCE

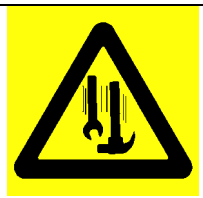
All students are expected to attend classes regularly. Students who do not attend classes will be reported to the Faculty Administration. Eighty percent attendance is required for students to receive their certificates on completion of their course.

Section 2.2 Reading Warning and Instruction Signs

By the end of this section you will be able to:

- understand and follow safety and security regulations and instructions within the subject area
- read and understand warning signs and instructions used in the academic environment and in the field of study, including details on conditions and warnings provided they can reread difficult sections
- write simple safety and warning instructions to be used in the academic environment and in the field of study

Task 1. Read the warning and instructions signs given below. Write instructions to them using **Unit 7. Safety of Mining Operations** (6 – 9) and **Grammar Review and Practice** (Modals, Imperatives).

 A_____	 B _____	 C _____	 D_____
 E_____	 F_____	 G_____	 H_____
 I_____	 J_____	 K_____	 L_____
 M_____	 N_____	 O_____	 P_____
 Q_____	 R_____	 S_____	 T_____

Section 2.3 Supplementary Texts for Reading

By the end of this section you will be able to:

- identify and classify information from specialized in engineering and/ or mining sources and to use it for making notes to participate effectively in seminars/presentations/debates, etc.
- interpret, compare and contrast tables, charts and diagrams, etc.
- make usable notes from variety of information sources
- identify writer's purpose and viewpoints in authentic texts in academic and professional area

2.3.1 History of Coal Mining in Britain

Task 1. Read the text about history of coal mining in Great Britain. Find out what is common and what is different if compared with history of coal mining in Ukraine and fill in the table that follows the text. If necessary, make a mini-research on the topic.

Coal

The rapid growth of steam power relied directly on large supplies of its only fuel: coal. There was a great increase in the amount of coal mined in Britain.

Coal was still cut by hand and the pits introduced few really new techniques. The increased demand was met by employing more miners and by making them dig deeper. This was made possible by more efficient steam pumps and steam-driven winding engines which used wire ropes to raise the coal to the surface, by better ventilation and by the miner's safety lamp which detected some dangerous gases. By the 1830s seams well below 1000 feet were being worked in south Durham and the inland coalfields of Lancashire and Staffordshire. Central Scotland and south Wales

were mined more intensively later. By the end of the nineteenth century the best and most accessible seams were worked out. As the miners followed the eastern seams of the south Yorkshire-north Midlands area, which dipped further below the surface, shafts of 3,000 feet were not uncommon.

Some of the work in mines was done by women and children. Boys and girls were often put in charge of the winding engines or of opening and shutting the trap doors which controlled the ventilation of the mines. Then they had to crouch all day in the same spot by themselves in the dark. When these evils were at last publicized in 1842 by a Royal Commission, many mines no longer employed women, but Parliament made it illegal for them all. It also forbade them to employ boys under the age of ten. The limit, which was very difficult to enforce, was increased to twelve in the 1870s. Subsequently it rose with the school leaving age.

Mining was very dangerous. Loose rocks were easily dislodged and the risk of being killed or injured by one was always greater in the tall scams where they had further to fall. In the north of England fatal accidents were not even followed by inquests to discover why they had happened until after 1815. Few safety precautions were taken before the mid-nineteenth century. The mine owners insisted that they were not responsible. The men were most reluctant to put up enough props to prevent the roof from falling in and to inspect the winding gem: and other machinery on which their lives depended. If they did, they spent less time mining and so earned less money because the miners' pay was based not on how long they worked but on how much coal they extracted. They preferred to take risks.

The deeper seams contained a dangerous gas called 'fire-damp' which could be exploded by the miners' candles. The safety lamp, which was invented in the early nineteenth century, did not really solve this problem, but it was often used to detect gas and so made the mining of deeper seams possible. There the air was more foul, the temperature higher (one pit paid the men an extra 6d a day for working in 130°F) and the risk of fire-damp even greater. In the 1840s a series of terrible explosions in

the deeper mines led to stricter regulations, which inspectors helped enforce. The inspectors were particularly keen on proper ventilating machines and, although deeper shafts were sunk, they did not become more dangerous. However, many serious accidents still occurred.

(From *Britain Transformed*, Penguin Books)

Table 2.1

Similarities	**Differences**

2.3.2 Types of Geological Resources

Task 1. Read the text that follows and make a diagram of the classification of minerals proposed by the author. You may use this text for self-assessing the results of your work on Unit 2. Types of Mineral Resources (4 – 9)

5.1 Types of geological resources

Coal, oil and gas, minerals and rocks: these are typical geological resources. They are usually considered to be **non-renewable,** with society progressively depleting a fixed stock of each commodity. By contrast, water or air is usually termed **renewable,** because natural processes replenish and recondition the stock as it is used.

However, renewability is not a simple measure. All resources are renewable on some timescale. For instance, oil and gas are forming now in the world's sedimentary basins, and mineral deposits beneath active volcanoes. On the other hand, water from rainfall may not be adequate to refill reservoirs or rock aquifers. A more helpful measure is the **sustainability** of a resource; whether or not its rate of use exceeds its rate of renewal. Most geological resources are **unsustainable,** because their formation processes are very slow on a human timescale. Oil is being used at least a million times faster than it is being recreated. Water and land are potentially **sustainable resources,** but only if managed correctly.

Unsustainable resources make up most of the subsurface materials that geologists are called on to assess. A widely used method for assessing their availability is the **McKelvey scheme.** In this, the **resource base** of a commodity is the total amount that exists on Earth. For most commodities this amount is of no practical interest, because much of it could never be economically exploited. The **resources** represent the part of the resource base that might conceivably be economic in the future. Within this amount, only the **reserves** are both economic now and identified with some geological certainty. A final fraction, previously part of the reserves, has been **already produced** and used by society.

The criteria of the McKelvey scheme mean that estimates of reserves and resources vary with changes in economic conditions and geological knowledge. For instance, reserves appear to increase if the price of a commodity rises, making it attractive, to exploit lower-grade and less accessible resources. Conversely, increased costs of extraction and processing will lower the assessed reserves. Estimates of resources are dependent on geological assumptions about their formation and occurrence. Refinement of these geological models can either increase or decrease resource estimates.

Estimates are further complicated because changes in the reserves can themselves affect economic and social activity, forming feedback loops that slow the potential changes. So, apparent shortages in reserves raise the price of a commodity and therefore the pace of geological exploration, both factors that tend to increase the reserves again. Low estimates of reserves also stimulate recycling of some commodities such as metals, slowing the rate of depletion of the natural stock. Finally, the use of some geological resources may be restrained not by the shortage of reserves but the shortage of safe places to dump the effluents from m their production and use. The carbon dioxide derived from burning fossil fuels is the most serious example of this constraint.

Woodcock, N. (1994) *Geology and Environment in Britain and Ireland*

2.3.3 Resource Extraction

Tasks to do.

1. Read the text given below. Make figures to illustrate the text.

2. Be ready to share the information got from the text with your groupmates using the figures drawn by you.

RESOURCE EXTRACTION

14.3 Underground mining

Longwall mining is the main method of extracting coal in Britain (Fig. 14.3a); it can be used for any laterally continuous rock body with a uniform thickness and a gentle dip. Coal is removed by a track-mounted cutter moving along a face several hundred metres long. The cutter operates beneath a roof supported by hydraulic jacks, which are slid forwards after the cutter has passed. The roof behind the jacks collapses onto the former floor of the coal seam, the **goaf.** The face can advance by up to a kilometre each year. Access to it is maintained by tunnels joining each end of the face to the mine haulage roadways.
The roof collapse behind a longwall face propagates upwards and outwards throug the overlying rock with a geometry measu by the **angle of draw** (Fig. 14.3a). This va with the rock strength but is roughly 30°, resulting in a **subsidence bowl** at the grou surface considerably wider than the **extrac panel** of coal. The maximum depth of the subsidence bowl is always less than the se thickness, because of the volume increase cracks open up within the subsiding rocks Also damaging to built structures is the ground tilt as the subsidence wave passes, and the related cycle of surface extension and shortening. However, these effects were more severe with older shallow mining than during modern mining of deep seams. Moreover, the pattern and timing of subsidence over longwall faces is predictable, so that structures at risk can be strengthened before mining begins.

Pillar-and-stall working is also suited to gently dipping beds. The deposit is only partially removed, leaving intervening pillars to support the roof. The pillars are elongate or square, and are spaced to allow extraction of between 50% and 85% of the bed. In North American coal mines the pillars are removed on retreat from the seam, allowing roof collapse similar to that of a longwall face. However, pillars have been left in place in most mines in the British Isles. These include modern gypsum mines, and old mines for coal, building stone, ironstone and clays. The old mines present a serious hazard to development

Woodcock, N. (1994) *Geology and Environment in Britain and Ireland*

Section 2.4 Language to Work and Study

By the end of this section you will:

- have a good range of vocabulary (including terminology in mining) needed for you in academic and professional environment
- have a working knowledge of grammatical structures to express notions and to understand and produce a wide range of texts in academic and professional areas
- be able to locate specific study and/or subject-related information using dictionaries and various reference sources including Internet

Task 1. Read *Glossary of Mining Terms* made by Kentucky Mining University (USA) in 2002. Use it as basis for English-Ukrainian Glossary of Mining Terms of your own by putting Ukrainian equivalents in the right-hand column to the English terms given on the left.

Task 2. Fill in the Glossary as soon as you meet the terms in the texts you are reading. You may use English-Ukrainian Dictionary when necessary.

Task 3. Fill in the spare cells with the terms you have found by your own while reading texts in the area of your study and/or specialism.

English-Ukrainian Glossary of Mining Terms

English Term - Definition	Ukrainian Term/ Equivalent
A	
Abutment – In coal mining, (1) the weight of the rocks above a narrow roadway is transferred to the solid coal along the sides, which act as abutments of the arch of strata	

spanning the roadway; and (2) the weight of the rocks over a longwall face is transferred to the front abutment, that is, the solid coal ahead of the face and the back abutment, that is, the settled packs behind the face.	
Acid mine water – Mine water that contains free sulfuric acid, mainly due to the weathering of iron pyrites.	
Active workings – Any place in a mine where miners are normally required to work or travel and which are ventilated and inspected regularly.	
Adit – A nearly horizontal passage from the surface by which a mine is entered and dewatered. A blind horizontal opening into a mountain with only one entrance.	
Advance – Mining in the same direction, or order of sequence; first mining as distinguished from retreat.	
Air split – The division of a current of air into two or more parts.	
Airway – Any passage through which air is carried. Also known as an air course.	
Anemometer – Instrument for measuring air velocity.	
Angle of dip – The angle at which strata or mineral deposits are inclined to the horizontal plane.	
Angle of draw – In coal mine subsidence, this angle is assumed to bisect the angle between the vertical and the angle of repose of the material and is 20° for flat seams. For dipping seams, the angle of break increases, being 35.8° from the vertical for a 40° dip. The main break occurs over the seam at an angle from the vertical equal to half the dip.	
Angle of repose – The maximum angle from horizontal at which a given material will rest on a given surface without sliding or rolling.	
Anticline – An upward fold or arch of rock strata.	
Aquifer – A water-bearing bed of porous rock, often sandstone.	

Arching – Fracture processes around a mine opening, leading to stabilization by an arching effect.	
Area (of an airway) – Average width multiplied by average height of airway, expressed in square feet.	
Auger – A rotary drill that uses a screw device to penetrate, break, and then transport the drilled material (coal).	
Auxiliary operations – All activities supportive of but not contributing directly to mining.	
Auxiliary ventilation – Portion of main ventilating current directed to face of dead end entry by means of an auxiliary fan and tubing.	
Azimuth – A surveying term that references the angle measured clockwise from any meridian (the established line of reference). The bearing is used to designate direction. The bearing of a line is the acute horizontal angle between the meridian and the line.	
B	
Back – The roof or upper part in any underground mining cavity.	
Backfill – Mine waste or rock used to support the roof after coal removal.	
Barren – Said of rock or vein material containing no minerals of value, and of strata without coal, or containing coal in seams too thin to be workable.	
Barricading – Enclosing part of a mine to prevent inflow of toxious gasses from a mine fire or an explosion.	
Barrier – Something that bars or keeps out. Barrier pillars are solid blocks of coal left between two mines or sections of a mine to prevent accidents due to inrushes of water, gas, or from explosions or a mine fire.	
Beam – A bar or straight girder used to support a span of roof between two support props or walls.	

Beam building – The creation of a strong, inflexible beam by bolting or otherwise fastening together several weaker layers. In coal mining this is the intended basis for roof bolting.	
Bearing – A surveying term used to designate direction. The bearing of a line is the acute horizontal angle between the meridian and the line. The meridian is an established line of reference. Azimuths are angles measured clockwise from any meridian.	
Bearing plate – A plate used to distribute a given load. In roof bolting, the plate used between the bolt head and the roof.	
Bed – A stratum of coal or other sedimentary deposit.	
Belt conveyor – A looped belt on which coal or other materials can be carried and which is generally constructed of flame-resistant material or of reinforced rubber or rubber-like substance.	
Belt idler – A roller, usually of cylindrical shape, which is supported on a frame and which, in turn, supports or guides a conveyor belt. Idlers are not powered but turn by contact with the moving belt.	
Belt take-up – A belt pulley, generally under a conveyor belt and inby the drive pulley, kept under strong tension parallel to the belt line. Its purpose is to automatically compensate for any slack in the belting created by start-up, etc.	
Bench – One of to or more divisions of a coal seam separated by slate or formed by the process of cutting the coal.	
Beneficiation – The treatment of mined material, making it more concentrated or richer.	
Berm – A pile or mound of material capable of restraining a vehicle.	
Binder – A streak of impurity in a coal seam.	
Bit – The hardened and strengthened device at the end of a drill rod that transmits the energy of breakage to the rock. The size of the bit	

determines the size of the hole. A bit may be either detachable from or integral with its supporting drill rod.	
Bituminous coal – A middle rank coal (between subbituminous and anthracite) formed by additional pressure and heat on lignite. Usually has a high Btu value and may be referred to as "soft coal."	
Black damp – A term generally applied to carbon dioxide. Strictly speaking, it is a mixture of carbon dioxide and nitrogen. It is also applied to an atmosphere depleted of oxygen, rather than having an excess of carbon dioxide.	
Blasting agent – Any material consisting of a mixture of a fuel and an oxidizer.	
Blasting cap – A detonator containing a charge of detonating compound, which is ignited by electric current or the spark of a fuse. Used for detonating explosives.	
Blasting circuit – Electric circuits used to fire electric detonators or to ignite an igniter cord by means of an electric starter.	
Bleeder or bleeder entries – Special air courses developed and maintained as part of the mine ventilation system and designed to continuously move air-methane mixtures emitted by the gob or at the active face away from the active workings and into mine-return air courses. Alt: Exhaust ventilation lateral.	
Bolt torque – The turning force in foot-pounds applied to a roof bolt to achieve an installed tension.	
Borehole – Any deep or long drill-hole, usually associated with a diamond drill.	
Bottom – Floor or underlying surface of an underground excavation.	
Boss – Any member of the managerial ranks who is directly in charge of miners (e.g., "shift-boss", "face-boss", "fire-boss", etc.).	
Box-type magazine – A small, portable magazine used to store limited quantities of explosives or detonators for short periods of time at locations in the mine which are	

convenient to the blasting sites at which they will be used.	
Brattice or brattice cloth – Fire-resistant fabric or plastic partition used in a mine passage to confine the air and force it into the working place. Also termed "line brattice," "line canvas," or "line curtain."	
Break line – The line that roughly follows the rear edges of coal pillars that are being mined. The line along which the roof of a coal mine is expected to break.	
Breakthrough – A passage for ventilation that is cut through the pillars between rooms.	
Bridge carrier – A rubber-tire-mounted mobile conveyor, about 10 meters long, used as an intermediate unit to create a system of articulated conveyors between a mining machine and a room or entry conveyor.	
Bridge conveyor – A short conveyor hung from the boom of mining or lading machine or haulage system with the other end attached to a receiving bin that dollies along a frame supported by the room or entry conveyor, tailpiece. Thus, as the machine boom moves, the bridge conveyor keeps it in constant connection with the tailpiece.	
Brow – A low place in the roof of a mine, giving insufficient headroom.	
Brushing – Digging up the bottom or taking down the top to give more headroom in roadways.	
Btu – British thermal unit. A measure of the energy required to raise the temperature of one pound of water one degree Fahrenheit.	
Bug dust – The fine particles of coal or other material resulting form the boring or cutting of the coal face by drill or machine.	
Bump (or burst) – A violent dislocation of the mine workings which is attributed to severe stresses in the rock surrounding the workings.	
Butt cleat – A short, poorly defined vertical cleavage plane in a coal seam, usually at right angles to the long face cleat.	

Butt entry – A coal mining term that has different meanings in different locations. It can be synonymous with panel entry, submain entry, or in its older sense it refers to an entry that is "butt" onto the coal cleavage (that is, at right angles to the face).	
C	
Cage – In a mine shaft, the device, similar to an elevator car, that is used for hoisting personnel and materials.	
Calorific value – The quantity of heat that can be liberated from one pound of coal or oil measured in BTU's.	
Cannel coal – A massive, non-caking block coal with a fine, even grain and a conchoidal fracture which has a high percentage of hydrogen, burns with a long, yellow flame, and is extremely easy to ignite.	
Canopy – A protective covering of a cab on a mining machine.	
Cap – A miner's safety helmet. Also, a highly sensitive, encapsulated explosive that is used to detonate larger but less sensitive explosives.	
Cap block – A flat piece of wood inserted between the top of the prop and the roof to provide bearing support.	
Car – A railway wagon, especially any of the wagons adapted to carrying coal, ore, and waste underground.	
Car-dump – The mechanism for unloading a loaded car.	
Carbide bit – More correctly, cemented tungsten carbide. A cutting or drilling bit for rock or coal, made by fusing an insert of molded tungsten carbide to the cutting edge of a steel bit shank.	
Cast – A directed throw; in strip-mining, the overburden is cast from the coal to the previously mined area.	
Certified – Describes a person who has passed an examination to do a required job.	

Chain conveyor – A conveyor on which the material is moved along solid pans (troughs) by the action of scraper crossbars attached to powered chains.	
Chain pillar – The pillar of coal left to protect the gangway or entry and the parallel airways.	
Check curtain – Sheet of brattice cloth hung across an airway to control the passage of the air current.	
Chock – Large hydraulic jacks used to support roof in longwall and shortwall mining systems.	
Clay vein – A body of clay-like material that fills a void in a coal bed.	
Cleat – The vertical cleavage of coal seams. The main set of joints along which coal breaks when mined.	
Clean Air Act Amendments of 1990 – A comprehensive set of amendments to the federal law governing the nation's air quality. The Clean Air Act was originally passed in 1970 to address significant air pollution problems in our cities. The 1990 amendments broadened and strengthened the original law to address specific problems such as acid deposition, urban smog, hazardous air pollutants and stratospheric ozone depletion.	
Clean Coal Technologies – A number of innovative, new technologies designed to use coal in a more efficient and cost-effective manner while enhancing environmental protection. Several promising technologies include: fluidized-bed combustion, integrated gasification combined cycle, limestone injection multi-stage burner, enhanced flue gas desulfurization (or "scrubbing"), coal liquefaction and coal gasification.	
Coal – A solid, brittle, more or less distinctly stratified combustible carbonaceous rock, formed by partial to complete decomposition of vegetation; varies in color from dark brown to black; not fusible without decomposition and very insoluble.	

Coal dust – Particles of coal that can pass a No. 20 sieve.	
Coal Gasification – The conversion of coal into a gaseous fuel.	
Coal mine – An area of land and all structures, facilities, machinery, tools, equipment, shafts, slopes, tunnels, excavations, and other property, real or personal, placed upon, under, or above the surface of such land by any person, used in extracting coal from its natural deposits in the earth by any means or method, and the work of preparing the coal so extracted, including coal preparation facilities. British term is "colliery".	
Coal reserves – Measured tonnages of coal that have been calculated to occur in a coal seam within a particular property.	
Coal washing – The process of separating undesirable materials from coal based on differences in densities. Pyritic sulfur, or sulfur combined with iron, is heavier and sinks in water; coal is lighter and floats.	
Coke – A hard, dry carbon substance produced by heating coal to a very high temperature in the absence of air.	
Collar – The term applied to the timbering or concrete around the mouth or top of a shaft. The beginning point of a shaft or drill hole at the surface.	
Colliery - British name for coal mine.	
Column flotation – A precombustion coal cleaning technology in which coal particles attach to air bubbles rising in a vertical column. The coal is then removed at the top of the column.	
Comminution – The breaking, crushing, or grinding of coal, ore, or rock.	
Competent rock – Rock which, because of its physical and geological characteristics, is capable of sustaining openings without any structural support except pillars and walls left during mining (stalls, light props, and roof bolts are not considered structural support).	

Contact – The place or surface where two different kinds of rocks meet. Applies to sedimentary rocks, as the contact between a limestone and a sandstone, for example, and to metamorphic rocks; and it is especially applicable between igneous intrusions and their walls.	
Continuous miner – A machine that constantly extracts coal while it loads it. This is to be distinguished from a conventional, or cyclic, unit which must stop the extraction process in order for loading to commence.	
Contour – An imaginary line that connects all points on a surface having the same elevation.	
Conventional mining – The first fully-mechanized underground mining method involving the insertion of explosives in a coal seam, the blasting of the seam, and the removal of the coal onto a conveyor or shuttle car by a loading machine.	
Conveyor – An apparatus for moving material from one point to another in a continuous fashion. This is accomplished with an endless (that is, looped) procession of hooks, buckets, wide rubber belt, etc.	
Core sample – A cylinder sample generally 1-5" in diameter drilled out of an area to determine the geologic and chemical analysis of the overburden and coal.	
Cover – The overburden of any deposit.	
Creep – The forcing of pillars into soft bottom by the weight of a strong roof. In surface mining, a very slow movement of slopes downhill.	
Crib – A roof support of prop timbers or ties, laid in alternate cross-layers, log-cabin style. It may or may not be filled with debris. Also may be called a chock or cog.	
Cribbing – The construction of cribs or timbers laid at right angles to each other, sometimes filled with earth, as a roof support or as a support for machinery.	
Crop coal – Coal at the outcrop of the seam. It is usually considered of inferior quality due	

to partial oxidation, although this is not always the case.	
Crossbar – The horizontal member of a roof timber set supported by props located either on roadways or at the face.	
Crosscut – A passageway driven between the entry and its parallel air course or air courses for ventilation purposes. Also, a tunnel driven from one seam to another through or across the intervening measures; sometimes called "crosscut tunnel", or "breakthrough". In vein mining, an entry perpendicular to the vein.	
Cross entry – An entry running at an angle with the main entry.	
Crusher – A machine for crushing rock or other materials. Among the various types of crushers are the ball mill, gyratory crusher, Handsel mill, hammer mill, jaw crusher, rod mill, rolls, stamp mill, and tube mill.	
Cutter; Cutting machine – A machine, usually used in coal, that will cut a 10- to 15-cm slot. The slot allows room for expansion of the broken coal. Also applies to the man who operates the machine and to workers engaged in the cutting of coal by prick or drill.	
Cycle mining – A system of mining in more than one working place at a time, that is, a miner takes a lift from the face and moves to another face while permanent roof support is established in the previous working face.	
D	
Demonstrated reserves – A collective term for the sum of coal in both measured and indicated resources and reserves.	
Deposit – Mineral deposit or ore deposit is used to designate a natural occurrence of a useful mineral, or an ore, in sufficient extent and degree of concentration to invite exploitation.	
Depth – The word alone generally denotes vertical depth below the surface. In the case of	

incline shafts and boreholes it may mean the distance reached from the beginning of the shaft or hole, the borehole depth, or the inclined depth.	
Detectors – Specialized chemical or electronic instruments used to detect mine gases.	
Detonator – A device containing a small detonating charge that is used for detonating an explosive, including, but not limited to, blasting caps, exploders, electric detonators, and delay electric blasting caps.	
Development mining – Work undertaken to open up coal reserves as distinguished from the work of actual coal extraction.	
Diffusion – Blending of a gas and air, resulting in a homogeneous mixture. Blending of two or more gases.	
Diffuser fan – A fan mounted on a continuous miner to assist and direct air delivery from the machine to the face.	
Dilute – To lower the concentration of a mixture; in this case the concentration of any hazardous gas in mine air by addition of fresh intake air.	
Dilution – The contamination of ore with barren wall rock in stopping.	
Dip – The inclination of a geologic structure (bed, vein, fault, etc.) from the horizontal; dip is always measured downwards at right angles to the strike.	
Dragline – A large excavation machine used in surface mining to remove overburden (layers of rock and soil) covering a coal seam. The dragline casts a wire rope-hung bucket a considerable distance, collects the dug material by pulling the bucket toward itself on the ground with a second wire rope (or chain), elevates the bucket, and dumps the material on a spoil bank, in a hopper, or on a pile.	
Drainage – The process of removing surplus ground or surface water either by artificial means or by gravity flow.	
Draw slate – A soft slate, shale, or rock from approximately 1 cm to 10 cm thick and	

located immediately above certain coal seams, which falls quite easily when the coal support is withdrawn.	
Drift – A horizontal passage underground. A drift follows the vein, as distinguished from a crosscut that intersects it, or a level or gallery, which may do either.	
Drift mine – An underground coal mine in which the entry or access is above water level and generally on the slope of a hill, driven horizontally into a coal seam.	
Drill – A machine utilizing rotation, percussion (hammering), or a combination of both to make holes. If the hole is much over 0.4m in diameter, the machine is called a borer.	
Drilling – The use of such a machine to create holes for exploration or for loading with explosives.	
Dummy – A bag filled with sand, clay, etc., used for stemming a charged hole.	
Dump – To unload; specifically, a load of coal or waste; the mechanism for unloading, e.g. a car dump (sometimes called tipple); or, the pile created by such unloading, e.g. a waste dump (also called heap, pile, tip, spoil pike, etc.).	
E	
Electrical grounding – To connect with the ground to make the earth part of the circuit.	
Entry – An underground horizontal or near-horizontal passage used for haulage, ventilation, or as a mainway; a coal heading; a working place where the coal is extracted from the seam in the initial mining; same as "gate" and "roadway," both British terms.	
Evaluation – The work involved in gaining a knowledge of the size, shape, position and value of coal.	
Exploration – The search for mineral deposits and the work done to prove or establish the extent of a mineral deposit. Alt: Prospecting and subsequent evaluation.	

