Англійська мова для навчання і роботи

Том 3

ДИСКУСІЇ ТА ПРЕЗЕНТАЦІЇ

Навчальний посібник

Розглянуто всі види діяльності студентів з вивчення англійської мови, спрямовані на розвиток мовної поведінки, необхідної для ефективного спілкування в академічному та професійному середовищах. Містить завдання і вправи, типові для різноманітних академічних та професійних сфер і ситуацій. Структура організації змісту – модульна, охоплює певні мовленнєві вміння залежно від мовної поведінки.

Даний модуль має на меті розвиток у студентів умінь і навичок академічного і професійно-орієнтованого мовлення, необхідних для участі в дискусіях, семінарах, конференціях та при підготовці й проведенні презентацій (виступів-доповідей). Зразки текстів – автентичні, містять цікаву та актуальну інформацію із загальнонаукової та професійної тематики. Ресурси для самостійної роботи (частина II) включають завдання та вправи для розвитку словникового запасу та розширення діапазону функціональних зразків, необхідних для виконання певних функцій, та завдання, які спрямовані на організацію самостійної роботи студентів. За допомогою засобів діагностики (частина III) студенти можуть самостійно перевірити засвоєння навчального матеріалу та оцінити свої досягнення. Граматичні явища і вправи для їх засвоєння наводяться в томі 5.

Призначений для студентів технічних університетів гірничого профілю. Може використовуватися для викладання вибіркових курсів англійської мови, а також у самостійному вивченні англійської мови викладачами, фахівцями і науковцями різних інженерних галузей.

CONTENTS

ПЕРЕДМОВА

«Англійська мова для навчання і роботи» − це друге видання навчального посібника для бакалаврів галузі знань 0506 Розробка корисних копалин, яке перероблено з урахуванням побажань і зауважень головних учасників навчального процесу: студентів, викладачів вищих навчальних закладів та інших сторін, зацікавлених у ефективному вивченні/викладанні дисципліни «Іноземна (англійська) мова».

Посібник розроблено відповідно до державного та галузевого стандартів з урахуванням Загальноєвропейських рекомендацій щодо мовної освіти. Він цілком і повністю відтворює зміст навчальної та робочої програм нормативної навчальної дисципліни «Іноземна (англійська) мова». *Головна мета* – формування у студентів *загальних* та *професійно-орієнтованих комунікативних мовленнєвих компетенцій.*

Навчальний посібник складається з п'яти томів, розроблених колективом авторів, кожний з яких відповідав за навчально-методичні матеріали окремого тому:

Том 1 **'Socialising in Academic and Professional Environm**ent**'** (Спілкування в соціальному, академічному та професійному середовищах) – І.І. Зуєнок.

Том 2 **'Obtaining and Processing Information for Specific Purposes'** (Стратегії пошуку інформації в іншомовних друкованих та електронних професійно-орієнтованих джерелах та дослідження іншомовних джерел) – І.І. Зуєнок.

Том 3 **'Discussions and Presentations'** (Дискусії та презентації) – Н.В. Поперечна, О.Д. Швець.

Том 4 **'Communicating in Writing'** (Професійне іншомовне письмо) – Н.В. Поперечна, О.Д. Швець.

Том 5 **'Grammar Review and Practice'** (Практикум-довідник з граматики) – С.І. Кострицька.

Кожний том містить три частини, що відповідають основним видам навчальної діяльності: частина I *'In-class Activities'* (Завдання та вправи для аудиторної роботи), частина II *'Self-study Resources'* (Ресурси для самостійної роботи), частина III *'Testing and Assessment'* (Засоби діагностики засвоєння навчального матеріалу: тестові завдання й оцінювання). Це зумовлено тим, що навчальний посібник розглядається як система, що охоплює всі види діяльності студентів з вивчення англійської мови.

Зміст посібника розроблено таким чином, щоб допомогти студентам оволодіти англійською мовою на рівні В2, необхідному для освітньо-професійного рівня бакалавра. Він охоплює академічний і професійний зміст (галузь знань «Розробка корисних копалин»), ситуативний, який наближено до реального життя, та прагматичний – практичні вміння і навички, що включають вміння використовувати інформаційно-комунікаційні технології.

Структура змісту – модульна, тобто кожний том відповідає навчальним цілям окремих модулів, отже, можна використовувати кожну книгу окремо для вивчення відповідних дисциплін за вільним вибором студента.

Матеріали п'ятого тому розроблено та скомпоновано таким чином, щоб розвинути робочі знання англійської мови як загальної, так і академічної з використанням фахової термінології.

Усі матеріали, що подані в навчальному посібнику – автентичні, сучасні та відповідають інтересам та потребам студентів. Вони стануть у пригоді викладачам під час викладання вибіркових курсів з англійської мови, а також як додаткові навчально-методичні матеріали в межах програм вищих навчальних закладів.

ВСТУП

«Дискусії та презентації» є складовою навчального посібника **«Англійська мова для навчання і роботи»** та відповідає модулю 3 навчальної та робочої програм нормативної дисципліни «Іноземна мова».

Метою даного модуля є розвиток у студентів умінь і навичок академічного і професійно-орієнтованого мовлення, необхідних для участі в дискусіях, семінарах, конференціях та при підготовці й проведенні презентацій (виступів-доповідей) відповідно до загальноприйнятої структури і вимог щодо логічної подачі матеріалу та взаємодії з аудиторією.

Завдання і вправи охоплюють важливі для майбутнього інженера загальні вміння, які спрямовані на розвиток умінь оцінювати, порівнювати, аналізувати професійно-орієнтовані джерела інформації, а також презентувати отриману інформацію, активно підтримувати розмову та вести дискусії на теми, пов'язані з навчанням і майбутньою професією, аргументувати і відстоювати свою точку зору, використовуючи відповідні до ситуації функціональні зразки.

Мовленнєві вміння визначаються й інтегруються залежно від мовної поведінки − уміння брати участь у дискусіях, готувати та робити презентації − та включають у себе всі чотири мовленнєві вміння, проте розвиток навичок мовлення є пріоритетним.

Частина I *'In-class Activities'* складається із 7 розділів (Units), що охоплюють відповідні типові ситуації, в яких можуть опинитися студенти і майбутні інженери.

Структура кожного розділу – логічна, послідовна, чітко визначена і водночас гнучка. Завдання та вправи, що рекомендуються для практичних занять, забезпечують організацію процесу навчання шляхом вибору видів діяльності, які відповідають потребам студентів.

Кожний розділ, який розроблено за моделлю, запропонованою авторами, починається з **навчальних цілей**, тобто *що саме студенти робитимуть протягом заняття*, та **очікуваних результатів навчання**, тобто *що саме студенти вмітимуть після вивчення певного розділу*.

Вступний блок розділу містить **підготовчі завдання**, що допомагають студентові сприймати нову інформацію та виконуються індивідуально або в парі/команді. Мета цього етапу – визначити знання студентів щодо даної теми, встановити, що треба доопрацювати, та організувати для цього практичне заняття відповідно до визначеної ситуації. Це дає можливість студентам продемонструвати свої знання, поділитися особистим досвідом та ідеями й показати розуміння теми заняття та власний інтерес до неї.

Перед уведенням нової інформації пропонується виконати **передтекстові завдання**, головна мета яких налаштувати студентів на текст, що буде використано як джерело нової інформації, залучити студентів до виконання завдання або вирішення проблеми й водночас визначити рівень готовності студентів до сприйняття нового матеріалу.

Саме завдання спрямоване на розвиток у студентів умінь і навичок роботи з текстами, ведення дискусій за відповідною тематикою та презентування прочитаного. Студенти повинні навчитися використовувати отриману інформацію та розширити словниковий запас за тематикою текстів або темою практичного заняття. На цьому етапі доцільно застосовувати *парну*, *групову* та *командну* роботу.

У поданих текстах зберігаються жанрові та мовні особливості оригіналу. Деякі з них супроводжуються словником термінів та словосполучень з поясненнями у формі перекладу або інтерпретації їх значення англійською мовою.

Мовна практика, яка фокусується на змісті тексту та/або мовному аспекті, являє собою низку завдань та видів діяльності, спрямованих на

розвиток мови, специфічної для академічного або професійного середовища.

Вихідний блок – це *продуктивні завдання*, які охоплюють вивчений матеріал, а також містять і матеріали для самостійної роботи частини II *'Self-study Resources'*. Тут студенти повинні використовувати здобуті навички і вміння узагальнювати інформацію, вилучену з різних джерел, для створення кінцевого продукту та його презентації. У цьому блоці є також завдання, які потребують багато часу на виконання, тому рекомендуються для самостійної роботи або використовуються для моделювання життєвих ситуацій на практичному занятті в аудиторії.

Іноді, завдяки модульності й циклічності запропонованої моделі вивчення мови, вступний і вихідний блоки розглядаються як зв'язувальні елементи між розділами.

Граматичні структури, які використовуються під час занять з метою розвитку робочих знань та їх застосування у певних ситуаціях, наведені біля позначки **Grammar Reference**. Вони опрацьовуються студентами індивідуально за допомогою Тому 5 *'Grammar Review and Practice'* (Практикум-довідник з граматики). У разі необхідності викладачі можуть використовувати матеріали частини II *'Self-study Resources'* практикуму для *мовної практики* в аудиторії.

Частина III *'Testing and assessment'* даного посібника має на меті перевірку засвоєння студентами навчального матеріалу і включає вихідний тест (Розділ 1 **'Check Your Progress'**) для самооцінки своїх досягнень та виявлення прогалин у вивченні матеріалу модуля за допомогою Розділу 2 **'Self-assessment'**. Студент також може перевірити правильність виконання завдань I частини модуля за допомогою ключів, наведених у цьому розділі.

Part 1
In-class Activities

Unit 1 General Information on Mining

Focus on

- reading for main information
- reading for detail
- discussing ideas
- presenting information

By the end of the unit 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

Brainstorming

1. You are going to read the text about mining. Before reading come up with all the ideas about what mining is. You can use a mind-map to explore the ideas.
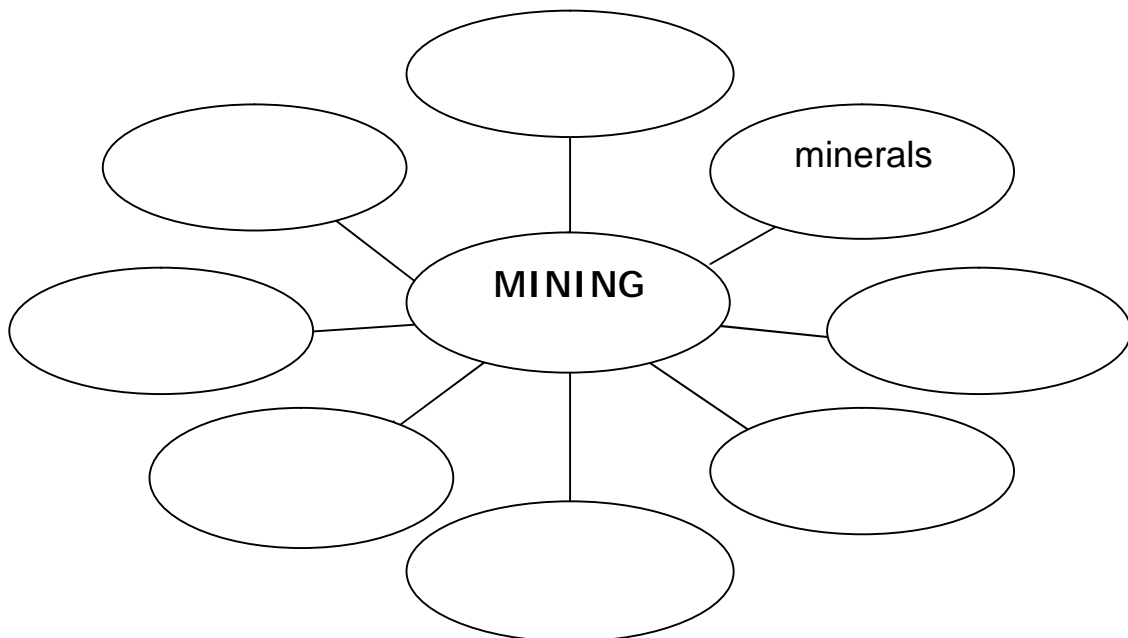
Scan reading

2. Read through the text given below and answer the following questions.

1. What is mining?

2. What has contributed to the better working conditions of the miners?

3. What factors influence the choice of the mining method?

4. In what case is useful mineral worked by open-pits?

5. Are exploratory workings driven with a view to finding and proving mineral or are they driven for immediate extraction of mineral?

6. What is the difference between development and production work?

7. What main factors are used for classifying mine workings?

8. What do the dimensions of production faces depend on?

Mining refers to ore extraction. Broadly speaking, mining is the industrial process of removing a mineral-bearing substance from the place of its natural occurrence in the Earth's crust. The term "mining" includes the recovery of oil and gas from wells; metal, non-metallic minerals, coal, peat, oil shale and other hydrocarbons from the earth. In other words, the work done to extract mineral, or to prepare for its extraction is called mining.

The tendency in mining has been toward the increased use of mining machinery so that modern mines are characterized by tremendous capacities. This has contributed to: 1) improving working conditions and raising labour productivity; 2) the exploitation of lower-grade metal-bearing substances and; 3) the building of mines of great dimensions.

Mining can be done either as a surface operation (quarries, opencasts or open-pits) or it can be done by an underground method. The mode of occurrence of the sought-for metallic substance governs to a large degree the type of mining that is practiced. If the

rock containing the metallic substance is at a shallow site and is massive, it may be economically excavated by a pit or quarry like opening on the surface. If the metal-bearing mass is tabular, as a bed or vein, and goes to a great distance beneath the surface, then it will be worked by some method of underground mining.

Working or exploiting the deposit means the extraction of mineral. With this point in view a number of underground workings is driven in barren (waste) rock and in mineral. Mine workings vary in shape, dimensions, location and function.

Depending on their function mine workings are described as exploratory, if they are driven with a view to finding or proving mineral, and as productive if they are used for the immediate extraction of useful mineral. Productive mining can be divided into capital investment work, development work, and face or production work. Investment work aims at ensuring access to the deposit from the surface. Development work prepares for the face work, and mineral is extracted (or produced) in bulk.

The rock surfaces at the sides of workings are called the sides, or in coal, the ribs. The surface above the workings is the roof in coal mining while in metal mining it is called the back. The surface below is called the floor.

The factors such as function, direct access to the surface, driving in mineral or in barren rock can be used for classifying mine workings.

I. Underground workings:

a) Long or deep by comparison with their cross-section may be: 1) vertical (shaft, blind pit); 2) sloping (slopes, sloping drifts, inclines); 3) horizontal (drifts, levels, drives, gate roads, adits, crosscuts).

b) Large openings having cross dimensions comparable with their length.

c) Production faces, whose dimensions depend on the thickness of the deposit being worked, and on the method of mining it.

II. Opencasts.

(From *Баракова М.Я. Английский язык для горных инженеров*)

3. *Pair-work.* Exchange your ideas with a partner.

Reading for specifics and Note-making

4. Read the text again and make the signs on the margins:

"**^**" *if you find the fact that coincides with your background knowledge*

"**-**" *if the fact contradicts your ideas*

"**+**" *if you find some new information, unknown to you*

"**?**" *if you want to know more about a fact or a phenomenon*

Discussion and Presentation

5. *Group-work.* In small groups, analyse which facts coincide with your background knowledge, which contradict, and which remain unknown. Fill in the appropriate columns of the worksheet.

WORKSHEET 1.1

^	-	+	?

6. Make a group presentation (or choose a person who will present the ideas) using your group table about the facts from the text.

