

Republic of Iraq
Ministry of Education
General Directorate of Vocational Education

English for Industrial Schools

Book 3

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**IN THE NAME OF ALLAH,
THE MOST GRACIOUS,
THE MOST MERCIFUL.**

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English for Industrial Schools

Book 3

Introduction

Aim:

The general aim of this course is to develop learners' language skills; listening, speaking, reading and writing to supplement what they have learnt in the previous years but with more specification in conformity with the other subject matters in the curriculum, and to become able to use the English language communicatively in the future.

Objectives:

By the end of the three-book series, learners are supposed to:

1. Develop knowledge of the basic elements of English language: vocabulary, pronunciation, and grammar,
2. Develop understanding of oral and written language skills,
3. be aware of the ESP vocabulary and expressions relevant to their study.
4. Develop aesthetic and cultural creative sense in order to appreciate ESP topics and literature,
5. Participate in everyday-life communicative dialogues, discussions, and interactions,
6. Understand instructions, read manuals, booklets and magazines.
7. Develop receptive skills, i.e. listening and reading, by practicing certain activities in this respect,
8. Promote productive skills, i.e. speaking and writing, by fulfilling meaningful and authentic activities,
9. be capable of using ESP language in their future career,

10. practice language learning skills such as speed reading skills, i.e. scanning, guessing, etc,
11. practice language learning autonomy strategies such as note-taking, summarizing, etc,
12. Become active participants and language users, and
13. Involve into co-operative learning.

Syllabus Design

Each book of the series has the following activities format: vocabulary, speaking, reading, pronunciation, grammar and writing. This is to ensure its communicative purposes within the activity sequence and to motivate learners to participate effectively. Listening is achieved indirectly by exposing learners to the model, i.e. the teacher.

Features of the Book

- **Vocabulary** is introduced at the beginning of each unit in the form of activities so as to make them familiar to students when they appear again in the reading text. Teachers are supposed to encourage students to work out the activities as a warm up.
- **Speaking** is presented to provide students with an opportunity to express themselves and actually use English in the form of activities and dialogues which will equip students with the basic expressions needed to cope with everyday conversations in English concerning their field of study and future career. This activity will give them both practice and confidence in using what they learn.
- **Reading Comprehension:** There is one main reading text preceded by **lead in** questions and activities to give students reason to read and to predict what they will be reading about in the text. At the same time, it is a kind of brainstorming to what they already know about the world (prior knowledge) or about English. The reading texts are supplemented with various activities to help students discover and learn new vocabulary, expressions and material in more than one method. The reading texts are interesting, stimulating, and including examples of the main structure item of the unit.
- **Pronunciation** is intended to provide practice in English pronunciation with sufficient illustrations. The presentation of the English sound system needs to be enriched by other examples and/or activities on the part of the teacher and the learners as well.

- **Grammar:** The main grammatical points are almost given according to their occurrence in the reading passages. It contains activities which promote practising the main structure item. It is also reviewed in the **Revision** units for reinforcement and ease in using them again.

- **Writing:** Writing is promoted by exposing learners to activities that include practising certain writing skills and subskills. Sometimes if activities are new, instructions are presented to the learners where they are required to follow these step- by- step.

Revision Units

Revision is crucial in language learning. There are two revision units. Each one is situated after every three units. Language and structures are recycled throughout various activities in order to help students reinforce what they have learned, especially new items and vocabulary.

Working in Pairs or Small Groups:

The learner is the core of the learning process. It means she must have an active role whether individually or in pair/group work.

The activities are either oral or written. The oral ones are done in pairs, groups, or whole class participation, and even assigned by the teacher to be practised at home. As for the written activities, they are done by learners at school or home for reinforcement and practice. In pair or group activities, the teacher should make sure that the students do understand the aims of the activity. The teacher may go round and listen to pairs as they perform the activity orally and give help when necessary, before eliciting answers from the whole class.

Pair or group work is not easy to organize in every class, and there may be a noise problem to deal with. However, it is worth trying occasionally. Working in pairs or groups encourages students to share ideas, practise and help each other, to broaden their communicative skills. If students enjoy working like this, as it is a change of focus and that of activity, they will probably appreciate that they have to work quietly. Teachers monitor in order to:

- aid the flow of conversation when necessary,
- identify any common errors or areas of breakdown,
- offer encouragement, and
- recognize when best to change the pairings or the groups.

Assessment Procedures

1. Oral Assessment

As is officially recommended, **30** marks are dedicated for oral assessment. These marks are to be distributed according to the activities shown in the table below:

| Activity | Mark |
|--------------------------------|-----------|
| Reading | 10 |
| Comprehension Questions | 5 |
| Pronunciation | 5 |
| Topic Discussion | 5 |
| Vocabulary | 5 |

2. Written Assessment

The rest **70** marks go to assess learners' achievement in the written test which includes every feature described in this prescribed textbook.

| Activity | Mark |
|--|-----------|
| Reading Comprehension | 10 |
| Grammatical Structures | 10 |
| Pronunciation | 10 |
| Language Functions | 10 |
| Vocabulary | 10 |
| Oral Assessment (to check oral activities through written exam) | 10 |
| Writing | 10 |

Unit One

Food Manufacturing

Vocabulary

1.1 Write the name of the production made by the following factories. Make use of the words in the box.

bakery tomato paste milk beef soft drinks cheese chickens















1.2 Complete the following text with words from the list.

(container temperature growth fear distinguishes preserved destroy
toxic moisture grow contaminate ensure controlling heating)

Food-spoiling bacteria, yeasts and molds are naturally present in foods. To grow, these microorganisms need -----, a low-acid environment (acid prevents bacterial growth), nutrients, and an appropriate (usually room) -----.

Foods are ----- from food spoilage by ----- one or more of the above factors. For instance, frozen foods are stored at temperatures too low for microorganisms (bacteria, yeasts and molds) to ----- . When foods are dried, sufficient moisture is not available to promote-----.

It is the preservation process that ----- canned from other packaged foods. During canning, the food is placed in an airtight (hermetically sealed) ----- and heated to ----- microorganisms. The hermetic seal is essential to ----- that microorganisms do not ----- the product after it is sterilized through ----- . Properly canned foods can be stored unrefrigerated indefinitely without ----- of their spoiling or becoming -----.

Speaking

1.3 Share answers to the following questions with your classmate.

1. Have your favourite kinds of food changed over the years?
2. Do you like fast food and slow food?
3. What do you think about food additives?
4. What is your favourite breakfast, lunch and dinner?
5. Do you worry about chickens with flu, mad cows or polluted fish?
6. Do you think it is safer to eat out or at home?