Explosive – Any rapidly combustive or expanding substance. The energy released during this rapid combustion or expansion can be used to break rock.	
Extraction – The process of mining and removal of cal or ore from a mine.	
F	
Face – The exposed area of a coal bed from which coal is being extracted.	
Face cleat – The principal cleavage plane or joint at right angles to the stratification of the coal seam.	
Face conveyor – Any conveyor used parallel to a working face which delivers coal into another conveyor or into a car.	
Factor of safety – The ratio of the ultimate breaking strength of the material to the force exerted against it. If a rope will break under a load of 6000 lbs., and it is carrying a load of 2000 lbs., its factor of safety is 6000 divided by 2000 which equals 3.	
Fall – A mass of roof rock or coal which has fallen in any part of a mine.	
Fan, auxiliary – A small, portable fan used to supplement the ventilation of an individual working place.	
Fan, booster – A large fan installed in the main air current, and thus in tandem with the main fan.	
Fan signal – Automation device designed to give alarm if the main fan slows down or stops.	
Fault – A slip-surface between two portions of the earth's surface that have moved relative to each other. A fault is a failure surface and is evidence of severe earth stresses.	
Fault zone – A fault, instead of being a single clean fracture, may be a zone hundreds or thousands of feet wide. The fault zone consists of numerous interlacing small faults or a confused zone of gouge, breccia, or mylonite.	

Feeder – A machine that feeds coal onto a conveyor belt evenly.	
Fill – Any material that is put back in place of the extracted ore to provide ground support.	
Fire damp – The combustible gas, methane, CH4. Also, the explosive methane-air mixtures with between 5% and 15% methane. A combustible gas formed in mines by decomposition of coal or other carbonaceous matter, and that consists chiefly of methane.	
Fissure – An extensive crack, break, or fracture in the rocks.	
Fixed carbon – The part of the carbon that remains behind when coal is heated in a closed vessel until all of the volatile matter is driven off.	
Flat-lying – Said of deposits and coal seams with a dip up to 5 degrees.	
Flight – The metal strap or crossbar attached to the drag chain-and-flight conveyor.	
Float dust – Fine coal-dust particles carried in suspension by air currents and eventually deposited in return entries. Dust consisting of particles of coal that can pass through a No. 200 sieve.	
Floor – That part of any underground working upon which a person walks or upon which haulage equipment travels; simply the bottom or underlying surface of an underground excavation.	
Flue Gas Desulfurization – Any of several forms of chemical/physical processes that remove sulfur compounds formed during coal combustion. The devices, commonly called "scrubbers," combine the sulfur in gaseous emissions with another chemical medium to form inert "sludge" which must then be removed for disposal.	
Fluidized Bed Combustion – A process with a high degree of ability to remove sulfur from coal during combustion. Crushed coal and limestone are suspended in the bottom of a boiler by an upward stream of hot air. The coal is burned in this bubbling, liquid-like (or	

"fluidized") mixture. Rather than released as emissions, sulfur from combustion gases combines with the limestone to form a solid compound recovered with the ash.	
Fly ash – The finely divided particles of ash suspended in gases resulting from the combustion of fuel. Electrostatic precipitators are used to remove fly ash from the gases prior to the release from a power plant's smokestack.	
Formation – Any assemblage of rocks which have some character in common, whether of origin, age, or composition. Often, the word is loosely used to indicate anything that has been formed or brought into its present shape.	
Fossil fuel – Any naturally occurring fuel of an organic nature, such as coal, crude oil and natural gas.	
Fracture – A general term to include any kind of discontinuity in a body of rock if produced by mechanical failure, whether by shear stress or tensile stress. Fractures include faults, shears, joints, and planes of fracture cleavage.	
Friable – Easy to break, or crumbling naturally. Descriptive of certain rocks and minerals.	
Fuse – A cord-like substance used in the ignition of explosives. Black powder is entrained in the cord and, when lit, burns along the cord at a set rate. A fuse can be safely used to ignite a cap, which is the primer for an explosive.	
G	
Gallery - A horizontal or a nearly horizontal underground passage, either natural or artificial.	
Gasification – Any of various processes by which coal is turned into low, medium, or high Btu gases.	
Gathering conveyor; gathering belt – Any conveyor which is used to gather coal from	

other conveyors and deliver it either into mine cars or onto another conveyor. The term is frequently used with belt conveyors placed in entries where a number of room conveyors deliver coal onto the belt.	
Geologist – One who studies the constitution, structure, and history of the earth's crust, conducting research into the formation and dissolution of rock layers, analyzing fossil and mineral content of layers, and endeavoring to fix historical sequence of development by relating characteristics to known geological influences (historical geology).	
Gob – The term applied to that part of the mine from which the coal has been removed and the space more or less filled up with waste. Also, the loose waste in a mine. Also called goaf.	
Global climate change – This term usually refers to the gradual warming of the earth caused by the greenhouse effect. Many scientists believe this is the result of man-made emissions of greenhouse gases such as carbon dioxide, chlorofluorocarbons (CFC) and methane, although there is no agreement among the scientific community on this controversial issue.	
Grain – In petrology, that factor of the texture of a rock composed of distinct particles or crystals which depends upon their absolute size.	
Grizzly – Course screening or scalping device that prevents oversized bulk material form entering a material transfer system; constructed of rails, bars, beams, etc.	
Ground control – The regulation and final arresting of the closure of the walls of a mined area. The term generally refers to measures taken to prevent roof falls or coal bursts.	
Ground pressure – The pressure to which a rock formation is subjected by the weight of the superimposed rock and rock material or by diastrophic forces created by movements in the rocks forming the earth's crust. Such	

pressures may be great enough to cause rocks having a low compressional strength to deform and be squeezed into and close a borehole or other underground opening not adequately strengthened by an artificial support, such as casing or timber.	
Gunite – A cement applied by spraying to the roof and sides of a mine passage.	
H	
Haulage – The horizontal transport of ore, coal, supplies, and waste. The vertical transport of the same is called hoisting.	
Haulageway – Any underground entry or passageway that is designed for transport of mined material, personnel, or equipment, usually by the installation of track or belt conveyor.	
Headframe – The structure surmounting the shaft which supports the hoist rope pulley, and often the hoist itself.	
Heading – A vein above a drift. An interior level or airway driven in a mine. In longwall workings, a narrow passage driven upward from a gangway in starting a working in order to give a loose end.	
Head section – A term used in both belt and chain conveyor work to designate that portion of the conveyor used for discharging material.	
Heaving – Applied to the rising of the bottom after removal of the coal; a sharp rise in the floor is called a "hogsback".	
Highwall – The unexcavated face of exposed overburden and coal in a surface mine or in a face or bank on the uphill side of a contour mine excavation.	
Highwall miner – A highwall mining system consists of a remotely controlled continuous miner which extracts coal and conveys it via augers, belt or chain conveyors to the outside. The cut is typically a rectangular, horizontal cut from a highwall bench, reaching depths of several hundred feet or deeper.	

Hogsback – A sharp rise in the floor of a seam.	
Hoist – A drum on which hoisting rope is wound in the engine house, as the cage or skip is raised in the hoisting shaft.	
Hoisting – The vertical transport coal or material.	
Horizon – In geology, any given definite position or interval in the stratigraphic column or the scheme of stratigraphic classification; generally used in a relative sense.	
Horseback – A mass of material with a slippery surface in the roof; shaped like a horse's back.	
Hydraulic – Of or pertaining to fluids in motion. Hydraulic cement has a composition which permits it to set quickly under water. Hydraulic jacks lift through the force transmitted to the movable part of the jack by a liquid. Hydraulic control refers to the mechanical control of various parts of machines, such as coal cutters, loaders, etc., through the operation or action of hydraulic cylinders.	
Hydrocarbon – A family of chemical compounds containing carbon and hydrogen atoms in various combinations, found especially in fossil fuels.	
I	
Inby – In the direction of the working face.	
Incline – Any entry to a mine that is not vertical (shaft) or horizontal (adit). Often incline is reserved for those entries that are too steep for a belt conveyor (+17 degrees -18 degrees), in which case a hoist and guide rails are employed. A belt conveyor incline is termed a slope. Alt: Secondary inclined opening, driven upward to connect levels, sometimes on the dip of a deposit; also called "inclined shaft".	
Incompetent – Applied to strata, a formation, a rock, or a rock structure not combining sufficient firmness and flexibility to transmit a thrust and to lift a load by bending.	

Indicated coal resources – Coal for which estimates of the rank, quality, and quantity have been computed partly from sample analyses and measurements and partly from reasonable geologic projections. The points of observation are ½ to 1 ½ miles apart. Indicated coal is projected to extend as an ½ mile wide belt that lies more than ¼ mile from the outcrop or points of observation or measurement.	
Inferred coal resources – Coal in unexplored extensions of the demonstrated resources for which estimates of the quality and size are based on geologic evidence and projection. Quantitative estimates are based largely on broad knowledge of the geologic character of the deposit and for which there are few, if any, samples or measurements. The estimates are based on an assumed continuity or repletion of which there is geologic evidence; this evidence may include comparison with deposits of similar type. Bodies that are completely concealed may be included if there is specific geologic evidence of their presence. The points of observation are 1 ½ to 6 miles apart.	
In situ – In the natural or original position. Applied to a rock, soil, or fossil when occurring in the situation in which it was originally formed or deposited.	
Intake –The passage through which fresh air is drawn or forced into a mine or to a section of a mine.	
Intermediate section – A term used in belt and chain conveyor network to designate a section of the conveyor frame occupying a position between the head and foot sections.	
Immediate roof – The roof strata immediately above the coalbed, requiring support during the excavation of coal.	
Isopach – A line, on a map, drawn through points of equal thickness of a designated unit. Synonym for isopachous line; isopachyte.	

J	
Jackleg – A percussion drill used for drifting or stopping that is mounted on a telescopic leg which has an extension of about 2.5 m. The leg and machine are hinged so that the drill need not be in the same direction as the leg.	
Jackrock – A caltrop or other object manufactured with one or more rounded or sharpened points, which when placed or thrown present at least one point at such an angle that it is peculiar to and designed for use in puncturing or damaging vehicle tires. Jackrocks are commonly used during labor disputes.	
Job Safety Analysis (J.S.A.) – A job breakdown that gives a safe, efficient job procedure.	
Joint – A divisional plane or surface that divides a rock and along which there has been no visible movement parallel to the plane or surface.	
K	
Kettle bottom – A smooth, rounded piece of rock, cylindrical in shape, which may drop out of the roof of a mine without warning. The origin of this feature is thought to be the remains of the stump of a tree that has been replaced by sediments so that the original form has been rather well preserved.	
Kerf – The undercut of a coal face.	
L	
Lamp – The electric cap lamp worn for visibility. Also, the flame safety lamp used in coal mines to detect methane gas concentrations and oxygen deficiency.	
Layout – The design or pattern of the main roadways and workings. The proper layout of mine workings is the responsibility of the manager aided by the planning department.	

Lift – The amount of coal obtained from a continuous miner in one mining cycle.	
Liquefaction – The process of converting coal into a synthetic fuel, similar in nature to crude oil and/or refined products, such as gasoline.	
Lithology – The character of a rock described in terms of its structure, color, mineral composition, grain size, and arrangement of its component parts; all those visible features that in the aggregate impart individuality of the rock. Lithology is the basis of correlation in coal mines and commonly is reliable over a distance of a few miles.	
Load – To place explosives in a drill hole. Also, to transfer broken material into a haulage device.	
Loading machine – Any device for transferring excavated coal into the haulage equipment.	
Loading pocket – Transfer point at a shaft where bulk material is loaded by bin, hopper, and chute into a skip.	
Longwall Mining – One of three major underground coal mining methods currently in use. Employs a steal plow, or rotation drum, which is pulled mechanically back and forth across a face of coal that is usually several hundred feet long. The loosened coal falls onto a conveyor for removal from the mine.	
Loose coal – Coal fragments larger in size than coal dust.	
Low voltage – Up to and including 660 volts by federal standards.	
M	
Main entry – A main haulage road. Where the coal has cleats, main entries are driven at right angles to the face cleats.	
Main fan – A mechanical ventilator installed at the surface; operates by either exhausting or blowing to induce airflow through the mine roadways and workings.	

Manhole – A safety hole constructed in the side of a gangway, tunnel, or slope in which miner can be safe from passing locomotives and car. Also called a refuge hole.	
Man trip – A carrier of mine personnel, by rail or rubber tire, to and from the work area.	
Manway – An entry used exclusively for personnel to travel form the shaft bottom or drift mouth to the working section; it is always on the intake air side in gassy mines. Also, a small passage at one side or both sides of a breast, used as a traveling way for the miner, and sometimes, as an airway, or chute, or both.	
Measured coal resources – Coal for which estimates of the rank, quality, and quantity have been computed from sample analyses and measurements from closely spaced and geologically well-known sample sites, such as outcrops, trenches, mine workings, and drill holes. The points of observation and measurement are so closely spaced and the thickness and extent of coals are so well defined that the tonnage is judged to be accurate within 20 percent of true tonnage. Although the spacing of the points of observation necessary to demonstrate continuity of the coal differs from region to region according to the character of the coal beds, the points of observation are no greater than ½ mile apart. Measured coal is projected to extend as a ¼-mile wide belt from the outcrop or points of observation or measurement.	
Meridian – A surveying term that establishes a line of reference. The bearing is used to designate direction. The bearing of a line is the acute horizontal angle between the meridian and the line. Azimuths are angles measured clockwise from any meridian.	
Methane – A potentially explosive gas formed naturally from the decay of vegetative matter, similar to that which formed coal. Methane, which is the principal component of natural gas, is frequently encountered in underground coal mining operations and is	

kept within safe limits through the use of extensive mine ventilation systems.	
Methane monitor – An electronic instrument often mounted on a piece of mining equipment, that detects and measures the methane content of mine air.	
Mine development – The term employed to designate the operations involved in preparing a mine for ore extraction. These operations include tunneling, sinking, cross-cutting, drifting, and raising.	
Mine mouth electric plant – A coal burning electric-generating plant built near a coal mine.	
Miner – One who is engaged in the business or occupation of extracting ore, coal, precious substances, or other natural materials from the earth's crust.	
Mineral – An inorganic compound occurring naturally in the earth's crust, with a distinctive set of physical properties, and a definite chemical composition.	
Mining Engineer – A person qualified by education, training, and experience in mining engineering. A trained engineer with knowledge of the science, economics, and arts of mineral location, extraction, concentration and sale, and the administrative and financial problems of practical importance in connection with the profitable conduct of mining.	
Misfire – The complete or partial failure of a blasting charge to explode as planned.	
MSHA – Mine Safety and Health Administration; the federal agency which regulates coal mine health and safety.	
Mud cap – A charge of high explosive fired in contact with the surface of a rock after being covered with a quantity of wet mud, wet earth, or sand, without any borehole being used. Also termed adobe, dobie, and sandblast (illegal in coal mining).	

N	
Natural ventilation – Ventilation of a mine without the aid of fans or furnaces.	
Nip – Device at the end of the trailing cable of a mining machine used for connecting the trailing cable to the trolley wire and ground.	
O	
Open end pillaring – A method of mining pillars in which no stump is left; the pockets driven are open on the gob side and the roof is supported by timber.	
Outby; outbye – Nearer to the shaft, and hence farther from the working face. Toward the mine entrance. The opposite of inby.	
Outcrop – Coal that appears at or near the surface.	
Overburden – Layers of soil and rock covering a coal seam. Overburden is removed prior to surface mining and replaced after the coal is taken from the seam.	
Overcast (undercast) – Enclosed airway which permits one air current to pass over (under) another without interruption.	
P	
Panel – A coal mining block that generally comprises one operating unit.	
Panic bar – A switch, in the shape of a bar, used to cut off power at the machine in case of an emergency.	
Parting – (1) A small joint in coal or rock; (2) a layer of rock in a coal seam; (3) a side track or turnout in a haulage road.	
Peat – The partially decayed plant matter found in swamps and bogs, one of the earliest stages of coal formation.	
Percentage extraction – The proportion of a coal seam which is removed from the mine. The remainder may represent coal in pillars or	

coal which is too thin or inferior to mine or lost in mining. Shallow coal mines working under townships, reservoirs, etc., may extract 50%, or less, of the entire seam, the remainder being left as pillars to protect the surface. Under favorable conditions, longwall mining may extract from 80 to 95% of the entire seam. With pillar methods of working, the extraction ranges from 50 to 90% depending on local conditions.	
Percussion drill – A drill, usually air powered, that delivers its energy through a pounding or hammering action.	
Permissible – That which is allowable or permitted. It is most widely applied to mine equipment and explosives of all kinds which are similar in all respects to samples that have passed certain tests of the MSHA and can be used with safety in accordance with specified conditions where hazards from explosive gas or coal dust exist.	
Permit – As it pertains to mining, a document issued by a regulatory agency that gives approval for mining operations to take place.	
Piggy-back – A bridge conveyor.	
Pillar – An area of coal left to support the overlying strata in a mine; sometimes left permanently to support surface structures.	
Pillar robbing – The systematic removal of the coal pillars between rooms or chambers to regulate the subsidence of the roof. Also termed "bridging back" the pillar, "drawing" the pillar, or "pulling" the pillar.	
Pinch – A compression of the walls of a vein or the roof and floor of a coal seam so as to "squeeze" out the coal.	
Pinning – Roof bolting.	
Pitch – The inclination of a seam; the rise of a seam.	
Plan – A map showing features such as mine workings or geological structures on a horizontal plane.	

Pneumoconiosis – A chronic disease of the lung arising from breathing coal dust.	
Portal – The structure surrounding the immediate entrance to a mine; the mouth of an adit or tunnel.	
Portal bus – Track-mounted, self-propelled personnel carrier that holds 8 to 12 people.	
Post - The vertical member of a timber set.	
Preparation plant – A place where coal is cleaned, sized, and prepared for market.	
Primary roof – The main roof above the immediate top. Its thickness may vary from a few to several thousand feet.	
Primer (booster) – A package or cartridge of explosive which is designed specifically to transmit detonation to other explosives and which does not contain a detonator.	
Prop – Coal mining term for any single post used as roof support. Props may be timber or steel; if steel-screwed, yieldable, or hydraulic.	
Proximate analysis – A physical, or non-chemical, test of the constitution of coal. Not precise, but very useful for determining the commercial value. Using the same sample (1 gram) under controlled heating at fixed temperatures and time periods, moisture, volatile matter, fixed carbon and ash content are successfully determined. Sulfur and Btu content are also generally reported with a proximate analysis.	
Pyrite – A hard, heavy, shiny, yellow mineral, FeS2 or iron disulfide, generally in cubic crystals. Also called iron pyrites, fool's gold, sulfur balls. Iron pyrite is the most common sulfide found in coal mines.	
R	
Raise – A secondary or tertiary inclined opening, vertical or near-vertical opening driven upward form a level to connect with the level above, or to explore the ground for a limited distance above one level.	

Ramp – A secondary or tertiary inclined opening, driven to connect levels, usually driven in a downward direction, and used for haulage.	
Ranks of coal – The classification of coal by degree of hardness, moisture and heat content. "Anthracite" is hard coal, almost pure carbon, used mainly for heating homes. "Bituminous" is soft coal. It is the most common coal found in the United States and is used to generate electricity and to make coke for the steel industry. "Subbituminous" is a coal with a heating value between bituminous and lignite. It has low fixed carbon and high percentages of volatile matter and moisture. "Lignite" is the softest coal and has the highest moisture content. It is used for generating electricity and for conversion into synthetic gas. In terms of Btu or "heating" content, anthracite has the highest value, followed by bituminous, subbituminous and lignite.	
Reclamation – The restoration of land and environmental values to a surface mine site after the coal is extracted. Reclamation operations are usually underway as soon as the coal has been removed from a mine site. The process includes restoring the land to its approximate original appearance by restoring topsoil and planting native grasses and ground covers.	
Recovery – The proportion or percentage of coal or ore mined from the original seam or deposit.	
Red dog – A nonvolatile combustion product of the oxidation of coal or coal refuse. Most commonly applied to material resulting from in situ, uncontrolled burning of coal or coal refuse piles. It is similar to coal ash.	
Regulator – Device (wall, door) used to control the volume of air in an air split.	
Reserve – That portion of the identified coal resource that can be economically mined at the time of determination. The reserve is derived by applying a recovery factor to that component of the identified coal resource designated as the reserve base.	

Resin bolting – A method of permanent roof support in which steel rods are grouted with resin.	
Resources – Concentrations of coal in such forms that economic extraction is currently or may become feasible. Coal resources broken down by identified and undiscovered resources. Identified coal resources are classified as demonstrated and inferred. Demonstrated resources are further broken down as measured and indicated. Undiscovered resources are broken down as hypothetical and speculative.	
Respirable dust – Dust particles 5 microns or less in size.	
Respirable dust sample – A sample collected with an approved coal mine dust sampler unit attached to a miner, or so positioned as to measure the concentration of respirable dust to which the miner is exposed, and operated continuously over an entire work shift of such miner.	
Retreat mining – A system of robbing pillars in which the robbing line, or line through the faces of the pillars being extracted, retreats from the boundary toward the shaft or mine mouth.	
Return – The air or ventilation that has passed through all the working faces of a split.	
Return idler – The idler or roller underneath the cover or cover plates on which the conveyor belt rides after the load which it was carrying has been dumped at the head section and starts the return trip toward the foot section.	
Rib – The side of a pillar or the wall of an entry. The solid coal on the side of any underground passage. Same as rib pillar.	
Rider – A thin seam of coal overlying a thicker one.	
Ripper – A coal extraction machine that works by tearing the coal from the face.	
Rob – To extract pillars of coal previously left for support.	
Robbed out area – Describes that part of a mine from which the pillars have been removed.	

Roll – (1) A high place in the bottom or a low place in the top of a mine passage, (2) a local thickening of roof or floor strata, causing thinning of a coal seam.	
Roll protection – A framework, safety canopy, or similar protection for the operator when equipment overturns.	
Roof – The stratum of rock or other material above a coal seam; the overhead surface of a coal working place. Same as "back" or "top."	
Roof bolt – A long steel bolt driven into the roof of underground excavations to support the roof, preventing and limiting the extent of roof falls. The unit consists of the bolt (up to 4 feet long), steel plate, expansion shell, and pal nut. The use of roof bolts eliminates the need for timbering by fastening together, or "laminating," several weaker layers of roof strata to build a "beam."	
Roof fall – A coal mine cave-in especially in permanent areas such as entries.	
Roof jack – A screw- or pump-type hydraulic extension post made of steel and used as temporary roof support.	
Roof sag – The sinking, bending, or curving of the roof, especially in the middle, from weight or pressure.	
Roof stress – Unbalanced internal forces in the roof or sides, created when coal is extracted.	
Roof support – Posts, jacks, roof bolts and beams used to support the rock overlying a coal seam in an underground mine. A good roof support plan is part of mine safety and coal extraction.	
Roof trusses – A combination of steel rods anchored into the roof to create zones of compression and tension forces and provide better support for weak roof and roof over wide areas.	
Room and pillar mining – A method of underground mining in which approximately half of the coal is left in place to support the roof of the active mining area. Large "pillars" are left while "rooms" of coal are extracted.	

Room neck – The short passage from the entry into a room.	
Round – Planned pattern of drill holes fired in sequence in tunneling, shaft sinking, or stopping. First the cut holes are fired, followed by relief, lifter, and rib holes.	
Royalty – The payment of a certain stipulated sum on the mineral produced.	
Rubbing surface – The total area (top, bottom, and sides) of an airway.	
Run-of-mine – Raw material as it exists in the mine; average grade or quality.	
S	
Safety fuse – A train of powder enclosed in cotton, jute yarn, or waterproofing compounds, which burns at a uniform rate; used for firing a cap containing the detonation compound which in turn sets off the explosive charge.	
Safety lamp – A lamp with steel wire gauze covering every opening from the inside to the outside so as to prevent the passage of flame should explosive gas be encountered.	
Sampling – Cutting a representative part of an ore (or coal) deposit, which should truly represent its average value.	
Sandstone – A sedimentary rock consisting of quartz sand united by some cementing material, such as iron oxide or calcium carbonate.	
Scaling – Removal of loose rock from the roof or walls. This work is dangerous and a long bar (called a scaling bar)is often used.	
Scoop – A rubber tired-, battery- or diesel-powered piece of equipment designed for cleaning runways and hauling supplies.	
Scrubber – Any of several forms of chemical/physical devices that remove sulfur compounds formed during coal combustion. These devices, technically know as flue gas desulfurization systems, combine the sulfur in gaseous emissions with another chemical medium to form inert "sludge," which must then be removed for disposal.	

Seam - A stratum or bed of coal.	
Secondary roof – The roof strata immediately above the coalbed, requiring support during the excavating of coal.	
Section – A portion of the working area of a mine.	
Selective mining – The object of selective mining is to obtain a relatively high-grade mine product; this usually entails the use of a much more expensive stopping system and high exploration and development costs in searching for and developing the separate bunches, stringers, lenses, and bands of ore.	
Self-contained breathing apparatus – A self-contained supply of oxygen used during rescue work from coal mine fires and explosions; same as SCSR (self-contained self rescuer).	
Self-rescuer – A small filtering device carried by a coal miner underground, either on his belt or in his pocket, to provide him with immediate protection against carbon monoxide and smoke in case of a mine fire or explosion. It is a small canister with a mouthpiece directly attached to it. The wearer breathes through the mouth, the nose being closed by a clip. The canister contains a layer of fused calcium chloride that absorbs water vapor from the mine air. The device is used for escape purposes only because it does not sustain life in atmospheres containing deficient oxygen. The length of time a self-rescuer can be used is governed mainly by the humidity in the mine air, usually between 30 minutes and one hour.	
Severance – The separation of a mineral interest from other interests in the land by grant or reservation. A mineral dead or grant of the land reserving a mineral interest, by the landowner before leasing, accomplishes a severance as does his execution of a mineral lease.	
Shaft – A primary vertical or non-vertical opening through mine strata used for ventilation or drainage and/or for hoisting of personnel or materials; connects the surface with underground workings.	