Grammar Reference:

Present Simple.

Present Perfect Simple.

Passive Voice.

Skim reading

7. Read the following extract and give the title to it. Explain your point of view on its choice. Use the phrases for stating and justifying opinions:

- *I (personally) think …*
- *In my opinion …*
- *To my mind …*
- *I believe that …*
- *I see what you mean, but …*
- *Sure, but …*
- *Yes, but on the other hand …*

The mining of narrow vein deposits has received considerable attention over the past years as both mines and equipment manufacturers *seek solutions* to the problems that these deposits present. They are generally less than 3 m wide and of variable dip and typically display a complex structure. Mines in Australia, Canada, South America and the UK have *tackled the problem* using shrinkage, cut and fill and open stoping methods.

The viability of narrow vein mining depends on a detailed geological understanding of the deposit and close collaboration between the geologist and engineer at both the *feasibility* and production *stages*.

The mining industry in South Africa has long been recognised as being in the *forefront* of deep mining, developing access and mining techniques suited to the sometimes extreme conditions encountered. In recognition of the fact that there remains a considerable resource at depths between 3,000 and 5,000 m the DeepMine *programme was launched* to determine what will be needed to mine at these depths.

The programme was originally *conceived* to create a technological and human resources platform that will make it possible to mine gold safely and profitably at depths of 3,000 to 5,000 m. The programme has four key objectives:

• To acquire knowledge of, and develop, appropriate technology;

• To stimulate education and training;

• To establish a culture of training;

• To encourage rapid technology transfer and implementation.

(From the *Mining Magazine*)

Vocabulary notes

Seek solutions – look for solutions

Tackle the problem - make efforts to deal with a problem

Feasibility stage – possibility and likelihood to work

The forefront - the leading or most important position or place

Launch the programme – start the programme

Conceive the programme - form or devise the programme in the mind

Discussion

8. Do you want to make any changes in your mind-map after reading the texts?

9. Have a discussion about what mining is using the ideas from your mind-maps.

Unit 2 Surface and Underground Mining

Focus on

- reading for specific information
- ordering
- matching
- exchanging information
- writing a summary

By the end of the unit you will be:

- aware of a summary structure
- aware of functional phrases for making a summary
- able to use functional phrases typical for writing a summary
- able to distinguish and summarise information from different texts
- able to report about the main information obtained in texts.

Predicting

1. When you present the article you have read what kind of information do you give? Make a prediction.

Making a summary

2. Read the following elements of the summary structure you need to use when presenting the information about the article, compare with your ideas and arrange them in a logical order.

_____ The conclusion of the article.

_____ The main idea of the article.

_____ The author of the article; where and when the article was published.

_____ Your opinion of the article.

_____ The contents of the article (facts, names, figures).

3. The logical order of the summary elements is given in the table below. Compare them with your list.

4. *Pair-work.* Match the summary elements with their corresponding functional phrases given in Table 2.1.

Structure of a Summary

Elements of the summary	Functional phrases	
1. The title of the article	A	To sum up … In conclusion the author says … The author concludes that … The author makes it possible to conclude that … The author draws/comes to/reaches a conclusion …
2. The author of the article; where and when the article was published	B	The main idea of the article is … The article is about … (is devoted to …, deals with …, touches upon …) The aim of the article is to give the reader some information on … (is to provide the reader with some data on …) The article discusses … (expresses the view that …)
3. The main idea of the article	C	The author starts by telling the readers about … The author writes (states, stresses, thinks, points out that …) According to the text … Further the author reports/says that …
4. The contents of the article (facts, names)	D	I found/find the article interesting (important, dull, of no value, too hard to understand)
5. The conclusion of the article	E	The author of the article is … The article is written by … It is published in …
6. Your opinion of the article	F	The article under review is entitled as … The article is headlined … The headline of the article is … The title of the article I have read is …

Discussion

5. You are going to read the article about coal mine methane. Before you read, discuss the following:

- why methane emissions occur;

- why and how methane is recovered;

- how coal mine methane is used.

Scan reading

6. Read the article and check your answers.

WORLD COAL ASSOCIATION

Coal Mine Methane

The methane recovered from working mines can be grouped under the term Coal Mine Methane (CMM). Two key *drivers* for CMM recovery are mine safety and the opportunity to *mitigate* significant volumes of *methane emissions* arising from coal mining activities. There is also strong potential to utilise CMM for energy production.

Methane emissions in working mines arise at two key stages:

(1) Methane is released as a direct result of the physical process of coal extraction. In many modern underground mines, the coal is extracted through *longwall mining*. Longwall mining, as with other sub-surface techniques, releases methane previously trapped within the coal seam into the air supply of the mine as layers of the coal face are removed, thus creating a potential *safety hazard*.

(2) Methane emissions arise from the collapse of the surrounding rock strata after a section of the coal seam has been mined and the artificial roof and wall supports are removed as mining progresses to another section. The *debris* resulting from the collapse is known as *gob* and also releases methane or 'gob gas' into the mine.

Recovery Techniques

Recovery techniques for CMM vary for each of the two stages of emissions.

(1) Methane released from the worked coal face can be *diluted* and removed by large ventilation systems designed to move vast quantities of air through the mine. These systems dilute methane within the mine to concentrations below the explosive range of 5-15%, with a target for methane concentrations under 1%. The ventilation systems move the diluted methane out of the working areas of the mine into shafts leading to the surface. The methane removed from working mines via this technique is known as Ventilation Air Methane (VAM).

The VAM is released through the ventilation shafts and can then be destroyed or *captured* for utilisation rather than allowing it to be released directly into the atmosphere, as may have occurred in the past. VAM has the lowest concentration levels of all forms of recoverable methane from coal seams because of its high exposure to air; often displaying levels of 0.05-0.8%.

(2) To *pre-empt* the release of gob gas from post mining collapse, it is possible for vertical gob wells to be drilled directly into the coal seam's surrounding strata before mining activities pass through that section. These pre-drilled wells can then remove the gob gas once the collapse takes place, thus avoiding the release of methane directly into the mine. The gob gas can then be destroyed or captured for utilisation via the wells, rather than allowing it to be released directly into the atmosphere. As gob gas is exposed to significantly lower volumes of air than VAM, it displays much higher methane concentration levels - typically between 35-75%.

Destruction & Utilisation

There are two main options available for the end utilisation of CMM.

(1) Power Generation - If projects are seeking to take advantage of the benefits that CMM can provide as an energy source, there are alternatives to simply destroying the gas through *flaring systems*. Although both VAM and gob gas provide much lower methane concentrations than methane recovered from unmined coal seams, there are power generation technologies available today that can *harness* the energy production potential of these resources. VAM can not only be used for combustion dilution and cooling purposes in standard gas turbines, but also as a primary fuel in a number of 'lean-burn' gas turbine systems. These systems can utilise VAM with methane concentrations as low as 1% (hence the term lean-burn) and therefore can harness the energy potential of high percentages of the VAM recovered from working mines.

VAM's potential as an energy source can also be harnessed by a number of oxidation systems available on the market today. Methane can be converted to CO_2 by the process of oxidation, thus reducing its global warming potential. This process also creates energy which can be used to generate heat or power. Oxidation systems can utilise VAM with methane concentration levels of less than 1%. These systems are often deployed on-site to provide auxiliary heat and power to the mine.

(2) Flaring - Options exist for destroying gas that would otherwise be released directly into the atmosphere. Flaring is an important technology for disposing of the methane safely and efficiently and can help to significantly reduce a major source of GHG emissions. The flared methane is converted to CO_2, heat and water. Although flaring still leads to GHG emissions in the form of CO_2, because methane's global warming potential is 23 times greater than that of CO_2, flaring actually reduces the overall greenhouse effect. However, the resulting CO_2 emissions still clearly present a huge challenge in terms of combating global warming and flaring is therefore not regarded as the most efficient or environmentally friendly of end use options.

Flaring can be performed in either open or enclosed systems, and the technique is similar to that deployed in the oil and gas industries. This method of methane disposal is relatively cheap when compared to the extra costs incurred in developing power generation infrastructure or incorporating recovered methane into a region's natural gas pipeline network.

CMM Potential

Methane emissions from working underground mines make up the majority of emissions from coal mining related activities. At present, there are more than 220 CMM projects worldwide in 14 countries which help to avoid around 3.8 billion cubic metres of methane emissions every year.

Australia has been particularly active in deploying the power generation and oxidation systems currently available. The United States also has vast potential for utilising CMM for energy purposes, but continues to primarily incorporate the gas directly into its pipeline network rather than deploy power generation systems specifically designed for CMM.

Outside of the developed world, China is experiencing significant growth in interest in the recovery and utilisation of CMM due to its high volume of methane emissions from coal mining and the particularly gassy coal seams that are found in the country. A number of projects utilising CMM for energy purposes in China are currently approved or awaiting approval under the Kyoto Protocol's Clean Development Mechanism (CDM). Of these projects, a number plan to utilise CMM as a fuel within power generation systems. The greatest potential for CMM projects in the developing world lies under the CDM due to the increased *profitability* that the generation of emissions reduction credits can provide, which acts as an economic driver.

The potential for the development of CMM projects is also high in a number of other countries, including India and Mexico. Mexico in particular is a key area for potential development as some of the world's gassiest mines are located there.

Vocabulary notes

driver – причина

mitigate – зменшувати

methane emissions – викид метану

longwall mining – розробка лавами; розробка довгими забоями

safety hazard – загроза безпеці

debris – уламки порід

gob – пуста порода

recovery techniques – методи видобування

dilute – розріджувати

captured – уловлювати

pre-empt – запобігати

flaring systems – горіння, факельний викид

harness – використовувати

lean-burn' gas turbine systems – газотурбинні системи, розроблені для работы з бідною сумішью з метою зменшення забруднення навколишнього середовища

profitability – прибутковість, рентабельність; экономічна ефективність

7. *Pair-work.* Share with your partner the information you've obtained from reading the article using the functional phrases from Table 2.1.

Discussion

8. *Whole-group work.* What new information about coal mine methane did you get from the text? Share it with your groupmates.

Reading and Note-taking

9. Read the article about coal mining and the environment on the next page and take notes using Worksheet 2.1. An example is given.

WORKSHEET 2.1

Mining impacts on the environment	Ways of minimizing mining impacts on the environment
Land disturbance	Undertake computer simulations to model impacts on the local environment

Coal Mining and the Environment

Coal mining, particularly surface mining, requires large areas of land to be temporarily disturbed. This raises a number of environmental challenges, including soil erosion, dust, noise and water pollution, and impacts on local biodiversity. Steps are taken in modern mining operations to minimise impacts on all aspects of the environment. By carefully pre-planning projects, implementing pollution control measures, monitoring the effects of mining and rehabilitating mined areas, the coal industry minimises the impact of its activities on the neighbouring community, the immediate environment and on long-term land capability.

Land Disturbance

In best practice, studies of the immediate environment are carried out several years before a coal mine opens in order to define the existing conditions and to identify potential problems. The studies look at the impact of mining on surface and ground water, soils, local land use, native vegetation and wildlife populations. Computer simulations can be undertaken to model impacts on the local environment. The findings are then reviewed as part of the process leading to the award of a mining permit by the relevant government authorities.

Mine Subsidence

Mine subsidence can be a problem with underground coal mining, whereby the ground level lowers as a result of coal having been mined beneath. A thorough understanding of subsistence patterns in a particular region allows the effects of underground mining on the surface to be quantified. The coal mining industry uses a range of engineering techniques to design the layout and dimensions of its underground mine workings so that surface subsidence can be anticipated and controlled. This ensures the safe, maximum recovery of a coal resource, while providing protection to other land uses.

Water Pollution

Mine operations work to improve their water management, aiming to reduce demand through efficiency, technology and the use of lower quality and recycled water. Water pollution is controlled by carefully separating the water runoff from undisturbed areas from water which contains sediments or salt from mine workings. Clean runoff can be discharged into surrounding water courses, while other water is treated and can be reused such as for dust suppression and in coal preparation plants.

Acid mine drainage

Acid mine drainage (AMD) can be a challenge at coal mining operations. AMD is metal-rich water formed from the chemical reaction between water and rocks containing sulphur-bearing minerals. The runoff formed is usually acidic and frequently comes from areas where ore- or coal mining activities have exposed rocks containing pyrite, a sulphur-bearing mineral. However, metal-rich drainage can also occur in mineralised areas that have not been mined. AMD is formed when the pyrite reacts with air and water to form sulphuric acid and dissolved iron. This acid run-off dissolves heavy metals such as copper, lead and mercury into ground and surface water.

There are mine management methods that can minimise the problem of AMD, and effective mine design can keep water away from acid generating materials and help prevent AMD occurring. AMD can be treated actively or passively. Active treatment involves installing a water treatment plant, where the AMD is first dosed with lime to neutralise the acid and then passed through settling tanks to remove the sediment and particulate metals. Passive treatment aims to develop a self-operating system that can treat the effluent without constant human intervention.

Dust and Noise Pollution

Dust at mining operations can be caused by trucks being driven on unsealed roads, coal crushing operations, drilling operations and wind blowing over areas disturbed by mining.

Dust levels can be controlled by spraying water on roads, stockpiles and conveyors. Other steps can also be taken, including fitting drills with dust collection

systems and purchasing additional land surrounding the mine to act as a buffer zone. Trees planted in these buffer zones can also minimise the visual impact of mining operations on local communities.

Noise can be controlled through the careful selection of equipment and insulation and sound enclosures around machinery.

Rehabilitation

Coal mining is only a temporary use of land, so it is vital that rehabilitation of land takes place once mining operations have stopped. In best practice a detailed rehabilitation or reclamation plan is designed and approved for each coal mine, covering the period from the start of operations until well after mining has finished.

Where the mining is underground, the surface area can be simultaneously used for other uses - such as forests, cattle grazing and growing crops - with little of no disruption to the existing land use.

Mine reclamation activities are undertaken gradually – with the shaping and contouring of spoil piles, replacement of topsoil, seeding with grasses and planting of trees taking place on the mined-out areas. Care is taken to relocate streams, wildlife, and other valuable resources. Reclaimed land can have many uses, including agriculture, forestry, wildlife habitation and recreation.

Using Methane from Coal Mines

Methane (CH4) is a gas formed as part of the process of coal formation. It is released from the coal seam and the surrounding disturbed strata during mining operations. Methane is a potent greenhouse gas, with a global warming potential 23 times that of carbon dioxide. While coal is not the only source of methane emissions – agricultural activities are major emitters – methane from coal seams can be utilised rather than released to the atmosphere with a significant environmental benefit.

Vocabulary notes

land disturbance – порушення ґрунту

mine subsidence – осідання ґрунту, спричинине гірничими розробками

water pollution – забруднення води

mine reclamation – рекультивація гірничих виробок

acid mine drainage – дренаж кислих шахтних вод

dust and noise pollution – пилове та шумове забруднення

rehabilitation – культивація

10. *Whole group-work.* Discuss what is being done in modern mining to minimise impacts on the environment. Use the necessary functional phrases from **Part II Self-study Resources,** Section 3 Functional Phrases for Discussions. Summarise the information from the article using the following phrases:

    a) The main idea of the article is ... .

    b) According to the text ... .

    c) The author draws the conclusion that ... .

    d) I find the article ... .

 Grammar Reference:

Present Simple Active and Passive.

Past and Future Simple.

Irregular verbs (*e.g. rise-rose-risen; fall-fell-fallen).*

Adverbs.