Reading

1.4 Try to answer the following questions before you read the text below.

1. Can we preserve food for a long time? How?
2. Why do manufacturers heat food before canning it?
3. What are the factors that spoil food if we leave it uncanned?
4. Do all people follow the same way for preserving food? Discuss.
5. Why and when do you leave some food unrefrigerated?
6. How do you preserve food at home?

1.5 Canning Basics for Preserving Food



What does canning do?

Canning is an important, safe method for preserving food if practised properly. The canning process involves placing foods in jars or similar containers and heating them to a temperature that destroys micro-organisms that cause food to spoil. During this heating process air is driven out of the jar and as it cools a vacuum seal is formed. This vacuum seal prevents air from getting back into the product bringing with it contaminating micro-organisms

Safe Canning Methods

There are two safe ways of processing food, the boiling water bath method and the pressure canner method:

- The boiling water bath method is safe for tomatoes, fruits, jams, jellies, pickles and other preserves. In this method, jars of food are heated completely covered with boiling water (212 F at sea level) and cooked for a specified amount of time.

- Pressure canning is the only safe method of preserving vegetables, meats, poultry and seafood. Jars of food are placed in 2 to 3 inches of water in a special pressure cooker which is heated to a temperature of at least 240 F. This temperature can only be reached using the pressure method. A micro-organism called *Clostridium botulinum* is the main reason why pressure processing is necessary. Though the bacterial cells are killed at boiling temperatures, they can form spores that can withstand these temperatures. The spores grow well in low acid foods, in the absence of air, such as in canned low acidic foods like meats and vegetables. When the spores begin to grow, they produce the deadly botulinum toxins (poisons).

The only way to destroy these spores is by pressure cooking the food at a temperature of 240 F, or above, for a specified amount of time depending on the type of food and altitude. Foods that are low acid have a PH of more than 4.6 and because of the danger of botulism; they must be prepared in a pressure canner.

The low acidic foods include:

- meats
- seafood
- poultry
- dairy products
- all vegetables

High acid foods have a PH of 4.6 or less and contain enough acid so that the *Clostridium botulinum* spores cannot grow and produce their deadly toxin. High acidic foods can be safely canned, using the boiling water bath method.

The high acidic foods include:

- fruits
- properly pickled vegetables

Certain foods like, tomatoes and figs, that have a PH value close to 4.6 need to have acid added to them in order to use the water bath method. This is accomplished by adding lemon juice or citric acid.

Activities:

1.6 Answer the following questions.

1. What is the first step in food canning?
2. Why do manufacturers use a vacuum seal?
3. How many safe ways of processing food are there? Mention them.
4. When do we use the boiling water bath method?
5. What method is usually used for preserving vegetables, meats, poultry and seafood?
6. Is pressure processing of food necessary? Why?
7. Mention some of the high acidic foods.

1.7 Complete the following sentences with information from the text.

- 1 is added to tomatoes and figs to accomplish the water bath method.
2. High acidic foods can be canned, using the method.
3. The only way to destroy spores is by..... the food at a temperature of 240 F.
4. Spores grow well in low acid foods, in the of air, such as in canned foods like meats and vegetables.
5. A vacuum seal air from getting back into the product bringing with it micro-organisms.
6. The boiling water bath method is safe for,,,..... and other preserves.
7. Though the bacterial cells are killed at boiling temperatures, they can form that can withstand these temperatures.

1.8 Re-read the text to find out the opposite of the following words.

| | |
|-------------|----------|
| spoil | preserve |
| unsafe | |
| freezing | |
| allow | |
| presence | |
| cooled | |
| unnecessary | |
| less | |

Pronunciation

1.9 How to pronounce the final –s

1. If the noun ends in an unvoiced consonant sound: /f/, /k/, /p/, /t/, /θ/, pronounce "s" as /s/.
2. When it ends in a voiced consonant sound, /b/, /d/, /g/, /l/, /m/, /n/, /ŋ/, /r/ or with a vowel sound, /a/, /e/, /i/, /o/, /u/, pronounce "s" as /z/.
3. If it ends with /s/, /z/, /ʃ/, /ʒ/, /tʃ/, /dʒ/, pronounce "s" or "-es" as /ɪz/.

In other words, if the noun ends with a sound other than the 5 unvoiced consonants, pronounce "s" with a /z/ (or with an /ɪz/ as the case may be).

Activity:

1.10 Pronounce the final –s of the following words.

tomatoes days boxes bridges spans writes beliefs hats

Grammar

1.11 Conjunctions

a. Coordinating Conjunctions

They join words, phrases, or independent clauses of a sentence together. The word *coordinate* (verb) means “of the same order or importance; equal in rank.” So, coordinating conjunctions often link similar grammatical parts of a sentence together (i.e. parts of speech + parts of speech; phrase + phrase; clause + clause). Coordinating conjunctions are:

| | | | | | | |
|------------|------------|-----------|------------|------------|------------|-----------|
| and | but | or | nor | for | yet | so |
|------------|------------|-----------|------------|------------|------------|-----------|

Examples:

1. Yesterday, we watched a movie **and** a football game.
2. They went to the bookstore, **but** did not have time for the art gallery.
3. He has to paint the room tonight, **so** he cannot make it to her birthday party.
4. Let's meet at the museum **or** in front of the park.

b. Subordinating Conjunctions

They join an independent clause (contains both a subject and a verb and can act as a complete sentence) and a dependent clause (also contains a subject and a verb, but is not a complete sentence). Basically, dependent clauses cannot exist alone; they need to be joined to an independent clause. The word (subordinate) means something of lesser or unequal value. Subordinating conjunctions are:

| | | | | | | | | | |
|--------------|-----------------|-------------|----------------|---------------|--------------|----------------|--------------|--------------|-------------|
| after | although | as | because | before | how | if | once | since | than |
| that | though | till | until | when | where | whether | while | | |

Examples:

1. They kept on studying (independent clause), **although** they were so tired (dependent clause).
2. We decided to eat at home (independent clause), **since** we could not go to a restaurant (dependent clause).
3. We looked on top of the refrigerator (independent clause), **where** he will often hide his car keys (dependent clause).
4. He went to the dentist (independent clause) **because** his teeth were aching (dependent clause).

c. Correlative Conjunctions

Correlative conjunctions come in pairs. The word (correlative) means a similar relationship of some kind. Thus correlative conjunctions join similar concepts in a sentence together.

Correlative conjunctions are:

both / and

not only / but also

either / or

neither / nor

whether / or

Examples:

1. We talked **both** to her teachers **and** her family.
2. He does **not only** speak Arabic, **but also** speaks English and French.
3. You can have **either** tea **or** coffee.
4. She **neither** liked the car **nor** the new bicycle.
5. Everything depends on **whether** he repairs his old car **or** buys a new one.