Shaft mine – An underground mine in which the main entry or access is by means of a vertical shaft.	
Shale – A rock formed by consolidation of clay, mud, or silt, having a laminated structure and composed of minerals essentially unaltered since deposition.	
Shearer – A mining machine for longwall faces that uses a rotating action to "shear" the material from the face as it progresses along the face.	
Shift – The number of hours or the part of any day worked.	
Shortwall – An underground mining method in which small areas are worked (15 to 150 feet) by a continuous miner in conjunction with the use of hydraulic roof supports.	
Shuttle car – A self-discharging truck, generally with rubber tires or caterpillar-type treads, used for receiving coal from the loading or mining machine and transferring it to an underground loading point, mine railway or belt conveyor system.	
Sinking – The process by which a shaft is driven.	
Skid – A track-mounted vehicle used to hold trips or cars from running out of control. Also it is a flat-bottom personnel or equipment carrier used in low coal.	
Skip – A car being hoisted from a slope or shaft.	
Slack – Small coal; the finest-sized soft coal, usually less than one inch in diameter.	
Slag – The waste product of the process of smelting.	
Slate – A miner's term for any shale or slate accompanying coal. Geologically, it is a dense, fine-textured, metamorphic rock, which has excellent parallel cleavage so that it breaks into thin plates or pencil-like shapes.	
Slate bar – The proper long-handled tool used to pry down loose and hazardous material from roof, face, and ribs.	

Slickenside – A smooth, striated, polished surface produced on rock by friction.	
Slip – A fault. A smooth joint or crack where the strata have moved on each other.	
Slope – Primary inclined opening, connection the surface with the underground workings.	
Slope mine – An underground mine with an opening that slopes upward or downward to the coal seam.	
Sloughing – The slow crumbling and falling away of material from roof, rib, and face.	
Solid – Mineral that has not been undermined, sheared out, or otherwise prepared for blasting.	
Sounding – Knocking on a roof to see whether it is sound and safe to work under.	
Spad – A spad is a flat spike hammered into a wooden plug anchored in a hole drilled into the mine ceiling from which is threaded a plumbline. The spad is an underground survey station similar to the use of stakes in marking survey points on the surface. A pointer spad, or sight spad, is a station that allows a mine foreman to visually align entries or breaks from the main spad.	
Span – The horizontal distance between the side supports or solid abutments along sides of a roadway.	
Specific gravity – The weight of a substance compared with the weight of an equal volume of pure water at 4 degrees Celsius.	
Split – Any division or branch of the ventilating current. Also, the workings ventilated by one branch. Also, to divide a pillar by driving one or more roads through it.	
Squeeze – The settling, without breaking, of the roof and the gradual upheaval of the floor of a mine due to the weight of the overlying strata.	
Steeply inclined – Said of deposits and coal seams with a dip of from 0.7 to 1 rad (40 degrees to 60 degrees).	
Stemming – The noncombustible material used on top or in front of a charge or explosive.	

Strike – The direction of the line of intersection of a bed or vein with the horizontal plane. The strike of a bed is the direction of a straight line that connects two points of equal elevation on the bed.	
Stripping ratio – The unit amount of overburden that must be removed to gain access to a similar unit amount of coal or mineral material.	
Stump – Any small pillar.	
Subbituminous – Coal of a rank intermediate between lignite and bituminous.	
Subsidence – The gradual sinking, or sometimes abrupt collapse, of the rock and soil layers into an underground mine. Structures and surface features above the subsidence area can be affected.	
Sump – The bottom of a shaft, or any other place in a mine, that is used as a collecting point for drainage water.	
Sumping – To force the cutter bar of a machine into or under the coal. Also called a sumping cut, or sumping in.	
Support – The all-important function of keeping the mine workings open. As a verb, it refers to this function; as a noun it refers to all the equipment and materials--timber, roof bolts, concrete, steel, etc.--that are used to carry out this function.	
Surface mine – A mine in which the coal lies near the surface and can be extracted by removing the covering layers of rock and soil.	
Suspension – Weaker strata hanging from stronger, overlying strata by means of roof bolts.	
Syncline – A fold in rock in which the strata dip inward from both sides toward the axis. The opposite of anticline.	
T	
Tailgate – A subsidiary gate road to a conveyor face as opposed to a main gate. The tailgate commonly acts as the return airway and supplies road to the face.	

Tailpiece – Also known as foot section pulley. The pulley or roller in the tail or foot section of a belt conveyor around which the belt runs.	
Tail section – A term used in both belt and chain conveyor work to designate that portion of the conveyor at the extreme opposite end from the delivery point. In either type of conveyor it consists of a frame and either a sprocket or a drum on which the chain or belt travels, plus such other devices as may be required for adjusting belt or chain tension.	
Tension – The act of stretching.	
Tertiary – Lateral or panel openings (e.g., ramp, crosscut).	
Through-steel – A system of dust collection from rock or roof drilling. The drill steel is hollow, and a vacuum is applied at the base, pulling the dust through the steel and into a receptacle on the machine.	
Timber – A collective term for underground wooden supports.	
Timbering – The setting of timber supports in mine workings or shafts for protection against falls from roof, face, or rib.	
Timber set – A timber frame to support the roof, sides, and sometimes the floor of mine roadways or shafts.	
Tipple – Originally the place where the mine cars were tipped and emptied of their coal, and still used in that same sense, although now more generally applied to the surface structures of a mine, including the preparation plant and loading tracks.	
Ton – A short or net ton is equal to 2,000 pounds; a long or British ton is 2,240 pounds; a metric ton is approximately 2,205 pounds.	
Top – A mine roof; same as "back."	
Torque wrench – A wrench that indicates, as on a dial, the amount of torque (in units of foot-pounds) exerted in tightening a roof bolt.	
Tractor – A battery-operated piece of equipment that pulls trailers, skids, or personnel carriers. Also used for supplies.	

Tram – Used in connection with moving self-propelled mining equipment. A tramming motor may refer to an electric locomotive used for hauling loaded trips or it may refer to the motor in a cutting machine that supplies the power for moving or tramming the machine.	
Transfer – A vertical or inclined connection between two or more levels and used as an ore pass.	
Transfer point – Location in the materials handling system, either haulage or hoisting, where bulk material is transferred between conveyances.	
Trip – A train of mine cars.	
Troughing idlers - The idlers, located on the upper framework of a belt conveyor, which support the loaded belt. They are so mounted that the loaded belt forms a trough in the direction of travel, which reduces spillage and increases the carrying capacity of a belt for a given width.	
Tunnel – A horizontal, or near-horizontal, underground passage, entry, or haulageway, that is open to the surface at both ends. A tunnel (as opposed to an adit) must pass completely through a hill or mountain.	
U	
Ultimate analysis - Precise determination, by chemical means, of the elements and compounds in coal.	
Undercut – To cut below or undermine the coal face by chipping away the coal by pick or mining machine. In some localities the terms "undermine" or "underhole" are used.	
Underground mine – Also known as a "deep" mine. Usually located several hundred feet below the earth's surface, an underground mine's coal is removed mechanically and transferred by shuttle car or conveyor to the surface.	
Underground station - An enlargement of an entry, drift, or level at a shaft at which cages	

stop to receive and discharge cars, personnel, and material. An underground station is any location where stationary electrical equipment is installed. This includes pump rooms, compressor rooms, hoist rooms, battery-charging rooms, etc.	
Unit train – A long train of between 60 and 150 or more hopper cars, carrying only coal between a single mine and destination.	
Universal coal cutter – A type of coal cutting machine which is designed to make horizontal cuts in a coal face at any point between the bottom and top or to make shearing cuts at any point between the two ribs of the place. The cutter bar can be twisted to make cuts at any angle to the horizontal or vertical.	
Upcast shaft – A shaft through which air leaves the mine.	
V	
Valuation – The act or process of valuing or of estimating the value or worth; appraisal.	
Velocity – Rate of airflow in lineal feet per minute.	
Ventilation – The provision of a directed flow of fresh and return air along all underground roadways, traveling roads, workings, and service parts.	
Violation – The breaking of any state or federal mining law.	
Virgin – Unworked; untouched; often said of areas where there has been no coal mining.	
Void – A general term for pore space or other reopenings in rock. In addition to pore space, the term includes vesicles, solution cavities, or any openings either primary or secondary.	
Volatile matter – The gaseous part, mostly hydrocarbons, of coal.	

W	
Waste – That rock or mineral which must be removed from a mine to keep the mining scheme practical, but which has no value.	
Water Gauge (standard U-tube) – Instrument that measures differential pressures in inches of water.	
Wedge – A piece of wood tapering to a thin edge and used for tightening in conventional timbering.	
Weight – Fracturing and lowering of the roof strata at the face as a result of mining operations, as in "taking weight".	
White damp – Carbon monoxide, CO. A gas that may be present in the afterdamp of a gas- or coal-dust explosion, or in the gases given off by a mine fire; also one of the constituents of the gases produced by blasting. Rarely found in mines under other circumstances. It is absorbed by the hemoglobin of the blood to the exclusion of oxygen. One-tenth of 1% (.001) may be fatal in 10 minutes.	
Width – The thickness of a lode measured at right angles to the dip.	
Winning – The excavation, loading, and removal of coal or ore from the ground; winning follows development.	
Winze – Secondary or tertiary vertical or near-vertical opening sunk from a point inside a mine for the purpose of connecting with a lower level or of exploring the ground for a limited depth below a level.	
Wire rope – A steel wire rope used for winding in shafts and underground haulages. Wire ropes are made from medium carbon steels. Various constructions of wire rope are designated by the number of strands in the rope and the number of wires in each strand. The following are some common terms encountered: airplane strand; cablelaid rope; cane rope; elevator rope; extra-flexible hoisting rope; flat rope; flattened-strand rope; guy rope; guy strand; hand rope; haulage rope; hawser; hoisting rope; lang lay rope; lay; left lay rope;	

left twist; nonspinning rope; regular lay; reverse-laid rope; rheostat rope; right lay; right twist; running rope; special flexible hoisting rope; standing rope; towing hawser; transmission rope.	
Working – When a coal seam is being squeezed by pressure from roof and floor, it emits creaking noises and is said to be "working". This often serves as a warning to the miners that additional support is needed.	
Working face – Any place in a mine where material is extracted during a mining cycle.	
Working place – From the outby side of the last open crosscut to the face.	
Workings – The entire system of openings in a mine for the purpose of exploitation.	
Working section – From the faces to the point where coal is loaded onto belts or rail cars to begin its trip to the outside.	

Section 2.5 Writing

2.5.1 Writing a Record Card and Making Notes

By the end of this section you will be able to:

- make usable notes from information sources in your area of study and/or specialism
- summarise, paraphrase, synthesise ideas from different text types (eg. articles, textbooks, surveys, etc.)
- quote correctly

Task 1. Do ‘a quick reading’ of the text **2.3.3 Resource Extraction** without making any notes. When you have finished note down points which have caught your attention.

Task 2. Now go systematically through the text and find the answers to the questions:

- What does the title of the article tell you?
- What do you think the author wants you to learn, and think about as the result of the text?
- How many sections are there in the text? What does each section tell you? Try to summarise each section in your own words. Try to make a couple of phrases.
- What are the author’s conclusions and/or recommendations? Jot these down in your own words.

Task 3. Write a very brief summary of the text to be put into a record card. The summary should identify the main points of the text in terms of mining methods. Identify one or two key-words or phrases which ‘capture’ idea of the text. Choose one quotation from the text which you could use to support a discussion on coal mining methods.

RECORD CARD

References: (see below how to make references)

Brief summary:

(+) Supportive quotation.

(-) Quotation which you do not agree, share or support.

(?) Idea (quotation) worth thinking about.

2.5.2 Writing References

By the end of this section you will:

- have a working knowledge of rules how to write references in English to be within International standards of academic writing
- be able to construct bibliography and write references with high degree of accuracy

Task 1. Read two abstracts from '*Conventions for the Presentation of Written Assignments for Postgraduate Students'* of the University of Exeter, Great Britain and be ready to answer the following questions:

- What is bibliography?
- How bibliography is arranged? (What order in?)
- What should be included in bibliography?
- What is differ bibliography from references?
- When do we refer to sources?
- What is plagiarism?
- How to avoid plagiarism?

6. REFERENCES

In professional writing, we invariably have to refer to the work of fellow professionals either to bring new ideas into our work, or to demonstrate that we know the source of an idea or to use another person's writing to support what we are saying. This also guards against accusations of plagiarism.

6.1 Plagiarism

Plagiarism is taking author's thoughts and ideas and presenting them as if they were your own, in a form that is identical or very close to the original. This is a serious offence in academic writing, and must be avoided. Of course, you will frequently want to include other people's views and findings in your own writing, either directly (i.e. quotations) or indirectly (i.e. a summary in your own words). That is standard practice, and is perfectly acceptable. But in all cases, you ***must*** acknowledge the original authors, by referring to them in the text and including full bibliographical details at the end of the assignment...

When you are writing an assignment paper, it is unwise to have the books or articles you are using open in front of you. This often leads to plagiarism, as it is easy to be influenced, perhaps unconsciously, by the language of these texts. It is safer to make notes from the books or articles, and then write your assignment paper from the notes. This will ensure that you use your own words to express the ideas.

7. BIBLIOGRAPHY

At the end of the assignment, you must provide a section headed **Bibliography**, which gives full details of every book, article or other document that was mentioned in the text. The bibliography is arranged in alphabetical order according to the author's surname. The information included varies according to the type of reference: a book, a journal article, or in an article in a book etc. DO NOT INCLUDE WORKS WHICH YOU MAY HAVE READ BUT WHICH YOU HAVE NOT CITED IN YOUR PAPER.

*School of International Education Conventions for the Presentation of Written Assignments. Postgraduate Courses (2004: 8, 10).

Task 2. Make notes of the key ideas of the both texts. Use them and/or information given above while writing assignments, course papers, reports etc. in English.

Task 3. Write references to the information sources processed by you following the rules given below:

Reference for a (text)book

Author's surname, Initial(s) of the author's name. (Date of publication: year) *Title of the book.* Place of publication: Name of publisher.

Eg. Woodcock, N. (1994) *Geology and Environment in Britain and Ireland.* London: University College London Press Limited.

Reference for a journal article

Author's surname, Initial(s) of the author's name (& Initial(s) of the coauthor) (Date of publication: year) Title of the article. *Title of Journal,* Journal Vol. #/ Issue number.

Eg. Chadwick, M. (2004) Gold Mining in Russia. *Mining Magazine*, No. 2, February.

Task 4. Compare the Ukrainian rules of writing bibliography and references. Find differences and similarities. Share the ideas with your groupmate(s).

2.5.3 Conventions for Presentation of Portfolio Tasks, Results of Self-study and Individual Work

By the end of this section you will:

- be aware of the requirements to presentation Portfolio Tasks and results of your self-study
- be able to organise your study resources effectively
- be able to keep record of reading, and of important references and quotations
- understand assessment requirements and marking criteria used for assessing your self-study.

By the end of each module you should present a report of the work done at home.

The report includes:

- ***English-Ukrainian Glossary of Terms*** made by you as the result of extensive reading at home. The terms have been found in the texts and processed in class are also included. Number of terms per module is not less than 160 words and word phrases.
- ***Dossier*** which contains all the information that can confirm that you were working hard during module. All the work done by you during the module (articles, abstracts, translations, projects, letters, tests etc.) should be gathered in a file. Special attention should be paid to *File of the Resources Processed*, i.e. *List of texts* (magazine and journal articles, chapters from various textbooks, Internet sites etc.) To present your File adequately and effectively you should follow the sample given below.

NoNo	Date	Author's Surname, Name (Year of publication)	Title of Text (Text-type)	Source of Information	Abstract or Summary of the Text	Volume
1.	12/12/08	Gates, B. (2002)	Computers	*PC Magazine*, Vol. 2, June, 2002	The text is about main components of computer: software and hardware. The detailed description of these components is given in the text.	3,000
2.	23/12/08	Unknown (2006)	Coal Mining	http://www.mining usa.com/kmi Accessed 15 Dec. 2007	The detailed information about various types of coal mining operations is given. Coal mining in different countries is described with the focus on the local peculiarities of coal deposits. Conclusions are drawn about the fact that the miners in different countries face the same problems connected with security and environmental protection.	6,000

Section 2.6 Self-assessment

By the end of this section you will be able to:

- understand marking criteria used for tests and assignments
- read and understand rubrics for tests etc.
- manage time in tests and self-assess appropriately

Check yourself using the correct answers given below.

The clues to correct answers are marked in grey.

If the number of your correct answers more than 49%, your results are satisfactory. If less, your proficiency level is still low.

Answer Keys to Unit 8 Part I CHECK YOUR PROGRESS

(see Part I **IN-CLASS ACTIVITIES**, **MODULE 2 OBTAINING AND PROCESSING INFORMATION FOR SPECIFIC PURPOSES**).

Task 1. Look at notices (1-5). For each notice which sentence is correct? Circle only one letter (**A**, **B** or **C**).

1. **DO NOT OPERATE THIS MACHINE WITHOUT SUPERVISION**

A You are not allowed to operate this machine at any time.

B You must have someone with you who can use the machine.

C You can only use this machine if you know how to operate it.

2. PLEASE NOTE:

   THIS WEEK'S FACULTY MEETING WILL BE HELD AT 11. 45 P.M.

   INSTEAD OF 11. 15 A.M.

The Faculty meeting this week will take place at:

A quarter to eleven

B quarter past eleven

C quarter to twelve

3. ***24/11/2006***

Message for Natalie

Reminder – Call Kate Shevchenko 4.50 p.m

Natalie should phone Kate

A on 24 March.

B at ten to five.

C at ten past four.

4. Reproduction in whole or part of any photograph, text or illustration without written permission from the publisher is prohibited.

A The publisher must write and allow you to use photos, texts and drawings from the magazine.

B You must write to the publisher if you want to buy the photos, texts and drawings.

C You can copy any photos, text or drawings from the magazine without asking.

5. **IN THE EVENT OF FIRE ASSEMBLE IN THE YARD.**

A If there is an assembly problem, meet in the yard.

B If there is a fire in the yard, gather together here.

C If there is a fire, everyone should meet in the yard.

Task 2. Read the text that follows.

The Spectacular Eruption of Mountain St Helen

A The eruption in May 1980 of Mount St. Helens, Washington State, astounded the world with its violence. A gigantic explosion tore much of the volcano's summit to fragments; the energy released was equal to that of 500 of the nuclear bombs that destroyed Hiroshima in 1945.

B The event occurred along the boundary of two of the moving plates that make up the Earth's crust. They meet at the junction of the North American continent and the Pacific Ocean. One edge of the continental North American plate over-rides the oceanic Juan de Fuca micro-plate, producing the volcanic Cascade range that includes Mounts Baker, Rainier and Hood, and Lassen Peak as well as Mount St. Helens. **(6)**

C Until Mount St. Helens began to stir, only Mount Baker and Lassen Peak had shown signs of life during the 20th century. According to geological evidence found by the United States Geological Survey, there had been two major eruptions of Mount St. Helens in the recent (geologically speaking) past: around 1900B.C, and about A.D.1500. Since the arrival of Europeans in the region, it had experienced a single period of spasmodic activity, between 1831 and 1857. Then, for more than a century. Mount St. Helens lay dormant. **(7)**

E Steps were taken to evacuate the population. **(8)** Most - campers, hikers, timber-cutters - left the slopes of the mountain. Eighty-four-year-old Harry Truman, a holiday lodge owner who had lived there for more than 50 years, refused to be evacuated, in spite of official and private urging. Many members of the public, including an entire class of school children, wrote to him, begging him to leave. He never did.

F On May 18, at 8.32 in the morning, Mount St. Helens blew its top, literally. Suddenly, it was 1300 feet shorter than it had been before its growth had begun. Over half a cubic mile of rock had disintegrated. At the same moment, an earthquake with an intensity of 5 on the Richter scale was recorded.**(9)** **(15)** It triggered an avalanche of snow and ice, mixed with hot rock - the entire north face of the mountain had fallen away. A wave of scorching volcanic gas and rock fragments shot horizontally from the volcano's riven flank, at an inescapable 200 miles per hour. As the sliding ice and snow melted, it touched off devastating torrents of mud and debris, which destroyed all life in their path. Pulverised rock climbed as a dust cloud into the atmosphere. Finally, viscous lava, accompanied by burning clouds of ash and gas, welled out of the volcano's new crater,

D By 1979, the Geological Survey, alerted by signs of renewed activity, had been monitoring the volcano for 18 months.**(11)** It warned the local population against being deceived by the mountain's outward calm, and forecast that an eruption would take place before the end of the century. The inhabitants of the area did not have to wait that long. On March 27, 1980, a few clouds of smoke formed above the summit, and slight tremors were felt. On the 28th, larger and darker clouds, consisting of gas and ashes, emerged and climbed as high as 20,000 feet. In April a slight full ensued, but the volcanologists remained pessimistic. Then, in early May, the northern flank of the mountain bulged, and the summit rose by 500 feet.

and from lesser vents and cracks in its flanks.

G Afterwards, scientists were able to analyse the sequence of events. **(10)** First, magma - molten rock - at temperatures above 2000°F **(14)** had surged into the volcano from the Earth's mantle. The build-up was accompanied by an accumulation of gas, which increased as the mass of magma grew. It was the pressure inside the mountain that made it swell. Next, the rise in gas pressure caused a violent decompression, which ejected the shattered summit like a cork from a shaken soda bottle. With the summit gone, the molten rock within was released in a jet of gas and fragmented magma, and lava welled from the crater.

H The effects of the Mount St. Helens eruption were catastrophic. Study of atmospheric particles formed as a result of explosion showed that droplets of sulphuric acid, acting as a screen between the Sun and the Earth's surface, caused a distinct drop in temperature. (**16)** Almost all the trees of the surrounding forest were flattered. Ash and mud spread over 250 square miles of country.**(12)** All the towns and settlements in the area were smothered in an even coating of ash. It has been calculated that the quantity of dust ejected by Mount St. Helen – a quarter of a cubic mile **(13)** – was negligible in comparison with that thrown by the earlier eruptions.

Do the following statements agree with the information given in the article?

Choose ' **A**' for **'Yes'** if the statement agrees with the information,

'**B**' for '**No**' if the statement contradicts information.

If there is not enough information to answer "Yes" or "No" choose

'**C'- 'Not given'.**

Circle the appropriate letters.

6. The eruption was caused by the boundary of two moving plates of the Earth. - A

7. There had been three major eruptions of Mount St. Helen. – B (see the text)

8. Nothing was made to evacuate people from the region close to the mountain. – C (see the text)

9. There was an earthquake in the region caused by the growth of the mountain. – A (see the text)

10. Scientists were able to analyse the sequence of the events. – A (see in the text)

11. The Geological Survey started its activity in 1979. – B (see the text)

Task 3. Complete the table below using the information from the text above.

Item	**Equivalent to**
Example The energy released by the explosion of Mount St. Helens	*Answer* ***500 nuclear bombs***
The area of land covered in mud or ash	**12** 250 square miles

The quantity of dust ejected	**13** a quarter of a cubic mile
Magma molten rocks were at temperatures	**14** 2000°F
The intensity of an earthquake was recorded on the Richter scale	**15** 5

Choose the appropriate letter **A – D** and underline the whole statement.

16. According to the text the eruption of Mount St. Helens and other volcanoes has influenced our climate by

A increasing the amount of rainfall.

B heating the atmosphere.

C cooling the air temperature. (See the text (**16**))

D causing atmospheric storms.

17. By 1979 the volcano had been monitored

A for 18 years.

B for 18 days.

C for 18 weeks.

D for 18 months. (See the text (11))

Task 4. Read the memo and catalogue list below.

Complete the order form on the next page.

Write a word or phrase (in CAPITAL LETTERS) or a number on lines **18 – 22.**

Memorandum

To Lucy Scrivener

From Bill Hammer

Lucy,

Can you please order some extra stationery for the reps' conference next week? Have a look at the Pens and More catalogue - they seem to be the best. We need enough for 10 reps. I suggest you get some A4 notepads, ballpoint pens, and ring binder files - one for each of the reps. Can you please also order 6 black marker pens and 50 OHP transparencies for me?

Thanks.

Pens and More

Catalogue

Stationery supplies

Code	Item	Unit value £
ST 2367	A4 notepad – lined	2.75
ST 2589	A5 Memo pad	2.50
ST 0256	Ring binder file	2.25
ST0148	Plastic folders - pack of 50	3.50
ST 0524	Plastic document folder	2.60
ST5217	Roller ball pens - pack of 6 black	3.99
ST 5796	Ballpoint pens - pack of 10 blue	0.99
ST 5876	Board marker pens - pack of 6 black	3.25
ST 5899	Pencils-pack of 10 HB	0.36
ST1764	OHP transparencies - pack of 50	6.99
ST 1551	OHP pens - pack of 6	3.49

Office Supplies Order Form

Please fill in the order code, item description, quantity and unit value ONLY. Total amounts and the Grand Total will be completed by the Accounts Department.

Order code	**Item description**		**Quantity**	**Unit value £**	**Total amount £**
ST 2367	**(18)** A4 notepad - lined		**10**	2.75	
ST 5796	BALLPOINT PENS - PACK OF 10 BLUE		**1**	**(19) 0.99**	
(20) ST 0256	RING BINDER FILE		**10**	2.25	
ST 5876	BOARD MARKER PENS -PACK OF 6		**(21)** pack of 6 black	3.25	
ST 1764	**(22) OHP transparencies** PACK OF 50		**1**	6.99	
			GRAND TOTAL		

Task 5. Read the article below. Choose the correct word to fill each gap from **A**, **B**, **C** on the next page. For each question (**23**-**35**), mark one letter (**A**, **B**, **C**). You may fill in the gaps with the appropriate word against the letter.

23	**A**	for	**B**	by	**C**	with
24	**A**	to	**B**	for	**C**	on
25	**A**	who	**B**	which	**C**	where
26	**A**	was	**B**	has been	**C**	is
27	**A**	whose	**B**	who	**C**	which
28	**A**	since	**B**	before	**C**	ago
29	**A**	and	**B**	but	**C**	also
30	**A**	a	**B**	the	**C**	any
31	**A**	in	**B**	from	**C**	for
32	**A**	promoting	**B**	promoted	**C**	promotion
33	**A**	going to	**B**	do	**C**	will
34	**A**	buy	**B**	buying	**C**	bought
35	**A**	for	**B**	to	**C**	which

Top woman chemist's "CRUSADE"

By Roger Highfield, Science Editor

A new $10,000 award has been won (23)_____ a professor who plans to spend her prize money (24)_____ an inspirational nationwide tour by a team of elite women chemists.

The first winner of the Rosalind Franklin Award, (25)_____ aims to promote women in science, is Professor Susan Gibson of King's College, London, it (26)_____ announced yesterday.

The award commemorates Rosalind Franklin, (27)_____ work at King's contributed to the discovery of DNA half a century (28)_____, and rewards excellence in science, engineering (29)_____ technology.