Writing

11. Write a short summary of the article you have read using the structure and functional phrases given in Table 2.1.

Unit 3 World Coal Production and Consumption

Focus on

- reading for specific information
- note-taking
- ordering and comparing
- summarising
- listening and responding

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

- understand main points and details in authentic texts
- explain points of view in discussions
- produce a monologue on the topic of study

Discussion

1. Discuss with your groupmates global tendencies to coal consumption and its prospects using the diagram below.

World coal consumption by region, 1980-2035
(quadrillion Btu)

2. Compete the description of the diagram in Task 1 using appropriate words.
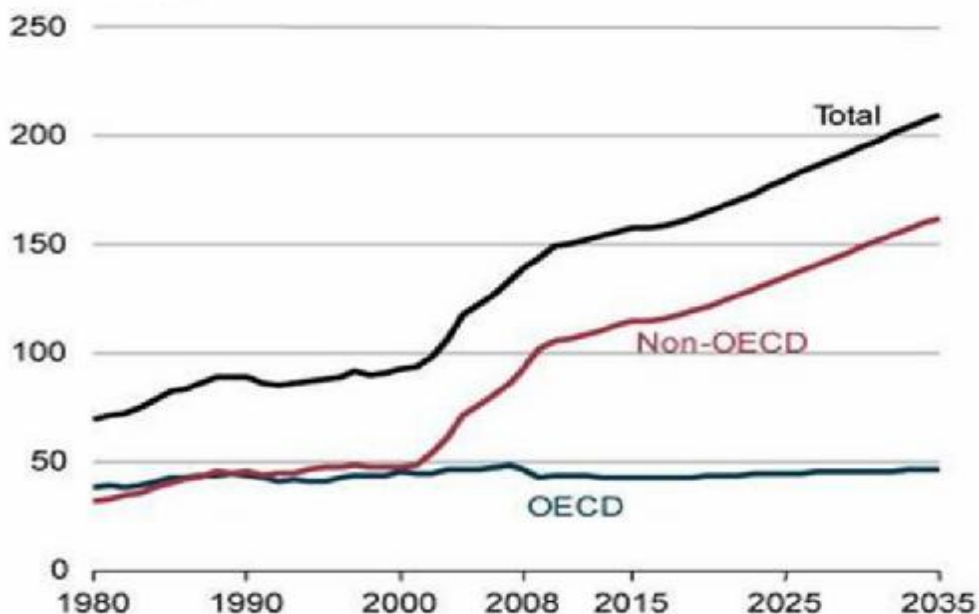
In the International Energy Outlook 2011 Reference case world coal consumption increases by 50 percent, from 139 quadrillion Btu* in 2008 to 209 quadrillion Btu in _____ (*year*). Although world coal consumption _____ (*verb*) at an average rate of 1.5 percent per year from 2008 to 2035, the growth rates by region are uneven, with total coal consumption for _____ countries remaining near 2008 levels and coal consumption in non-OECD countries increasing at a pace of 2.1 percent per year. As a result, increased use of coal in non-OECD countries _____ (*verb*) nearly all the growth in world coal consumption over the period.

Quadrillion Btu – квадрильон, тысяча в пятой степени (единица с 15 нулями) British thermal unit британская тепловая единица

Scan reading

2. Read the text "Coal use worldwide" and answer the following questions.

1. Did the world population consume more coal in 2010 than produce?
2. How different is coal consumption in the regions?
3. What country is the main coal consumer?
4. What role does coal play as a power supply?

COAL USE WORLDWIDE

Global consumption of commercial energy totalled 18 billion tonnes of coal equivalent (Gtce) in 2010. Coal, with a 28% share, ranked second after oil as one of the major sources of primary energy. World coal production reached 7.2 billion tonnes in 2010: 6.2 billion tonnes of hard coal and 1.0 billion tonnes of lignite. In turn, the production of hard coal comprised 5.3 billion tonnes of steam coal and 0.9 billon tonnes of coking coal.

Over the last decade, from 2000 to 2010, coal use has grown more strongly than any other primary energy source (+ 28%). Trends in coal use differ by region. In OECD countries, coal consumption remained stable over the last decade; in the EU, there was a 14 % drop. In contrast, coal demand in developing countries increased dramatically. Growth in non-OECD countries amounted to 1.7 Gtce over the decade, a 94 % increase.

The main driver was China, where coal consumption increased from 1.1 Gtce in 2000 to 2.4 Gtce in 2010. Thus, China accounted for 84 % of the growth in world coal consumption; India accounted for 12 %.

For power generation, coal plays a major role in both developed and developing countries. In 2010, 41% of global power generation was based on coal: 37% hard coal and 4% lignite. On an electricity production cost basis, lignite-fired power plants are very competitive with most alternatives. While the actual cost varies from region to region and depends on many factors, the economic contribution of low-cost electricity from lignite is of great value to economies across the EU.

Similarly, hard coal contributes to energy supply security at an affordable cost. In addition, coal and lignite mines sit at the centre of a long value chain – creating wealth in other sectors of the domestic economy, from mining equipment suppliers to operators of power plants.

(From the *European Association for Coal and Lignite*)
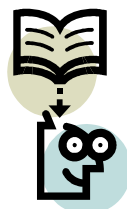
Reading and Note-taking

3. Read the text about coal consumption in different countries.

4. Summarise the information about world coal consumption in Worksheet 3.1.

WORKSHEET 3.1

Country	Consumption
China	
India	
USA	
South Korea	
Australia	
New Zealand	
Japan	

Japan is the region's largest coal-consuming nation, but its declining population and expected shift away from coal to alternative energy sources, including renewables and natural gas, for electricity generation lowers the demand for coal in the future.

South Korea's coal use increases by an average of 1.0 percent per year, from 2.6 quadrillion Btu in 2008 to 3.4 quadrillion Btu in 2035. Increasing use of coal in South Korea's power sector accounts for more than three-fourths of the growth in overall coal consumption, although most of the growth is expected after 2020. According to South Korea's most recent long-term power plan, generating subsidiaries for the state-controlled Korea Electric Power Corporation (KEPCO) added a total of 3.7 gigawatts of new coal-fired capacity in 2008 and 2009.

Coal consumption in Australia and New Zealand remains nearly constant through 2035. Of the two countries, Australia is by far the larger coal consumer, with 96 percent of the regional total in 2008. With substantial coal reserves (primarily in

Australia), the region continues to rely on coal for much of its electricity generation, although the coal share of total generation does decline substantially over the projection period. Coal-fired power plants, which supplied 66 percent of the region's electricity generation in 2008, account for only 39 percent in 2035. Compared with coal, generation from both renewables and natural gas increases at a more rapid pace, so that those fuels capture an increasing share of Australia/New Zealand's total generation.

Coal use in China's electricity sector increases from 28.7 quadrillion Btu in 2008 to 63.4 quadrillion Btu in 2035, at an average rate of 3.0 percent per year. In comparison, coal consumption in the U.S. electricity sector grows by 0.2 percent annually, from 20.5 quadrillion Btu in 2008 to 21.6 quadrillion Btu in 2035. At the end of 2008, China had an estimated 557 gigawatts of operating coal-fired capacity. Coal's share of total electricity generation in China declines from 80 percent in 2008 to 66 percent in 2035, as generation from nuclear, renewables, and natural gas each grows more rapidly than generation from coal.

Coal remains the leading source of energy for China's industrial sector, although its share of industrial energy consumption declines in the projection, with electricity and other energy sources making up an increasing share of the total. Electricity's share of total industrial energy use rises from 18 percent in 2008 to 26 percent in 2035, while coal's share drops from 63 percent to 55 percent. However, with coal-fired power plants satisfying a substantial portion of China's total power generation requirements throughout the period, the increase in electricity demand in the industrial sector can, to a certain extent, be viewed as an increase in demand for coal.

In India, 54 percent of the projected growth in coal consumption is in the electric power sector and most of the remainder in the industrial sector. In 2008, India's coal-fired power plants consumed 6.7 quadrillion Btu of coal, representing 62 percent of the country's total coal demand. Coal use for electricity generation in India grows by 2.0 percent per year on average, to 11.4 quadrillion Btu in 2035, requiring an additional 72 gigawatts of coal-fired capacity. As a result, India's coal-fired

generating capacity increases from 99 gigawatts in 2008 to 171 gigawatts in 2035. Despite an increase in coal-fired electricity generation of 107 percent over the period, growth in generation from natural gas, nuclear power, and renewable energy sources is even more rapid, and the coal share of India's total generation declines from 68 percent in 2008 to 51 percent in 2035.

5. Rank the countries in terms of their coal consumption, and compare the data.

 Grammar Reference:

Present, Past and Future Simple.

Present Perfect.

Irregular verbs.

Adverbs.

Comparison of Adjectives: comparative and superlative forms.

Numerals.

Round-table discussion

6. Exchange your summaries with the groupmates. Be ready to ask questions for clarification when necessary. Use appropriate functional phrases for discussions.

Follow-up

7. Search for the data about leading exporters of world coal reserves. Get ready to discuss the information in class.

Unit 4 Effective Presentations

Focus on

- reflecting on experience of making presentations
- components of a good presentation
- key points of presentation preparation
- structure of an effective presentation
- outlining your talk
- developing a speech introduction

By the end of the unit you will be aware of:

- what makes a presentation effective
- the key elements of a presentation
- functional exponents used while giving a presentation
- major elements of delivery
- what makes a good introduction

Lead-in

1. *Pair-work.* Read the following quotations. Do you agree with them? Why? Why not? Discuss with your partner. Give your interpretations of the quotations using examples from your own experience. Share your ideas with the whole group.

> *'Speech is the index of the mind'.   (Seneca)*

> *'Rhetoric is the art of ruling the minds'.   (Plato)*

Brainstorming

2. *Pair-work.* Discuss the following questions with a partner:

- Do you have any experience in giving a speech in front of an audience? If so, what sort of speech was it?

- What was the situation?

- What was the purpose of your speech?

- What was your audience?

- Was your speech successful? Why? Why not?

Exchange the results of your discussion with the other pair.

3. Imagine that you are asked to give a speech. Think about the components of a good presentation. Fill in the worksheet below and discuss your notes with a partner.

WORKSHEET 4.1

Preparation	• *Objectives* • • • • •
Language	• *Vocabulary* • • •
Delivery	• *Voice* • • • •

Reading and Taking notes

4. Read the tapescript of the first part of a presentation on *Communication skills*. Complete a presenter's slide with the key points.

Good morning everyone, and welcome to our seminar. This morning I'm going to give you guidelines for preparing and delivering talks and presentations. I've divided my presentation into three parts: first we'll deal with preparation, then we'll focus on language, and lastly we'll look at delivery. As you listen, you might like to take notes on key points. There'll be an opportunity to ask questions at the end of each section, but do interrupt me if there's anything you don't understand.

So, let's start with preparation. This stage is extremely important and there are six key areas you need to think about when preparing your presentation or talk. The first one is objectives. You need to think carefully about the aim of your talk, and what you want to achieve. Second, the audience. Think about who they are, and what they need to know. The third area is content. You need to be careful not to give your audience too much information. Concentrate on what they need to know, on what will interest them. The fourth area is organization. Your presentation needs to have a clear and logical organization so everyone can follow it without difficulty. We'll come back to this point later, when we look at language. The fifth area is visual information. Presenting information visually, for example on an overhead projector or a flipchart, adds interest to a presentation and makes it easier to follow, but it's important to make sure you don't give too much information at a time. The last key area is practice. When you've finished preparing your talk, practise giving it. This way you'll discover if there are any problems and be able to check the timing. It should also make you feel more confident. So, to summarize, at the preparation stage you need to think about six key areas: objectives, audience, content, organization, visual information, and practice.

Fig.4.1 A presenter's slide. *Preparation*

Giving talks and presentations:
Preparation

1   *objectives* --
2   --
3   --
4   --
5   --
6   --
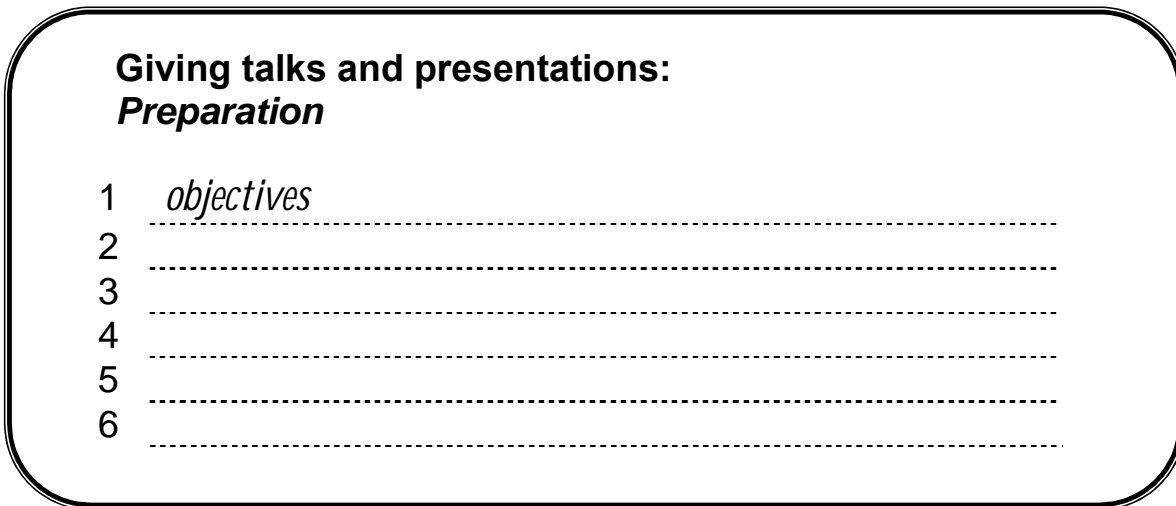
5. Read the tapescript of the second part of the presentation quickly, ignoring the gaps, to find out what signposting language is.

Right. Let's now turn our attention to the use of language, and in particular what we call 'signposting language'. It would be useful here if you look at the handout, *'Giving talks and presentations'.* I won't go through each section, only draw your attention to some sections. If you look at the section **1)** ……………*,* you'll see there are phrases for introducing your talk, for giving your audience an overview of what's to come. Further down, in section **2)**..…………, there are phrases for introducing the different parts of your talk, and for moving from one part to the next. Later, in section **3)** ……............, there are phrases for focusing the audience's attention on visual information. In section **4)** ……………. you'll find phrases for concluding your talk and in section **5)** …..………… phrases for dealing with questions. You'll need to look at the handout more carefully later on, but I hope that gives you an idea of what I mean by 'signposting language' and the kind of phrases you need to use. Now, I think that's everything I want to say about language. Oh, there are just a couple of points... If you need to use technical words or jargon that the audience may not know, make sure you explain them clearly, and don't use long, complicated sentences, keep your sentences short and easy to

follow. Simplify your vocabulary and sentence structure. Right. Are there any questions on what we've covered so far?

6. Read the text again carefully and complete gaps (**1 – 5**) with the names of the sections (**A – J**) given below.

Giving talks and presentations

A   Introducing the topic

| This morning | I'm going to... *(talk about...)* |
| Today | I'd like to... *(describe...)* |

The aim of my presentation this morning is to... *(explain...)*

| I've divided my presentation into... | |
| My talk will be in... | *(three parts.)* |

First,	I'd like to... (give you an overview of...)	
Second,		move on to...
Then,	I'll	focus on...
After that,		deal with...
Finally,	we'll	consider...

B   Referring to questions

Feel free to interrupt me if there's anything you don't understand.

If you don't mind, we'll leave questions till the end.

C   Introducing each section

So, let's start with... *(objectives...)*

Now let's move on to... *(the next part...)*

Let's turn our attention to... *(the question of...)*

This leads me to... *(my third point...)*

Finally... *(let's consider...)*

D   Summarizing a section

That completes my... *(description of...)*

So, to summarize... *(There are five key points...)*

E   Referring backwards and forwards

I mentioned earlier... *(the importance of...)*

I'll say more about this later.