Activities:

1.12 Use one of the conjunctions in the box to complete the sentences.

| | | | | | | |
|------|-------------|----|----|---------|------------|----------|
| till | neither/nor | so | or | because | whether/or | although |
|------|-------------|----|----|---------|------------|----------|

1. He is reading giving me the chance to read.
2. She did not pass the examthe questions were so difficult.
3. This laptop is so expensive don't dream of buying it.
4. They have to wait in class The teacher comes.
5. Do we need penspencils to sign the papers?
6. Tell them to clean the yardthey like itnot.
7. She ate all the foodher mother told her not to do so!

1.13 Read the following sentences carefully and choose the right conjunction.

1. This book is mine yours. (either/or, whether/or)
2. Has he seen the movie heard about it? (but , or)
3. They cannot visit us today they have an exam. (since , and)
- 4.....it is hot cold, you have to go to school . (Whether/or , neither /nor)
5. We are going out to eat we finish taking the test. (after , where)
6. I was waiting in a bus station, I saw a car accident.(while , yet)
- 7..... the apartment is close to the beach, we daily go to swim. (since, though)

Safety Corner

1.14 Read the following instructions, close your book and then try to remember what you have read.

To avoid food poisoning, try to do the following:

1. **Cook the food thoroughly:** This means using a meat thermometer when cooking meat, fish, or chicken. All meats should be cooked to at least 145 degrees, but poultry should be cooked to at least 165 degrees.
2. **Cool food thoroughly:** When putting away leftovers, allow food to cool down a bit before placing it in the refrigerator.
3. **Hand washing:** Always wash your hands before cooking, after handling raw foods (such as meat or chicken), after using the restroom, and before eating.
4. **Avoid cross-contamination:** This is what happens when you use the same knife, counter, or cutting board to cut raw chicken, then raw vegetables for a salad, or fresh fruits for dessert, or a loaf of bread.

Writing



1.15 Jam making is one way to preserve food .Answer the following question to make a paragraph about jam making at home.

1. What kind of fruit do people usually use for jam making?
2. Should we cut the fruits into smaller parts or leave them whole?
3. What do we add to the fruit before boiling it?
4. After boiling the fruit, should we immediately put them in jars? Why?



Unit Two

Mining



Vocabulary

2.1 Write the names of the materials for the following figures in the blanks below. Make use of the words in the box.

diamonds, uranium, potash, rock salt, coal, iron, gold, limestone, oil shale









.....



.....



.....

2.2 Match the following synonyms.

- | | |
|----------------|------------------|
| 1 rescued | a on tenterhooks |
| 2 emerged | b wasted |
| 3 applause | c surfaced |
| 4 gripped | d whole |
| 5 glued | e set free |
| 6 climax | f motivation |
| 7 ecstatic | g clapping |
| 8 entire | h pinnacle |
| 9 in vain | i stuck |
| 10 inspiration | j overjoyed |

2.3 Complete the following paragraph using the words in the box below.

several par applause glued trapped checks tense attracted

All thirty-three miners _____ underground in Chile for 69 days have been rescued. One by one, over a _____ 22 hours, the men emerged into freedom after spending over two months 700 metres underground. The men were met with wild _____ and hugs from rescuers and family before being put on a stretcher and taken to hospital for two days of medical _____. They were all in surprisingly good health, although one had pneumonia and _____ had dental problems. Their story had gripped the world since the mine collapse in August. Their rescue _____ a TV audience on a _____ with Neil Armstrong's first steps on the moon or a football World Cup Final. Television stations across the globe were reporting record viewing figures as people were _____ to their TV sets.

Speaking

- 2.4 Iraq has been provided with a wealth of natural resources that have helped its growth and development. Mention some materials that have been extracted by mining.

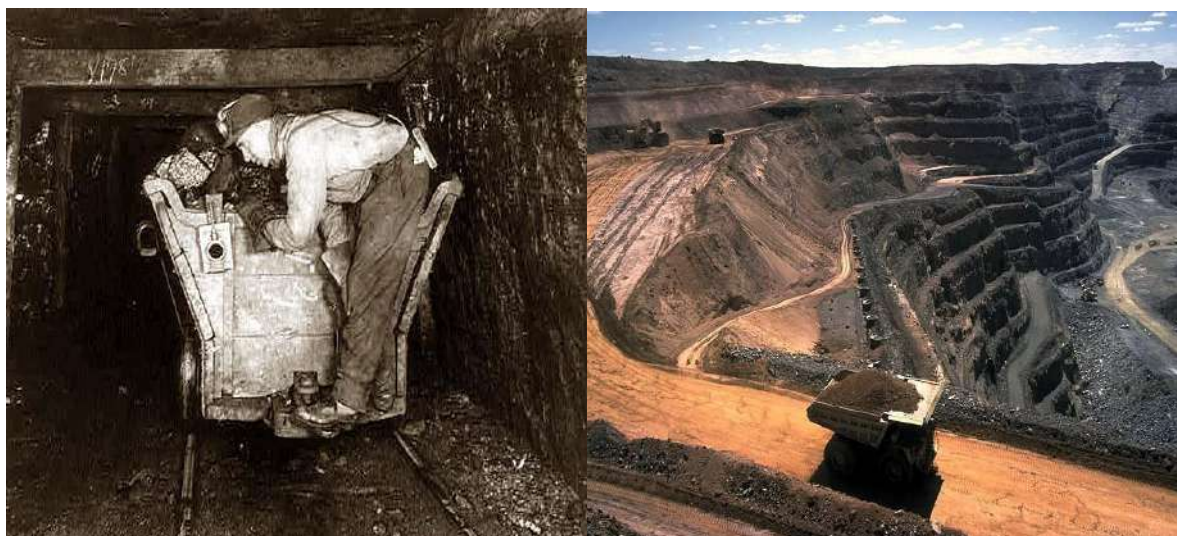
Reading

2.5 Try to judge whether the following sentences are true or false before you read the text below.

1. Materials recovered by mining include only coal.
2. The oldest known mine is the "Lion Cave" in Northern Africa.
3. Mining in a wider sense comprises extraction of any renewable resource.
4. Working in a coal mine could be a very dangerous job.

2.6

Mining



Most substances obtained or extracted from the earth are gotten by mining. Mining provides iron for steel making, salt for food, coal for fuel, and gold, silver, and diamonds for jewelry. Mined materials also include stone for building, phosphate for fertilizer, and gravel for highways.

There are many methods of mining, dependent on where and how a coal or mineral deposit is found. Some substances are mined relatively cheap because they can be found at or near the earth's surface. Some minerals are found as a compact mass, while others

are widely scattered. Other mined materials are found far beneath the surface and removed by tunneling deep underground. Some mined substances are located beneath oceans, lakes, and rivers. Other minerals are concentrated in large bodies of water and are obtained by pumping.