Professor Gibson plans to use (30)_____ prize money to bring a group of leading women chemists (31)_____ around the world tour British universities (32)_____ careers to female undergraduates.

She (33)_____ donate the remainder of the money to enable a young woman postgraduate at her department to (34)_____ much-needed chemicals (35)_____ continue her research.

Module 3

Discussing Professionally-oriented Topics

By the end of this module you can:

- participate in professionally-oriented meetings and discussions.

Section 3.1 Doing Internet Research

3.1.1 Categorising

By the end of this section you will be able to:

- understand and state the main idea and details in authentic texts
- give and explain your points of view on the topics being discussed

Tasks to do.

1. Search in the Internet for the keywords *"mining in Ukraine".*
2. Read through the texts to find the information about achievements in modern mining in Ukraine.
3. Categorise the information you've obtained according to different achievements in mining.
4. Complete the following worksheet.

WORKSHEET 3.1

Achievements in mining machinery
Achievements in surface mining

Achievements in underground mining
Achievements in …
Achievements in …

5. Make a copy of pictures describing equipment used in mining.

6. Get ready to present the information about achievements in modern mining in Ukraine to your groupmates.

3.1.2 Outlining

By the end of this section you will be able to:

- report about main information obtained in texts

Tasks to do.

1. Search in the Internet for the keywords *“underground drilling”.*

2. Read through the texts to find the information about main developments in underground drilling.

3. Make an outline of the text.

4. Give each part a title.

5. Get ready to present the information about underground drilling and its main developments to your groupmates. Use the following functional phrases.

Stating the problem	The main point is … The most important thing is … The problem is …
Stating consequences	So, therefore, thus, accordingly, hence, consequently Which means/meant that … So … that
Exemplifying	An example of this is when/the way … For a start, … For example/instance, … For one thing, … If you look at … Look at …
Stating and justifying opinions	I think In my opinion …. To my mind, … It would be better/more reasonable etc. to … I'm not sure I agree with you. I mean … I see what you mean, but … That's all right for you, but … Yes, but on the other hand, … I believe that … I could be wrong, but I think … I personally think …

3.1.3 Summarising

By the end of this section you will be able to:

- summarise the information from different texts
- present the information using functional phrases

Tasks to do.

1. Search in the Internet for the keywords *"gold mining".*

2. Scan the texts to find the information about current production of gold and innovations in the gold mining industry.

3. Organise the information you've obtained from each text using the following information.

1.The title of the article
2.The author of the article; where and when the article was published
3.The main idea of the article
4.The contents of the article (facts, names, figures)
5.The conclusion of the article
6.Your opinion of the article

4. Summarise the information from all the texts using the following structure.

WORKSHEET 3.2

Current production of gold in different countries	
Country	Production
Innovations in the gold mining industry	
Innovation	Description

5. Get ready to present the information about current production of gold and innovations in the gold mining industry to your groupmates. Use the necessary functional phrases.

3.1.4 Synthesising

By the end of this section you will be able to:

- summarise the information in authentic texts
- use the main ideas to participate in discussions

Tasks to do.

1. Search in the Internet for the keywords *"gold mining in Ukraine".*
2. Pick out all the information concerning the gold mining industry in Ukraine.

3. Fill in the following worksheet with the data, figures, facts and other information about this issue from different texts you've read.

WORKSHEET 3.3

Themes	**Descriptions**
Characteristics of deposits	
Mining methods	
Equipment	
Output	
Limitations	
Advantages of mining gold	
Disadvantages of mining gold	

4. Get ready to discuss this information with your groupmates. Use the necessary functional phrases.

5. Complete this worksheet by expanding and developing ideas.

3.1.5 Inferring

By the end of this section you will be able to:

- understand details in authentic texts
- understand main ideas in discussions
- summarise the information obtained from the texts

Tasks to do.

1. Search in the Internet for the keywords *"coal consumption/production".*
2. Read through the texts to find about the current production and consumption of coal in Ukraine.
3. Fill in the worksheet with the following information.

WORKSHEET 3.4

Coal production	
Coal consumption	
Main coal deposits	
Production increase/decrease	
Consumption increase/decrease	
Problems to be solved	

4. Using the information in the worksheet make conclusions about the future of the coal industry in Ukraine.

5. Get ready to present the information about the current production and consumption of coal in Ukraine and explain your point of view to your groupmates. Use the necessary functional phrases.

Section 3.2 Holding a Meeting

By the end of this section you will:

- be aware of functions and corresponding phrases used in a meeting
- know how to start a meeting and summarise main points
- be able to participate in a meeting

Tasks to do.

1. You are going to participate in a mini-meeting**.** Think about how you will:
   - start a meeting
   - respond to what your groupmates are saying
   - summarise main points

2. Complete the following worksheet with corresponding phrases.

WORKSHEET 3.5

Start a meeting	
Agree with someone's point of view	
Disagree	

Give your opinion	
Ask your groupmate for an opinion	
Make a suggestion	
Reject a suggestion	
Ask for a clarification	
Summarise	

3. Now look at the discourse structure of a meeting to check and add some more phrases.

3.2.1 Structure of Discussions and Meetings

Function	**Functional Phrases**
Opening	Ladies and gentlemen! Mr/Madam Chairman! Chair(person)
Introducing a theme	To begin/start with, I'd like to … Now, I'd like to say something about … I'd like to tell you about …
Expressing an opinion	In my opinion (Personally) I think
Enumerating	In the first place …, in the second place … (etc.) First … second(ly) + third(ly) …, (etc.) First … then … then …, (etc.) … and …and … For one thing …: for another …
Exemplifying	For example For instance … and so on

Function	**Functional Phrases**
Emphasising	Especially/extremely/particularly, etc. It is important to … I must emphasise/stress (the fact) that …
Defining	that is/means (to say)
Summarising	To sum up In brief … To cut a long story short … All in all …
Changing the theme	To pass on to something else, I have another point (to make).
Asking someone to pass to a new theme	I'd like to ask you something else.
Asking someone's opinion	What do you think (about/of)? What is your opinion/view? How do you see it? How does it look/seem from you point of view?
Showing that one is following a person's discourse	I see. Yes/No. Really? Indeed. Is that so? How interesting?
Interrupting, asking for the floor	Excuse me. May I say something? May I speak (now)?
Objecting/protesting	No, I'm sorry but … I (must strongly) object! I can't accept that.
Asking someone to be silent	Sh! Quiet, please.
Indicating a wish to continue	Just one moment/a minute, please. Please let me finish. As I was saying … I have just one thing left to say.
Encouraging someone to continue	(Do) go on (please).
Closing	Thank you for your attention.

4. To participate in a mini-meeting your group need to choose a professionally-oriented topic. Read through the list of such topics for a discussion.

3.2.2 List of Professionally-oriented Topics for Discussions

1. Methods of prospecting minerals.
2. Mineral resources and their role in the economic development of Ukraine.
3. Mining methods.
4. Recent achievements in mining.
5. Mining and the environment.

Section 3.3 Leading a Meeting

By the end of the unit you will be able to:

- start and end a meeting
- respond appropriately
- lead the meeting
- summarise main points

Tasks to do.

1. Get ready to participate in the professional meeting. Prepare yourself by thinking on:
    - starting a meeting
    - presenting your point of view
    - responding
    - leading the meeting
    - summarising main points

Use the following functional phrases.

3.3.1 Functional Phrases for Discussions

Function	Functional Phrases
Agreeing	That would be very nice. Of course. That's no problem. I agree entirely. Right.
Approving	Fantastic! Good idea. Great! That's a good idea. That's all right, then. That sounds like a good idea. That would be fine.
Asking for repetition and clarification	Could you repeat it, please? … did you say? I'm sorry. Could you repeat that, please? I'm sorry. I didn't quite catch that? I'm sorry. What was that you said?
Asking for/giving factual information	Can you tell me …? I'd like to know …? Could you help me …? Have you got …? Is there …? How much/How often …?
Asking for/making suggestions	How about …? What about …? Shall we …? Why not …? If you …, we'll … Would you like to …? Let's …… instead. Let's not …

Function	Functional Phrases
	I've got a better idea. It would be better/more fun to … I'd rather … I'd prefer to … Why don't we …? I suggest … Better make it later. I've got a suggestion. Why don't we …? Now, if you don't mind …? Why don't you …?
Attracting attention	I'm sorry to bother you. Listen. Look. Oh, look.
Changing the subject	Before I forget, … By the way, … Incidentally, … Speaking of … That reminds me …
Disagreeing	I'm not sure I agree with you. I mean… I'm not sure you're right. You see … I see what you mean, but … No, but really … That's all right for you, but … Well, yes, but … Yes, but on the other hand, …
Evaluating	I think the first one is very good. I don't think much of the second. What do you think of the fourth one? There's nothing in it. I think the fifth is better than the fourth.
Exemplifying	An example of this is when/the way … For a start, …

Function	Functional Phrases
	For example/instance, … For one thing, … If you look at … Look at …
Hesitating	Let me see … Let me think … Let's see …
Making and cancelling plans and arrangements	Going to/Present Continuous/Future continuous for arrangements that have been made Will for making arrangements Would like/would rather/would prefer How about …? What about …? Let's … Shall we …? Would you like to …? You can't … You'll have to … I'm sorry/I'm afraid I can't/I'll have to/ It won't be possible to …
Making conclusions and stating results	Subordinate clauses with so, so that, therefore Must
Persuading	It's obvious that … You must agree that … Why don't you …? How about …
Restating	… in other words … … that is … … that is to say … That means … You mean … You mean to say that …
Stating and justifying opinions	I think In my opinion …. To my mind, …

Function	Functional Phrases
	It would be better/more reasonable etc. to … I'm not sure I agree with you. I mean … I see what you mean, but … That's all right for you, but … Yes, but on the other hand, … I believe that … I could be wrong, but I think … I personally think …
Stating consequences	So, therefore, thus, accordingly, hence, consequently Which means/meant that … So … that
Stating the problem	The main point is … The most important thing is … The problem is …
Thanking and responding to thanks	Thank you (very much) for … -ing I'd like to thank you for … -ing I'd like to say thank you for … -ing Thanks a lot. Thanks for your advice. Thanks. You've been most helpful.

2. Besides typical functional phrases used in discussions, you can use phrasal verbs. Match each of the phrasal verbs in the list with its definitions. Use a good dictionary to help you.

A come up with	1. to postpone to a later time
B put off	2. to introduce a new topic at a meeting
C put up	3. to think of a new idea
D get through	4. to hang something on the wall for people to see
E put up with	5. to cover all the items in the time available
F bring up	6. to tolerate something difficult or unpleasant

3. Think about the following:

- What new information about the issue will you share with your groupmates?
- How will you be expressing your opinion?
- If you were listening, what questions would you ask?

4. Search for additional information about the topic to be able to answer the questions you will be asked.

5. Think about:

- problems that may arise during a meeting and their possible solutions
- actions to take
- how you will implement your decisions.

Section 3.4 Self-assessment

Answer Keys to Unit 8 Part I CHECK YOUR PROGRESS

(see **Part I IN-CLASS ACTIVITIES**, **MODULE 3 DISCUSSING PROFESSIONALLY-ORIENTED TOPICS**).

Task 1.

A5, B4, C3, D1, E2, F6, G7.

H is an extra heading, as there is no other phrase to introduce the topic.

Task 2.

8C – 'The article discusses' needs an object. 'Water management' is the object of the main clause.

9B – The given part is a complete sentence. ‘According to the text’ is the only one that is grammatically fits the rest part of the sentence.

10A – The missing part requires the subordinate clause.

11C - The missing part requires the object.

Task 3.

12 – G; 13 – D; 14 – F; 15 – B; 16 – F; 17 - I; 18 – E; 19 – A; 20 – H; 21 – C; 22 – C; 23 – G.

Task 4.

24B – ‘to be worth’ + Gerund.

25C – ‘Speak’ is the only verb that makes sense in the context.

26B – ‘Mean’ is grammatically correct as it is not used in the Continuous.

27A – Present Continuous is used in the sentence. ‘Mean’ is never used in the Continuous.

28A – A phrasal verb ‘move on’ makes sense in this context.

Task 5.

29 –F; 30 –A; 31 – H; 32 – E; 33 – J; 34 – K; 35 – D; 36 – G; 37 – I; 38 – B; 39 – C; 40 – L.

Module 4

Planning and Giving Presentations

By the end of this module you can:

- prepare, organise and deliver a presentation effectively

Section 4.1 Public Speaking

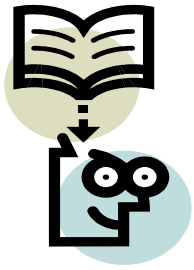
4.1.1 Making a Presentation Effective

By the end of this section you will be aware of:

- main features and elements of a successful presentation
- aspects of public speaking
- key points of presentation preparation
- structure of an effective presentation

Tasks to do.

1. Read carefully the information given below.



For You to Know: The Skill of Public Speaking

A public speech should retain the essential quality of a conversation, a connection between the speaker and listener. In order to be successful you must understand and study the nature of human relations, you must learn to use all the tools of speaking as well as you possibly can.

The art of public speaking cannot be acquired on a few tips, though it can be acquired in a reasonable space of time, allowing for the establishment of good articulation, clear - thinking and a sense of fitness in the choice of English.

We may chat to friends in the intimacy of a small room, but this type of talk is of no use in public. In public, we must speak, and speak out.

Three aspects of public speaking: physical, vocal, and intellectual are important and all are interdependent.

Preparation of a speech should be careful and adequate In case of a novice, it is wise to write out in detail what you intend to say. By doing that you can assess both quality and quantity.

In the choice of language, keep as much as possible to short sentences and simple words. A good style is dominated by meaning, not by fine words. Select phrases which are alive and colourful and avoid those which are vague and abstract. Constantly have in mind that you are composing a speech and thus be guided by the sound of the words.

Composition of a speech. Have an introduction, a body of the speech with headings, and a conclusion. These are for your own guidance, of course, and should not be announced. The introduction is an appetizer; therefore, see that it fulfils its purpose. Let it be arresting, interesting and brief. A good introduction goes far towards ensuring success.

In considering your subjects under headings, be careful that you never lose sight of the main idea. This should run through the whole of your speech. Do not be tempted to cover too much ground; if you wish to use an illustration or a story, let it be short, up to the point.

Concentrate upon your subject, not merely on your words. The conclusion is a summing up. If you have it in mind all the way through, it

will give a sense of direction to your thinking and keep you coherent. Plan carefully, choose the right words to express the exact meaning of your thought and deliver them well, don't just drift or rush to the finish line.

And now a few things about *handling your audience.*

Most audiences will be responsive if a harmonious note is struck right at the beginning. They are willing to be led, but will seldom submit to being driven.

On occasion, you may have to say unpleasant things, but there is no need to say them unpleasantly. Never allow irritation to show in your manner. If you keep your voice under control, it will help you to keep your temper in hand. If you are in the right, there is no need for you to lose your temper, if you are in the wrong, you cannot afford to lose it.

A patronising note in the voice is quickly detected and quickly resented. To talk down to an audience is not only bad manners, it is also bad policy. Audiences can be surprisingly smart and it is a mistake to underestimate their intelligence.

It may also prove quite helpful to prefix a piece of important information with the remark "As you all know". You may be perfectly well aware that the majority of the audience do not know. It is simply a piece of diplomatic deception which gives the audience a little stimulating uplift and a feeling that they may be better informed than they thought they were.

And most important of all, keep a watchful eye on the audience for the first yawn, and regard it as the red light. This is the time to conclude! The best conclusion would simply be: "Thank you".

---

*Зарубина З.В., Л.А. Кудрявцева, М.Ф. Ширманова. Продолжайте совершенствовать свой английский: Учеб. пособие – 2 изд., испр. и доп. – М.: Высш. шк., 1988. – 287 с.: ил.

2. Write down your suggestions, recommendations or advise to a friend who is going to comment publicly on certain issue. Use the information given above.

3. Be ready to give oral instructions on public speaking.

Grammar Reference:

Imperatives.

Commands.

Advisability with *should* and *ought to.*

4.1.2 Developing a Speech Introduction

By the end of this section you will be able to:

- develop a speech introduction according to the situation
- introduce your talk
- talk on the purpose of a presentation
- outline your talk
- use functional phrases for making an introduction

Task to do.

Below are four different job-related situations (**a-d**) you can find yourself in. You are to prepare and make ***the introduction*** to the presentation dealing with the ***Advances in Technology***. Choose any situation from the worksheet below. Think about audience, purpose and appropriate style of the introduction. Use some of the functional phrases for starting a presentation.

WORKSHEET 4.1

	a	**b**	**c**	**d**
Audience	Company employees	Visitors	Colleagues	Customers
Subject	The use of new technologies: -reasons -implementation	Company overview: innovations	Changes in organisation	Presentation of a new product
Purpose	To inform	To describe	To discuss	To persuade
Total time of presentation	30 minutes	20 minutes	15 minutes	10 minutes

4.1.3 Linking Parts and Ideas

By the end of this section you will be able to:

- do preliminary information research
- organise your ideas on a given topic
- identify the purpose of a presentation
- analyse the target audience
- structure a presentation
- use words and phrases for structuring a presentation and linking ideas

Tasks to do.

1. Read through the text about China as a potential investor into Australian mineral production. Find the information about:

- the reasons behind the quest for mining concessions;
- the needs of China's expanding nuclear programme;
- the results of the China's investment policy;
- competition on the world stage;
- the reform of China's mining industry.

WELCOME TO AUSTRALIA

Chinese companies have been actively taking up stocks around the world, most notably in Australia, where they have competed for licences to allow them to explore the country's uranium prospects. There are sound reasons behind the quest for these mining concessions.

By 2020, the Chinese hope to be able to import an annual total of 2,500t of Australian uranium to help service the needs of their expanding nuclear programme, which has an estimated total yearly demand of 7,500t.

The Chinese are, of course, no strangers to Australian mining. Back in the 1850s, Chinese miners came in search of gold – and seemed at times almost supernaturally adept at finding it. The fabled 'Chinaman's chance' was, however, a result of the application of innovative techniques rather than otherworldly intervention and justly won the Chinese a degree of respect, albeit sometimes grudgingly, among the local mining community.

Today, while the US has repeatedly rebutted Chinese attempts to gain American assets, Australia has been far more welcoming to potential investment, with Chinese companies readily buying into the country's mineral producers to feed the hunger back home for everything from aluminium to zinc. This purchase and investment in Australian mineral production has been gathering pace over the recent years.

In 2004, Yanzhou Coal Mining bought a coal mine in Australia's Hunter Valley for a reported $23m and BHP Billiton parcelled out a 40% share in an iron ore mine to four Chinese steelmakers, in a deal expected to raise $9bn in sales over 20 years.

A year later, the Beijing-based steel-maker Shougang announced a $120m payment to Mt. Gibson Iron for a half share in an iron ore mine. More recently, China's third largest steelmaker Anshan signed up to a $1.8bn joint venture with Australia's Gindalbie Metals to develop iron ore projects.

It is not difficult to understand the rationale behind these moves. Throughout most of the decade, China has been second only to Japan as the largest single consumer of Australian mined resources, with Chinese companies purchasing 12% of the sector's total exports, according to the Minerals Council of Australia.

With Chinese demand surging, it has been estimated that China will account for 30% of the world's consumption of aluminium, copper, iron ore and nickel by 2010 – double the share taken only ten years earlier.

High levels of demand have driven prices higher too. For the Chinese, gaining control of the supply chain is seen as fundamental to safeguarding their buoyant economic development and taking ownership of the resource base viewed as the most expedient way of ensuring a stabilised long-term supply of essential minerals.

GLOBAL PLAYERS

This pattern is being repeated outside of Australia too, with countries in Africa, Latin America and South East Asia also being perceived by Beijing as 'China-friendly' – making further deals to buy more mineral deposits much more likely.

Recent developments in Zimbabwe – a country actively seeking Chinese investment to replace the western capital lost as a result of its ongoing political crisis – Peru and Papua New Guinea have been seen as heralding the start of a new wave of takeovers by Chinese companies.

However, China faces stiff competition on the world stage as the 'land-grab' in the resources sector heats up, making renewed focus on improving mineral production at home an inevitable parallel strategy. The reform of China's mining

industry – currently underway and scheduled for completion by the beginning of 2009 – is as much about improving efficiency as addressing its woeful record on safety and the environment.

There remains an international element to this, too. Estimates suggest that large properties to the centre and west of the country are still unexplored, and their resources may lie relatively close to the surface. Chinese hopes rest on enticing foreign mining companies, technology, expertise and funding to work co-operatively with local firms, particularly those mining gold, to help consolidate resources and increase productivity.

Historically, the highly fragmented nature of China's coal and gold industries has been a source of significant problems. The field is likely to see more company mergers and acquisitions in the near future, not least because the Chinese government seems intent on sieving out the smaller players to improve long-term prospects. Their plans include forming a number of large-scale mining conglomerates and shutting coal mines which produce under 30,000tpa.

An increase in the country's mining resource tax is also on the cards for the near future, according to China's Finance Ministry. The current level is believed to be too low compared to the high domestic mining profits and will be made to mirror the market price of ores more closely to help ensure the sustainable development of the sector.

In many ways, just how much clout China really has when it comes to mining remains to be seen. However, there is no escaping the fact that the Chinese have embraced the industry's global dimension well and forged extensive links at varying levels with many of its key nations

China's current Five-Year Plan, which runs until 2010, places a strong emphasis on securing mineral resources for the future and the worth of the country's mining industry is expected to approach $600 bn by the following year.

With growth consistently averaging 10.1% a year over the last five years, China's economy remains ever-hungry for metals and minerals. The worldwide quest to feed that hunger seems likely to continue.

2. You are going to prepare a presentation on mining industry in China for your groupmates. Think about the purpose, the target audience and the style of your talk.

3. Get ready to give a presentation using the appropriate functional phrases for organising the information and linking ideas from **Structure of an Oral Presentation** below.

Structure of an Oral Presentation

Sub-skills	Functions	Functional Phrases
Opening a presentation	Greeting and introducing yourself	Good morning. My name's …/I am … Let me introduce myself. Good afternoon. Let me start by saying a few words about …
	Presenting the title/subject	The subject of my presentation is … The focus of my paper (academic) is … I'd like to talk today about… I'm going to present the recent … I'm going to inform you about …
	Specifying the purpose/ objective	We are here today to decide/ agree/learn about … The purpose of the presentation is to … The talk /presentation is designed to …
	Outlining the presentation	My presentation will be in … parts. I've divided my presentation into … sections. They are … First/ Firstly/ First of all, I'd like to give you (an overview of) ... Second/Secondly/Next/Then, I'll focus on … Lastly/Finally, we'll consider … I'll be developing … main points. The first point will be…. Second, … Lastly, …
	Referring to questions	Feel free to interrupt me during the talk if you have any questions. I'll be happy to answer your questions at the end.

Sub-skills	Functions	Functional Phrases
Sequencing and linking ideas/parts	Introducing each part/section	Firstly … , secondly … , thirdly … . Let's start with … Let's move on to … This leads me to … That brings us to … Let's leave that … That covers … Let's go back to … Let me turn now to … Finally/Lastly let's deal with …
	Giving reasons/causes	Therefore, … So, … As a result, … Consequently, ... That's why … This is because of … This is largely due to … It could lead to… It may result in …
	Contrasting	But … On the other hand, … Although … In spite of this, … However, …
	Comparing	Both (technologies) … Similarly, … In the same way, …
	Contradicting	In fact, … Actually, …
	Highlighting	… in particular. … especially …
	Digressing	Before going on, I'd just like to say … By the way, … … in passing …
	Giving examples	For example, … For instance, … A good example of this is … To illustrate this point, … Take … for instance. In particular, … … such as …

Sub-skills	Functions	Functional Phrases
	Generalising	As a rule, … … usually … … generally …
Involving the audience	Asking rhetorical questions	What's the explanation for this? How can we explain this? How can we do about it? How will this affect …? What are the implications for …?
	Referring to common knowledge	As you know … As I'm sure you're aware … We have all experienced … You may remember …
	Checking understanding	Is that clear? Are there any questions?
Describing and analysing performance	Describing performance	The … performed well/poorly. The … has/have shown considerable/slight growth/improvement/decrease …
	Analysing performance	The main explanation for this is … A particular/one/another reason is … A key problem is …
	Describing facts, figures and trends	There is/has been a slight/dramatic/steady /considerable/significant/moderate increase/ rise/decrease/fall/drop/collapse in … … remain(s)/has remained constant/stable. … has/have decreased/increased/fallen/risen sharply/dramatically/considerably/slightly.
Using visual aids	Referring to visual information	This transparency/diagram shows … If you look at this graph you can see … Now, let's look at the position of … For … the situation is very different. Let's move on now and look at … The next slide shows … If we now turn to the … This chart compares … and … The (upper) part of the slide gives information about …

Sub-skills	Functions	Functional Phrases
	Focusing the audience's attention	You can see here the … As you can see … I'd like to draw your attention to … Notice/Observe the … It is important/interesting to notice that…
Ending a presentation	Signalling the end	That brings me to the end of my presentation. That completes my presentation. Before I stop/finish, let me just say … That covers all I wanted to say today.
	Summarising	To sum up… In brief/ briefly … In short … I'd like to sum up now … I'll briefly summarise the main issues. Let me summarise briefly what I've said. If I can just sum up the main points. At this stage I'd like to run over the key points again. Let's recap, shall we?
	Concluding	In conclusion, … To conclude, … As you can see, there are some very good reasons … I'd like to leave you with the following thought/idea.
	Recommending	Our suggestion/proposal would be to … We recommend/I'd like to suggest/propose setting up….
	Closing	Thank you for listening. Thank you for your attention. I hope you have gained an insight into … I would welcome any comments/suggestions.
Handling questions	Inviting questions	I'd be happy to answer any questions. If you have any questions, I'd be pleased to answer them. Any questions?
	Clarifying questions	So, what you are asking is … If I understand the question correctly, you would like to know …

Sub-skills	Functions	Functional Phrases
		When you say … do you mean…? Sorry, could you repeat that? I'm not sure what you're getting at.
	Avoiding giving an answer	Perhaps we could deal with that later. Can we talk about that another time? I'm afraid that's not my field. I don't have the figures with me. I'm sure Mr X could answer that question. That's interesting, but I'd prefer not to answer that today. I'm afraid I'm not the right person to answer that. Could we leave that till later? I'm not sure this is the right place/time to discuss this particular question.
	Checking the questioner is satisfied	May we go on? Does that answer your question? Is that clear?