We'll come back to this point later.

F   Checking understanding

Is that clear?

Are there any questions?

G   Referring to visual information

This	transparency	shows...
	diagram	

If you look at this graph you can see...

What is interesting in this slide is...

I'd like to draw your attention to... *(this chart...)*

H   Referring to common knowledge

As you know...

As I'm sure you're aware...

I   Concluding

That concludes my talk.

That brings me to the end of my presentation.

If you have any questions	I'd be pleased	to answer them.
	I'll do my best	

Thank you for your attention.

J   Dealing with questions

That's a good point.

I'm glad you asked that question.

Can I get back to you on that later?

I'm afraid I don't have...*(the information at present).*

I'm afraid I'm not the right person to answer that.

7. Read the tapescript of the last part of the presentation. Complete the presenter's slide with the key points.

Now we come to the last part, *Delivery.* You need to consider five key areas here. The first one is nerves. Most of us feel nervous when we speak in public, especially if we're speaking a foreign language. It can help if you breathe deeply. Breathing deeply calms you down and stops you speaking too quickly, which usually happens when you're nervous. The second area is voice. Obviously it's important to speak clearly and not too quickly, but it's also important to sound interesting. If your voice sounds monotonous your audience will fall asleep! Next, body language. Try to give the impression that you're relaxed and confident even if you're not, and try to avoid nervous gestures or movements. An important element of body language is eye contact, and keeping eye contact with the audience is important to keep them interested in what you're saying. For this reason you shouldn't read your talk or presentation. Instead, list key points on a flipchart or transparency, and refer to notes as well, if you need to. Stand rather than sit, but make sure you don't stand in front of visual information. And visual information is the fourth key area on our list. I mentioned earlier the importance of not presenting too much information at a time, and you saw in the handout phrases for focusing the audience's attention on what you want them to look at. Remember, too, to give them enough time to take in the information you're showing them. The fifth and final area is questions. The best policy is to answer questions in a polite, diplomatic way. The phrases in the handout should give you some help here. So, to sum up, the five areas you need to think about when delivering your talk or presentation are nerves, voice, body language, visual aids, and questions. Well, this brings me to the end of my presentation. Thank you for your attention, and now if you have any questions I'll be happy to answer them.*

_____

*Adapted from Taylor, L. (1997) *International Express* Oxford: Oxford University Press, p. 127.

Fig. 4.2 A presenter's slide . *Delivery*

Giving talks and presentations:
Delivery

1   *nerves*

2

3

4

5
    ----

8. Return to the Worksheet 4 1. Compare your notes with the information from the tapescripts, make necessary changes, and add missing points.

Opening a presentation

9. In groups of four discuss to what extent the following things contribute to the effectiveness of a speech introduction. Be ready to sum up your ideas on the role of an opening using the given items as key words and phrases.

- clear organization
- introducing oneself
- identifying the audience
- subject
- stating the purpose
- catching attention
- initial impression
- presentation outline

10. Which of the items from the worksheet below would you include in the introduction to an internal presentation to your groupmates/colleagues? Tick (√) those you have chosen. What does your choice depend on?

WORKSHEET4.2

	• your name and position
	• department
	• job responsibilities
	• the title/subject of your presentation
	• the purpose of your presentation
	• the length of time you will take
	• the main parts or points you will cover
	• any visual aids you will use
	• when the audience may ask questions
	• a reference to the audience: a human touch

Reading for specific information

11. Read carefully the information about specifying the purpose of a presentation. Answer the following questions:

- What may the purposes of presentations be? Think about different types of presentations.
- When do you need to state the aim of a presentation? What does it depend on?
- What are the most effective ways of stating the purpose of your presentation?
- Add your own ideas.
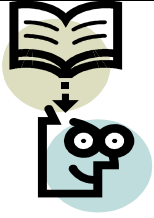
For You to Know: Stating the Purpose of a Presentation

To make your presentation effective it is essential to have a clear idea of what you want to achieve.

E.g. Do you want to inform your audience about essential facts, or to persuade them to accept your proposal? This main purpose or aim needs to be briefly stated in the opening part of a presentation.

Use the following expressions for stating the purpose/objective:

We are here today to	*learn about …* *decide …* *agree …*
The purpose of this talk is to	*update you on …* *put you in the picture about …* *give you the background to …*
This talk is designed to	*act as a springboard for discussion.* *start the ball rolling.*

You can state the purpose right at the beginning or by building up gradually, leaving your statement of purpose until the latter part of the introduction. Both ways can be equally effective.

State the purpose of your own presentation using one of the following:

In my presentation today I′m going to explain the problems of….

This morning I′d like to review progress on….

In my presentation I′ll be proposing two new techniques which we need to incorporate in….

In my presentation today I′d like to summarize the main findings of the study.

> Create more impact by changing the normal word order. Begin your statement of purpose with the word "*what*".
>
> *What I'm going to explain are the technical problems involved in….*
>
> *What I'd like to do this morning is present the results of our study.*
>
> *What I'll be proposing in my presentation are two new techniques*

12. Inform the audience about the length of your presentation. Choose one from the following:

> I shall only take … minutes of your time.
>
> I plan to be brief.
>
> This should only last … minutes.

13. Read the information given in the box below paying attention on the purpose of an introduction.

> **For You to Keep in Mind: Introduction of a presentation**
>
> Remember! Many successful introductions include information about the main points to be developed during the presentation, and the order in which the presenter will develop these. It is called *signposting*.
>
> Your introduction should contain some kind of signposting for the audience.
>
> Signposting your presentation will help you define the limits of your presentation, and focus the audience on the aspects of the topic you want to talk about. Tell them what you will be talking about, and in which order you will develop your points.

14. Use the following expressions for *signposting* your presentation, outlining its development and organizing the information. Choose the appropriate ones for preparing a presentation to your groupmates.

> *I'll be developing three main points. First, I'll give you…. Second, ….*
> *Lastly, ….*
> *My talk will be in...*
> *I've divided my presentation into four parts/sections. They are: ….*
> *The subject can be looked at under the following headings: ….*
> *We can break this area down into the following fields: ….*

15. Invite questions while introducing your talk.

I'd be glad to answer any questions at the end of my talk.

If you have any questions, please feel free to interrupt.

Please interrupt me if there's something which needs clarifying. Otherwise, there'll be time for discussion at the end.

Follow-up

16. *Whole-group discussion*. Taking into account the information from the unit think about how well you are prepared for speaking in public and what you should do to develop your own presentation skills. Be ready to give a short presentation to your groupmates specifying the purpose of a presentation, outlining its development and organizing the information. Follow the tips, use the presentation structure and appropriate functional phrases from the unit.

Unit 5 Preparing a Presentation

Focus on

- organising information and ideas
- key elements of a public speech
- structuring an effective presentation
- functions and functional phrases for presentations
- formal and informal presentation styles

By the end of the unit you will:

- be able to organise your ideas on chosen topic
- be able to identify the purpose of a presentation
- be able to consider the target audience
- be able to use appropriate style for your speech
- be aware of words and phrases for structuring a presentation
- be aware of proper language for presentation

Lead-in

1. *Pair-work.* Think about the last really successful presentation that you attended.

- Was that easy to remember?
- What features helped you to remember it?
- What was the reason the presenter gave the talk?
- What was the purpose of the presentation?

Share your ideas with the whole group.

Reading and Discussion

2. Read carefully the information given below. Pay attention to the fact that preparation is one of the most important factors in determining your communication success.

For You to Know:

Understanding What You Want to Achieve

Before you start working on your talk or presentation, it's vital that you really understand what you want to say, who you want to tell and why they might want to hear it. To do this, ask yourself:

Who are you speaking to? What are their interests, presuppositions and values? What do they have in common; how are they different?

What do you wish to communicate? To provide your audience with this information, you should determine your message: What is the single most important thing you want your audience to understand, believe, accept, or do after they hear you?

How can you best convey your message? Language is important here, as are the nonverbal cues. Choose your words and your nonverbal cues with your audience in mind. Plan a beginning, middle and end. If time and place allow, consider and prepare audio-visual aids.

When? Timing is important here. Develop a sense of timing, so that your contributions are seen and heard as relevant to the issue or matter at hand. There is a time to speak and a time to be silent.

Where? What is the physical context of the communication in mind? You may have time to visit the room, for example, and rearrange the furniture. Check for availability and visibility if you are using audio or visual aids.

Why? In order to convert hearers into listeners, you need to know why they should listen to you – and tell them if necessary. What disposes them to listen? That implies that you know yourself why you are seeking to communicate – the value or worth or interest of what you are going to say.

3. In small groups, compare the tips from the text above with your own ideas in **1**. What information is the most important and useful for you? Be ready to present your viewpoint in the whole-group discussion.

Organising information

4. *Group-work.* Think about different ways of organising information and ideas while preparing a presentation. Use the following steps to develop a clear plan for your talk:

- Brainstorm the topic to clarify what you know
- Organise the material logically, e.g. chronologically, spatially (diagrams and mind-maps), sequentially (first, second), etc.
- Develop a plan or structure.

5. Now choose one of the following topics and brainstorm your ideas using your notes in **4** and the mind-map on the next page as an example. You may use the information from the text given bellow and the texts in ***Part II Self-study Resources,*** Section 5*.* Share your ideas with your groupmates.

1. Chinese mining ambitions
2. Top-priority challenges of the mining sector
3. Negative impacts of mining activities
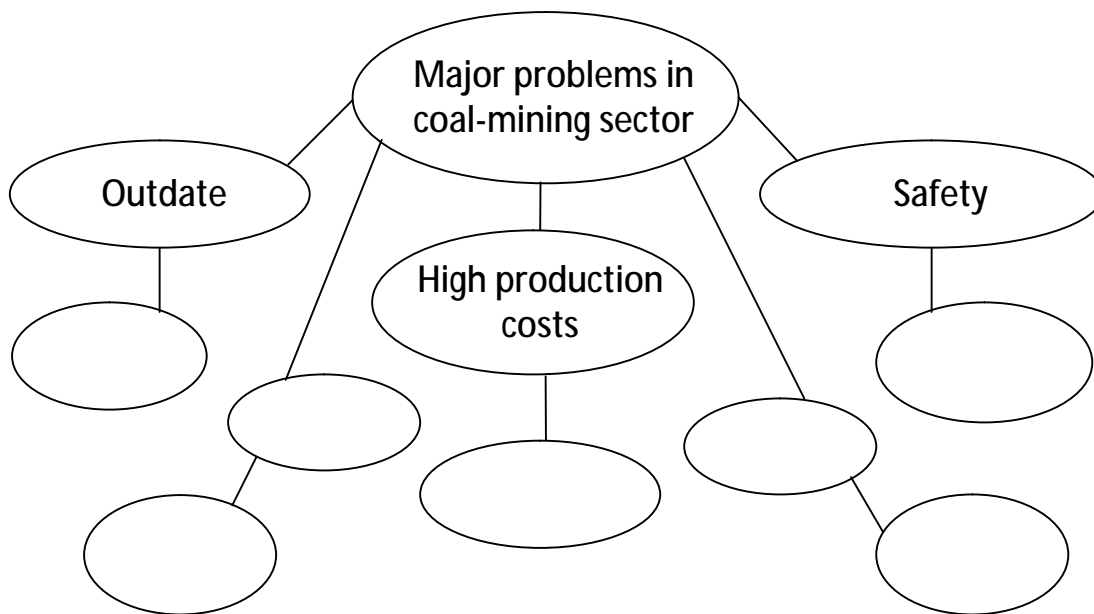
THE ENERGY QUEST

With a lack of significant oil reserves, China faces the real possibility of a huge energy shortfall to support its rapid rate of growth and has begun to look to its coal stocks to overcome the potential bottleneck.

Although the coal industry – officially regarded as the national economy's 'motive force'– has developed well over recent years, achieving record-breaking outputs and already providing the bulk of the country's primary energy needs, there are still places where demand exceeds supply.

Over recent years, the mounting requirements of the power, steel, cement and chemical sectors have grown apace, alongside the rapidly blossoming national economy. The Chinese government therefore plans to implement a series of initiatives to meet the need.

One avenue involves underground coal gasification (UCG). No fewer than 16 trials have been carried out since the late 1980s and over 30 billion tonnes of potentially suitable reserves have been identified in both active and abandoned mines. If the type of deep drilling technology developed in Europe turns out to be feasible for use in China's seams, this figure could be as much as ten times greater.

Even if it does not, mine cogeneration, using the naturally occurring methane gas from the coal seam to generate power, has already established a significant stake in the Chinese energy market.

The 120MW generation facility at the Sihe Mine in Shanxi Province – completed in 2008 – provides energy for around 90,000 households and a variety of local industrial and commercial premises. However, neither the quest for energy, nor Chinese mining ambition, stops here.

Identifying the key elements of a presentation

6. *Group-work.* Continue working in the same groups. Now you are going to identify the key elements of a public speech answering a number of questions:

- What is the **purpose** of your presentation? What do you want to achieve?
- How should you consider your **audience**? What **information** should you include based on their interests, needs and background?
- What are the ways to structure a presentation? What does the **structure** involve?
- What are you going to use to highlight the main points of your presentation? What can **supplementary media** include?
- How can you explain the notion "speech situation"**?** What factors contribute to the effectiveness of presentation **delivery**?
- Why is it useful to **analyse** your performance?

7. Sum up your ideas in **6** taking into account that words in **bold** present the key elements of a public speech. Give a presentation on the results of your work to the whole group.

Reading and Discussion

8. *Pair-work*. Read the two alternative introductions for the same presentation Pay attention to the style of these openings.

Introduction 1

"Good morning, ladies and gentlemen, and thank you very much for inviting me here to speak to you. Let me introduce myself - my name is Dmytro Kozachenko and I am the sales director of Dnipro Properties.

My objective today is to introduce our company and show you how we can help you find the right office for your business. I have divided my presentation into three parts. First I'll tell you a little about the history of our company, then I'll show you some slides of office space that we currently have available, and finally I'll deal with the question of cost.

My presentation will take around twenty minutes, and if you have any questions I'll be pleased to answer them at the end.

Okay. Let's start by looking at who we are and how the company has developed over the last twenty years".

Introduction 2

I bet you're sick of looking for office space, right? Are you feeling like this? (shows slide with a cartoon of a stressed businessman in a small room) Who feels like that? (everyone laughs) Wouldn't you prefer to feel like this? (shows slide with a cartoon of a relaxed executive in a large, modern office).

Now, you all know the importance of location for business success. Well, we can help you. We're called Dnipro Properties, and we've been offering rental solutions in this city for more than twenty years. I'd like to find out something from each of you: what is the most important reason why you want to move from your current offices?

* Emmerson, P. (2007) *Business English Handbook Advanced. The whole of business in one book.* Oxford: Macmillan Education, p. 60.

9. Analyse the introductions answering the questions below.

- How formal the introductions are?
- What are the differences between formal and informal styles? Give examples from the introductions.
- Is the structure of the presentation clear in both introductions? Why/ Why not?
- What are the advantages and disadvantages of each of the styles? Fill in the table below.

Table 5.1

Openings	Advantages	Disadvantages
Opening 1	- *Clear for a non-native speaker* - -	- - -
Opening 2	- - -	- *The speaker might lose direction or miss important points* -

10. Most people use a presentation style that is somewhere between these two extremes. What does it depends on? Think about speaker's personality, audience, situation, etc. Discuss your ideas with a partner.