Materials recovered by mining include base metals, precious metals, iron, uranium, coal, diamonds, limestone, oil shale, rock salt and potash. Any material that cannot be grown through agricultural processes, or created artificially in a laboratory or factory, is usually mined. Mining in a wider sense comprises extraction of any non-renewable resource (e.g., petroleum, natural gas, or even water).

Mining of stone and metal has been done since pre-historic times. Modern mining processes involve prospecting for ore bodies, analysis of the profit potential of a proposed mine, extraction of the desired materials and finally reclamation of the land to prepare it for other uses once the mine is closed.

The nature of mining processes creates a possible negative influence on the environment both during the mining operations and for years after the mine is closed. This influence has led to most of the world's nations adopting regulations to moderate the negative effects of mining operations. Safety has long been a concern as well, though modern practices have improved safety in mines notably .

Since the beginning of civilization, people have used stone, ceramics and, later, metals found on or close to the earth's surface. These were used to manufacture early tools and weapons, for example, high quality flint found in northern France and southern England were used to create flint tools. Flint mines have been found in chalk areas where seams of the stone were followed underground by shafts and galleries. The mines at Grimes Graves are especially famous, and like most other flint mines. Other hard rocks mined or collected for axes included the greenstone of the axe industry.

The oldest known mine on archaeological record is the "Lion Cave" in Southern Africa. At this site, radiocarbon dating proves the mine to be about 43,000 years old. Paleolithic humans mined mineral hematite, which contained iron and was ground to produce the red ochre. Mines of a similar age in Hungary are believed to be sites where Neanderthals may have mined flint for weapons and tools.

Working in a coal mine could be a very dangerous job. Accidents happen every day, some of which were not recorded because they were so common. Frequent accidents were due to roofs collapsing in the mine workings or explosions from dangerous gases underground.

2.7 Read the text again and answer the following questions.

1. What is mining?
2. When has mining been done?
3. Why are some mined substances cheap?
4. What have modern practices improved?

2.8 Fill in the blanks with the appropriate words from the list below.

(oil, ore, ground, jewelry, mining)

1. A tunnel is dug in the.....to take out minerals.
2. There are many methods of....., dependent on where and how mineral deposit is found.
3. The recovered..... is transported to refineries by pipeline.
4. Gold and silver are used in.....and high-end electronics.
5. A significant amount of processing is needed to convert.....into usable metal.

Pronunciation

2.9 How to pronounce the final '-d' or '-ed' of the past tense forms.

There are 3 ways to pronounce the final *-ed* in a word.

1. *-ed* = /ɪd/
2. *-ed* = /d/
3. *-ed* = /t/

How do you know which sound goes with which word? Look at these verbs:

missed hoped learned played wanted climbed booked moved

Which sound goes with which word?

1. If the last sound of the word is **voiceless** except t, the *-ed* will sound like /t/.
2. If the last sound of the word is **voiced** (uses some noise to make the sound) except d, the *-ed* will sound like /d/.
3. If the last sound to the word is /d/ or /t/, the *-ed* will sound like /ɪd/.

Now check your understanding.

Indicate the correct final sound for each word.

sounded snowed cleaned fainted laughed cried waxed packed

Grammar

2.10 The Passive Voice

Examples:

Active Nabeel builds a house.

Simple Present

Passive: A house is built by Nabeel.

Active: Nabeel built a house.

Simple Past

Passive: A house was built by Nabeel.

Active: Nabeel has built a house.

Present Perfect

Passive: A house has been built by Nabeel.

Active: Nabeel will build a house.

will-future

Passive: A house will be built by Nabeel.

Active: Nabeel can build a house.

Modals

Passive: A house can be built by Nabeel.

Activities

2.11 Complete the following sentences.

1. They make shoes in that factory. Shoes ----- in that factory.
2. People must not leave bicycles in the driveway. Bicycles ----- in the driveway.
3. They built that skyscraper in 1934. That skyscraper ----- in 1934.
4. The students will finish the course by July. The course ----- by July.
5. The company will employ a new worker this month. The new worker ----- this month.
6. They make these tools of plastic. These tools ----- of plastic.

2.12 Change the following sentences into passive form.

1. Jwan rescued three cats.
2. The students handed in the reports.
3. Ahmed takes lunch at one o'clock.
4. Alwan learned the poem.
5. The mechanic has not repaired the DVD recorder.
6. The girls had lost the match.

Safety Corner

2.13 Read the following safety instructions, close your book and then try to remember what you have read.

1. Keep hands and clothing away from moving parts.
2. Wear eye protection when handling fuel, cleaning fluid, oil or brake fluid.
3. Wear safety glasses when drilling, grinding or hammering metal.
4. Wear a hard hat and safety shoes, when required.
5. Wear gloves to protect your hands when changing cables.
6. Wear safety goggles and protective clothing when handling molten metals; zinc, lead.
7. Store dangerous fluids in a suitable place. Allow no smoking in the area.
8. Never start an engine within an enclosed area. Exhaust fumes can kill.

Writing

2.14 Write a composition on 'Mining Techniques' by rearranging the following steps.

1. analysis of the profit potential of a proposed mine,
2. modern mining processes involve prospecting for ore bodies,
3. and finally reclamation of the land to prepare it for other uses once the mine is closed.
4. extraction of the desired materials

Unit Three

The Internet



Vocabulary

3.1 Fill in the blanks with the suitable word from the box.

search engine blog web broadband MP3

click surf upload online homepage

1. The internet is also called the _____. (web)
2. We _____ on the web. (surf)
3. Google is an example of a _____. (search engine)
4. The opposite of download is _____. (upload)
5. People love to download music in _____ format. (MP3)
6. To select an internet link, you _____ it. (click)
7. If something is on the internet, it is _____. (online)
8. A fast internet connection is called a _____. (broadband)
9. A _____ is an online diary or journal. (blog)
10. _____ is the index page of a website. (homepage)

3.2 Match internet terms in List A to their functions in List B.

List A

1. E-mail (b)
2. Cursor
3. Username(e)
4. Internet address(h)
5. URL(f)
6. Chat Room(m)
7. Virus(c)
8. Password (a)
9. SPAM(d)
10. Blog(l)
11. Cyberspace(i)
12. Internet (j)
13. Web-site (g)
14. Browser (n)

List B

- a. a secret word that only you and your parents know
- b. a letter you send through your computer
- c. a hidden program that can hurt your computer
- d. advertising that comes to your e-mail address
- e. a name you choose for yourself that isn't your real name
- f. an Internet address (Uniform Resource Locator)
- g. a place on the Internet you can visit
- h. another way to say URL
- i. the world that only exists in the computer and your head
- j. a worldwide system of computers
- k. a mark that can be moved around computer screen to show where you are working.
- l. a journal you keep on the Web: short for Web log
- m. a place where you talk by typing.
- n. a computer program which allows you to look at pages.