4.1.4 Improving the Language of a Presentation

By the end of the unit you will be able to:

- choose proper language for the presentation
- change written language into spoken language
- use appropriate style of language for the presentation

Tasks to do.

1. Think about the differences between written and spoken language. Then read through the text on the opposite page. Rewrite the underlined sentences in spoken language.

Lump sums

Oil production may soon 'peak', but what about coal? David Strahan reports on the recent figures that suggest global reserves may not be nearly as plentiful as the industry and governments have led us to believe

For weeks, South Africa has suffered rolling blackouts caused in part by a shortage of coal. In China, gripped by unusually bitter snowstorms, coal exports were banned for the next two months. And at Newcastle, Australia, the world's largest coal export terminal in the world's largest coal exporting country, the queue of carriers waiting to load has been known to stretch almost to Sydney, 150km to the south.

Coal, for so long the Cinderella of fossil fuels, is suddenly not just in demand but in desperately short supply. The world's biggest producers and exporters are struggling, and the price of imports to Europe has doubled to almost $140 (£70.5) per tonne over the past year. "It's a global crunch," says John Howland, managing editor of the international coal industry magazine McCloskey's Coal Report.

The immediate reasons for the price spike are soaring demand, inadequate infrastructure and bad weather. But now there are also gnawing doubts that global coal production may, within the next few decades, face fundamental geological constraints, or "peak coal".

Ask most energy analysts how much coal we have left, and the answer will be a variant on "plenty". The latest "official" statistics from the World Energy Council put global coal reserves at the end of 2006 at a staggering 847bn tonnes. Since world coal production that year was just under 6bn tonnes, the reserves-to-production (R/P) ratio - the theoretical number of years the reserves would last at the current rate of consumption - is well over 100 years.

It is commonly assumed, therefore, that there can be no shortage of coal this century. However, a clutch of recent reports suggest that coal

reserves may be hugely inflated - a possibility that has profound implications for global energy supply and climate change.

A report published last year by the EU Institute of Energy pointed out that as demand for coal has soared since the turn of the century - with China famously opening one coal-fired power station per week - the world's reserves have fallen fast. The authors calculated that the R/P ratio had dropped by almost a third, from 277 years in 2000 to just 155 in 2005.

Marginal deposits

Mysteriously, this fall happened despite a sharp rise in the price of coal, which traditional economic theory suggests should increase the level of reserves by making it possible to exploit more marginal deposits. The report warned that "the world could run out of economically recoverable (at current economic and operating conditions) reserves of coal much earlier than widely anticipated". When the latest data, from 2006, was published last year, the R/P ratio had dropped again to just 144 years.

Energy Watch, a group of scientists led by the German renewable energy consultancy Ludwig Bölkow Systemtechnik, has drawn an even more alarming conclusion. In a report also published last year, the group argues that official coal reserves are likely to be biased on the high side. "As scientists, we were surprised to find that so-called proven reserves were anything but proven," says the report's lead author Werner Zittel. "It is a clear sign that something is seriously wrong."

Energy Watch found that many countries' reserves figures had remained suspiciously unchanged for decades - China's since 1992, despite having mined 20% in the intervening years. But in those countries that had revised their figures, the changes were overwhelmingly negative. For instance Britain, Germany and Botswana had cut their reserves by over 90%, more than could be accounted for by mining alone, suggesting these gloomier updates were based on improved data.

As a result, Energy Watch concluded the current reserves figures are likely to represent the upper limit of available coal, meaning that production will stall far sooner than expected. On the basis of a country-by-country analysis, the group forecasts that although global coal output could rise by about 30% over the next decade, it will peak as early as 2025 and then fall into terminal decline.

Less coal, of course, means less carbon, and a recent analysis by Dave Rutledge, chair of the department of engineering and applied science at the California Institute of Technology, suggests that current forecasts of man-made CO2 emissions may be far too pessimistic. By analysing the coal production trends in individual countries, using an ingenious technique called Hubbert linearisation, Rutledge's estimate of the total amount of coal that remains to be produced is much lower than the official figures.

Using historical examples such as Britain, where coal output peaked in 1913 and mining is now all but finished, he can demonstrate that the approach is far more accurate than traditional explanations. By this method, the predicted future global coal production will amount to around 450bn tonnes before mining stops - little more than half the current official reserves figure.

The effect on the emissions outlook is dramatic, producing a peak atmospheric CO2 concentration in 2070 of just 460ppm (parts per million) - fractionally above the 450ppm that many scientists believe is the threshold for runaway climate change, and lower than even the most optimistic of the 40 climate scenarios by the Intergovernmental Panel on Climate Change (IPCC). "In some sense, this is good news," Rutledge says. "We are likely to hit 450ppm without any policy intervention." Therefore, even if governments did nothing, total CO2 concentration would not surpass the presumed climate change threshold by much.

Neither Energy Watch nor Rutledge could remotely be described as climate-change deniers - quite the opposite - but their findings worry many

climate scientists, including Pushker Kharecha, at the Nasa Goddard Institute for Space Studies in New York. He agrees that coal reserves are probably overstated, but insists that curtailment of coal emissions is still essential to combat climate change. "What are the risks if the low-coal people are wrong?" he asks. To pin our hopes on low coal would be dangerously complacent, he argues, because if it is only marginally wrong the additional emissions could ensure catastrophe.

Rutledge agrees that although his analysis suggests that the fossil fuel reserves assumed in the IPCC model are far too high, it does not mean the problem of climate change is solved. Recent evidence suggests that the climate is more sensitive to carbon emissions than previously thought and the IPCC model does not yet take account of long-term "positive feedback loops", such as the melting Siberian permafrost or shrinking icecaps, which will accelerate global warming. Jim Hansen, director of the Goddard Institute, has warned that the danger threshold for CO2 is much lower than 450ppm.

What it does mean, however, is that the world's looming energy crisis could be even more severe than anyone imagines. In the International Energy Agency's latest long-term forecast, global coal consumption needs to rise 60% by 2030 to satisfy economic growth, and coal-fired electricity generating capacity has to double. But if Zittel and Rutledge are right, there is little chance of those predictions being fulfilled. And as global oil production goes into terminal decline within the next decade or so, there is even less chance that synthetic coal-to-liquids fuels can make up the crude deficit.

But the good news is that the imperatives of climate change and peak oil are identical. "In the long run, economies that rely on depletable resources are doomed to fail," Zittel warns. "The coal peak makes it even more urgent to switch to renewable energy without delay."*

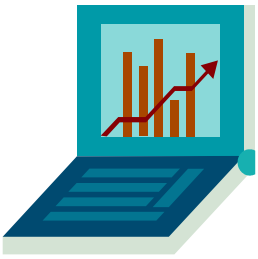
---

*Strahan D. (2008) *The Guardian*, № 5, March.

2. Get ready to give a presentation about global coal reserves and world coal production using the information from the article. Try to sound more natural by using personal pronouns, active not passive forms. Use the necessary functional phrases.

Grammar Reference:

Active and passive forms.



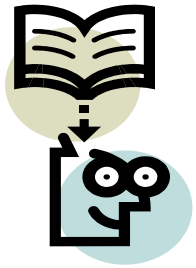
Section 4.2 Designing and Using Visual Aids

By the end of this section you will be able to:

- make a computer-based presentation
- design visual aids and use them while giving presentation
- describe graphic information
- describe changes and trends
- use appropriate language for describing facts and figures

Tasks to do.

1. Study the information given below carefully. Pay attention to general principles and requirements for visuals design and usage.



For You to Know: Working with Visuals & Technology

Any visual materials or multimedia you use should support and add impact to your presentation.

They can:

- illustrate factors which are hard to explain with words alone
- show reality (photographs, plans, maps)
- help the audience to visualise abstract concepts (charts/diagrams)
- reinforce or compare information and (numbers, graphs, charts/diagrams)

Messages should be concise, simple and relevant. The impact of each visual message can be varied by the imaginative use of colour. Lettering should be clearly printed in bold colours and properly spaced.

PowerPoint

You can use PowerPoint software to produce overheads, or to make a computer-based presentation.

PowerPoint Pitfalls

Remember—PowerPoint can certainly support your presentation, but it can't deliver the presentation for you. If your talk is poor, no amount of fancy graphics will save it!

Ignoring the audience. Don't become so preoccupied with your PowerPoint presentation that you pay more attention to clicking the mouse at the right time than delivering your talk. Speak to your audience, not to your screen or your notes.

Turning all the lights off. Dimming the light can increase the clarity and contrast of your slides. However, don't turn off all the lights and leave your audience in darkness. They may want to make notes.

Using too many slides. A common pitfall is to reproduce almost the entire text of a presentation onto slides. The result is too much text and too much on-screen movement (in the form of clickable bullet points and slide transitions etc.) Too many slides also effectively anchor the speaker in place.

Reading slides aloud. As you should avoid reading a script of your presentation word-for-word, so you should avoid reading from slides.

Use slides carefully. Limit the number to 5 or 6 slides per 10 minutes. Think of them as key points which you can use as prompts. Do not simply read the material: supplement or explain what is written.

Managing the technology

PowerPoint slides add interest to a presentation, but they can also add distractions and technical problems that you need to prepare for.

Check the equipment

Try to have a rehearsal with the equipment beforehand.

- Make sure the computer will open your presentation file.
- If you are using your own laptop, make sure that you are able to connect it to the overhead projector.
- Practice so that you are competent in using the equipment and the software (e.g. going back to previous slides).

Look at the layout of the room:

- Where should you stand to avoid blocking the screen?
- Where is the computer/ overhead projector located? Where do you need to stand to operate it?

- How light is the room? Will you need to dim any lights, or close the curtains?

On the day

Arrive early on the day of your presentation. Test and (if possible) set up your equipment beforehand. You are likely to feel nervous and want to concentrate on your presentation, rather than the extra stress involved in setting up equipment.

If you are using OHTs:

- Make sure OHTs are arranged in the right order (paper between each one helps) and are facing the right way up.

If you are using a computer for a PowerPoint presentation:

- Arrive early and set up
- Have a colleague at hand who understands the technology and can help you if there are any problems setting up.

Have a Back-up Plan

Remember that PowerPoint may look great, but if the technology goes wrong you may be very embarrassed. It's a good idea to print out a handout, or have some overheads as a backup just in case.

Hints for Designing Overhead Transparencies or Slides

Do

- either print clearly or use a large font (at least 24 points). Text should be readable from the back of the room.
- use text effectively. Avoid overly elaborate fonts. Choose a font that is easy to read, like Helvetica, Arial or Times. Put your message in Bold.

- use 1 message per OHT (15-20 words).
- check spelling and grammar.
- choose appropriate colours. Use strong colours for text and ensure there is a clear contrast between text and background colour.
- work in the centre of the OHT. Leave a margin of about 4 cm, otherwise it may not fit the overhead projector frame.
- choose diagrams, charts or pictures to support your spoken material. Use one image per slide or OHT.

Do Not

- use small fonts, cursive typefaces or untidy handwriting. You audience won't be able to read it.
- cram too much information on one slide/OHT. For example, don't reproduce the entire text of a presentation; list the main points in bullet form.
- include any visual elements (like computer clip art) purely for decoration.
- use faded or pale colours for text, unless your background is dark.
- squeeze lines or cramp letters together.
- use too many of the animations available in PowerPoint. They can be very distracting for an audience.

*Adapted from: McHugh, S. and Pollard, J. (1996) *Business Communication.* Melbourne : Longman. - 402 p.

2. You are going to make a computer-based presentation. Use the tips from the text above as guidelines for your preparation.

3. Read the abstract and the introduction to the article about the Big Six (countries, which control around 85% of the world's coal). Choose the information necessary for producing slides to visualise facts and figures for your presentation. If you need additional information access the whole article on the site mentioned in the text below.

A supply-driven forecast for the future global coal production

Mikael Höök[a], Werner Zittel[b], Jörg Schindler[b], Kjell Aleklett[a]
Contact e-mail: Mikael.Hook@tsl.uu.se
http://www.tsl.uu.se/uhdsg

Abstract

Several countries have already reached a maximum of coal production and are in decline, for instance Germany, The UK and Japan. A vast majority of the world's coal reserves are located within six countries, the Big Six, which control around 85% of the world's coal. None of these countries has yet reached maximum coal production and when they do they will consequently have a large impact on the global coal production. The global coal production is forecasted by using a logistic growth model and experience from historical reserve and resource assessments. A maximum production will be reached by 2030. Comparisons are made with other forecasts and the emission scenarios for climate change.

1. Introduction

Two different standpoints are dominating the general view on coal. The first one is the opinion about how polluting, dirty and dangerous coal is compared to other energy sources and thus should be avoided. However people are not avoiding coal

and it is still a large part of the world's primary energy and will remain so for a long time. This viewpoint is idealistic and more of an ethical/environmental nature and will not be further discussed. The other view is the optimistic opinion that there are hundreds of years of coal available for energy production and that the declining oil and gas reserves can be compensated by increased usage of coal. This viewpoint is more problematic as it seldom focuses on the really important issue; how much coal is realistically available and how much might be produced in the future? A supply-based forecast will be made to show what the future might look like if the supply is used instead of the demand when making the forecast. This is done by learning from history and thus adding the historical experiences from resource and reserve development and introduction of new technology to the forecast. **The Big Six and the global distribution of coal reserves** As all fossil resources, the global coal reserves are very unevenly distributed. A small number of nations control the vast majority of the world's coal reserves. The USA, Former Soviet Union (whose coal deposits have gone to the Russian Federation, Ukraine and Kazakhstan after 1998), China, India, Australia and South Africa together control over 85% of the world's hard coal reserves (anthracite and bituminous coal). They also control almost 90% of the world's hard coal resources along with a majority of the world's brown coal, both reserves and resources. Replacing former Soviet Union with Russia a group of six nations that control around 85% of the world's coal is created. This group will be called the *Big Six* and is the focus of this investigation along with some of the most important exporters. The USA is often called the Saudi-Arabia of coal and has alone almost 30% of the world's total coal reserves. Russia has around 17% and has the second largest coal reserve. China and India have 12% respectively 10% and are of particular interest since they have rapidly growing economies, which calls for more energy. Australia and South Africa have 8.6% respectively 5.4% of the world's coal reserves. Australia is by far the world's largest coal exporter. South Africa is the only African country that has significant amounts of coal and it also has a large coal-to-liquids industry along with a large coal export which makes it especially interesting

(BP, 2007), (BGR, 2005). The largest coal exporting nations outside the Big Six are Indonesia, Colombia and Canada. They will be investigated in more detail.

The concept of peak coal

Coal is not an infinite resource and thus the concept of peak coal is as viable as peak oil. The only difference lies in the amount of available reserves and the extraction methods.

Like oil coal will get more and more expensive and complicated to produce as the best coal deposits get depleted. Some regions have already passed "peak coal". United Kingdom peaked in coal production in the 1920s and the downward trend became obvious and unstoppable in the 1930s. William Stanley Jevons predicted this event in his work *The Coal Question* from 1856 (Jevons, 1856). Other countries that also have passed peak coal are Germany and Japan. About 20 countries have already passed peak production and their combined production volume declined since 1980 by almost 50 % from 1.200 Mt to 620 Mt The vast majority of the world's coal supply is located within six nations. Since coal is a fossil fuel and subject to depletion it is only a matter of time before peak coal occurs. The relevant question is thus when this will happen and what the future coal situation will look like. Some of the Big Six have a long history of coal production and will therefore be more mature producers than other members of the Big Six. Some members of the Big Six have a very young coal industry and are therefore only in the beginning of their production curves. Given the large reserves and production volumes of the Big Six their influence on the global coal peak will be large. By using them as an important parameter the future coal production can be forecasted. The peaking of the Big Six will determine the peak in global coal production.

4. Be ready to give a presentation in class using PowerPoint software to visualise information you have chosen.

Section 4.3 Making Delivery Techniques Effective

By the end of the unit you will be able to:

- use appropriate manner of delivery
- interest your audience
- speak effectively
- catch audience attention
- use body language

Tasks to do.

1. Study the tips given below carefully. Are they useful for you? Which of them are you going to follow? Why?

Some tips and ideas on delivering a presentation

- Avoid reading directly from a piece of paper - this is very boring to listen to.
- Speak as though you are speaking to just one person. After all, each member of your audience is listening to just one person.
- Maintain eye contact with your audience as much as possible. And try to make eye contact with everyone in your audience at least once.
- Try to relax. You may need to speak a little slower than normal and project your voice a little more. But keep the variety in your tone and pace of delivery.
- Most people are very respectful of anyone who has the courage to make a presentation. Public speaking is the number one fear.
- Don't be afraid to move around. Some presenters have developed a style that is all about movement.

2. Read the article given below. Take notes of the key ideas of the article and find examples to support them.

By Keith Kohl
Friday, June 27th, 2008

"Supply is struggling to meet demand."

At first, I had a flashback to a peak oil argument from the weekend.

How could you blame me? Every time I hear an "expert" talk about how the world is almost out of oil because of the peak oil theory, it's hard not to throw something at the television. I apologize for sounding like a broken record, but how long will it take for these "experts" to realize that peak oil has nothing to do with how much total oil is left? Perhaps one day they'll take the time to understand it's all about how much of that oil we can pull out.

This simple phone conversation, however, had nothing to do with peak oil. The topic was on another fossil fuel-coal. Trust me, coal has been around for a long time. The Chinese have been mining it for fuel roughly 10,000 years ago.

To say that coal prices have been on the move in 2008 would be a gross understatement. If you remember from last week's Energy and Capital, my colleague Chris Nelder showed you how coal prices in the U.S. were exploding. Prices have even doubled in some cases.

There's several reasons for us to get into coal before the end of the year. For me, all it took was the shortfall in global *coal production* to grab my attention.

Supply versus demand, haven't we heard this story before?

I know, the thought of supply falling short of demand does remind me of peak oil. That may be true for you too, but one thing the oil markets have taught us is that the right moves can become extremely profitable. I'll get to the investment side of coal in just a moment, though.

For now, let's focus on that supply question.

Coal Production

First let's take a look at demand on a global scale. It appears that supply falls short of meeting global demand this year by 25 to 35 million tons. Several officials have also estimated that amount would double to 70 million tons during 2009.

In the U.S., demand is expected to surpass supply by 15 million short tons. Again, we have to think back to last week.

Considering that the chances of a significant production boost are slim, we can expect the coal markets to tighten over the next two years.

With approximately 270 million short tons of recoverable coal reserves (I'm referring to both bituminous and sub-bituminous coal), the U.S. has plenty in the ground. But as you already know, there's a huge difference between having it in the ground and pulling it out.

U.S. production, however, won't be enough to make up the difference. In fact, one of the headlines I read this morning pointed to the struggle that coal producers will have. Nearly 40 million short tons of coal won't be produced due to the stringent environmental regulations and lengthy permit process. Add that to the millions of tons of coal production stopped because of Midwest flooding.

Even though we may see a slight correction in coal prices as new production comes online, I believe we can still remain bullish on coal prices over the next two or three years.

Now, I understand that you're probably not reading my column for your health. Like myself, most of my readers are always asking how they can invest in these tight markets. Even if U.S. production won't be able to make up the demand shortfall, higher coal prices will ensure a decent return on your investment.

Investing in U.S. Coal Production

Although I feel reluctant to give away some of my favorite coal stocks, you can't go wrong with the major players. But as always, remember to never throw your hard earned money away without checking everything out for yourself.

Take a look at some of the big plays, for example. Alpha Natural Resources (NYSE: *ANR*) focuses their operations in Northern and Central Appalachia. Nearly 90% of their coal reserves have a high Btu content (more than 12,500 Btu per pound of coal). If you had jumped into these guys at the beginning of 2008, you would have made a hefty 188% today.

Another coal player I've seen touted around the block is Consol Energy Inc. (NYSE: *CNX*). Although coal isn't the only energy source they deal with, Consol is the largest producer of high-Btu bituminous coal in the U.S. and certainly worth your time and effort.

These two plays certainly aren't the only ones worth looking into. In fact, I've had a hard time finding a company that *hasn't* performed well for investors. Just make sure to do your own due diligence when looking to add a company to your portfolio.

Until next time,

Keith Kohl

3. You are preparing a presentation for your groupmates using the information from the article above. Make necessary changes into the structure of the text, use appropriate functional phrases, and think about the ways of catching audience attention. Practice your speech paying close attention to your body language, your posture, both of which will be assessed by the audience.

Section 4.4 Giving and Evaluating a Presentation

By the end of the unit you will be able to:

- collect, process and analyse data to be used in presentation
- record information gathered
- present and evaluate the ideas
- discuss presentations
- give feedback

Tasks to do.

1. Have you ever heard about Wi-Fi? What's this? How does it work? Read the information about Wi-Fi given on the opposite page. Think about how it can be used in the mining industry.

Wi-Fi is a trademark of the Wi-Fi Alliance, founded in 1999 as WECA (Wireless Ethernet Compatibility Alliance). The organization comprises more than 300 companies, whose products are certified by the Wi-Fi Alliance, based on the IEEE 802.11 standards (also called WLAN (Wireless LAN) and Wi-Fi). This certification warrants interoperability between different wireless devices.

The purpose of Wi-Fi is to provide inter-operable wireless access between devices. Wi-Fi generally makes access to information between devices from many different manufacturers easier, as it can eliminate some of the physical restraints of wiring which can be especially true for mobile devices

Wi-Fi allows local area networks (LANs) to be deployed without wires for client devices, typically reducing the costs of network deployment and expansion. Spaces where cables cannot be run, such as outdoor areas and historical buildings, can host wireless LANs.

2. You are going to give a presentation on the new technology Wi-Fi in mining. Follow the preparation guides, structure of a presentation and use functional phrases from the unit. You may take the information from the text that follows or your own sources.

The Real Deal

Wi-Fi tagging and tracking is leading the revolution in an industry where safety and efficiency are essential. Dr Gareth Evans looks at the latest real-time technologies to enhance the mining industry, both for personnel and for equipment.

As the evolving market for real-time location systems (RTLS) gears up for a rapid expansion in global value – predicted to make an 80-fold increase over five years, to exceed $1.6bn by 2010 – industries are being presented with ever more innovative technologies and applications.

There are many drivers on the uptake of what has been termed the 'strategic' use of dedicated wireless local area networks (WLANs), but the single most compelling across the board is its potential facilitation of applications which promise enhanced efficiency and profitability. For many industries, the ability to keep track of mobile and fixed assets, as well as key personnel, centrally and in real time, offers significant benefits, not least being the optimisation of resources allocation – which can have a major bottom line impact

Unsurprisingly, although the RTLS sector is still new and relatively unexplored, it seems certain that it will play an important part in shaping strategic WLAN in a number of industries over the coming years. Mining is no exception.

Mine operators have an extended record of willingness to embrace automation and technology, especially where such moves offer measurable financial returns. A variety of approaches ranging from simple radio frequency identification (RFID) systems to more complex applications, such as the Minicom/Caterpillar product and MineStar, are already well established.

The traditional mainstay of such RFID applications involves locating misplaced trucks, drills and similar items; a radio tag on the equipment transmits a signal which underground receivers detect, allowing the system to display its position.

At the other end of the scale, MineStar, developed with the help of a $5.23m grant from the Australian Government, offers an integrated information system, collecting data in real time and transmitting it via WLAN. As well as keeping track of fleet and materials, there are component modules designed to manage production work, monitor vehicle maintenance, schedule hauling and integrate the information provided with core business systems to improve overall mine management.

While the idea is not new – real-time tracking grew alongside the emerging WLAN technology in the 1990s and MineStar was officially launched at MINExpo 2000 – the market for RTLS remains one which is still forming.

Ongoing developments and the rise of new applications are inevitable, partly as a result of technological advances and partly as the needs of end-users change in response to a shifting commercial and regulatory climate.

In September 2007, for example, Mobilize released their new Megs1.5 web portal, allowing any fixed or mobile asset to be monitored remotely from a single platform. The system claims to offer a total solution to allowing easy tracking, viewing and troubleshooting in real time. Unsurprisingly, web-based technologies have come to feature increasingly in a growing range of these applications.

Earlier in the year, CVRD Inc, a Toronto-based, wholly owned subsidiary of Brazilian mining company CVRD, began using a voice over internet protocol (VOIP) communication system in some parts of its mines. The company is also currently implementing a wider initiative to provide underground workings with Wi-Fi access points for communication, asset tracking and automation, as well as installing RFID asset-tracking from Ekahau at the Stobie and North mines in Sudbury, Ontario.

BEYOND LOCATION

The potential applications for real-time monitoring systems go some way beyond simply mapping the whereabouts of 'misplaced' vehicles or equipment. Early versions merely indicated a position by plotting it on a computer-generated map, allowing workers to be subsequently detailed to recover the missing items. However, more sophisticated locationing applications can be piggy-backed on the same basic infrastructure, including

enabling workers already underground to find them using VOIP or voice over Wi-Fi (VoWi-Fi), or autonomously using auto-alerts to Wi-Fi-enabled PDAs.

Evidently, not having the right piece of equipment in place when it is needed slows production and being able to find it quickly and accurately can make an operation considerably more efficient, but the technology has more to offer than this. So-called 'choke-point' applications, for instance, which track the passage of assets through the mine, open up wide possibilities for improving process control, monitoring workflow and the elimination of many opportunities for misplacement in the first instance. This new series of RTLS applications opens the way for a shift from simple inventory and reporting functions to their development as true management tools in their own right.

AeroScout – another pioneer of Wi-Fi positioning – offers perhaps the most notable solution in this particular arena. The AeroScout Exciter is a specialised radio transmitter component of system hardware which interacts with active RFID tags which approach it, triggering a signal to be sent to the network, registering the proximity of the particular tag to that Exciter.

Simple though this is, it unlocks the door to a wide range of potential applications. It becomes possible, for instance, to track individual assets very precisely and therefore analyse where they spend the bulk of their time, how quickly they are redeployed in operation and how effectively they are being used. In the same way, bottlenecks can be identified, opening the way for potential changes in procedure to eliminate them.

The technology also allows defined areas to be made electronically 'off-limits' to particular vehicles or tools – ensuring they do not end up somewhere they do not belong. It can also allow alerts to be triggered which will initiate emails, text, voice messages or make changes to a web portal, while embedded functions permit the Exciter to store data on the tag for later use.

The subsequent transmission of this information can be triggered by other Exciters at different locations, enabling sophisticated process control functions to be realised. As Joshua Slobin, AeroScout's marketing manager, observes, these moves are changing the focus from "simply determining location to taking that location data and turning it into something really usable."