Dealing with the language style

11. Use one of the following expressions to replace each of the expressions *in italics* in the introduction given below to make it more formal.

a	don't hesitate	**d**	an opportunity	**g**	I'm in charge
b	I'm delighted	**e**	sections	**h**	review
c	at greater length	**f**	my purpose is	**i**	divide

Good morning, ladies and gentlemen. **1**) *It's a pleasure* to be with you today. My name is Anton Gorobenko and **2**) *I take care* of mining equipment at our brunch office here in Dnipropetrovsk. **3**) *We are here today* to **4**) *go through* some key figures and to outline development programmes over the next five years. So what I intend to do is to **5**) *break down* this presentation into three **6**) *parts:* first, the financial review; second, the problems facing us; and finally, the development strategy I propose. If you have any questions, please **7**) *feel free* to interrupt me, but I should also say there'll be **8**) *a chance* to discuss issues **9**) *in more depth* after my talk.

Follow-up

12. Choose a text from your own sources and prepare a short presentation using the information from the unit. Be ready to give it in front of your groupmates. It may be a team-presentation. Use the *Structure of a Presentation* and *Functional Phrases for Presentations* in **Part II Self-study Resources**.

Unit 6 Visual Interpretation of Information

Focus on

- using supplementary media
- diagram types
- describing facts and figures
- describing trends
- language used to describe trends

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

- use the visuals
- understand and describe graphic information
- describe diagrams of different types
- describe trends
- use appropriate language for describing facts and figures

Lead-in

1*. Pair-work.* Think about different ways of illustrating the main aspects of your talk.

- What are they?
- Which of them are most effective?

2. Fill in the mind-map given below with visual aids you have ever used or know about. Share your ideas with the whole group.

Computer

Equipment — **Visual aids** — Images

Graphs
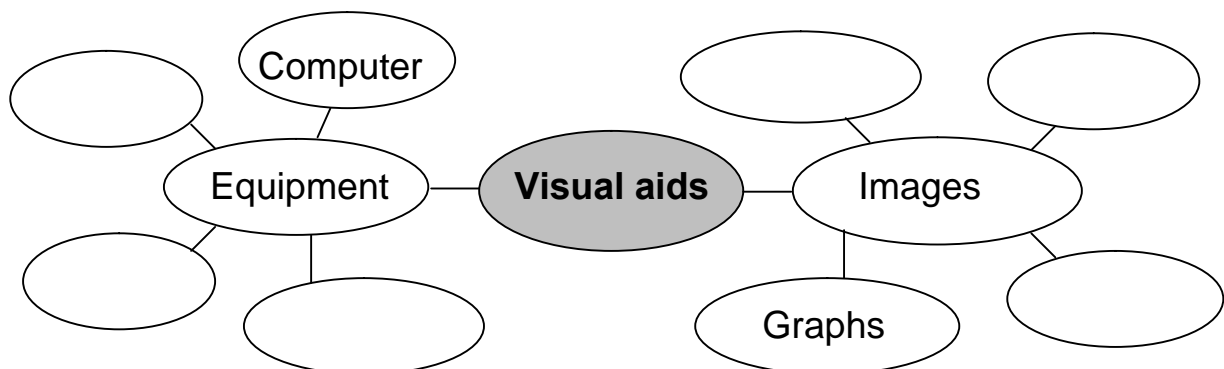
Reading and Discussion

3. *Group-work*. You are going to read the tips on how to deal with visual aids. Find the information about:

- equipment
- visual images
- requirements for visual aids preparation and usage.

Organise your notes and your own ideas in the form of a table. Be ready to present the information to the whole group.

Reinforce Your Message with Visual Aids

Consider the use of visual aids. Slide projectors, data projectors, video machines and computers should be tested out beforehand to make sure they are operating correctly and that you know how to use them.

Make sure you do not cram too much information onto any single visual. A good rule of thumb to follow is to keep each visual to six lines or less. Also, make sure the images are large enough the audience can see it clearly from all seats and make sure the colors used are easy on the eyes, taking into account the lighting.

A sad fact is that much of your authority will be judged by the quality of your slides – you need to make sure that their design supports the style of your message.

Overheads should be clearly marked and arranged in order beforehand. Flip charts should be prepared in advance when possible. When used during the presentation to take notes, make print large enough for all participants to see.

When using these various visuals, do not turn your back to the audience. Position yourself so you can use the visuals while facing your audience.

Visual aids help to make presentations effective. It is important that data can be presented in a clear manner that is easy to interpret and analyse, and for the listeners to understand.

Describing graphs and charts

4. Study different forms of data presentation given below and do the tasks that follow.

Incremental development costs	
Type of oil	**Cost ($/ barrel)**
Saudi	45
Canadian tar sands	90
Venezuelan Orinoco heavy oil	90
Deep-water sources	70-80

The Economics of Oil Dependence

Table

Share of Russia's natural gas exports by destination, 2010

Eastern Europe 31%
CIS 37%
Other Western Europe 10%
France 8%
Germany 27%
Italy 10%
Turkey 14%

Source: Eastern Block Energy, U.S. Energy Information Administration

Pie chart

Iran oil production & consumption

Capacity (IEA Medium Term 2010)   Actual Production (IEA OMR)
Dr. Bakhtiari projection (from 2003)   Actual consumption (EIA)
Consumption trend line   Capacity adjusted to 2009 production

Line graph

Saudi and Libyan crude oil production

Saudi Arabia   Libya   Source of data: IEA OMR

Bar chart

Facts are different from an opinion because they usually involve measurements that are often presented in graphs, charts and tables. Match each type shown above with one of the following descriptions.

56

1. A _____ shows the different parts of a total amount. For example, it could show the percentage of money that a student spends on entertainment, clothes, accommodation and food.

2. A _____ is useful for comparing things and showing amounts or quantities at specific times. For example, the percentage of people who own certain products (cars, televisions, etc.) in three different periods.

3. A _____ contains a list of numbers or facts arranged in rows and columns. It could, for example, be a list of the largest coal exporters.

4. A _____ is useful for showing how things change over time, and for showing two or more sets of measurements which are related to each other. For example, it might show how the number of passengers of an airline has changed from month to month.

5. *Pair-work.* Which of the ways of presenting data (graphs, charts, tables) would you use to illustrate the following? Explain your choice to a partner.

   1. Coal production in your area each month during a 12-month period
   2. The results of a survey of the world's biggest markets for coal
   3. A comparison of coal production in Asia (has grown fastest) and Europe (has seen a decline in production) during the last five years
   4. Coal consumption in power generation in four world regions (Africa, Europe, South America and North America) during three periods.

6. Look at the bar chart below. It shows what a group of students think about a presentation they have just attended.
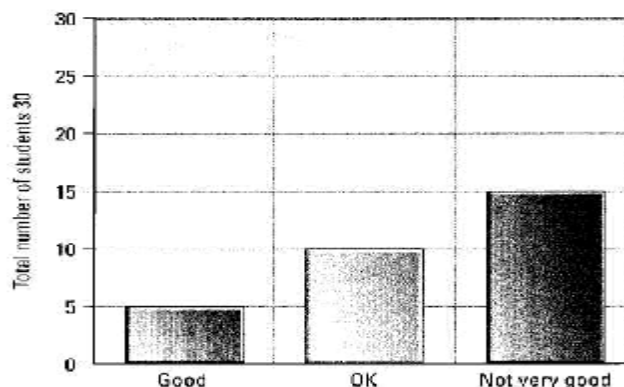
Having looked at this graph, you could say that *half the students did not like the presentation.* Or you could say that *50 per cent of the students did not like the presentation.* You could be even more specific and state that 5 *out of 30 students did not like the presentation.* These are all facts.

7. Find out some factual information about hobbies of your groupmates using the worksheet below. Put a tick against each activity the people like doing and then write the total in the *Total* column. Turn the table into three different types of diagrams (graph, bar chart, pie chart). Be ready to describe them to the whole group.

WORKSHEET 6.1

Activity																		Total
Sports																		
Singing																		
Computer games																		
Jogging																		
Cooking																		
Climbing																		

8. Make some factual statements about the data. Try to use all the following structures:

number (e.g. five out of ten) students enjoy...

percentage (e.g. 50 per cent of) students enjoy...

general (e.g. the majority of / a large number of / most / very few /hardly any) students enjoy…

Describing trends

9. Line graphs are used to show a trend or pattern which usually takes place over a period of time. It is important to look at the overall pattern on a line

graph as well as the significant features within it. Using some of the words and phrases from the table **Useful language: describing trends**, describe the pattern in each graph below. The first (**a**) has been done for you.

a ..a sharp fall.............
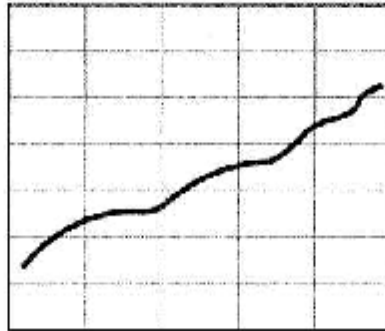
b ....
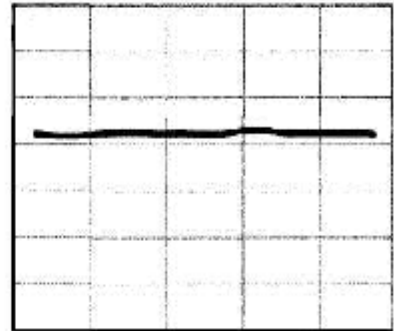
c ....
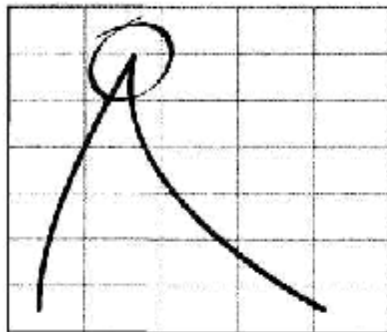
d ....
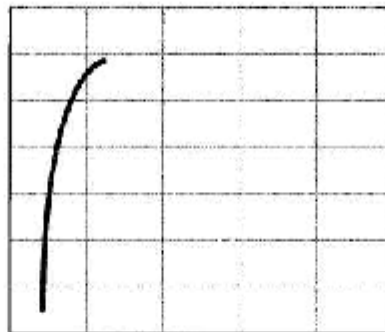
e ....
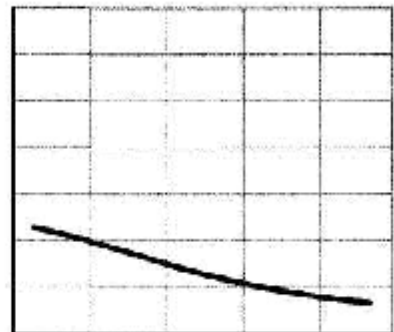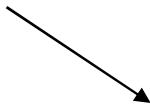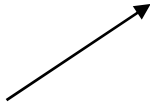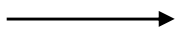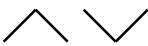
f ....

10. Describe each pattern using an adverb and the information from the tables given below. e.g. **a** It falls sharply

Table 6.1

Useful language: describing trends

Meaning	ADJ/ADV
small change	steady(ily) slight(ly) gradual(ly)
large change	considerable (ly) sharp(ly) dramatic(ally) significant(ly) substantial(ly)

Meaning	Verb	Noun
go down	decrease fall drop decline plunge (big change) plummet (big change)	*same* *same* *same* *same* *same* *same*
go up	increase rise grow double treble rocket (big change)	*same* *same* growth doubling in + n trebling in+ n /
no change	level off remain the same remain stable stabilize	a levelling off at / / /
constant change	fluctuate	fluctuation in + n
position	reach a high/peak of reach a low of stood at	a high of a low of /

Grammar Reference:

Present Simple,

Continuous and Perfect Tenses,

Adjectives, Adverbs.

Follow-up

11*. Group-work*. You are going to prepare and give a presentation on fuel used in electricity generation using the information from the article given below. Focus on:

- sources of electricity generation
- key factors influencing the future electricity generation mix
- growth in renewable electricity generation

Use any of the ways (graphs, charts, tables) to illustrate the information and words and phrases from Table 6.1 to communicate main ideas.

Fuel used in electricity generation is projected to shift over the next 25 years

Electricity generation by fuel, 2010 history and 2035 projection
billion kWh

| | renewables | nuclear | natural gas | coal |

	renewables	nuclear	natural gas	coal
2010	10%	20%	24%	45%
Reference	15%	18%	28%	38%
Low Gas Price	14%	17%	31%	36%
High Gas Price	16%	19%	24%	40%
High Economic Growth	16%	18%	28%	38%
Low Economic Growth	15%	19%	28%	38%
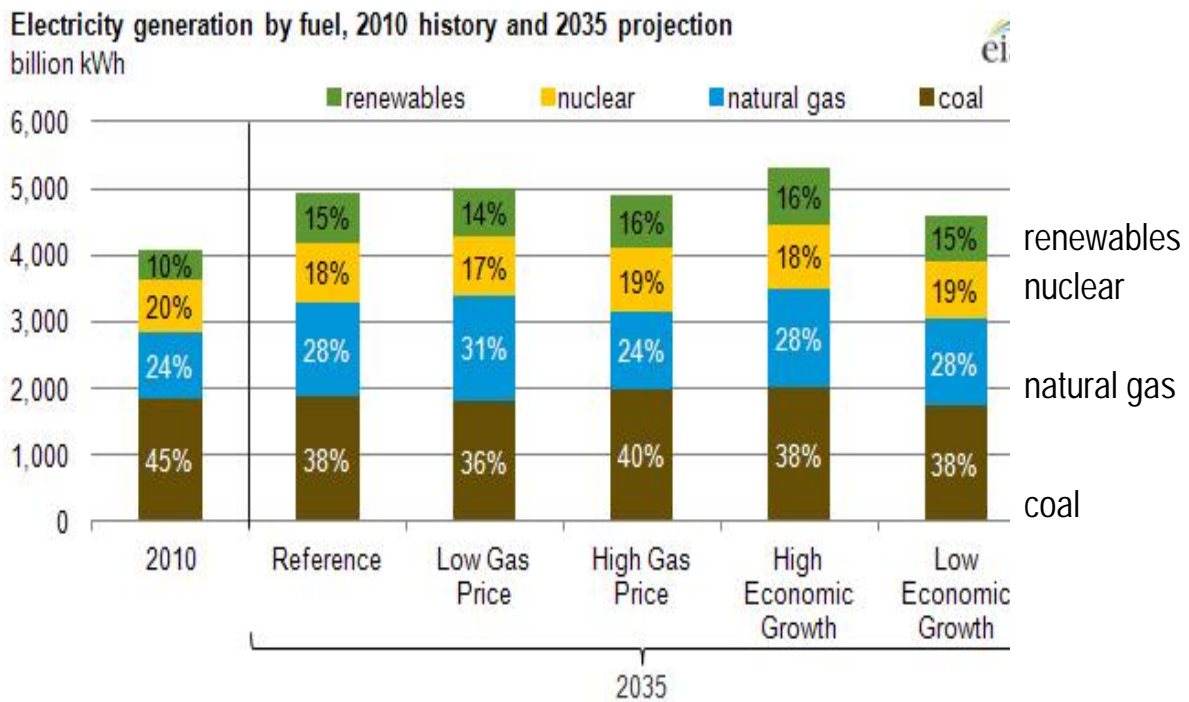
2035

While coal is projected to retain the largest share of the electricity generation mix through 2035, analyses included in the Annual Energy Outlook 2012 (AEO2012) anticipate its share declining as more generation comes from natural gas and renewable technologies. Coal's role as the preeminent source of electricity generation in the United States has lessened in recent years, declining from 49% of total electricity generation in 2007 to 42% in 2012.

The shifts are due to changes in the comparative costs of electricity generation that result from changes in natural gas prices, coal prices, economic growth, and the implementation of the Cross-State Air Pollution Rule and the Mercury and Air Toxics Standards. The Annual Energy Outlook includes alternative scenarios where the different assumptions about future

fuel prices and economic growth illustrate the sensitivity of the electric power markets to these factors. For comparison with the projected values for 2035 in the chart above, the chart below presents projected electricity generation by fuel in 2020.