Speaking

3.3 A customer is seeking an online advice for his car. Play the role with your classmate.

Help Line: "General Motors Help Line. How can I help you?"

Customer: "My car ran fine for a week and now it won't go anywhere!"

Help Line: "Is the gas tank empty?"

Customer: "Huh? How do I know?"

Help Line: "There's a little gauge on the front panel with a needle and markings from 'E' to 'F'. Where is the needle pointing?"

Customer: "It's pointing to 'E'. What does that mean?"

Help Line: "It means you have to visit a gasoline vendor and purchase some more gasoline. You can install it yourself or pay the vendor to install it for you."

Customer: "What? I paid \$12,000 for this car! Now you tell me that I have to keep buying more components? I want a car that comes with everything built in!"

Reading

3.4 Try to answer the following questions before reading the text below.

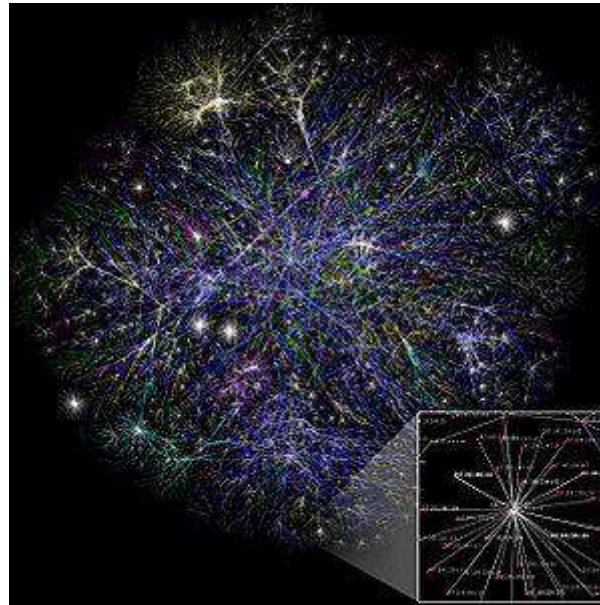
1. Do you know how the internet works?
2. What are the advantages of using the internet?

The Internet

Twenty years ago, kids in school had never even heard of the internet. Now, I'll bet you can't find a single person in your school who hasn't at least heard of it. In fact, many of us use it on a regular basis and even have access to it from our homes! The 'net' in 'internet' really stands for network. A network is two or more computers connected together so that information can be shared, or sent from one computer to another. The internet is a vast resource for all types of information. You may enjoy using it to do research for a school project, downloading your favorite songs or communicating with friends and family. Information is accessed through web pages that companies, organizations and individuals create and post. It's kind of like a giant bulletin board that the whole world uses! But since anyone can put anything on the internet, you also have to be careful and use your best judgment and a little common sense.

The Internet is a vast network that connects many independent networks spanning over 170 countries in the World. It links computers of many different types, sizes, and operating systems, and, of course, the many people of those countries that use the internet to communicate.

The one thing all these different computers have in common is the use of the Internet Protocol, abbreviated as IP, which allows computers of different types to communicate with each other. You will often see reference to the longer abbreviation, TCP/IP, which stands for Transmission Control Protocol/Internet Protocol. Your own computer uses TCP/IP software to enable it to link to this service.



The Internet Protocol makes it possible for you to communicate in various ways, find things that interest you, and exchange information and files. The most common things you can do are:

- Getting information on almost any subject by searching the web.
- Sending and receiving email or chat or exchanging messages with people all over the world.
- Joining discussion groups about a common subject with message boards, newsgroups and email discussion lists.
- Getting or exchanging software and files with the File Transfer Protocol (FTP)
- Exploring the World Wide Web, which can use all of the above,
- Publishing your own material on the web in blogs, message boards, or your own web pages.

3.5 Now check your answers to 2.3 and write down the correct answers in your copybook.

Activities

3.6 Read the text again to answer the following questions.

1. What is a network?
2. What does the Internet Protocol provide?
3. Who create and post information through web pages?

Pronunciation

3.7 English Voiceless Consonant Sounds

/p t k θ f s f tʃ h/

Pronounce the following words:

put apple map take hunter helped cat school

Decide if the final consonants in the following words are voiced or voiceless.

washed coats organized started traveled shells gloves changed listened

watched books wheels lived dreams seats dropped exchanged globes carts

Grammar

3.8 Time Clauses

Using Before, After, While and When

We use these words (*before, after, while* and *when*) to introduce **time clauses** to tell when something happens.

Muhammed washed the floor **before** he watched the soccer match.

Muhammed washed the floor **after** the soccer match.

Muhanned washed the floor **when** the soccer match ended.

Muhanned washed the floor **while** he was watching the soccer match.

In all of these cases, **Muhanned washed the floor**. However, we have to look at the time clauses to see **when** the floor was washed.

| | |
|---------------|---|
| Time clauses: | before he watched the soccer match |
| | after the soccer match |
| | when the soccer match ended |
| | while he was watching the soccer match |

In all of these examples, the **main** (independent) **clause** is "Rudy washed the floor". The time clause simply states the relationship of other actions (watching the soccer match) to the activity in the main clause.

Let's analyze the time sequence—with another example.

The phone rang after we ate dinner.

(First we ate our meal, and then the phone rang.)

The phone rang before we ate dinner.

(First the phone rang, and then we ate.)

The phone rang when we started dinner.

Also: The phone rang as we ate dinner.

(We started to eat and the phone rang at the same time.)

The phone rang while we were eating dinner.

Also: The phone rang as we were eating dinner.

(This is the same as above, but with the progressive tense [-ing]).

Form:

| Independent clause | Dependent clause |
|--------------------|-----------------------|
| The phone rang | before we ate dinner. |

The phone rang is an **independent clause**. It can stand alone grammatically.

Before we ate dinner is a **dependent clause**. It needs an independent clause to be a complete sentence. It is a sentence fragment when it is used alone.

Punctuation:

The phone rang before we ate dinner.

Before we ate dinner, the phone rang.

When the **independent clause comes first** in the sentence, no comma is needed.

When the **dependent clause comes first** in the sentence, the clauses are separated by a comma.

Cause and Effect

You can use *when* or *after* to explain some **cause and effect** situations.

Effect: He got a flat tire (puncture).

Cause: He ran over some glass.