THE SAFETY ANGLE

Tracking machinery is one thing, but as recent events such as the tragic accident at Crandall Canyon in the summer of 2007 have reinforced, the need to be able to locate trapped miners swiftly and accurately is something altogether different. The proliferation of Wi-Fi in mines around the world provides increasingly standardised wireless networks, which make the perfect infrastructure for personnel tracking functions and help keep the costs down – particularly where a mine already has a WLAN installed.

Although the issue of mine safety has resonance across the world, in many respects the current focus is mainly on the US, where radio and location systems have historically been fairly uncommon. However, this is set to change in the wake of the Sago mine disaster, which in January 2006 claimed the lives of 12 West Virginia coal miners after they became trapped by an explosion.

Under the Mine Improvement and New Emergency Response (MINER) Act of 2006, America's mine companies have three years to install two-way communications and wireless systems to keep above-ground personnel aware of a miner's location at all times.

An unprecedented surge of orders await RTLS suppliers – a line-up including Active Control Technology, MineCom, Mine Radio Systems, Mine Site

Technologies, Varis Mine Technology and Venture Design in addition to AeroScout and Ekahau.

There is scepticism in some mining quarters over the practicality of deploying miner tracking. Certainly, no system can ensure entirely fail-safe operation under all the conditions possible deep underground. Nevertheless, even allowing for the general difficulties of the mine environment and the destructive nature of rock-falls, it remains clear that any form of tracking is better than none at all, and the field is continually improving.

While some location tags do little more than provide a radio beacon, later versions can receive signals sent from a central control portal and respond by buzzing or flashing – making helmet-mounted RFID devices ideal for alerting workers to potential danger. Such functions can also dovetail well with choke-point technology.

With two-way enabled tags trapped miners can raise the alarm directly, allowing their location to be displayed instantly. Moreover, with tags now able to access the internet via nodes on the local network, they can communicate directly with location servers anywhere, making remote monitoring by web portal increasingly practical and further extending the potential uses of mine-based Wi-Fi.

However, such moves seem likely to be only the beginning. In May 2007, iPackets successfully demonstrated its Mine-1-1 system – designed to provide real-time tracking and monitoring of miners, with two-way voice and data communication – at a Brooks Run Mining Company coal mine in Cowen, West Virginia. What made this event stand out was the fact that the demonstration was viewed live, via satellite uplink, by representatives of the Mine Safety and Health Administration, sitting 50 miles away in their offices in Beckley.

Safety and efficiency have always made compelling drivers for any mining operation, so the rise of real-time surveillance technologies and their increasingly innovative applications to track work and workers plays to a natural constituency. With the promise of effective monitoring of even the remotest of locations becoming a technical reality, it is small wonder that the sector is tipped for continued growth.*

---

*Accessed on the site www.mining-technology.com/.../feature1436/

3. After finishing your preparation fill in a presentation preparation checklist given below.

CHECKLIST 4.1

Presentation preparation checklist		
Title of presentation		
Who is my presentation aimed at?		
What am I trying to achieve in my presentation?		
Stage	**Key points**	**Key language**
Introduction		
Body		
Conclusion		
Signposting and linking phrases		
Phrases for referring to visuals		

4. You are going to listen to your group-mates' presentations and evaluate their performance. Use peer-evaluation sheet that follows.

PEER-EVALUATION SHEET FOR PRESENTATIONS

General
1. What were the strengths of the presentation?

Preparation
1. Was the objective clear?
2. Had he/she considered the audience?
3. Was the content relevant to the topic?

Organisation
1. Comment on his/her introduction.
2. Did the presentation have a clear logical structure?
3. Did he/she conclude with a summary at the end of his/her talk?

Delivery
1. What about his/her use of notes etc.?
2. What about his/her use of visual aids?
3. Was the timing of the presentation well controlled?
4. What about the speed of speaking?
5. Could everyone hear?
6. What about the clarity of speaking?
7. Did he/she make eye contact with the listeners?
8. What about his/her body language (posture, position etc.)?

Discussion
1. How well did he/she deal with questions?
2. What kinds of participation were most frequent/useful?

Language
1. If he/she had any difficulties in giving the talk, were they caused by: Grammar? Vocabulary? Pronunciation? Other?

General
1. What does he/she need to improve for future presentations?

5. Be ready to discuss the presentations. Follow the advice given on the opposite page.

Evaluate the speaker and give useful hints to improve his/her speech. Do not just say or write, "I can't understand you" or "You are a terrible speaker" this does not help the speaker. Instead, explain what you can't understand (speaks too softly, too quickly, too monotonously, chews gum, does not look at the audience, was unprepared, had too many distractions, rambled, too many Umm's) and then give advice on how he/she should remedy this problem. For example, tell him/her to speak louder, speak slower, reduce/increase the amount of information, improve his/her intonation, look at the audience, practice the presentation more before coming to class, etc.

Also, you should be a good listener, don't make too many distractions for the speaker (this means, turn off your mobile phone and other noise making devices during the presentations!). Do not speak to your neighbors while a presentation is going on, this is extremely rude and will not be appreciated by the speaker. Treat the speaker how you would want to be treated during your presentation. Finally, it's always polite to clap at the end of a presentation.

Section 4.5 Self-assessment

Answer Keys to Unit 8 Part I CHECK YOUR PROGRESS
(see **Part I IN-CLASS ACTIVITIES**, **MODULE 4 GIVING PRESENTATIONS**).

By the end of this section you will be able to:

- understand assessment requirements
- understand marking criteria used for tests and assignments
- read and understand rubrics for tests, etc.
- self-assess appropriately

Check yourself using the correct answers given below. Read the explanation, when necessary.

Task 1.

1 - B; 2 - C; 3 - C; 4 - A; 5 - A; 6 - B; 7 - C; 8 - B; 9 - B; 10 - A.

Task 2.

11 - d; 12 - c; 13 - e; 14 - b; 15 - a.

Task 3.

16 - f; 17 - e; 18 - a; 19 - c; 20 - d; 21 - b.

Task 4.

22 - d; 23 - a; 24 - e; 25 - f; 26 - b; 27 - c.

Task 5.

28 - A; 29 – F; 30 – D; 31 – E; 32 – G; 33 – H; 34 – I; 35 – B; 36 - C

Task 6.

37 - D raise means to put something to a higher place or position

38 - C shrink means to become smaller in size

39 - D peak means to reach the highest level of performance

40 - B slight means small in size, amount, or degree

41 - C sudden means happening very quickly and without any sign that it is going to happen

42 - A fluctuation means frequent changes in the amount, value, or level of something

Task 7.

43) - a; 44) - g; 45) - c; 46) - d; 47) - f; 48) - e; 49) - b.

Task 8.

50 43% of/Just under half of

51 used to smoke

52 (relatively) small percentage/minority

53 heavier smokers

54 The percentage

55 Are similar/are close to 11%

Module 5

Communicating in Writing

By the end of this module you can:

- communicate in academic and professional writing
- summarise, paraphrase and translate written texts.

Section 5.1 Academic Writing

5.1.1 Writing Effectively

By the end of the section you will:

- be aware of what makes an effective writing in English
- be able to identify the target reader and use an appropriate style in writing
- be able to make an outline and order ideas logically
- be able to organise paragraphs and use logical connectors

Tasks to do.

Identifying the target reader and the register

1. How formal your writing needs to be depends on the target reader and the reason for writing. The 'target reader' means the intended audience. The basic division is into 2 categories: **formal and personal**. Use the words in the box to complete the table.

friends	the media	classmates	family	organizations
colleagues	companies	penfriends	institutions	firms

Formal	Personal
the media	*family*

2. Read the situations **(A–C)** given below. Consider the target reader and identify an appropriate register for each of them. Choose one of the situations and fulfil the task.

A	You have just been given the name of a new penfriend, who lives abroad. Write to him/her, introducing yourself, telling him/her something about yourself, and invite him/her to write back.
B	A group of international visitors has just arrived in your home town and the group leader has asked for information on interesting places to visit. Write a report for the group leader, describing the places and giving reasons for your recommendations.
C	Write a letter to your employer, asking for permission to take a day off work in the near future because of an important family occasion.

Reflecting upon the components of writing

3. Look at the following list of criteria by which your piece of writing might be assessed. Think of them as the main components of writing and choose the six most important.

- content: coverage of points required
- range and variety of vocabulary
- range and variety of structure
- accuracy and control of vocabulary
- accuracy and control of structures
- accurate spelling
- accurate punctuation
- organisation and Cohesion: paragraphing and links
- appropriateness of register
- appropriate format

4. The National Mining University is going to organise a Forum for students and have a visit from a group of foreign students, none of whom speaks

Ukrainian. The authorities have asked the Department of Foreign Languages to produce a series of information sheets. Read the notice below and choose one of the information sheets to write. Use the questions that follow as guidelines for your writing.

WANTED STUDENTS
TO PREPARE INFORMATION SHEETS
IN ENGLISH

As most of you know, the preparations for Forum for students are in their final stages. However, we still need to produce a number of information sheets. Would any students willing to help in this matter please contact the Organising Committee. The sheets we need are:

- Details about the university, the area, and the activities that are available to the foreign students during their stay
- Directions for how to get from halls of residence to key places on campus (such as the library, computer rooms, etc)
- Directions from the university to key places in the city (e.g. the post office, supermarkets, railway station, etc)

1. What do you have to write?
2. Who are the target readers? What style is appropriate?
3. How many sections would you write?
4. What information will you include in the main body? How will you organise it into paragraphs/sections? Suggest suitable topic sentences.
5. How could you begin your piece of writing?

5.1.2 Summarising

By the end of this section you will:

- be aware of the requirements for writing summaries
- be able to write a summary

Tasks to do.

1. Read a professionally-oriented article either from the Internet or a journal and write a summary of it. Recommended journals are given in Indicative Reading at the end of the Module.
2. Before writing, think of the purpose of a summary. Return to the definition in Unit 7 (***Part I In-class Activities***).
3. Read through the requirements for a summary again.
4. Mind the steps for writing a summary.

Linking words

5. Read about linking words (logical connectors) which show the logical relationship of the ideas and improve the flow of the summary.

Linking words are words (like however, therefore, additionally, thus, and also) or phrases (like for example, on the other hand, and in conclusion) that show a link between a paragraph and the one that precedes it.

You usually put a linking word at the beginning of the paragraph to connect it to the previous one. One very useful way to create a linking sentence is to identify a key word or phrase in the previous sentence and repeat it in your linking sentence. Overuse of linking words and phrases

can, however, make your writing dull instead of interesting, elucidating and creative.

6. Write the summary of the text you have found or use the article given below.

Clean Coal – Meeting the G8 Plan of Action

In July the G8 nations congregated in Gleneagles, Scotland to discuss some of the world's most pressing issues. The World Coal Institute was also there to champion the plan of action on climate change, clean energy and sustainable development

After weeks of anticipation and speculation, the leaders of the G8 nations finally met in Gleneagles at the beginning of L July. On the agenda were the key issues of climate change and alleviating poverty in Africa. Following two days of talks, the G8 leaders issued the'Gleneagles Communique'including a plan of action on 'Climate Change, Clean Energy & Sustainable Development'.

In this article, the World Coal Institute (WCI) - an international association of coal enterprises - provides an overview of the G8 summit, the main outcomes of relevance to coal, and how the WCI sees a vital role for the coal industry in meeting some of the major challenges we face in the world today.

ACCESS TO ENERGY - ESSENTIAL TO TACKLING POVERTY

Too often, the issue of securing reliable, affordable and widespread access to energy seems to fall off the agenda in discussions on poverty eradication. Yet, without affordable and reliable supplies of electricity, it will be impossible for countries in sub-Saharan Africa to develop economically and socially.

In the build-up to the summit, the World Coal Institute issued a statement highlighting this important link. Milton Catelin, Chief Executive of the WCI, stated: "Improving access to energy will be essential if we are to have a realistic chance of alleviating global poverty for the 1.6 billion people without electricity worldwide,

with the further 2.4 billion relying on primitive biomass fuels." The World Health Organisation has estimated that smoke from burning solid fuels indoors is responsible for 1.6 million deaths each year in the world's poorest countries.

The contrast between South Africa and the rest of sub-baharan Africa clearly demonstrates the fundamental difference energy can make. Sub-Saharan Africa - with an average electrification rate of only around 20% - remains shackled with catastrophic poverty, declining birth rates and exponential growth in disease. In comparison, South Africa, with an electrification rate around 70%, has the power to build schools and hospitals, create businesses and employment for its people, trade in the international marketplace and respond aggressively to challenges confronting its people.

South Africa's significant indigenous coal supplies have been vital to this electrification programme, accounting for around 90% of the power produced in South Africa.

In the statement, Mr Catelin called on the G8 to "recognise that ideology and words alone will not tackle Africa's poverty. They need to look closely at what fuels economic development and social progress in their own countries and enable Africans to regain their future through the use of their own natural resources".

Coal has a vital role to play in improving access to electricity worldwide. Coal currently supplies 39% of the world's electricity and provides much higher levels in many countries (*see table).* The availability of low-cost supplies of coal in both developed and developing countries has been vital to achieving high rates of electrification.

COAL IN ELECTRICITY GENERATION

South Africa	92 %
China	78 %
India	70 %
Kazakhstan	70 %
Indonesia	40 %

Improving access to energy and the availability of large, affordable supplies of coal therefore has an important role to play in economic and social development in developing countries.

G8, TECHNOLOGY AND CLIMATE CHANGE

The second major issue discussed at the summit - and the main focus for discussions on energy - was climate change. The Gleneagles Communiqué stated that "climate change is a serious and long-term challenge that has the potential to affect every part of the globe". In the run-up to the summit, the World Coal institute called on the G8 leaders to recognise the vital role played by technology in meeting the challenge of climate change, while allowing the global economic development necessary for poverty eradication. The WCI highlighted that coal has the capacity to be a key part of the solution to the environmental challenges the world faces, while at the same time promoting sustainable development.

TECHNOLOGICAL SOLUTIONS

The Gleneagles Summit was notable in that it acknowledged how important technological solutions will be in meeting the challenge of climate change.

G8 leaders pledged to promote innovation, energy efficiency, conservation, and regulatory and financing frameworks to accelerate the deployment of cleaner technologies, particularly lower-emitting technologies. They also agreed to work with developing countries to increase private investment and accelerate the transfer of cleaner technologies.

The G8 committed itself to work with appropriate partnerships, institutions and initiatives, including the International Energy Agency and the World Bank.

TAKING ACTION

While the 'Climate Change, Clean Energy, and Sustainable Development' action plan set no specific targets and committed no new funding, it outlined actions in a number of key areas.

Transforming the way we use energy –a number of actions for industry were covered, including inviting the IEA to develop its work to assess efficiency

performance and to identify areas where further analysis of energy efficiency measures by industry could add value. The plan calls for the development of partnerships with industry to reduce the GHG emissions intensity of the major industrial sectors and to continue to support the work of the UNFCCC clearing house on technology transfer.

Powering a cleaner future - fossil fuels will continue to be an important part of the global energy mix, and we will need to find ways to manage the associated air pollution and GHG emissions. The plan states that the G8 will support efforts to make electricity generation from coal and other fossil fuels cleaner and more efficient.

The G8 also voiced its support for the development and commercialisation of carbon capture and storage (CCS) technologies.

The action plan notes the importance of an increased commitment to and international cooperation in research and development of new energy technologies and expresses support for "research and development of technologies and practices that use hydrogen as an energy carrier".

Financing the transition to cleaner energy - positive investment climates and effective market models are critical to the uptake of new technologies and increased access to energy for economic growth. The G8 states that it will provide confidence in the near- and long-term value of investments, so as to reduce emissions of greenhouse gases and pollutants.

The G8 invited the World Bank and other development banks to raise dialogue with borrowers on energy issues and put forward specific proposals at their annual meetings to accelerate the adoption of technologies which enable cleaner, more efficient energy production and use.

Managing the impact of climate change - the G8 reaffirmed the importance of the Intergovernmental Panel on Climate Change (IPCC) and stated that all countries need further access to information and will need to develop their scientific capacity.

WCI WELCOMES TECHNOLOGY OUTCOMES

The agreement at Gleneagles on climate change was welcomed by the World Coal Institute as a breakthrough in climate change negotiations. Chief Executive, Milton Catelin, stated that: "This is a victory for realism over rhetoric. The Plan of

Action on Climate Change, Clean Energy and Sustainable Development... opens the door to a technological response to climate change that also recognises the importance of economic growth in maintaining living standards in the west and combating poverty in the developing world."

"Through this Plan of Action, the G8 leaders have indicated their interest in practical solutions rather than ideological argument. By their focus on the development of technologies such as carbon storage, they will assist the world to use its natural assets on a development road that minimises, and will eventually eliminate, the emissions that have traditionally been associated with their use, "said Mr Catelin.

The WCI particularly welcomed the focus on making electricity generation from fossil fuels more efficient, and accelerating the development and commercialisation of carbon capture and storage. The World Coal Institute and its members are committed to contributing to better environmental outcomes and stand ready to cooperate with the G8 Leaders, the International Energy Agency, and other agencies, which have been charged with implementing this important work.

(From the *Mining Magazine*)

5.1.3 Writing an Abstract

By the end of this section you will be able to:

- write an abstract using appropriate phrases taking into account its functions and characteristics

Tasks to do.

1. Read the article “New Era Dawning in Russian Coal” from the *International Mining* up to the end and write the abstract.

Throughout the coal industry restructuring process, P&H MinePro Services maintained contact, providing parts and aftermarket support to its customers in the

Kuzbass. With the restructuring effort continuing to build momentum in 1998, MinePro decided to build a presence in the Kuzbass region to provide even stronger support.

"Though relatively remote vis-a-vis other major coal-producing regions of the world, the Kuzbass is nonetheless among the most strategically important coal regions," notes Douglas Binns, Regional Director, Russia & CIS, MinePro International. "It contains enormous resources, and even more important, the Kuzbass mines are staffed by experienced and visionary people who are now in a position to manage the transition of their operations to compete more effectively in the rapidly changing marketplace.

"Early on, we recognized the potential of the Kuzbass coal mines to become more high-performance, lower-cost operations. For more than eight years working in Russia with Kuzbass coal mines, our objective has remained unchanged - to find combinations of equipment and support that help Kuzbass mines attain their short- and longer-term strategic objectives for reduced cost."

Meanwhile, as the pace of transitioning to lower-cost operations quickened, coal mine managers in Russia turned their attention to locating equipment manufacturers capable of meeting their requirements for reliable, productive machinery. Their search effort expanded to include suppliers beyond Russia.

MinePro recommended the 63.5 t pay-load P&H 2800XPB as a next-generation loading tool for the coal mines in Western Siberia. P&H 2800-series shovels operate in high performance mines worldwide with about 200 units placed into service.

"The 2800XPB of today is a culmination of 36 years of continuous improvements resulting from collaborative efforts involving our customers and P&H Mining Equipment," said Doug Blom, Vice President, MinePro International. "System by system, the 2800XPB machine design continues to be optimized. Over the last 20 years, for example, power costs for this and other P&H shovel models have decreased by as much as 33% and the production per tonne of machine weight has increased by 50%.

"What's more, the 2800XPB features components that are simple to maintain. Its a rugged machine, able to operate in the harshest environments. And today's version of the 2800XPB features performance-optimizing technology including the new P&H Centurion supervisory control and data management system. It is also equipped with the new P&H Loading Control Center with safety-enhancing features that include ergonomic controls, a productivity-boosting operator's seat and a powerful information management system."

Joy in the Kuzbass

In the mid-1990s, Joy Mining Machinery began to cultivate considerable business with the underground coal mines in the Kuzbass. In the late 1990s, it established OOO Joy Kuzbass in Kiselovsk in the south of the Kuzbass. Joy built upon this business, which supplies and supports long-wall systems in the region, and now includes a warehouse at Leninsk, Kemerovo Oblast.

Longwalls operating in Russia operate more Joy equipment than any other single manufacturer. Of the 11 longwalls currently operating, three of the top four producing longwalls employ all-Joy long-wall mining systems. The fourth producing longwall uses a Joy shearer. A fifth longwall uses a Joy AFC.

In recent months, the Raspadskaya mine set a new Russian monthly coal production record, producing 512,955 t of coal. Helping to achieve the record was a refurbished Joy 6LS3 shearer operating one of the mine's three longwall sections. The 6LS3 shearer, overhauled by Joy service engineers in the Kuzbass, had mined more than 6 Mt of coal from two panels.

Both Joy and P&H/MinePro approach the task of customer support as part of the Joy Global Life Cycle Management strategy aimed at optimizing equipment productivity and reliability over its useful life. That strategy encompasses a broad range of products and support, all of which can be tailored to the unique needs of a given mining operation.

"Our purpose is simply to help our customers lower their cost of producing their commodities on a unit basis," notes John Nils Hanson, Chairman, President and

Chief Executive Officer, Joy Global. "Cost per tonne, cost per bank cubic metre moved, cost per hour - whatever may be their relevant measure of productivity."

Self-evaluation

2. Having written the abstract, check whether it:

- performs the functions
- has necessary textual and linguistic characteristics.

5.1.4 Writing a Technical Report

By the end of the section you will:

- be aware of the main features and elements of a detailed technical report
- be able to write well-structured technical report

Tasks to do.

1. Detailed technical reports dealing with experimental investigations generally contain the items given below. Study them carefully paying attention to the purpose of each of the sections.

Detailed Technical Report

Title The title of a report should be a brief informative description of the report contents. If the report is long, a table of contents should follow the title page.

Abstract This is a very important part of a report because readers often read this part first to decide if they should read the report in detail. In the abstract, in complete but concise sentences you state the precise objective, emphasize significant findings, and present conclusions and/or recommendations.

Objectives The purpose of the objectives section is to state what is to be investigated through the performance of the experiment. Be sure to list your objectives explicitly (e.g., l., 2., ..., etc.)

Theory and Analysis There are several purposes of the theory and analysis section:

- to state pertinent principles, laws, and equations (equations should be numbered);
- to present analytical models that will be used in the experiment;
- to define any unfamiliar terms or symbols;
- to list important assumptions associated with the experimental design.

Apparatus and Experimental Procedures There are two main purposes of the apparatus and experimental procedures section:

1. To present a list of apparatus and instrumentation to be used, including the instrument ranges, least count, and identification numbers.
2. To describe how you performed the experiment. The procedure should be itemized (step 1., 2., etc.) and a schematic or diagram of the instrument setup should be included.

Data and Results The purpose of this section is to present the results of the experiment, as described in the stated objective, in a tabular and/or graphical form. These tables and graphs show the results of all your efforts. Include descriptive information such as *titles, column* or *row headings, units, axis labels,* and *data points.* It is sometimes necessary to note in this section that you have included the original data sheets in the appendix to your report.

Discussion of the Results The purpose of the results section is to emphasize and explain to the reader the important results of the experiment and point out their significance. When applicable, be sure to compare experimental results with theoretical calculations.

Conclusions and Recommendations The conclusions and recommendations section compares your objectives with your experimental

results. Support your conclusions with appropriate reference materials. Be sure to state recommendations based on the conclusions.

Appendix The appendix serves several purposes:

- to provide the reader with copies of all original data sheets, diagrams, and supplementary notes.
- to display sample calculations used in processing the data. The sample calculations should contain the following parts:
  A title of the calculation;
  A statement of mathematical equation;
  Calculation using one sample of data.

References A list of references that have been numbered in the text must be included in the report. Use the following format examples:

For Books: Author's last name, initials, publication date (often in parentheses) title (in italics, often capitalised), place of publication, publisher.

For Journal Articles: Author's last name, initials, publication date (often in parentheses, after the author's name or at the end of a reference) title of the article (not capitalised, enclosed in quotation marks), name of the journal (sometimes in italics, capitalised), volume number, issue number, and page(s).*

---

*Moaueni, S. (2002) *Engineering Fundamentals: An Introduction to Engineering.* BROOKS/COLE: Thomson Learning. P.–50.

2. Look through the text again. Take notes of the information needed for planning and structuring the report about your summer practical training. Write your report using your notes and examples of engineering problem presentation (Fig. 5.1.1, 5.1.2)..

Fig. 5.1.1 A sample of a title sheet

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
NATIONAL MINING UNIVERSITY

Course Title

Assignment No.___

Report Title_____

_____

_____

Date Report Completed_____

Student's Name_____

Supervisor's name_____

Fig. 5.1.2 An example of engineering problem presentation

Course number	**Date due**	**Assignment number**	**Last name, first name**	1 / 2
Problem number			**Number of this sheet** **Total number of sheets in the assignment**	GIVEN
SKETCH *The purpose of a diagram is to show the given information graphically. By drawing a diagram, you are forced to focus and think about what is given for a problem. On a diagram you want to show useful information such as dimensions, or represent the interaction of whatever it is that you are investigating with its surroundings. Below or along side of the diagram you may list other information that you cannot easily show on the diagram.*				
1. 2. *In this block you want to itemize what information you are searching for.* 3.				FIND
SHOW ANY DIAGRAMS THAT MAY COMPLEMENT THE SOLUTION ON THE LEFT-HAND SIDE.			SHOW CALCULATIONS ON THE RIGHT-HAND SIDE. *List all assumptions. Show completely all steps necessary, in an organized, orderly way, for the solution.*	SOLUTION
			<u>*Double underline answers.*</u> *Do not forget about units.*	**Answer**

Section 5.2 Writing Business Letters

By the end of this section you will:

- be able to write a formal letter using appropriate functional phrases

5.2.1 The Structure of a Business Letter

Tasks to do.

1. Read the structure and details of a business letter and do the tasks given below.

1. The Heading or Letterhead.
2. The Date.
3. The Inside Address.
4. The Attention Line.
5. The Opening Salutation.
6. The Subject Line.
7. The Opening Paragraph.
8. The Main Body.
9. The Complimentary Close or The Closing Salutation.
10. The Signature.
11. The Enclosure.

1.1 The heading provides all necessary information: the name and address of the institution, organisation, firm, etc. or the name, position, title and address of the sender, the telephone numbers and the telegraphic address or any other details that may be required such as reference numbers, codes, etc.

a) Remington Co. Ltd.
68 VICTORIA STREET
London E.C.4
England

b) Smith Construction Company
719 West 44th street
New York, N.Y. 10018
U.S.A.