Projected fuel prices and economic growth are key factors influencing the future electricity generation mix. The price of natural gas, coal's chief competitor, has dropped significantly in recent years due to the increase in domestic production of natural gas. The sensitivity of the electric power market to changes in natural gas prices is illustrated in the high and low gas price alternative cases. The high gas price case results in less generation from natural gas relative to the Reference case. This results in coal, nuclear, and renewables retaining a larger share of the generation mix. Conversely, lower gas prices result in more generation from natural gas, whose share grows relative to those of the other sources. Fuel prices affect overall generation by influencing how existing plants are dispatched and in some cases whether or not they are retired. They also play a key role in the investment decisions for potential new plants.

AEO2012 also features cases that assume high and low economic growth relative to the Reference case. In the high economic growth case, coal generation increases relative to the Reference case as coal plants that might otherwise have retired remain operational to keep up with growth in the demand. On the other hand, weak economic conditions lead to lower electric demand, which reduces the need for generation.

In all cases highlighted, most of the growth in renewable electricity generation comes from wind and biomass facilities, which benefit from State Renewable Portfolio Standard (RPS) requirements, Federal tax credits, and, in the case of biomass, the availability of low-cost feedstocks and the Renewable Fuel Standard (RFS). Overall, the amount of generation from nuclear power in 2035 increases from 2010 levels in all cases with the highest growth in the high gas price and high economic growth case. Despite

the growth, nuclear's share of total generation in generation in 2035 is projected to fall below its 2010 level in all of the cases.

Every AEO2012 cases assume that all coal plants must have either a Flue Gas Desulfurization (FGD) system or Direct Sorbent Injection system installed by 2015 in order to continue operation in compliance with environmental rules. Currently, over half of the coal plants in the nation have FGD systems.

Electricity generation by fuel, 2010 history and 2020 projection
billion kWh

	2010	Reference	Low Gas Price	High Gas Price	High Economic Growth	Low Economic Growth
renewables	10%	14%	14%	15%	14%	15%
nuclear	20%	21%	21%	21%	20%	21%
natural gas	24%	26%	28%	23%	26%	26%
coal	45%	39%	37%	42%	40%	37%

2020
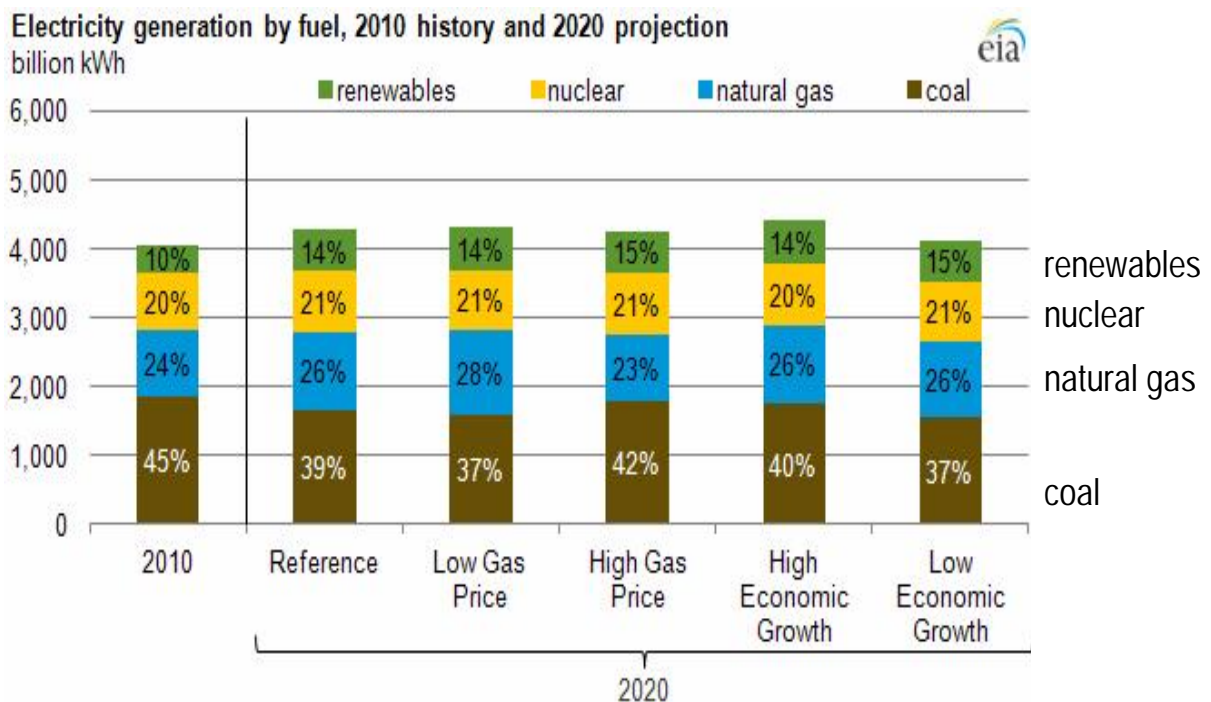
Source: U.S. Energy Information Administration, Annual Energy Outlook 2012 Electric Power Projections.

13. Practise giving your presentation to the whole group. You may choose a presenter or give a team-presentation.

Unit 7 Delivery Techniques and Evaluating a Presentation

Focus on

- delivery techniques
- elements of effective delivery
- manner of delivery
- body language
- key points of presentation preparation
- evaluating presentations

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

- deliver a presentation in an appropriate manner
- experience non-verbal communication
- use the ways to interest your audience
- follow the guidelines for preparing and giving presentations
- to evaluate each other's performance

Lead-in

1. *Pair-work.* Read the following quotation. How do you understand it? Do you agree with it? How does it relate to the topic of the unit?

> "When you can do the common things in life in an uncommon way, you will command the attention of the world." (George Washington Carver)

2. Share your ideas with your partner.

Brainstorming

3. *Pair-work.* Discuss the following questions with a partner:

1. How do you understand the term 'non-verbal communication'?
2. What does non-verbal communication include?
3. What elements of non-verbal communication are the most important?

Fill in the mind-map given below and describe it to the whole group.

Eye contact

Non-verbal
communication
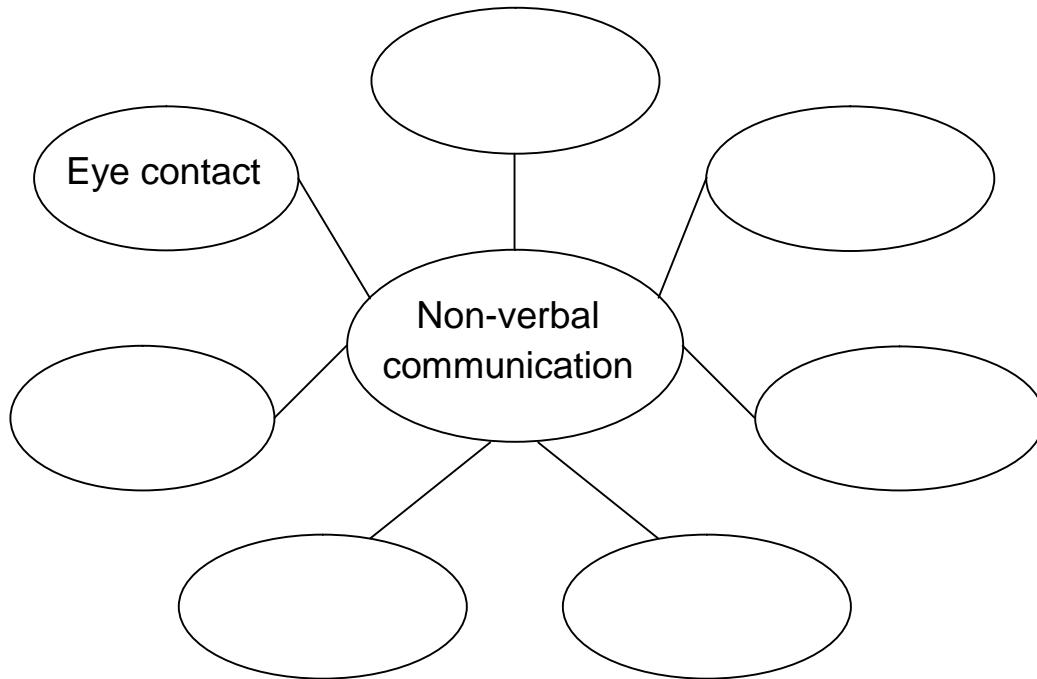
Reading and Discussion

4. Read carefully the article given below. Pay attention to the points you discussed in **3**. Add new information to your mind-map.

Speak English with Body Language

By: Joseph DeVeto

When we speak, we use much more than just words. We also communicate with our face, our hands, and even our own body. This kind of communication can be called "body language" or "non-verbal communication". Non-verbal communication not only includes how we move our body, but also hand gestures, facial expressions including eye contact, and how we use our voice. Psychologists estimate that between 60% and 80% of all of our communication with other people is non-verbal. We

communicate a wide range of information non-verbally. We also show our feelings, attitudes, moods, hopes and wishes far better with non-verbal language than with words.

Not only is a large quantity of communication non-verbal in nature, but the quality is high as well. For example, if a person says something positive while his face looks negative, which are we more likely to believe? In most cases, we will believe the non-verbal facial expression. In the end, his words will not succeed in communicating his message. If we want to succeed in our everyday conversations, we really must learn to "speak" with our body well!

Let me begin by giving you some general advice. The main thing is to relax and be natural. Trying too hard to use "body language" will make you seem a bit strange. Instead, you should allow your body language to naturally follow your words. If you say something positive, then your face, body and hands should show it too. If you are expressing a sad or worried feeling, then your face, body and hands should change with that feeling. As you think about it more and consider how you can use your body to communicate, you will become more and more natural.

More specifically, let's talk about hand gestures. Using our hands we can emphasize our main points, remind our listener how many main points we have, and let our listener know when we are changing topics. A dramatic movement of the hand or moving our hands wide apart can signal how important something is. We can even use two fingers, either close together or far apart, to show how big something is. To show very strong feeling we could clap our hands together loudly or make a fist (put our fingers in a ball as though we want to hit someone) and hit a table or desk. To show that we welcome someone, on the other hand, we can hold our hands out with the palms up, and maybe move them towards a chair to invite someone to sit next to us.

Of course, we can also use our fingers to count, but be careful. People in some countries do not count the same way as in China. In France, for example, people do not count "one" by holding up their first finger, called the "index finger". Instead, they hold up their thumb. In Japan, some people put their thumb down (with the four

fingers up) to mean "one"! This can create confusion sometimes, so be sure not to use only non-verbal communication. Use words too, so that your listener will be sure to understand you.

Some hand gestures that are popular are waving to someone as a greeting or holding your index finger and thumb into a circle to mean "okay". However, there are some countries where these can have bad meanings! It's important to be careful when using certain common gestures. Don't assume that everyone in the world understands one gesture in the same way. Still, you can use basic gestures most of the time, then when you see a strange reaction from your listener, you can make sure to emphasize your real meaning by using words and a different hand movement.

Facial expressions are a very common way that we use to communicate every day. When speaking English, it's generally good to smile at your listener from time to time, especially when he or she has made an interesting comment. Also nod your head up and down to show you are really interested. From time to time, you can add a sound of agreement, such as "Uh huh" or even just "mmmm", to show you are listening. Above all, it is important to maintain eye contact while listening. Sometimes it is okay to move your eyes away when you are speaking, because you do have to think about what you want to say. However the listener should almost always look at the speaker without moving the eyes away (without "averting" the eyes).

If you are speaking to someone while standing, it is important to stand neither too close nor too far from the speaker. Stand at a position that is comfortable for both of you. Again, though, you must be careful when talking to people from different countries. People from some southern European countries, such as France or Spain, often stand closer together when speaking than do Chinese people. And people from Arab countries such as Saudi Arabia stand even closer! You do not always have to adapt your behavior when you meet people from around the world, but you should be aware of potential misunderstandings.

If, instead of standing, you are speaking to someone while talking, you can show your friendliness and "openness" by leaning a little bit toward the speaker. Try

to avoid folding your arms in front of your chest. Many people consider folding your arms as a cold, "protective" gesture. Instead, you could have your hands on your knees or one hand on your knee and the other at your side. You can fold your arms sometimes if you wish, but don't hold them there for a long time. As long as your hands move from time to time, the listener will not think that you are unfriendly.

Besides all of the obvious physical ways to communicate non-verbally, we have our voice. We use "intonation", loudness and "pitch" (how high or low our voice sounds) to change our meaning. Even when our voice does not make an actual word, it still can communicate feeling and attitude. Combined with the words we use, our voice can be a very powerful way to express what we mean. A strong voice can communicate confidence while a quiet voice communicates intimacy or some secret message. A loud, high pitched voice (similar to a girl screaming) can communicate nervousness or excitement, while a deep voice might mean we are tired or not enthusiastic.

Body language is one of the basic skills that all students need.
_____
Accessed on the site: http://www.usingenglish.com/profiles/user/132/

5. Look through the text again, find the information to fill in the table given below. You may use your own ideas.

Table 7.1

Parts of the body or other elements	Movements or quality	Purpose
hands	*wide apart*	*signal how important something is*
finger		
smile		
voice		

6. Study recommendations for delivery and style given below. Which of them are the most useful for you personally? Support your answer with the explanations.

For You to Remember:

Delivery and Style

Tempo
Vary the speed – don't talk at the same pace all the time. Pause from time to time – a few seconds of silence are sometimes just as effective as words.

Volume
This is largely a question of voice projection. There is no need to shout. Vary the volume. A quiet part can contrast with a louder part.

Expressiveness
Vary the pitch. A good way of varying the pitch is to introduce questions into your presentation. This should force you to raise the pitch a little.

Articulation
The sounds will be clearer if you don't rush your words. If you anticipate difficulty in pronouncing certain key words, practise them beforehand. Usually the problem is the syllabus stress.

Sentence length
Avoid reading your text – this should help keep the sentences fairly short.

Register/Style
Make your English sound natural – don't use written English. Decide how formal the language should be for the audience.

Emphasizers
It's always a good idea to exaggerate a little – it will help to get your message across persuasively.

Reading and Discussion

7. Read carefully one of the approaches to the principles of public speaking. You might find the information helpful and easy to remember.

A 7 P approach to the principles of public speaking

Purpose: Why are you speaking? What do you want audience members to know, think, believe, or do as a result of your presentation?

People: Who is your audience? How do the characteristics, skills, opinions, and behaviours of your audience affect your purpose?

Place: Why are you speaking to this group now and in this place? How can you plan and adapt to the logistics of this place. How can you use visual aids to help you achieve your purpose?

Preparation: Where and how can you find good ideas and information? How much and what kind of supporting materials do you need.

Planning: Is there a natural order to the ideas and information you will use? What are the most effective ways to organize your speech in order to adapt it to the purpose, people, place, etc?

Personality: How do you become associated with your message in a positive way? What can you do to demonstrate your competence, charisma, and character to the audience?

Performance: What form of delivery is best suited to the purpose of your speech? What delivery techniques will make your presentation more effective? How should you practise?

_____

Accessed on the site attachment:/1/attachment1.htm

8. In groups of three you are going to discuss the guidelines for preparing a presentation based on **A Checklist for Presentation Preparation** given below. Tick the points you should follow to change your approach to presentation preparation. Explain the reason of your choice.

A Checklist for Presentation Preparation

Start preparing early:
- don't wait until the last few days to prepare;
- prepare it early, let it rest a little bit and come back to it;
- practise your entire presentation including your slides;
- if you can practise it before a group of colleagues or friends.