He got a flat tire after he ran over some glass.

After he ran over some glass, he got a flat tire.

Cause: It rained.

Effect: Our paint job was ruined.

When it rained, our paint job was ruined.

Our paint job was ruined when it rained.

Activities:

3.9 Combine the following sentences using the conjunction between brackets.

1. Rafid studied very hard.

He took the exam on Thursday. (*before*)

2. Anas was thoroughly exhausted.

He ran the Marathon. (*after*)

3. The doorbell rang.

Abdullah was taking a shower. (*when* or *while*)

4. Hamza was eating his dinner.

He was watching the news on TV. (*while*)

5. Bilal was backing into a parking space.

He heard a crunch. (*when*)

3.10 Join the following sentences.

1. Yosuf had an appointment with the dentist.

He had a toothache. (*after*)

2. Layla cried for weeks.

Her mother died. (*after*)

3. Anwer was eating dinner.

His friend called to ask about the assignment.(*while*)

4. The chief engineer had to stay home for three weeks.

He injured his back. (*after*)

FUTURE TIME CLAUSES

Read the example sentences

WHEN

When I finish writing the reports, I will go out with my friends.

She will move to Hilla when she finds a good job.

When the party is over, we'll clean the house.

BEFORE

Before I go to Erbil, I'll book a room.

Murad will visit all his relatives before he joins the army.

They won't transfer any players before they sign the advertising agreement.

AFTER

After her sister prepares dinner, they'll invite their neighbours.

My father will buy a new car after he saves enough money.

What will you do after you finish the French course?

AS SOON AS

They will go to the beach as soon as they have their breakfast.

All the players in the national team will go on holiday as soon as the European Championship is over.

Don't worry mom. I will phone you as soon as I arrive Paris.

UNTIL

You can go out. I will wait until she calls.

They won't start the match until the rain stops.

I won't buy anything new until I pay all my debts.

IF

If I go home early tonight, I will watch the Olympic Games.

Thamir will buy a new TV set if the prices goes down.

If you pass the test, what will you do?

HAVE YOU NOTICED THE STRUCTURE?

When, after, before, as soon as, until, if are followed by SIMPLE PRESENT TENSE.

Main clauses in these sentences are followed by future 'will'.

Activities:

3.11 Fill in the blanks with the correct form of the verbs.

1. When the manager _____ (arrive), they _____ (start) the meeting.
2. If he _____ (reach) the sales target this year, the company _____ (award) him.
3. After she _____ (find) a good house, she _____ (buy) some new furniture.
4. If Alex _____ (feel) better at the weekend, he _____ (play) in the match against Milan.
5. I will have to finish the reports before the manager _____ (call).

Internet Advices

3.12 How can you uninstall a software programme?

Read the following steps, close your book and then try to remember what you have read.

To uninstall software programs follow the following steps.

- a. Click on *Start*.
- b. Click on *Control Panel*.
- c. Under **Programs** click on *Uninstall a Program*.
- d. Select your software.
- e. Click *uninstall*.

Writing

3.13 Answer the following questions in a continuous paragraph. Choose a suitable title.

1. Does your family have wireless Internet access in your home?
2. How often do you use the Internet?
3. Do you use the Internet for fun or education?
4. How can the internet help you learn English? How do you take advantage of this?
5. Do you think that the Internet will replace Libraries?
6. What are the other advantages that young people can get from using the internet?

Unit Four

Revision One

1. Fill in the blanks with (and but or so).

1. Jawad was cold, ----- he put on a coat.
2. Maryam tried to read a novel in French, ----- it was too difficult.
3. To get from Vancouver to Victoria, you can fly, ----- you can ride the ferry.
4. I bought a bottle of pepsi, ----- we drank it together.
5. The waiter was not very nice, ----- the food was delicious.
6. I went to buy a CD, ----- the shop didn't have it.
7. Anna needed some money, ----- she took a part-time job.
8. Fatima has a guitar, ----- she plays it really well.
9. The concert was cancelled; ----- we went to the club instead.

2. Choose the best conjunction for each sentence.

1. _____ she doesn't speak English, she can't go to university in Canada.
(since / whereas)
2. _____ my wife likes to travel abroad, I prefer to stay at home for my vacations.
(since / whereas)
3. He passed the exam first time _____ I had to retake it three times. (while / as)
4. I will be late today _____ my car has broken down. (because / though)
5. Linda got the job _____ she had no experience. (even though / as)
6. _____ it was raining, I didn't get wet. (although / because)

7. I don't drink coffee _____ it makes me nervous. (although / as)

8. John couldn't buy any Christmas presents _____ he didn't have any money.
(because / even though)

3. Combine the sentences using the subordinating conjunction at the end of the sentence.

For example:

I put my coat on. It was cold. (because)

I put my coat on because it was cold.



You should stay away from bears. They are dangerous. (because)



Surfing is fun. It can be dangerous. (though)



I took my umbrella. It was raining. (as)



Some apples are red. Others are green. (while)



The boat could not move. There was no wind. (since)

4. Change the following sentences into passive voice.

1. I can answer the question.
2. You should open the window.
3. We might play cards.
4. He must fill in the form.
5. Will the teacher test our English?
6. Millions of people will visit the museum.
7. Our boss will sign the contract.
8. They will not show the new film.
9. Kerrie has paid the bill.
10. I have eaten a hamburger.
11. They have not read the book.
12. She sang a song.
13. We stopped the bus.
14. She didn't win the prize.
15. Did he send the letter?

5. Complete these sentences with (if, unless, when, as soon as or until).

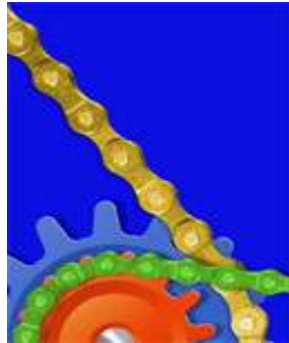
1. We'll never get there on time _____ mother gets ready quickly.
2. I'm so excited. I'm going to get my hair cut _____ we get there!
3. I'd take that job _____ the salary was better.
4. I'll take driving lessons _____ I finish school. I'm not in a hurry.
5. I can't go to the office _____ I've found my car keys!
6. We won't be able to buy a new car _____ we've saved enough money.
7. I'd buy myself an up-to-date iPhone _____ I had a really good job.