Telephone: (416) 532-4940
Telex: 061-8943
Fax: 632-0871

1.2 The date is placed under the heading of the sender's address, usually one or two spaces, either in step or block with relation to the sender's address.
12 September, 2007 (in Great Britain)
September 12, 2007 (in the USA)

Prepositions (on, of) and articles are omitted. Many letter-writers abbreviate the date in such manner: 12/9/07. This way of writing the date may lead to a confusion, especially in international correspondence, because the date is read in

the USA	9/12/07 - the month/the day/the year
Great Britain	12/9/97 - the day/the month/the year

1.3 Inside Address (recipient address) contains the name and the address of the institution or individual to whom the letter is directed. The inside address is typed in the left-hand margin, two spaces below the date (or - in social, and informal letters - in the lower left-hand part of the letter sheet two or three spaces below the signature).

a) Messrs. Green & Co., LTD,
57, Mounth Street, London, W. 1, England.

b) Dr. Russel E. Compton
252 West 34th Street,
Toronto, Ontario,
Canada.

1.4 The attention line is written two lines below the inside address either on the same vertical or in the middle of the sheet of paper above the opening salutation, when the latter wishes to draw special attention of a particular person and desires a prompt reply. The attention line should be underlined.

Brown Laboratory Equipment,
15 Haygate Street,
London, N. E. 3,
Great Britain.

or:

For the Attention of Mr. B. Bravan
Attention of Mr. B. Bravan
Attention: Mr. B. Bravan
Kind attention of Mr. B. Bravan
Kind at/n Mr. B. Bravan

Dear Sir,

Subject: Order No. 1234

In accordance with your request...

1.5 The Opening Salutation

Dear Ms*	
Dear Sir/Madam	
Dear Miss**,	formal (to the governmental
Dear Mrs***,	officials)

Dear Mr. Smith Dear Mrs. Smith Dear Miss Smith, Dear Prof. Smith,	less formal

* - when the letter writer doesn't know whether the lady is married or not

** - to unmarried woman

*** - to married woman

1.6 The subject line is written two lines below the opening salutation and in the middle of the sheet of paper. The wording subject: or Re: (regarding) is typed before the subject-matter and indicates what the letter is about. The subject line should be underlined.

1.7 The body of the letter is the subject matter. It may consist of only one paragraph or as many as necessary to convey the message. Many paged should be numbered.

1.8 The closing salutation

Yours faithfully, Yours truly, Yours very truly, Very truly yours	formal

Yours sincerely, Yours very sincerely, Sincerely yours, Best wishes, Regards,	less formal

1.9 The signature. The initials and the surname, the position of the authority, who signed the document, or the name of the sending organisation are placed on the right-hand side of the sheet, 2-4 interlinear intervals below the

complimentary close. The name of an organisation shall comply with the name printed in the heading of the form.

Dennis J. Steinberg, Manager,

L. R. Thompson Manager,

Export Department.

1.10 The enclosure. If any documents are enclosed with the letter, an adequate information should be typed in the left-hand bottom corner of the form interlinear intervals below the last line of the signature. The notice for presence of an enclosure should contain the title(s) of documents enclosed, and should specify a number of sheets and copies for each document.

Enclosures: 1. Contracts (on 5 sheets in 3 copies)

2. Cheque.

or:

Encl: Bill of...

The Envelope. A sender's address is placed in the top left-hand corner of the envelope and opposite to it, in the right-hand bottom corner a receiver's address is typed. Postal remarks, such as: "Air mail", "Registered", "Express Delivery", "Private", etc. are typed under the stamps.

Layout of envelopes

Sender’s address	Stamp Postal remarks
	Recipient Address

The Structure of a Business Letter

	1. The Heading 2. The Date	
M A R G I N	3. The Inside Address 4. The Opening Salutation 5. The Body of the Letter 6. The Closing Salutation 7. The Signature	M A R G I N

2. Write the following dates at the heading of the letter:

a) the twenty-third of the November, nineteen ninety-eight

b) the fifth of July, nineteen fifty –seven

c) the second of May, nineteen sixty-five

d) the first of January, eighteen hundred;

e) the fourth of April, nineteen fifteen;

f) the thirteen of August, nineteen four (nineteen hundred and four);

g) the thirteen of June, twenty eleven;

h) the eleventh of September, twenty hundred;

i) the twenty-sixth of May, nineteen eighty-seven;

j) the twenty-second of March, twenty hundred and one.

3. Correct mistakes in the dates written in the headings:

I) the 10 nd August, 1998;

2) on 24th March, 1991;

3) 2 st April, 2001;

4) 15 th, September, 1999;

5) the 30 th July, 1998,

6) 31 rd of May, 1999;
7) June, 1,1997;
8) October 17 2001;
9) On November 13 th,1998;
10) 2000, January 16;
11) 2001, May the 1st;

4. Give the appropriate opening and closing salutations to the following;
Messrs. A. B. Wilson and Co LTD;
Miss B. Brown; Prof. S. P. Spirin;
Mr. A. N. Jouse, Associate-professor;
Mr. C. White, Manager; Continental Supply Company;
Mr. Smith and Mr. Wilson.

5. Combine the given below parts of letters with appropriate opening and closing salutations.

E.g.

Kiev, 5 th May, 2008

Messrs A. B. Wilson & Co., LTD,
15 Leadenhall Street,
London E. C. 3,
England
attention: Mr. Charles Shaw
Dear Sirs,

Yours faithfully,
Dennis I. Stenberg,
Manager.

No.	SENDER'S ADDRESS	INSIDE ADDRESS	SUPPLEMENT	DATE
1.	Elsiver Publishing Company, Amsterdam C, The Netherlands	Journal of Biological Chemistry, ul. Rirov 23, Kyiv, Ukraine	Attention: Mr. R. B. Belov Editor	15th April, 2008
2.	Miss Doris Smith, 1105 Lexington Ave. New York 25, N. Y. USA	Dr. S. V. Pavlova Pulkovo Observatory St.Peterburg, Russia	Re: Simposium "The Moor"	October 12, 2007

6. These addresses are mixed up. Write them out correctly following the sample.

Sample: Mr. Graham Davis
Assistant Manager
Transworld Freight plc
74 Dockside
Manchester M15 7 BJ

1. Manchester - 74 - Transworld Freight
   Senior Accounts - Elizabeth - plc
   M15 7 BJ - Dockside - Clerk - Ms Shepherd

2. Mr. Millco-LTD-Halifax
   Faram - The Mills - C - England
   HX5 7 PT-River Street

3. Dumiticz - Pittsburgh - 22 - C –
Sampson Silks - Mr. - 15217 - Street
Pennsylvania - Main

7. There are formal and informal letters. Translate and compare the given below layouts.

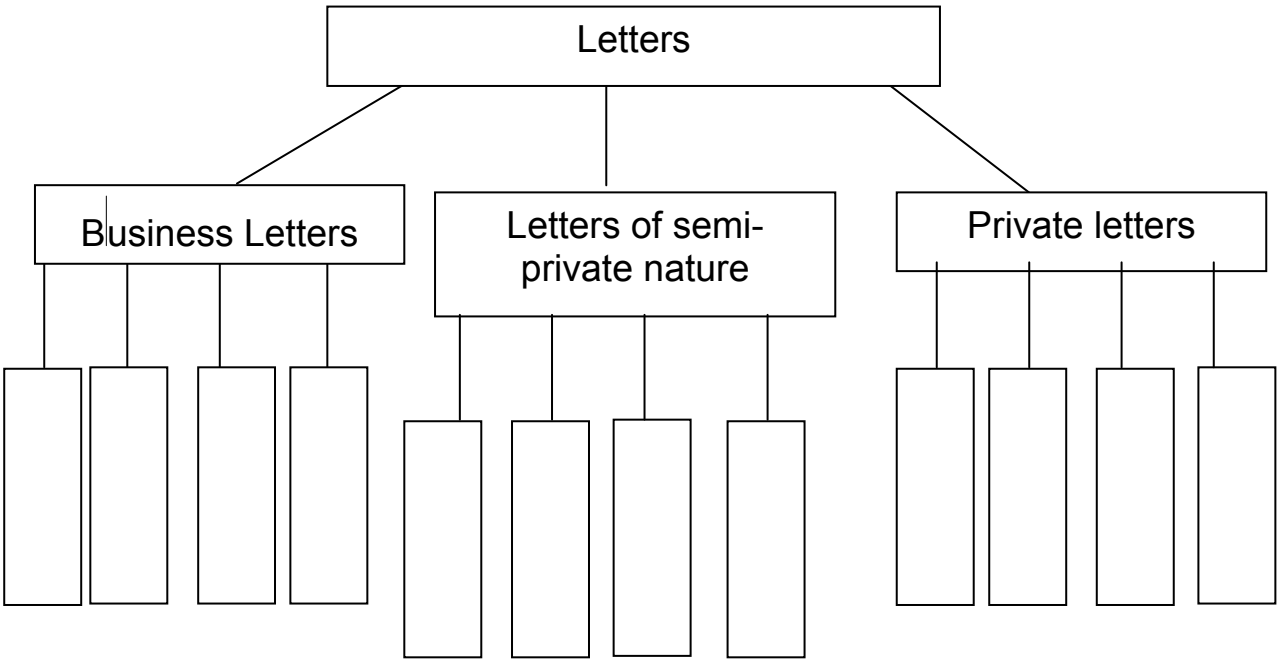
Business Letters	**Personal Letters**
1. Style: formal – Dear Sir, (Mr. X)	1. Style: informal – Dear Allan, (Hallo, Alan) Hi, Allan (My dear Alan, etc)
2. Typed	2. Handwritten usually
3. Reader's/receiver's name and address	3. -
4. The exact date: January 2, 2008	4. You don't always write the year in the date
5. References	5. -
6. No contractions	6. You use contractions: I'm, it's, we've, you'd, etc.
7. A formal ending: Yours faithfully, Yours sincerely	7. Informal ending: Love, Best wishes, as always, Keep in touch, Yours as ever, Yours affectionately, etc.
8. Signature	8. Only your fist name
9. Your name and job under signature	9. -
10. Your address (more usually, it is now written in the upper left or right corner of the letter).	10. Not necessary if you write to your friend

5.2.2 Types of Business Letters

8. Test yourself. There are several types of business letters; what are they for?

A letter of enquiry	- запит
A Memo (random) (pl. Memos)	- пам'ятна записка
A transmittal	- супроводжувальна записка
A letter of complaint	- рекламація
A sales letter	- реклама
An order	- замовлення
An invoice	- рахунок-фактура
A statement/collection letter	- інкасове доручення
A letter of introduction	- рекомендаційний лист
A letter of application	- заява
An invitation	- запрошення
A letter of congratulation	- поздоровлення
A testimonial	- характеристика (письмова), рекомендаційний лист
A claims letter	- скарга
A letter of condolence	- співчуття

9. Do some mind-mapping to remember the different types of letters. You may use the types of letters given above.



5.2.3 Samples of Business Letters

10. Read the following samples of letters. Practise writing your own letters.

Requests

Dear Sirs,

Thank you for Your offer of 9 January for a hardening furnace. We are favorably impressed by the quality of your furnaces, but feel that the price is rather high. The prices quoted by other suppliers are, on average, 10% lower. However, in view of the high quality of your furnaces, we are ready to make a deal with you if you re-examine your prices. If you reduce your price by 5%, we shall place an order for some 10.000 hardening furnaces. We trust that in view of the size of the order you will see your way to making this concession.

Yours faithfully,

Dear Mr. Collins,

I shall be arriving in London on Wednesday 14th, and would be grateful if you could book accommodation at the Grand Hotel. Could you also reserve return tickets for me for Tuesday 20th?

I would appreciate if you could arrange for a visit to the Opera House.

Would it be also possible to include a visit to the Tate Gallery into our itinerary?

Your cooperation would be most appreciated.

Sincerely Yours,

Norman Gotsby

Enquires

Dear Sirs,

We have seen your advertisement in "The Metal Worker" and are interested in aluminum screws and fitting of all kinds.

Please quote us for the supply of the items listed on the enclosed enquiry form, giving your prices c.i.f. Odessa. Will you please also state your earliest delivery date, your terms of payment, and discounts for regular purchases and large orders? Perhaps you would also send us your catalogue and details of your specifications.

We look forward to receiving your quotation

Yours faithfully,

Booking Tickets and Hotels

Dear Sir,

We should be obliged if you would kindly confirm the dale and time of your arrival in London next week, and state whether you would like us look hotel accommodation.

We look forward to your reply.

Yours faithfully,

Invitations

Dear Ms. Collins,

The Organizing Committee officially invites you to participate in the work of the seminar to be held from 10th to 12 th November this year.

We would very much appreciate an early reply to this invitation and hope we shall have the pleasure of seeing you here.

We should be very grateful to you if you would let us know of the date of your arrival.

Yours truly,

S. Johns

Section 5.3 Mediation

5.3.1 Dealing with the Content of the Text

By the end of this section you will be able to:

- recognise the genre and type of discourse
- predict the content
- get a general understanding of a text
- locate relevant details by scanning through a text
- identify the passages challenging for translation

Tasks to do.

1. Look at the title of the article below and the introduction. What are you going to read about?

2. Scan the text to find the answers to the questions that follow. Don't worry if there are words you don't understand. You only need to understand the main points.

1. What is the situation in coal mining industry in Germany?
2. Do you know what resources Germany has?
3. What are the largest coalfields?
4. What methods are used for coal extraction?

3. Read the article carefully. Choose the most suitable heading from the list (**A-G**) for each part (**1-6**) of the article. Identify the key words in the headings and underline the phrases in the text that express the same ideas. The first one has been done for you.

A	Mining methods
B	Coal preparation and handling
C	Production and costs
D	Industry structure
E	The future
F	Geology and coal quality
G	Production equipment

Hard Coal Mining, Germany

Hard coal mining in Germany, centred on the Ruhr, Saar and Ibbenbüren coalfields, was amalgamated into Deutsche Steinkohle AG (DSK) at the beginning of 1999. DSK is a wholly owned subsidiary of the RAG group.

0	**F**

All of Germany's hard coal resources are Carboniferous in age. While the Saar and Ibbenbüren basins represent remnants of larger coalfields, the Ruhr contains massive resources that dip towards the North Sea.

Lying at a depth of around 1,200m in the north of the active coalfield, the strata have been fragmented by major regional folding and faulting. Conditions in the Saar basin are more complex than in the Ruhr.

The high-quality coking, gas and steam coals typically contain 6–9% ash, and less than 1% sulphur, although some seams require extensive washing before sale. The Niederberg mine and the Ibbenbüren deposit contain anthracite.

1	

At the end of 2000, DSK operated 15 deep mines, three in the Saar basin, one at Ibbenbüren and the remainder in the Ruhr region. By the end of 2006, just nine mines were left at work (seven in the Ruhr, and one each in the Saar and at Ibbenbüren),

with the German government having scheduled a further mine for closure in both 2009 and 2010.

The reduction in capacity has been achieved through both closures and amalgamations between neighbouring mines, with a concomitant fall in the industry's workforce from 58,100 in 2000 to 35,400 at the end of 2006.

2	

In the Ruhr coalfield, mine development has taken place northwards with new shafts for ventilation and handling men and materials being sunk progressively further north. The depth of working has also increased with time, giving a current average production depth of 920m.

All of DSK's operations are based around longwall mining, using both shearers and ploughs for production. Most mines operate in several seams, with each unit operating several faces. A total of 43 faces was operated in 1999. An increasing number of longwalls are controlled remotely from surface, high levels of automation allowing saleable output of up to 20,000t/d per face.

Longwall faces of up to 400m are now in service, the longest in the world having been installed at the Freidrich-Heinrich/Rheinland mine in 1997. Seams worked range in thickness from 1.0 to 4.8m, with ploughs being used in the thinner seams and shearers in thicker applications.

3	

The RAG group includes the major underground equipment manufacturer, Deutsche Bergbau Technik (DBT), from which most of the Ruhr coalfield longwall equipment has been obtained. Shearers remain the special preserve of Eickhoff, while SaarTech has developed face support and transport systems suitable for the more difficult mining conditions in the Saar coalfield.

While, in the past, equipment was specified on a face-by-face basis, DSK is now adopting a policy of standardisation of equipment wherever possible.

4	

DSK operates washing plants at all of its mines, to produce saleable steam and coking coal products. The industry generates some 10–12Mt/y of discard washery waste, some of which is stowed back underground while the remainder is stored in landscaped surface dumps.

DSK transports some 60Mt/y of coal and coke, using its own 450km-long rail system and dedicated river ports, trans-shipment points and intermediate storage facilities.

5	

Germany's hard coal mines produced 41.3Mt in 1998, 39.2Mt in 1999, 33.3Mt in 2000 and 27.1Mt in 2001. By 2006, their combined output had fallen to 20.7Mt. Production costs are three or four times the world average, Ruhr coal costing an average of around $120/t.

The formation of DSK was largely dependent on agreement for the continuation of state subsidies until 2005, the annual payment reducing from $4.9bn in 1998 to $2.9bn in 2005.

Of the 25.9Mt supplied by DSK to its customers in 2005, 19.5Mt went for thermal electricity generation and 6Mt to the German steel industry for coke production, with 400,000t being supplied to other users.

6	

In early 2007, the German government announced that subsidies would be phased out completely by 2018, thereby clearing the way for a stock-market flotation of RAG since it would no longer have the social and economic liabilities generated by the country's hard-coal sector. Whether this will mark the end of deep mining in Germany remains to be seen.

It also calls into question DSK's plans, announced in 2005, to develop a new underground mine, Donar, to produce 3Mt/y of coking coal. Citing the high world

market price for coke as justification for the project, the company intended to use private-sector finance for its development. Located near Hamm, in the eastern Ruhr coalfield, the mine would employ around 2,500 people when and if it comes on stream.*

*Accessed on the site www.**mining**-technology.com/.../**germany**/

4. Look through the text again. Find the information about mining methods and equipment and translate it into Ukrainian.

5.3.2 Getting Involved with the Text

By the end of this section you will be able to:

- predict the content of a text
- get a general understanding of a text
- identify the topic sentences
- order the events in a text
- locate relevant details by scanning through a text
- summarise the main message of the text
- interpret the content of a text

Tasks to do.

1. Look at the title of the article and sub-headings given below. What are you going to read about?

2. To get a general understanding of the article, read through it quickly, focusing on the main ideas. Choose a suitable sub-heading from the list **(A-C)** for each part **(1-3)** of the article. Identify the key words in the headings and underline the phrases in the text that express the same ideas.

A	Wireless and electronic tracking safety systems
B	What happened at Crandall Canyon?
C	Mine safety and emergency response

MAKING MINES SAFE

Safety in the coal mining industry has recently moved up the political agenda in both the Western and Asian markets. An in-depth look at the Crandall Canyon disaster assesses what lessons have been learnt and how mine safety is to continue improving.

Crandall Canyon, of Emery County, Utah, will long be remembered as the site of one of the worst mining disasters of recent years to take place in the US.

"Crandall Canyon raised serious questions about the safety of coal mining in the US."

The collapse of the mine back in August 2007 sent shockwaves through the mining community. The events that unfolded over the following days – including the death of the six miners trapped underground and three rescue workers tasked with saving them – dominated US headlines for months.

More pertinent to the mining industry, Crandall Canyon raised serious questions about the safety of coal mining operations in the US and the rigour of its regulatory bodies.

1	

On 6 August 2007, a 'mine bump' took place that registered 3.9 on the Richter scale. This bump – more accurately described as a catastrophic structural failure – collapsed the mine's Main West chamber, trapping six miners more than 1,500ft underground. So intense was the bump that it knocked out ventilation stoppers over a mile away from the accident site.

Disaster response teams were dispatched to Crandall Canyon mine immediately, but initial attempts to rescue the trapped miners were slow as rescue teams set about clearing a pathway. Having breached the Number 1 seal in Main West, they came up against a massive coal blockage – which estimates put at taking between two and six weeks to clear.

On 9 August it was decided to sink a number of bore holes, in order to more accurately establish the position of the men by analysing air samples and sending down microphones. Over the next few days further bore holes were drilled, as underground rescue teams continued to make their way through the rubble. Tragically, on 16 August, the mine collapsed again, this time killing three rescue workers and injuring six others. As a result all further attempts at rescue were abandoned.

2	

In the aftermath of the collapse, a number of reviews were implemented to get to the bottom of what actually happened.

"In 2006, US mine safety regulators failed to conduct inspections required by federal law at more than one in seven of the country's 731 underground coal mines."

The Mine Safety and Health Administration – MSHA, the state body that regulates the mining industry in the US – initiated its own investigation and committees in both houses of Congress continue to review events.

Additionally, the Utah Mine Safety Commission was set up with the remit to examine the role of the state in coal mine safety. Reporting in January 2008, it overwhelmingly concluded that there was much more that could be done. Increased state safety oversight, more effective use of technology and clear lines of command when it came to emergency response were just some of the bases touched by the report.

Commenting, Commission Chairman Scott Matheson said: "We have learned in this process that the state of Utah does about as little as any other state to promote mine safety." Damning, yes, but not entirely surprising.

In 2006, US mine safety regulators failed to conduct inspections required by federal law at more than one in seven of the country's 731 underground coal mines.

That same year the number of deaths in US coal mines was 47, double the number in 2005. Before Crandall there were the Sago, Aracoma and Darby disasters. With each case, the considerable media fallout pointed the finger at the HMSA. Accusations of mismanagement and lack of funding have been laid squarely at the feet of the HMSA and national government.

3	

More recently, steps have been taken to increase mine safety. The MINER Act, introduced following the Sago disaster in 2006, largely focused on the development of enhanced communication technologies to improve post-accident communications. These included the use of wireless systems and electronic tracking.

"A principle worry remains for some that as the demand for coal rises, infrastructure and maintenance is being left behind."

It also focused on the modernisation of emergency response plans, requiring every mine to continuously develop their written contingency plans.

A principle worry remains for some that as the demand for coal rises, infrastructure and maintenance is being left behind. The events of Crandall Canyon brought into sharp relief once again the need for rigorous regulation and management to ensure that safety legislation is adhered to.

According to some commentators, the necessary rules and regulations – such as the MINER Act and recent amendments made to it – are in place, but the political will is still playing catch up. Unfortunately for the nine people that died, Crandall Canyon got caught in that crossfire.

Accessed on the site www.**mining**-technology.com/.../feature1640/

3. Read the introduction and the first part of the article carefully. Put the events at Crandall Canyon in appropriate order.

	It was decided to sink a number of bore holes
	All further attempts at rescue were abandoned
1	A 'mine bump' took place that registered 3.9 on the Richter scale
	Three rescue workers were killed and six others were injured
	Six miners were trapped more than 1,500ft underground
	Disaster response teams were dispatched to Crandall Canyon
	They came up against a massive coal blockage
	The mine collapsed again

4. The article mentions three stages in making mines safe: information of what happened, response to the events, and measures taken to increase mine safety. Read the text again and complete the worksheet below.

WORKSHEET 5.1

What happened		
1	*mine bump*	

Response to the events		
5	*reviews were implemented*	
Measures taken to increase mine safety		
9	*development of enhanced communication technologies*	

5. Study the information from the worksheet above. Write the descriptions of each of the stages on the right and render them into your native language.

5.3.3 Vocabulary Practice

By the end of this section you will be able to:

- get a general understanding of a text based on the relevant vocabulary
- extract main ideas with the help of the key terms
- locate relevant details by scanning through a text
- paraphrase the given information
- deal with unfamiliar words
- interpret the content of a text

Tasks to do.

1. Look at the headline of the article on the opposite page and predict which ten of the following words you will come across.

crystallization climate requirements treatment cost-effectiveness sea quality evaporation by-product control recover environment

2. Match six of the words in **1** with these definitions.
    1. a product that is made as a result of making another product
    2. a high standard
    3. the natural world, including the land, water air, plants, and animals, especially considered as something that is affected by human activity
    4. a process of changing into gas or steam
    5. something that a rule, law, contract etc states you must do
    6. the most profit or advantage in exchange for the amount of money that is spent
3. Scan the introduction of the article and check your answers to **2**.
4. Read the introduction of the article and answer the questions.
    - What does Veolia Water Solutions & Technologies specialize in?
    - What process equipment do they provide for the mining industry?
    - What do they focus on in designing their products?

Veolia Water Solutions - Water Processing for the Mining Industry

Veolia Water Solutions & Technologies specializes in potable water, process water and wastewater treatment solutions for all types of mining sites. We provide specialized water systems, thanks to our understanding of the unique requirements of mine operations and associated processes. Our products, designed specifically for the mining industry, include HPD evaporation and crystallization systems, HPD specialty metal crystallization systems and tailor-made water management systems for mines and mineral processors. We can propose you with tailor-made and cost-effective water management systems, focusing on technical performance, compliance with process and environment requirements and long-term cost effectiveness, in order to fulfill the most demanding reliability and quality requirements essential to the mining industry.

Water management systems for mines and mineral processors

Mines and mineral processors need to operate efficiently and maintain continuity in the manufacturing process. Operators look to ensure quantity and/or quality of water resources while at the same time controlling the environmental impact of their activities.

John Meunier designs tailor-made water management systems focused on technical performance, compliance with process and environmental requirements and long-term cost-effectiveness:

- Physico-chemical treatment of raw water, production of process water and treatment of tailings water and ARD using high-rate clarification systems such as Actiflo™ manufactured as a portable packaged plant design or as an engineered, concrete plant
- Biological applications to treat mine effluent
- Treatment of effluent containing TSS, colour, arsenic, nickel, copper, iron, manganese, ammonia, selenium, O&G and hydrocarbons
- Management of sludge ranging from the optimization of water treatment plants through to sludge thickening, dewatering and disposal
- Effluent treatment and reuse, including Zero Liquid Discharge (ZLD) technologies
- Treatment of smoke and dust from smelting furnaces
- Pilot plants for clarification, thickening and biological applications

Evaporation, concentration and crystallization from metal applications

HPD evaporation and crystallization systems are a critical process component in solution mining production, by-product recovery and internal process water management within the metals processing industry

HPD crystallization systems are used to recover a majority of the domestic production of detergent grade sodium sulfate from such processes as battery recycling, chrome production and rayon manufacturing

HPD specialty metal crystallization systems have processed a wide variety of specialty metals such as vanadium, tungsten, lithium and molybdenum

In the aluminum industry, HPD evaporation and crystallization systems purify alumina from the refining of bauxite (Bayer Process) and recover aluminum and by-product salts from aluminum dross

With innovative technologies and mining expertise our business units in North America, South America and Australia deliver solutions to meet the unique needs of each customer, by offering:

- Turnkey solutions – design, project management, construction, startup
- Equipment and engineered solutions
- Design-build-operate-maintain
- Lease options

Veolia Water Solutions & Technologies
North America
23563 W. Main Street, IL Route
USA
Tel: +1 815 609 2000
Fax: +1 815 609 0490
Email:
mailto:mppsystems@veoliawater.com?cc=mining@spgmedia.com&subject=enquiry from www.mining-technology.com Ref://32208
URL: http://www.veoliawaterst.com/

5. Match the words in the box to form word combinations, find them in the text and then translate the sentences they are used in into Ukrainian.