Think about Your Audience:
- Who are they and why are they here?
- What are their interests?
- What do they know?
- What do they want to know?

Be clear about your purpose:
- tell them what you are going to do;
- Are you informing or persuading?
- What do you want the audience to know, feel, or believe afterwards?

Use an Effective Introduction:
- orient the audience, explain why it is important, set the tone;
- establish a relationship between the speaker and the audience, establish credibility;
- avoid weak introductions such as apologies, jokes, rhetorical questions.

Organise your presentation clearly and simply:
- prioritise topics and allocate time accordingly;
- stick to only 3-5 main points;
- have a well thought pattern (examples are problem/solution, chronological, cause and effect, topical);
- use transitions to move smoothly from one point to the next.

Use supporting materials to flesh out main points:

Use examples, statistics, expert opinions, anecdotes.

Compose for the Ear, not for the Eye:

- use simple words, simple sentences, markers, repetition, images, personal language ("You" and "I").

Create an Effective Conclusion:

- summarise, set final image, provide closure; don't trail off, don't use trite phrases;
- don't just present data or summarised results and leave the audience to draw its own conclusions;
- you have had much more time to work with your information than your audience; share your insight and understanding and tell them what you've concluded from your work.

Sound spontaneous, conversational, and enthusiastic:

- use key phrases in your notes so you don't have to read, use the overhead instead of notes;
- vary volume, don't be afraid of silence, don't use fillers like "um"...;
- Practise, Practise, Practise.

Use Body Language Effectively:

- relaxed gestures, eye contact;
- don't play with a pen or pointer;
- don't block visual aids.

Use Visual Aids to Enhance the Message:

- you will probably need to use overhead transparencies in your presentation but to be effective, they must be designed and used properly;
- use visuals to reinforce and clarify, not overwhelm;
- keep visual aids uncluttered;
- use titles to guide the audience;
- if you use tapes or disks, make sure the equipment is compatible.

Analyse the Environment:

- check out size of room, placement of chairs, time of day, temperature, distractions;
- check out AV equipment ahead of time; have a spare bulb.

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Accessed on the site: attachment:/1/attachment1.htm

Preparing a presentation

9. *Group-work.* Arrange three groups **A**, **B** and **C**. Being in your groups review the guidelines for speech preparation. Organise your ideas in the form of a poster. Group **A** will think about what you should do *before the presentation*, group **B** – *during the presentation*, and group **C** – *after the presentation*.

10. Exchange the posters with the other groups adding your thoughts on the topics.

11. Take your initial poster, discuss all the information in the group. Be ready to give the presentation on your topic. You may choose the best presenter in your group to give a talk. Help him/her with your advice and recommendations.

Follow-up

12. Having studied the tips and recommendations from the unit, prepare a presentation on the topic of your chose. Be ready to give it in front of your groupmates. Pay special attention to the different meanings of the same gesture in different cultures. Use the *Structure of a Presentation* and *Functional Phrases for Presentations* in **Part II Self-study Resources**.

13. Listen to the presentations of your groupmates. Use the assessment form given below to evaluate their performance. Discuss the results.

Assessment form

	poor	satisfactory	good	excellent
System				
general organization				
introduction				
ending				
connections				
relevance				
length				
level				
Delivery				
tempo				
volume				
expressiveness				
articulation				
Language				
sentence length				
register/style				
linkers				
emphasizers/minimizers				
Manner				
audience contact				
interest				
assurance/confidence				
Body language				
stance and posture				
hands				
eye contact				
movement				
facial expression				
appearance				
Visual aids				
number				
design				
relevance				
use				
Overall impression				

Indicative Reading

1. Баракова М.Я. Английский язык для горных инженеров. М.:Высшая школа, 1987. – 296 с.
2. Баракова М.Я., Шендерова Р.Л. Английский язык для горных инженеров. Пособие по обучению чтению. М.: Высшая школа, 1987. – 104 с.
3. 'Coaltrans'.
4. Comfort, J. (1994) *Effective Presentations.* Oxford: Oxford University Press. – 126 p.
5. Cottrell S. (1999) *The Study Skills Handbook.* London: Macmillan Press Ltd. – 145 p.
6. Emmerson, P. (2007) *Business English Handbook Advanced. The whole of business in one book.* Oxford: Macmillan Education – 128 p.
7. 'Engineering and Mining Journal'.
8. 'International Mining'.
9. 'Mining Magazine'.
10. Moaveny, S. (2002) *Engineering Fundamentals: An Introduction to Engineering.* BROOKS/COLE: Thomson Learning. – 426 p.
11. Taylor, L. (1997) *International Express.* Oxford: Oxford University Press. – 140 p.
12. 'World Mining Equipment'.

Useful Links:

1. *Engineering & Mining Journal* [online]. Available from: http:// www.e-mj.com
2. *Mining Magazine* [online]. Available from: http://www.mining-journal.com/ mining_magazine/mining_mag_home.aspx - 38k
3. *www.mining-technology.com/.../feature1436/*

Part 2
Self-study Resources

By the end of this module you can:

- participate in professionally-oriented discussions
- prepare, organise and deliver a presentation effectively

Section 1 Doing Internet Research

1.1 Categorising

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

- understand and state the main ideas 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 1.1

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.

1.2 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 *"surface (opencast, open-pit) or underground mining".*

2. Scan the texts to find the information about current state and innovations in the mining industry.

3. Organise the information you've obtained from <u>each</u> text using the following information.

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

4. Summarise the information from <u>all</u> the texts. When presenting and discussing the facts you've found in the texts use the following functional phrases.

WORKSHEET 1.2

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 …. 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 …

1.3 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 1.3

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

4. Using the information in the worksheet draw 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 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 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?

Function	Functional Phrases
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 … 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 …

Function	Functional Phrases
	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, … 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

Function	Functional Phrases
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 ….
	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.

Section 4 Public Speaking

4.1 Making a Presentation Effective

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

- aspects of public speaking

- main features and elements of a successful presentation

- key points of presentation preparation

- structure of an effective presentation

Tasks to do.

1. Read carefully the information given below.
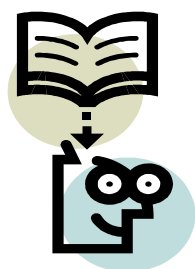
For You to Know: The Skill of Public Speaking

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.

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.

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 advice to a friend who is going to comment publicly on a certain issue. Use the information from the text above and appropriate grammatical constructions.

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

Grammar Reference:

Imperatives,

Commands,

Advisability with *should* and *ought to.*

4.2 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 presenting the subject, specifying the purpose and outlining the 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

Section 5 Preparing a Presentation

5.1 Doing Information Research and Organising the 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;
- 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, China accounted for 30% of the world's consumption of aluminium, copper, iron ore and nickel in 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 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 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 the 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 Table 5.1 **Structure of an Oral Presentation** below.

Table 5.1

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.
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, …

Sub-skills	Functions	Functional Phrases
		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 …
	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?

Sub-skills	Functions	Functional Phrases
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 slide gives information about …
	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.

Sub-skills	Functions	Functional Phrases
		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 … 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?

5.2 Improving the Language of a Presentation

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

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

Tasks to do.

1. Think about the differences between written and spoken language. Then read through the text below. 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. <u>In China, gripped by unusually bitter snowstorms, coal exports were banned for the next two months</u>. And at Newcastle, Australia, the world's largest coal export terminal in the world's largest coal exporting country, <u>the queue of carriers waiting to load has been known to stretch almost to Sydney, 150km to the south.</u>

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. <u>But now there are also gnawing doubts that global coal production may, within the next few decades, face fundamental geological constraints, or "peak coal"</u>.

Ask most energy analysts how much coal we have left, and the answer will be "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 ratio - the theoretical number of years the reserves would last at the current rate of consumption - is well over 100 years.

<u>It is commonly assumed, therefore, that there can be no shortage of coal this century</u>. 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.

<u>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</u>.

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, 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 <u>the current reserves figures are likely to represent the upper limit of available coal, meaning that production will stall far sooner than expected</u>. 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 CO_2 emissions may be far too pessimistic. <u>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</u>.

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 reserves figure.

The effect on the emissions outlook is dramatic, producing a peak atmospheric CO_2 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 CO_2 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 CO_2 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."*
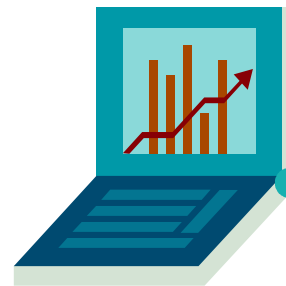
_____

*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 of verbs.

Section 6 Designing and Using Visual Aids

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

- design visual aids and use them effectively
- make a computer-based 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.
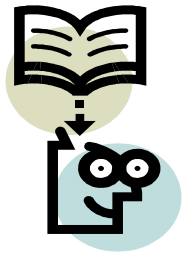
For You to Know: PowerPoint Presentation Design

Planning, creating and presenting a presentation needn't be difficult or stressful. Preparing a talk always takes far longer than you anticipate. Start early!

Use these guidelines to improve the quality of your presentation.

Structuring Your Talk

- Write a clear statement of the problem and its importance.
- Research. Collect material which may relate to the topic.
- Tell a story in a logical sequence.
- Keep your sentences short, about 10-20 words each is ideal. This is the way people usually talk.
- Strive for clarity. Use the best words for making your point. Avoid using unfamiliar jargon or acronyms.

Visual elements

- FOCUS. In general, using a few powerful slides is the aim.
- Use clear, simple visuals. Don't confuse the audience.
- The picture or graphics should make a key concept clearer.
- Use a maximum of six points per slide and six words per point. Use key phrases and include only essential information.
- Number your slides and give them a title.
- Prepare a Table of Contents slide. You can reuse the same slide at the end of the presentation summarising the main points.
- Proofread everything, including visuals and numbers.

Slide Design

- Each slide should address a single concept.
- Slides should follow a logical progression, each building on the other.

- Use photographs to help the audience relate slide information to real world situations.
- Choose a color appropriate to the mood you want to convey.
- Avoid using too many colours (maximum of 5).
- To keep an audience focused, use dark colors for background and lighter colors for text and illustrations. The eye is naturally drawn to lighter areas and lighter and warmer colored objects appear closer than dark objects.

Text

- Font size must be large enough to be easily read. Size 28 to 34 with a bold font is recommended.
- Overuse of text is a common mistake. Too much text makes the slide unreadable.
- If your audience is reading the slides they are not paying attention to you. If possible, make your point with graphics instead of text.
- You can use Word Art, or a clip art image of a sign, to convey text in a more interesting way.

Numbers

- Numbers are usually confusing to the audience. Use as few as possible and allow extra time for the audience to deal with them.
- Use the same scale for numbers on a slide. Don't compare thousands to millions.

Charts

- Charts need to be clearly labeled. You can make more interesting charts by adding elements from the drawing toolbar.
- Numbers in tables are both hard to see and to understand. There is usually a better way to present your numerical data than with columns and rows of numbers. Get creative!

Excitement

- Animation effects can be interesting when used in moderation.
- Too much animation is distracting.

- You can insert video and audio clips into PowerPoint.
- You can also insert hyperlinks.

Hints for Efficient Practice

- Timing - Practising Your Presentation,
- Talk through your presentation to see how much time you use for each slide.
- Set the automatic slide transition to the amount of time you want to spend discussing each slide.
- Are you using the right amount of time per slide? Decide which slides or comments need alteration to make your presentation smoother.

Content

- Make a list of key words/concepts for each slide
- Read through the list before you begin.
- Don't attempt to memorize your text;
- Your words will probably be different each time you practice.

Delivering Your Talk

- Plan to get there a few minutes early to set up and test the equipment.
- Dress appropriately for your audience.
- Turn off your cell phone.
- Jump right in and get to the point.
- Give your rehearsed opening statement; don't improvise at the last moment.
- Use the opening to catch the interest and attention of the audience.
- Talk at a natural, moderate rate of speech
- Speak clearly and distinctly.
- Don't read the slides aloud. Your audience can read them far faster than you can talk.
- Keep your eyes on the audience. Talk, don't read.
- Use natural gestures.

- Don't turn your back to the audience.
- Always leave time for a few questions at the end of the talk.
- Relax. If you've done the research you can easily answer most questions.
- Some questions are too specific or personal. Politely refuse to answer.
- If you can't answer a question, say so. Don't apologize. "I don't have that information. I'll try to find out for you."
- To end on time, you must PRACTISE!
- Involve your audience. Ask questions, make eye contact, and use humor.
- End your talk with the summary statement or question you have prepared.
- Be enthusiastic and enjoy your presentation. If you don't, no one else will.

*Accessed on the site http://www.cob.sjsu.edu/splane_m/presentationtips.htm

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 information from World Energy Outlook 2012 about the role of coal in the future global energy production. Choose the information necessary for producing slides to visualise facts and figures for your presentation. If you need additional information use link references mentioned in the text below.

World Energy Outlook 2012 – Part III: Coal

What is likely to be missed from news about the World Energy Outlook 2012 report is the role of coal in the future global energy mix. With recent attention on natural gas (See Penley on Energy and Education) and the focus of most news reports on the US surpassing Saudi Arabia in oil production by 2020, the anticipated role of

coal was lost. Yet, the report forecasts that, even with new, restrictive policies, global demand for coal will actually grow by 1 percent compound average annual rate. Coal demand is expected to more than doubles by 2035 in India.

It is clear that coal will play a very large role in our future energy mix. In the last decade, it was coal that met 45 percent of the energy demand, per the Outlook 2012. Without policy changes associated with greenhouse gas emissions, the forecast is for coal to still grow at a 1.9 percent rate. At that pace, coal would surpass oil as the leading fuel by 2025. But even so, its proportion of the total energy mix would decline from the last decade's 45 percent to 30 percent by 2035. Renewables and natural gas will play a much larger role.

The role of coal in our energy future depends upon a variety of factors, but leading among those are government policy and technology development. Of particular import to coal producers is the potential role that government can play in establishing policies that encourage replacement of coal by cleaner fuels, ranging from a variety of renewables to natural gas. The power sector would be most affected by these policies, and they would change the role of coal where policies are implemented.

Of course, there are alternative scenarios that leave coal as a much bigger player in the future. Among them is the development of new technology for coal gasification or carbon capture and sequestration. Both are receiving the attention of researchers in academia and industry, and both have the potential to substantially reduce emissions from coal. The challenge remains of sufficient investment in the research needed to produce viable, large scale, financially successful technology (see a review of the area in Underground coal gasification: From fundamentals to applications in the Progress in Energy and Combustion Science journal).

In the immediate future without substantial change to policies coal use will continue to grow at a rapid rate. In 2011, coal demand grew by 5.6 percent, a growth rate that was similar to 2010 and far more rapid than 2009 when it was flat. With increased demand for electrical power in developing countries, the very rapid 55% increase in coal demand over the last decade is understandable. In 2010 65 percent of

global coal demand was consumed in power generation. Even with the advent of new policy restrictions, the 2012 report projects growth in coal demand in non-OECD countries at a compound average annual growth rate of 1.4 percent between 2010 and 2035. That would mean that the global growth rate is still almost 1 percent despite a decline that is greater than 1 percent in OECD (Organization for Economic Cooperation and Development) countries.

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

Section 7 Making Delivery Techniques Effective
By the end of the section 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? Explain your choice.

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. Make notes of the key ideas of the article and find examples to support them.

Global Coal Supplies: It Might Be Worse Than Anyone Thinks

A new study on global coal supplies suggests a worldwide peak in production from existing fields.