Unit Five

Mechatronics

Vocabulary

5.1 Fill in the blanks with words from the list below.



(robot , sensor , actuator, crane)

5.2 Match the words in List A with their definitions in List B.

| List A | List B |
|-------------------|--|
| 1. actuator | a. a branch of mathematics which focuses on limits, functions and derivations. |
| 2. sensor | b. a kitchen appliance that cooks or heats food by dielectric heating. |
| 3. microwave oven | c. a mechanical device for moving or controlling a machine or system. |
| 4. interface | d. a device that measures a physical quality and converts it into a signal. |
| 5. calculus | e. a point of interaction between two systems or work groups. |

Speaking

5.3 Robots are mechatronic devices that can do many jobs.

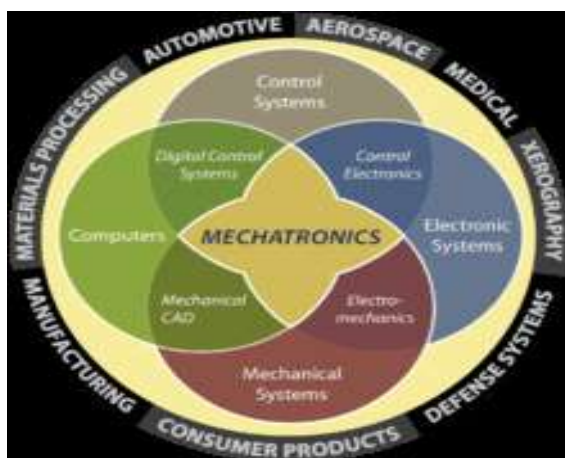
1. Discuss with your teacher and classmates the various jobs a robot can perform.
2. State whether you are for or against the idea of making robots do what humans can do.
3. Give reasons to defend your point of view.

5.4 Guess what mechatronic devices can be used at home, school, and offices. Make a list in your mind, share your classmate's ideas and ask your teacher to give you some help.

Reading

5.5 Try to answer the following questions before you read the text in 5.6

1. What are Mechatronics?
2. What do actuators do?
3. Do sensors allow the microprocessor to monitor the state?
4. What do electronics connect?
5. How do Mechatronics change?
6. Which products are better; mechatronic products or their counterparts?



fields that make up mechatronics

Mechatronics is a branch of engineering which involves the idea of mechanical and electronic engineering into a whole. In particular, it covers those areas of engineering connected with the increasing integration of mechanical, electronic, and software engineering into a production process.

The term mechatronics means that the product or production process involves a mechanical structure containing actuators (usually motors to make things move), a microprocessor to control the overall operation of the system, sensors to allow the microprocessor to monitor the state of the system and electronics to connect the other parts together.

Mechatronics combine traditional fields of mechanical engineering and electrical engineering, fused together or computer science and mathematics. The application of mechatronics in everyday life ranges from power systems to transportation; optical telecommunications to biomedical engineering, along with a long list of related disciplines. Mechatronic systems exist in almost every science, mechanical or industrial fields. It is a dynamic field that changes daily with the rapid improvements in technology and computer systems.

Mechatronic devices have many advantages over their older counterparts. They can be given improved functionality. They can be self-adjusting so that, although manufactured to wider tolerances (and hence cheaper to make), they function better than the non-mechatronic equivalent. The intelligent use of sensing allows mechatronic white goods such as clothes dryers to adjust their operation based on the dampness of the clothes. Washing machines can sense the amount of dirt in the washing load and vary their use of water and electricity to suit, and chemical sensors in microwave ovens can monitor the smell of food to ensure that it is cooked perfectly.

Every day you come into contact with the products of mechatronics engineering: modern cars, CD and DVD players, microwave ovens, dishwashers, clothes washing machines, even some electric jugs. The processes and production lines used to make these and many other products are also mechatronic in nature.

If you want to study Mechatronics, you would require taking a good deal of engineering courses. You could expect to take a good deal of Calculus, Computer classes, and also some specific engineering classes. Depending on the institution, you may also take some Chemistry, Robotics, Mechanics and Dynamic courses. Basically, you could expect to learn a great deal of Math and Physics.

Now check your answers for 5.5



5.7 State whether each of the following sentences is true or false.

1. Mechatronics can be self-adjusting.
2. Mechatronic products have many advantages over their counterparts.
3. The demand for mechatronics graduates is high.
4. Mechatronic washing machines cannot sense the amount of dirt in the washing load.
5. Mechatronics is a dynamic field.
6. Mechatronic systems exist only in mechanical fields.

Pronunciation

5.8 Consonants (Revision)

English voiced consonants

1. /b/ as in boy able black book breakable cable
2. /d/ as in door double dig friend idle body
3. /g/ as in glass goal bag get ugly fig
4. /ð/ as in mother this there either bother
5. /v/ as in very wave evening I've love vast
6. /z/ as in zero is glaze phase phrase crazy
7. /ʒ/ as in pleasure treasure usually garage leisure measure
8. /dʒ/ as in bridge carriage village age gentle gem
9. /m/ as in number man move am humble bomb
10. /n/ as in name no window under now can
11. /ŋ/ as in wing bring sing angry hang rang
12. /l/ as in like link lovely yearly island look
13. /r/ as in ready ring bring drink fry cry
14. /w/ as in week won wonder wave quick twin
15. /j/ as in year you misuse fuse excuse yawn

Activity:

5.9 In each of the following sets of words, all words end with the same consonant sound except one. Can you find that?

1. urge usage heritage teach
2. top lamp robe stop
3. stopped managed looked laughed
4. of knife off enough
5. back knock dog picnic

- | | | | |
|---------------|--------|----------|-------|
| 6. month | wealth | death | with |
| 7. six | gas | is | face |
| 8. wives | steps | chaps | looks |
| 9. fish | garage | rush | push |
| 10. announced | moved | happened | dried |

Grammar

5.10 Relative Clauses

Study the following examples:

1. I hate coffee shops **where** they play loud music.
2. I don't like films **which** have sad endings.
3. I admire people **who** have traveled a lot.
4. I look forward to weekends **when** I can stay at home.
5. I was invited by the professor **whom** I met at the conference.
6. I don't like the table **that** stands in the kitchen.
7. Do you know the boy **whose** father is a fireman?

All the sentences above contain relative clauses which begin with (where, which, who, when, whom, that, whose) that modify the preceding noun (shops, films, people and weekends).

Activities:

5.11 Join the following sentences to make one sentence using a relative pronoun when necessary. If the relative pronoun is unnecessary, put it in brackets.

1. There's the boy. He broke the window.
2. My friend came to the party. He's a policeman.
3. These are the policemen. They caught the thief.
4. What's the name of the lady? She was wearing the blue dress.

5. I gave her a watch. It stopped after two days.
6. Here are the letters. They arrived this morning.
7. That's the house. I was born in it.

5.12 Fill in the blanks with the appropriate relative pronouns ‘who, which, whom’. Note that you may use the relative pronoun more than once.