1	innovative	**A**	requirements
2	wastewater	**B**	impact
3	quality	**C**	recovery
4	environmental	**D**	crystallization
5	by-product	**E**	treatment
6	metal	**F**	technologies

6. Look through the text that follows, ignoring the gaps, to get a general idea. Read through the text again, use the words in the box given below the text to form words that fit in the same numbered spaces in the text.

MINING METHODS

In the Ruhr coalfield, mine **0)** ***development*** has taken place northwards with new shafts for **1)**…… and handling men and materials being sunk progressively further north. The depth of working has also increased with time, giving a current average **2)**…… depth of 920m.

All of DSK's **3)**…… are based around longwall mining, using both shearers and ploughs for production. Most mines operate in several seams, with each unit operating several faces. A total of 43 faces was operated in 1999. An **4)**……number of longwalls are controlled **5)**..... from surface, high levels of **6)**…….allowing saleable output of up to 20,000t/d per face.

Longwall faces of up to 400m are now in service, the longest in the world having been installed at the Freidrich-Rheinland mine in 1997. Seams worked range in **7)**……..from 1.0 to 4.8m, with ploughs being used in the thinner seams and shearers in thicker **8)**…….

0	develop	3	operate	6	automate
1	ventilation	4	increase	7	thick
2	produce	5	remote	8	apply

7. Do the Internet research. Find the information on one of the following topics:

- ventilation in mines
- automation in mines
- innovations in mining
- environmental issues in mining

8. Read through the texts you've found, choose the paragraphs or separate sentences which, in your opinion, convey the most significant information and translate them into Ukrainian.

9. Skim the text given below which includes the terms from this unit. Choose any part of the text that caught your attention and render it into Ukrainian.

Robit Rocktools - Rock and Ground Drilling Tools

Since 1985 Robit Rocktools has been on the front line of the drilling business providing high quality rock and ground drilling tools for mines, quarries, and construction sites around the world.

Having its roots in the Finnish mining industry, Robit is a master of drilling in the most challenging rock types. Even so, the company continues its drive to utilize the experience of the end users to develop even better products using the best materials and high precision manufacturing processes.

A global dealer network guarantees that even the smallest countries receive the best customer service available. More holes at a better value for the customer has always been the driving force of Robit Rocktools.

ROCK DRILLING TOOLS

Robit Rocktools develops high-quality drill bits for professionals worldwide. Robit exports its products to more than 30 countries, and exports more than 90% of its turnover. Mining, quarrying and construction customers drive the company's strategy.

Robit white bits are well-known to mining and construction customers all over the world. Robit's focus on continuous development means the company can secure the latest technical solutions for the most demanding rock conditions and for the most powerful rock drills.

With top quality Scandinavian steel for its products, and proven homogenous tungsten carbide for its buttons, Robit lays the foundation for an exceptional standard of finished drill bits.

NEW HT BUTTON BITS AND CONSUMABLES

Robit rockdrilling tools cover all mining, quarrying, and construction applications from drifting and tunnelling to bench and production drilling. Button bits form the core of the Robit rock drilling tools. With new design and features, the new HT series Robit button bits are even better equipped to meet the challenges of modern drilling rigs.

The Robit HT series is available in all sizes for different rock formations. In addition, Robit's rock drilling offerings are completed by a wide range of rods, shank adapters, couplings, reamers, domes, DTH bits, DTH hammers, and other drilling consumables.

GROUND DRILLING TOOLS - ROBIT CASING SYSTEMS

Robit casing systems, comprised of a pilot bit and ring assembly, are the key components of our ground drilling tools product line. The patented locking system and robust design for concentric drilling enables easy and reliable use of the product in various ground formations.

The main applications include:

- Tube umbrella drilling
- Anchoring
- Piling
- Horizontal drilling
- Water and thermal well drilling
- Soil investigation / monitoring

Robit casing systems are available for top hammer and DTH equipment. There are products for single-use systems where the casing is left in the ground and for multi-use systems where the casing is recovered.*

*Accessed on the site mining-technology.com

Section 5.4 Writing in Applying for a Job

5.4.1 Planning and Writing a CV

By the end of this section you will:

- be aware of the structure of a CV
- be able to plan and write a CV

Tasks to do.

1. You are going to become a mining engineer after graduating from the National Mining University. Think of the skills you need to apply for this job and decide:

- which of them you already have

1. _____
2. _____
3. _____
4. _____
5. _____

- which of them you need to have

1. _____
2. _____
3. _____
4. _____
5. _____

- what you should do to obtain these skills

1. _____
2. _____
3. _____
4. _____
5. _____

2. Search for the corresponding ad in the media. Read it carefully. Underline personal and professional qualities that are necessary for this job.

3. Plan and write your CV using the following headings. You may invent as many details as you wish.

A Personal Details

B Professional Experience

C Professional Qualities

D Additional Skills and Interests

4. Be ready to exchange the job advertisement and your CV with your groupmate.

5. Talk to your groupmate about his/her:

- chances of getting the job
- strengths
- weaknesses.

5.4.2 Writing a Letter of Application

By the end of this section you will:

- have a working knowledge of language structures appropriate to letters of application
- be able to write a letter of application.

Tasks to do.

1. The mine “Krasnoarmeyskaya Zapadnaya No. 1” is advertising for graduates of mining specialisations. Read the advertisement from Unit 2 again.

2. Plan your letter carefully before you start to write.

3. Write the letter of application that you would send to the personnel department of the mine. Use the following *Recommendations* and *Useful Language* while writing your letter of application.

Recommendations

- **DO** say which job you are applying for and where and when you saw it advertised. You can invent a newspaper and date if you need it.
- **DO** organise your application so that you mention each of the areas in the advertisement.
- **DO** relate your skills and personal qualities to the job advertised.
- **DON'T** make mistakes with time expressions and tenses.
- **DON'T** forget to mention why you think you are suitable.
- **DO** say when and how you can be contacted.
- **DO** begin and end your letter as you would other formal letters.
- **DO** use a new paragraph for each main topic.

Useful Language

1. ***I have always been interested in*** *(using computer technologies in my work).*
2. ***One of the main reasons I am applying for this job is that*** *(I want to work for a big company).*
3. ***I have a lot of experience of*** *(working in teams).*
4. ***I am available to start work*** *(at any time / from the end of the month).*
5. ***Thank you for considering my application****.*
6. ***I would be grateful if you would*** *(send me further details of the job).*
7. ***I can be contacted*** *(on 8063 745 82 56) at any time.*
8. ***I can be contacted*** *(at the above address).*
9. ***I look forward to hearing from you soon.***

4. When you have finished, edit your letter and ask a groupmate to check it. Refer back to the points in the ***Recommendations.***

Section 5.5 Self-assessment

(see Part I **IN-CLASS ACTIVITIES**, **MODULE 5 COMMUNICATING IN WRITING).**

5.5.1 Answer Keys to Part I Units 1, 3, 7, 10

Unit 1

5: 1 – D; 2 – C; 3 – F; 4 – H; 5 – G; 6 – I; 7 – J; 8 – B; 9 – A; 10 – E

7: 1 – B; 2 – C; 3 – D; 4 – A; 5 – E

12: 1 – c; 2 – f; 3 – g; 4 – a; 5 – i; 6 – h; 7 – j; 8 – d; 9 – b; 10 – e

Unit 3

1: curriculum vitae; first; written.

4: 1 – D; 2 – B; 3 – C; 4 – A.

Unit 7

6*:* 1 – b; 2 – b; 3 – a; 4 – a; 5 – b; 6 – b, c.

8*:* 1 – E; 2 – H; 3 – B; 4 – G; 5 – F; 6 – A; 7 – D; 8 – C.

Unit 10

4: 1 – E; 2 – F; 3 – A; 4 – B; 5 – C; 6 – D

5.5.2 Answer Keys to Unit 13 CHECK YOUR PROGRESS

Task 1.

1 – 4B; 2 – 2A; 3 – 5D; 4 – 1C; 5 – 6F; 6 – 3E.

Task 2.

7 – B; 8 – B; 9 – B; 10 – A; 11 – A; 12 – B; 13 – B; 14 – A; 15 – A; 16 – B.

Task 3.

17. The overview of different types of renewable energy **is given**.

18. The most important properties of energy **are discussed.**

19. Different forms of energy **are analysed.**

20. **It is stressed** that non-renewable energy has limited supply as it does not quickly replace itself.

21. **It is shown** that the world's natural gas, crude oil and coal deposits took millions of years to form.

22. **It is pointed out** that there is a high level of power consumption.

23. **Attention is given to** the fact that the world's energy demands are rising up.

24. **It is pointed out** that by means of renewable energy we become less dependent on the grid.

25. The reasons why people are interested in using less energy from the grid **are given.**

26. **Data is given about** the fact that renewable energy, which comes from the natural flow of sunlight, wind, or water around the Earth, quickly replaces itself.

27. **Conclusions are drawn about** the reasons to choose renewable energy.

Other phrases can also be used. The main thing is to use passive constructions.

References

1. Баракова М.Я. Английский язык для горных инженеров. М.:Высшая школа, 1987. – 296 с.

2. Зарубина З.В., Л.А. Кудрявцева, М.Ф. Ширманова. Продолжайте совершенствовать свой английский: Учеб. пособие – 2 изд., испр. и доп. – М.: Высш. шк., 1988. – 287 с.: ил.

3. ГСВОУ ОКХ 0903 Освітньо-кваліфікаційна характеристика бакалавра напряму підготовки 0903 Гірництво КВАЛІФІКАЦІЇ 3117 – «Фахівець добувної промисловості». – К.: МОН України, 2004. – 19 с.

4. ГСВОУ ОПП 0903-03 Освітньо-професійна програма підготовки бакалавра напряму підготовки 0903 Гірництво. КВАЛІФІКАЦІЇ 3117 – «Фахівець добувної промисловості» – К: МОН України, 2004. – 69 с.

5. Загальноєвропейські рекомендації з мовної освіти: вивчення, викладання, оцінювання /Науковий редактор українського видання доктор. пед. наук., проф. С. Ю. Ніколаєва. – К.: Ленвіт, 2003. – 273 с.

6. Зуєнок І. І. *Writing Reports*. Практичний посібник до складання англійською мовою звітів про наукові дослідження (для самостійної роботи студентів, магістрів, спеціалістів, аспірантів усіх напрямів підготовки). Дніпропетровськ: РВК НГУ, 2004. – 55 с.

7. Кострицька С.І. Методичні рекомендації з підготовки та проведення презентацій (виступів-доповідей) для студентів, спеціалістів, магістрів, аспірантів усіх напрямів підготовки. Дніпропетровськ: РВК НГУ, 2004. – 26 с.

8. Лобанов А.П., Дроздов Н.В. Самостоятельная работа студентов в системе высшего образования Республики Беларусь.// TERTIA. Альманах. – Днепропетровск, 2005. – С. 71 – 75.

9. Методика викладання іноземних мов у середніх навчальних закладах: Підручник. Вид. 2-е, випр. і перероб. / Кол. авторів під керівн. С.Ю. Ніколаєвої. – К.: Ленвіт, 2002. – 328 с.

10. Нормативно-методичне забезпечення кредитно-модульної системи організації навчального процесу: Навчально-методичний посібник/ За загальною ред. В.О. Салова. – Д.: Національний гірничий університет, 2006. – 133 с.

11. Програма з англійської мови для професійного спілкування. /Колектив авторів: Г.Є. Бакаєва, О.А.Борисенко, І.І.Зуєнок, В.О. Іванищева, Л.Й. Клименко, Т.І. Козимирська, С.І. Кострицька, Т.І. Скрипник, Н.Ю. Тодорова, А.О. Ходцева. – К: Ленвіт, 2005. – 119 с.

12. Програма з англійської мови для університетів / інститутів (п'ятирічний курс навчання): Проект/ Колектив авторів.: С.Ю.Ніколаєва, М.І.Соловей (керівники). Ю.В. Головач та ін.; Київ.держ.лінгв.ун-т та ін. – Вінниця: Нова книга, 2001. – 245 с.
13. Рамкова Програма з німецької мови для професійного спілкування для вищих навчальних закладів в Україні. / Колектив авторів: Амеліна С.М., Аззоліні Л.С., Беньямінова Н.Є., Гавриш М.М., Драганова Г.В., Жданова Н.С., Ісаєв Е.Ш., Леві-Гіллеріх Д., Левченко Г.Г., Олійник В.О., Петращук Н.Є., Піхтовнікова Л.С., Сергєєва Л.І., Слободцова І.В., Соболєва Н.Г., Чепурна З.В. – К: Ленвіт, 2006. – 90 с.
14. СВО НГУ НМЗ – 07 Нормативно-методичне забезпечення дисципліни «Іноземна мова за професійним спрямуванням». Стандарт вищої освіти Національного гірничого університету./ Колектив авторів: Кострицька С.І., Зуєнок І.І., Поперечна Н.В., Швець О.Д. – Дніпропетровськ: НГУ, 2007 – 165 с.
15. Степанова Ж.Г. Английский язык. Самые распространенные разговорные темы – Conversation English in Dialogues. – М.: АСТ Восток – Запад, 2007 – 160 с.
16. Тарнопольський О.Б. Методика навчання іншомовної мовленнєвої діяльності у вищому мовному закладі освіти.- Д.: Видавництво ДУЕП, 2005. – 248 с.
17. Тарнопольский О.Б., Кожушко С.П. Методика обучения английскому языку для делового общения. К.: Ленвит, 2004. – 192 с.
18. Тарнопольський О.Б., Кожушко С.П., Рудакова М.В. Writing Academically. A Coursebook for Teaching Academic Writing in English to Students of Linguistic Tertiary Educational Institutions. / Посібник. – К.: Фірма «ІНКОС», 2006. – 228 с.
19. Ягельська Н.В. Європейський мовний портфель для економістів (Проект). – К.: Ленвіт, 2004. – 56 с.
20. Allison J. and P. Emmerson (2007) *The Business*. Macmillan Education. – 159 p.
21. Astanina, N., H. Bakaieva, I. Beliayeva, A. Boiko, O. Borysenko, N. Cherkashina, N. Filippova, A. Khodtseva, L. Klymenko, S. Kostrytska, T. Kozymyrska, I. Shevchenko, T. Skrypnyk, N. Todorova and I. Zuyenok (2004) *English for Specific Purposes (ESP) in Ukraine. A Baseline Study*. Kyiv: Lenvit. – 122 p.

22. Bachman, L.F. and Palmer, A.S. (2002) *Language Testing in Practice: Designing and Developing Useful Language Tests.* Oxford: Oxford University Press. – 377 p.
23. Brieger, N. and J. Comfort (1987) *Technical Contacts.* New York: Prentice Hall. – 160 p.
24. Brumfit, C. and K. Johnson (eds.) (1985) *The Communicative Approach to Language Teaching.* Oxford: Oxford University Press.
25. BULATS (Business Language Testing System) Teaching Resource. [online] Cambridge: University of Cambridge ESOL Examination. Available from http://www.cambridgeesol.org/tech/bulats. Accessed 17 Sept. 2007.
26. Business English in Ukraine (1999). A Teacher Training Programme organized by the British Council and taught by York Associates. Paper presented in Kyiv Course, Ukraine – 75 p.
27. Clare, A. & Wilson JJ (2006) *Total English (Intermediate).* Harlow: Pearson Education Limited. – 176 p.
28. Comfort, J. (1994) *Effective Presentations.* Oxford: Oxford University Press. – 126 p.
29. Comfort, J. (1995) *Effective Meetings.* Oxford: Oxford University Press. – 126 p.
30. Comfort, J. (1996) *Effective Telephoning.* Oxford: Oxford University Press. – 126 p.
31. *Common European Framework of Reference for Languages: Learning, Teaching, Assessment* (2001). Cambridge: Cambridge University Press. – 273 p.
32. Cotton D. et al (2005) *Market Leader*. Pearson Education Limited. – 176 p.
33. Cottrell S. (1999) *The Study Skills Handbook.* London: Macmillan Press Ltd. – 145 p.
34. Dubin, F. and Olshtain, E. (1986) *Course design*. *Developing Programs and Materials for Language Learning*. Cambridge: Cambridge University Press.
35. Dudley Evans, T. and Maggie, Jo St John (1998) *Developments in ESP (A multi-disciplinary approach)*. Cambridge: Cambridge University Press. – 301 p.
36. Ellinger, B. et all (2001) Weaving the Web into an EAP Reading. *Forum*: Vol.39 No. 2 April.

37. Ellis, M. and C. Johnson. (1996) *Teaching Business English*, Oxford: Oxford University Press. – 237 p.
38. Ellis, M. and Nina O'Driscoll (1992) *Socialising.* Longmann. – 129 p.
39. Ellis, G. and B. Sinclair (1993) *Learning to Learn English: A course in learner training*. Cambridge: Cambridge University Press. – 139 p.
40. Ek, J.A. van and J.L.M.Trim (1998) *Threshold 1990.* Cambridge: Cambridge University Press. – 187 p.
41. Ek, J.A. van and J.L.M.Trim (1998) *Waystage 1990.* Cambridge: Cambridge University Press. – 187 p.
42. Ek, J.A. van and J.L.M.Trim (2001) *Vantage.* Cambridge: Cambridge University Press. – 187 p.
43. Emmerson, P. (2007) *Business English Handbook Advanced. The whole of business in one book.* Oxford: Macmillan Education – 128 p.
44. *ESP for University* (1986) ed. Harper, D. Oxford: Pergamon Books Ltd and the British Council.
45. Evans, V. (1998) *Successful Writing.* Blackpill: Express Publishing. – 116 p.
46. Evans, V. (1998) *Practice Exam Paper 2*. *(For the revised Cambridge Proficiency Test).* Blackpill: Express Publishing. – 160 p.
47. Evans, V. (1998) *Practice Exam Paper 3*. *(For the revised Cambridge Proficiency Test).* Blackpill: Express Publishing. – 160 p.
48. Evans, V. & Scott, S. (2002) *Listening and Speaking Skills (For the revised Cambridge Proficiency Test).* Blackpill: Express Publishing. – 120 p.
49. Field, J. (1999) Key concepts in ELT. Bottom-up and top-down, *ELT Journal* Volume 53/4 October 1999, Oxford: Oxford University Press.
50. Foster, P. (1999) Task-based learning and pedagogy. *ELT Journal* 53/2 Jan.1999. Oxford: Oxford University Press.
51. Fried-Booth, D. (1986) *Project Work.* Oxford: Oxford University Press. – 250 p.
52. Graves, K. (2000) *Designing Language Courses. A guide for teachers*. Boston: Heinle & Heinle Thomson Learning. – 308 p.
53. Haines, S. (1989) *Projects for the EFL Classroom*. Walton-on-Thames: Nelson.
54. Harmer, J. (1998) *How to Teach English. An Introduction to the Practice of English Language Teaching*. Harlow: Longman. – 198 p.
55. Hughes, A. (1989) *Testing for Language Teachers*. Cambridge: Cambridge University Press. – 320 p.

56. Hutchinson, T. and A. Waters (1987) *English for Specific Purposes.* Cambridge: Cambridge University Press. – 183 p.
57. International English Language Testing System (IELTS). (2002) *Handbook January 2002.* Cambridge: Cambridge University Press. – 40 p.
58. International English Language Testing System (IELTS). (2002) *Specimen Materials.* Cambridge: Cambridge University Press. – 48 p.
59. IELTS (2003) *IELTS Handbook* [online]. Available from: http://www.ielts.org/library/ handbook_2003.pdf. Accessed 15 Apr 2004.
60. Jakeman, V. & McDowell, C. (2000) *Cambridge Practice Tests for IELTS 1.* Cambridge: Cambridge University Press. – 56 p.
61. Johnson, K. and K. Morrow (eds.) (1984) *Communication in the Language Classroom.* Harlow: Longman. – 129 p.
62. Jordan, R. (1997) *English for Academic Purposes*. Cambridge: Cambridge University Press. – 404 p.
63. Kay, S. & Jones, V. (2001) *Inside Out.* Oxford: MacMillan Publishers Limited. – 160 p.
64. Kentucky Coal Education. [online]. Available from http://www.miningusa.com/kmi. Accessed 17 Febr. 2007.
65. Kitto, M. and West, R. (1984) *Engineering information: Reading Practice for Engineers.* London: Edward Arnold. – 120 p.
66. Legutke, M. and H. Thomas (1991) *Process and Experience in the Language Classroom.* Harlow: Longman. – 120 p.
67. Little, D. and R. Perclova (2000) *The European Language Portfolio: a guide for teachers and teacher trainers.* [online]. Available from: http://www.tcd.ie/CLCS/portfolio/ELP_network/
68. *ELPguide_teacherstrainers*. pdf. Accessed 15 May 2004.
69. Littlewood, W. (1981) *Communicative Language Teaching: an introduction.* Cambridge: Cambridge University Press. – 108 p.
70. *Longman Dictionary of Contemporary English* (2003). Harlow: Pearson Education Limited. – 1949 p.
71. *Macmillan English Dictionary for Advanced Learners* (2002). Oxford: Macmillan Education. – 1692 p.
72. Massey, D. & Shields, P.N.(1998) *CANADA Its Land and People.* Second Edition. Edmonton: Reidimore Books. Inc – 242 p.
73. Materials of the University of Exeter Postgraduate Certificate Course in Trainer Development (ELT) (2004). Plymouth: School of International Education of the College of St Mark and St John. – 60 p.

74. Moaveny, S. (2002) *Engineering Fundamentals: An Introduction to Engineering.* BROOKS/COLE: Thomson Learning. – 426 p.

75. Moon, J. (2002) *The Module & Programme Development Handbook. A Practical Guide to Linking Levels, Learning Outcomes & Assessment*. London: Kogan Page Limited. – 165 p.

76. Neville, J. M. (2002) *IELTS Practice Tests 1.* Newbury: Express Publishing. – 128 p.

77. Nikolayeva, S., M. Solovey, O. Petrashchuk, Y. Golovach, I. Inozemtseva, V. Tyaglovska, O. Kolominova, V. Leshchenko, N. Tuchina, I. Kamynin, L. Lysenko and Y. Sazonova (2001) *Curriculum for English Language Development in Universities and Institutes (Draft 2).* Vinnytsia: Nova Knyha. – 245 p.

78. Nunan, D. (1991) *Syllabus Design*. Oxford: Oxford University Press. – 265 p.

79. Prabhu, N.S. (1987) *Second Language Pedagogy*. Oxford: Oxford University Press. – 153 p.

80. *Quick Placement Test* (2001) Oxford: Oxford University Press. – 26 p.

81. Ribe, R. and N. Vidal (1993) *Project Work: Step by Step.* Oxford: Heinemann. – 136 p.

82. Richards, J.C. (1990) *The Language Teaching Matrix*. Cambridge: Cambridge University Press. – 185 p.

83. Richards, J., J. Platt, and H. Platt (1992) *Dictionary of Language Teaching and Applied Linguistics*. 2nd edition. Harlow: Longman.

84. School of International Education Conventions for Presentation of Written Assignments. Postgraduate Courses. (2004) Paper presented at Postgraduate Courses of the University of Exeter, Plymouth: School of International Education College of St Mark and St John. – 29 p.

85. Scrivener, J. (1994) *Learning Teaching. The Teacher Development Series.* Oxford: Heinemann. – 256 p.

86. Sharman, E. (2005) *Across Cultures.* Edinburgh: Pearson Education Limited. – 159 p.

87. Spector-Cohen, E., Kirschner, M., Wexler, C. (2001) Designing EAP Reading Courses at the University Level. *English for Specific Purposes*, Vol.20 (2001), #4, pp. 367 – 386.

88. Stoller, F.L. (1997) Project Work. A Means to Promote Language Content. *Forum*, 35/4.

89. Strevens, P. (1988) The Learner and Teacher of ESP. ESP in the Classroom: practice and Evaluation. *ELT Document 128*. Editor: Dick Chamberlian and Robert J. Baumgardner. – 169 p.
90. Taylor, L. (2001). *International Express (Pre-Intermediate) Student's Book with Pocket Book.* Oxford: Oxford University Press – 132 p.
91. Taylor, L. (2000). *International Express (Intermediate) Student's Book with Pocket Book.* Oxford: Oxford University Press – 132 p.
92. Trappe, T. and G. Tullis (2005) *Intelligent Business*. Pearson Education Limited – 176 p.
93. Tomlinson, B. (ed.) (1998) *Materials Development in Language Teaching.* Cambridge: Cambridge University Press. – 336 p.
94. Telephone English - Leaving Messages - How to Telephone in English for Business English ESL EFL TOEFL TESOL Students and Teachers [online]. Available from: http://www. esl.about.com. Accessed 12 May 2008.
95. Wakeman, K. (2003) *Practice Tests for the BEC.* Newbury: Express Publishing. – 136 p.
96. Wallwork, A. (2201) *International Express (Upper-Intermediate) Student's Book with Pocket Book.* Oxford: Oxford University Press – 124 p.
97. Welcome to Marjon. Guide for Course Participants. Academic Year 2003 – 04. (2004). Paper presented at ESP Curriculum Course, Plymouth: Department of International Education, College of St Mark and St John – 17 p.
98. White, L. (2003) *Engineering Workshop.* Oxford: Oxford University Press. – 39 p.
99. Williams, A. (1984) *Projects: Skills & Strategies.* Pitman. – 126 p.
100. Judith Wilson, J. (1986) Task-based Learning. *ESP for the University*. Edited by Harper, D. British Council, ELT Documents 123, 1986. – 169 p.
101. Woodcock, N. (1994) *Geology and Environment in Britain and Ireland.* London: University College London Press Limited. – 164 p.

Index

Навчальне видання

Кострицька Світлана Іванівна

Зуєнок Ірина Іванівна

Швець Олена Дмитрівна

Поперечна Неллі Василівна

English for Study and Work

A Coursebook for Mining Engineers

Англійська мова для навчання і роботи

для студентів і фахівців галузі знань 0503 Розробка корисних копалин

Навчальний посібник

(Англійською мовою)

Том 2

Підписано до друку 05.07.2010. Формат 30 х 42/4.
Папір офсетний. Ризографія. Ум. друк. арк. 14,2.
Обл.-вид. арк. 14,2. Тираж 300 прим. Зам. №

Підготовлено до друку та видрукувано
у Національному гірничому університеті.

Свідоцтво про внесення до Державного реєстру ДК № 1842.

49027, м. Дніпропетровськ, просп. К. Маркса, 19.