Claims that the world has 200 to 400 years of coal left at current rates of consumption have blinded policymakers and the public. The claims are based on two questionable notions: 1) That official coal reserve estimates are accurate and 2) that the world will experience no growth in the rate of consumption of coal over the period cited.

In a new study published in the international journal Energy researchers Tadeusz W. Patzek and Gregory D. Croft suggest that actual historical coal production is a better indicator of the future trend of worldwide coal output than stated reserves which are notoriously unreliable. They note, for example, that the state of Illinois, despite its rank as second in reserves in the United States, has seen its production decline by half over the last 20 years. In the meantime Illinois' estimated recoverable reserves have actually increased from 32 billion tons to 34 billion tons between 1987 and 2006. They mention the work of David Rutledge at the California

Institute of Technology who has detailed the sharp downward revision in the official reserve estimates in recent decades and who believes ultimate production will fall far short of the current reserve estimates. The trajectory for reserves, Rutledge shows, has largely been down as planners include constraints both technical and practical such as coal in seams too thin to mine economically or the presence of a large city over a shallow coalfield. Rutledge also applies Hubbert Linearization to the production data to obtain a truly startling picture of ultimate future recoveries: 50 percent less than current forecasts.

As for the second assumption, the idea that coal demand would stay the same even as the population and the world economy presumably grow is an absurd notion without any historical basis. So even if stated reserves are correct, exponentially rising rates of production would quickly whittle the supply down to perhaps 75 years with a peak coming much sooner than that.

But the authors believe such a path of growth is out of the question because of the near term production peak they expect in coal and oil as well. They calculate a peak in worldwide coal production from existing coalfields in 2011. They argue that nearly all of the world's major coalfields have been known for a long time, and that only one major field has been discovered in the last 50 years. They recognize major untapped sources in Alaska and Siberia, but believe that the difficulties and long lead times involved in developing them will mean that the date of peak production will not be affected. Rather these areas might lessen somewhat the pace of decline. Perhaps the most shocking projection in the report is that coal production from existing coalfields is expected to *fall* by 50 percent over the next 40 years.

The authors also conclude that money would be better spent on increasing the efficiency of coal-fired electrical generating plants rather than on carbon capture and sequestration technology. Sequestration technology assumes long-lived coal reserves, the burning of which would contribute greatly to global climate change. But since the authors believe no such long-lived reserves exist, society would be better off managing the decline in available coal through greater efficiency in electrical generation so as to provide adequate power supplies. They suggest that existing coal-

fired power stations upgrade to supercritical steam turbines which would lift efficiency from about 35 percent to 50 percent. This greater efficiency would also tend to reduce the rate of emissions of greenhouse gases.

The authors also believe a cap and trade greenhouse gas emissions regime will be ineffectual if the cap is set at the current high level of emissions. Declining availability of both coal and oil will cause emissions to fall without any technological innovation, and thus a high cap would tend to accomplish little or no additional reduction.

If Patzek and Croft are right, it would be a rare bit of good news for those concerned about climate change. But their findings would also be extremely bad news for a global society dependent of coal for 27 percent of its energy needs and which is headed for a peak in oil as well.

Reserves vs Projected Future Recoveries for World Coal
(in gigatons)

SELECTED REGIONS	RESERVES Gt	PROJECTED Gt	REVISION
Eastern U. S.	96	37	-61.4%
Western U. S. w/o Montana	79	33	-58.2%
Montana	68	68	None
Central & South America	16	16	None
China	189	88	-53.4%
South Asia	68	68	None
Australia & New Zealand	77	50	-35.1%
Former Soviet Union	226	36	-84.1%
Europe	44	21	-52.3%
Africa	30	16	-46.7%
WORLD TOTALS (includes areas not listed)	903	435	-51.5%

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. Practise your speech paying close attention to your body language, your posture, both of which will be assessed by the audience.

Section 8 Giving and Evaluating a Presentation
8.1 Preparing a Presentation
By the end of the section you will be able to:
- process and analyse data to be used in presentation
- prepare and deliver your presentation

Tasks to do.

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

Strix Systems Wireless Mesh network products are ideal for Industrial Applications. Industrial Applications most often than not have extreme weather conditions and hostile conditions. The products offer Low Total Cost of Ownership and high reliability for setting up network and improve business operations. Strix Access/One® simplifies network deployments, management and maintenance while accelerating new applications for industries like Oil & Gas, Mining, and Ports.

Strix Access/One simplifies network deployments, management and maintenance while enabling new applications to accelerate communications and services, while simplifying delivery of applications.

Mining Heavy Equipment / Construction GPS Corrections, Road Signage

• Strix wireless technology ensures the precise performance in reclamation and high safety standards

• Remote surface modeling maintenance

• Change order pushing to heavy equipment

• Support for applications like mobile grading, GPS corrections, mobile data and job-site connectivity everywhere

Oil and Gas – SCADA and VoIP, Video and Data, Serial to IP conversion /SCADA/Telemetry

• High bandwidth connection for high quality video and telemetry links

• Real-time view (live video) of the site

• Self-healing dynamics network for mobile vehicles like ships and vans

• Multi-Radio on towers for high density connections from remote edge solution well sites

• High bandwidth connection for SCADA telemetry data, multi-use applications, cost savings

• Replacement of high cost and limited functionality of existing low bandwidth solution and new sites

• Centralized Manageability, Monitoring & Remote

Real-time polling of information

Ports – RFID, Asset Tracking, Surveillance

• Strategically enabled high-speed, high quality remote and mobile access for police and e-government services

• Video surveillance for any point on the network

• Traffic monitoring, geo-location asset tracking, meter reading for water, power, parking, air quality

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 Wi-Fi technology in mining. Follow the preparation guides, structure of a presentation and use functional phrases from the unit. You may take the information from the texts that follow or your own sources.

Strix Wireless WiFi Mesh for Mining applications

Falkirk Mining Company is a subsidiary of The North American Coal Corp., the nation's largest lignite coal producer. The IT department at Falkirk deployed Strix's Access/One® Network Outdoor Wireless Systems (OWS) and Access/One® Network Edge Wireless System 150 (EWS 150) at the Falkirk surface coal mine in North Dakota.

Falkirk Mining's wireless mesh network currently covers over 25 square miles and continues to grow. They use the network for logistics data communications to constantly moving coal trucks and bulldozing equipment. Multiple simultaneously active mobile network hotzones roam across the mine at any one time.

Falkirk mines approximately eight million tons of lignite coal annually, using large earthmoving equipment. Giant mobile dragline cranes expose the coal which is then loaded into oversized 200-ton haul trucks that dump the coal into Falkirk's crushing facility. Dozers then re-grade the land for eventual return to area landowners, farmers, and ranchers. The company has installed a wireless network system into nearly every type of equipment used throughout the mining process - including survey trucks, scrapers, bulldozers, blades, coal trucks, excavators, shovels, pickup laptops, and large draglines - to help ensure it meets the precise performance in reclamation and high safety standards that make the company a prime example of the modern coal industry.

"We are always moving mining operations to different geographic areas, while continuing to grow our operations," said Darin Jacobson, information systems technician at Falkirk Mining Company. "We are implementing the Strix solution because we needed a wireless mesh network that offered resilient and reliable mobility and high speed, enterprise-class security in an easily-deployed product. Strix's modular design and its advanced, innovative architecture made it the right choice for Falkirk, specially since Strix can cover large areas with only a few nodes."

Falkirk Mining is now deploying the EWS 150 into its ground equipment and phasing out its existing equipment. The EWS 150s have a high-performance Wi-Fi connection to Strix's Access/One OWS devices, which are deployed throughout the area the mine covers, thus enabling an end-to-end wireless experience and seamless and resilient roaming. The Strix OWS network in turn has a backhauled connection to Falkirk Mining's enterprise LAN.

At the Falkirk mine, the network enables data transmissions to and from the mining equipment. Coal trucks are linked to an innovative GPS system which uses 802.11 to relay logistics information to the central office network, which tracks vehicle locations, active and planned mining areas, and time sensitive operations data. Draglines, for example, constantly report productivity information back to servers, while remote pump locations relay their electronic status to the central monitoring and control program. The Strix OWS/EWS solution gives the IT

department the throughput, reliability, ease of implementation and administration it needs to meet their internal network requirements and provide optimal access to new and innovative resources.

"Just as the Strix EWS and OWS provides timely and critical data in public safety networks, these solutions can always prove to be critical in enterprise applications as well," said Tom Mooreland, Strix Systems. "In situations where a delay of seconds can cause a monetary loss, drop in productivity, or even injury, Strix's low latency, high-performance solution provides the market's strongest wireless mesh network option."

Mining, in its broadest sense, the process of obtaining useful minerals from the earth's crust. The process includes excavations in underground mines and surface excavations in open-pit, or opencut (strip) mines. Mining normally means an operation that involves the physical removal of rock and earth. A number of substances, notably natural gas, petroleum, and some sulfur, are produced by methods (primarily drilling) that are not classified as mining. Mining operations generally progress through four stages: (1) prospecting, or the search for mineral deposits; (2) exploration, or the work involved in assessing the size, shape, location, and economic value of the deposit; (3) development, or the work of preparing access to the deposit so that the minerals can be extracted from it; and (4) exploitation, the work of extracting the minerals. Modern techniques reveal deep-seated as well as near-surface prospects, and they serve as a basis for preliminary estimates of the economic potential of the prospect. The subsequent exploration work includes digging pits, sinking exploration shafts, and core-drilling operations, all of which tend to define the physical limits of the ore body and permit a more reliable estimate of its economic value.).The method chosen for mining will depend on how maximum yield may be obtained under existing conditions at a minimum cost, with the least danger to the mining personnel. The conditions include the shape, size, continuity, and attitude of the ore body; the mineralogical and physical character of the ore, and the character of the wall rock or overlying material; the relation of the deposit to the

surface, to other ore bodies, and to existing shafts on the same property; the skill of available labor; and regional economic conditions.[*]

[*]Accessed on http://www.strixsystems.com/cswifimeshforminingoperations.aspx

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.

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.[*]

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

3. While preparing a presentation fill in a presentation preparation checklist given below.

CHECKLIST 8.1

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		

8.2 Evaluating Presentations and Giving Feedback

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

- discuss and evaluate presentations
- give feedback and useful hints to improve the speech

Tasks to do.

1. 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?

2. Be ready to discuss the presentations and give feedback. Follow the advice given bellow.

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.

Part 3
Testing and Assessment

Section 1 Check Your Progress

By the end of the unit you will:

- understand assessment criteria
- read and understand rubrics necessary for taking end-of-module test
- have practised taking test and manage time effectively

1.1 Module Test

Task 1. Match the headings 1 -7 with the corresponding phrases A – L.

1. Title	A The aim of the article is… .
	B To sum up, …
2. Author	C The writer states … .
	D The article is headlined …
3. Where/when published	E The article is printed in ... .
	F The article is devoted to …
4. Main idea	G It is written by … .
	H According to the text …
5. Contents	I The headline of the article is …
	J The author concludes … .
6. Summing up	K I find the article interesting to read.
7. Your opinion	L The author points out …

Task 2. Read the following summary. Fill in the gaps choosing the right options given below which fit best according to the text.

(8) _____ water management which is considered to be one of the critical issues facing the mining industry. (9) _____ there are two reasons that can maximise the recovery of plant water. Recycling of valuable reagents can provide greater economic efficiency. (10) _____ that effective recovery of cyanide and increase of overall recovery of the valuable

component are possible. (11) _____ an increase in overall gold recovery as a result of optimising water recovery.

(8)

A The article is written by …

B The article expresses the view that

C The article discusses …

(9)

A The article is about …

B According to the text …

C The author starts by telling

    readers about …

(10)

A Further the author highlights …

B The article touches upon …

C The article is devoted to …

(11)

A The author comes to the

    conclusion that …

B To sum it up …

C In conclusion the author says

    about …

Task 3. Sort out the key words and phrases according to the structure of a presentation for:

        A   introducing your talk

        B   outlining your presentation

        C   summarising and concluding

12. I'll take only about 15 minutes of your time.

13. Thank you very much for your attention.

14. And now let me give you a summary of the issues we have looked.

15. I'd like to talk to you today about…

16. This morning I'm going to give you a brief presentation about…

17. This will take about half an hour.

18. Well, that brings me to the end of my talk.

19. During my talk I'll be looking at 5 main areas.

20. To illustrate my talk I'll be using some diagrams.

21. I'd like to explain to you today the main features of…

Task 4. Make full sentences by matching the correct halves.

22. Before we come to the end,   a) there are four major features.

23. I'd be glad to answer   b) we start the discussion now.

24. To summarize,   c) by quoting a well-known saying.

25. We can conclude   d) we should reduce our costs.

26. In my opinion,   e) any questions now.

27. I'd like to suggest   f) I'd like to thank you for your participation.

Task 5. Match the expression on the left with an expression on the right which means approximately the same.

28) subsequently   a) that is to say

29) in other words   b) instead

30) above all   c) splits into

31) furthermore   d) then

32) alternatively   e) most important

33) divides into   f) in addition

Task 6. Which word in the following groups of four is the "odd one out"?

	A	B	C	D
34	rise	increase	climb	raise
35	expand	develop	shrink	grow
36	drop	fall	decline	peak
37	impressive	slight	substantial	considerable
38	dramatic	huge	sudden	slump
39	fluctuation	drop	reduction	collapse

Task 7. Which parts of the graph below do the following words refer to?
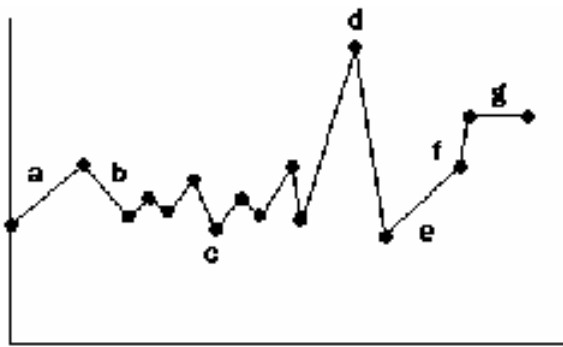
40	rise	44	recover
41	level off	45	bottom out
42	fluctuate	46	fall
43	peak		

Task 8. A popular magazine conducted a survey about their readers' smoking habits. Here are the results:

Cigarette smoking habits *by gender %*			
	all	*men*	*women*
20 + a day	11	13	9
10-19 a day	11	11	10
less than 10 a	8	7	10
given up	27	30	24
never smoked	43	39	47

Complete the sentences which describe some of the facts in the table.

47. …………………the readers have never smoked.

48. Almost a third of the readers .... but have now given up.

49. A …………………… of readers smoke less than ten cigarettes a day.

50. Generally speaking, men are ……………….. than women.

51. …………………. of readers who smoke more than twenty a day is quite small, at 11 per cent overall.

52. The figures for the 20-plus group and the 10-19 groups......... ………

Section 2 Self-assessment

2.1 Answer Keys to the Module Test

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	2	3	4	5	6	7
D, I	G	E	A, F	C, H, L	B, J	K

Task 2.

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

9 B – 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.

10 A – The missing part requires the subordinate clause.

11 C - The missing part requires the object.

Task 3.

12 - B;   13 - C;   14 - C;   15 - A;   16 - A;

17 - B;   18 - C;   19 - B;   20 - B;   21 - A.

Task 4.

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

Task 5.

28 - d;   29 - a;   30 - e;   31 - f;   32 - b;   33 - c.

Task 6.

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

35 - C   shrink means to become smaller in size

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

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

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

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

Task 7.

40) - a;   41) - g;   42) - c;   43) - d;   44) - f;   45) - e;   46) - b.

Task 8.

47   43% of/Just under half of

48   used to smoke

49   (relatively) small percentage/minority

50   heavier smokers

51   The percentage

52   Are similar/are close to 11%

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