1. I saw the river you told me about.
2. Where’s the man came early?
3. What about the teacher teaches you English?
4. Show me the boy to you gave the ball.
5. The car you bought is cheap.

Safety Maintenance

5.13 Read the following tips, close your book and then try to remember what you have read.

- Perform maintenance on a regular schedule. Record the dates of maintenance for each piece of equipment for future reference.
- Follow the maintenance recommendations in your user manuals and routinely adjust brakes, clutches, and drives.
- Keep all parts of your equipment, especially steering, ignition, exhaust system, and brakes, in top condition.

Writing

5.14 Write an essay about 'The Advantages of Mechatronics in Life'. Include the necessary information you have studied in (5.7). Ask your teacher to help you doing this essay.

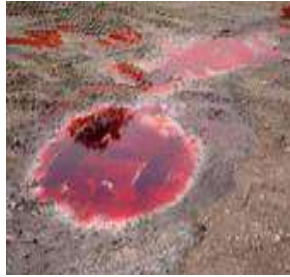


Unit Six

Industrial Pollution

Vocabulary

6.1 Match the following pictures to the type of pollution below.



.....



.....

(diesel pollution nuclear pollution water pollution traffic pollution
air pollution drainage pollution environment pollution)

6.2 Fill in the blanks with the suitable word from the box below.

| |
|--|
| carbon monoxide balance conservation acid rain leaked out ecology contaminated harmful inhale atmosphere detergents waste |
|--|

1. is very harmful to the environment.
2. The Earth's is a thin layer of gases that surrounds the Earth.
3. Nature's might be disturbed.
4. is emitted by cars.

5. The soil has been
6. Try to use that are perfume free.
7. Do not the dust, it's dangerous.
8. Oil pollution could damage the of the costs.
9. Energy is a process of saving energy.
10. Air pollution is to everyone.
11. Industrial can contain small amounts of radioactive materials.
12. Oil of the tank.

6.3 Match the words in list A with their definitions in list B.

- | | |
|--------------------|---|
| 1. hazardous waste | a. rain that contains harmful chemicals |
| 2. pollution | b. garbage that is produced by people in a household |
| 3. ventilation | c. placing waste in an area that is not appropriate |
| 4. acid rain | d. garbage that is harmful to health |
| 5. pollutant | e. something that causes damage to the environment |
| 6. domestic waste | f. the contamination of the environment |
| 7. smog | g. waste that humans put down drains |
| 8. toxins | h. air pollution caused by a reaction between chemicals |
| 9. sewage | i. poisonous materials that can cause disease |
| 10. dumping | j. the replacement of unclean air with fresh air |

Speaking

6.4 Share your answers to the following questions with your classmates.

1. What are some types of pollution?
2. How can you reduce pollution in your country?
3. What are some things which you recycle?
4. What do you think of people who smoke cigarettes indoors?
5. Do you think global warming is real?

Reading

6.5 State whether the following statements are true or false before you read the text below.

1. Pollution is caused by industrial waste.
2. Water pollution is dangerous to life.
3. Factory workers should reduce industrial waste
4. Industrial Pollution hurts only human life.
5. Global environment is affected by factory waste.

6.6 **Industrial Pollution**

Industrial pollution is pollution which can be directly linked with industry, in contrast to other pollution sources. This form of pollution is one of the leading causes of pollution worldwide. _

There are a number of forms of industrial pollution. One of the most common is water pollution, caused by dumping of industrial waste into waterways, or improper containment of waste, which causes leakage into [groundwater](#) and waterways. Industrial pollution can also impact air quality, and it can enter the soil, causing widespread [environmental problems](#).

Because of the nature of the global environment, industrial pollution is never limited to industrial nations. Samples of [ice cores](#) from Antarctica and the Arctic both show high levels of industrial pollutants, illustrating the immense distances which pollutants can travel, and traces of industrial pollutants have been identified in isolated human, animal, and plant populations as well.

Industrial pollution hurts the environment in a range of ways, and it has a negative impact on human lives and health. Pollutants can kill animals and plants, imbalance ecosystems, degrade air quality radically, damage buildings, and generally degrade quality of life. Factory workers in areas with uncontrolled industrial pollution are especially vulnerable.

A growing awareness of factory pollution and its consequences has led to tighter restrictions on pollution all over the world, with nations recognizing that they have an obligation to protect themselves and their neighbors from pollution. However, industrial pollution also highlights a growing issue: the desire of developing nations to achieve first world standards of living and production. As these countries industrialize, they add to the global burden of industrial pollution, triggering serious discussions and arguments about environmental responsibility and a desire to reach a global agreement on pollution issues.

Activities

6.7 Read the text again to find answers to the following questions.

1. What are the causes of water pollution?
2. Does industrial pollution have a negative impact on human lives and health? How?
3. Do nations impose restrictions to reduce pollution?

6.8 Use the underlined words in new meaningful sentences.

Pronunciation

6.9 English Vowels

Pure vowels

| | |
|------|---|
| /ɪ/ | sit , ink , ill , it |
| /i:/ | seat , east , eagle |
| /e/ | get , set , red , bell |
| /a/ | cat , rat , bat , mat |
| /ɑ:/ | arm , ask , calm , car , father |
| /ʌ/ | cut , shut , cup |
| /ə:/ | pearl , earn , yearn , girl , turn , curd |
| /ʊ/ | cook , book , look , took |
| /u:/ | spoon , shook , fool , food |
| /ɔ/ | pot , lot , shot , on , lock , dot |
| /ɔ:/ | all , call , brought , sought |

Activity:

6.10 Indicate the vowels in each of the following words.

brother ahead teacher forward warm word thirty calm world
earn come front begin seen more heart clerk many order

Grammar

6.11 Clauses of Results

A. {.....such.....that.....}

Examples

1. He has such big feet that he can't buy shoes to fit him.
2. He is such a slow worker that he never finishes in time.
3. It was such an easy exam that everyone passed it.

In the examples above, 'such' is used before an adjective + noun.

B. {.....sothat.....}

Examples

1. His feet are so big that he can't buy shoes to fit him.
2. He works so slowly that he never finishes in time.
3. The exam was so easy that everyone passed it.

In the examples above, 'so' is used before adverbs or adjectives.

Note:

We also used 'so' with 'much' and 'many'.

Examples

1. I make so many mistakes that I always get low marks.
2. He drank so much milk that he got quite fat.

C. {... too.... to}

Examples

1. The house is too small to live in.
2. Democracy is too hard to achieve.
3. The problem is too difficult to solve.

In the examples above, 'too' is used before adjectives and 'to' before an infinitive verb of the result.

Activities:

6.12 Fill in the blanks with 'so' or 'such.'

1. heavy traffic
2. much dust
3. a long queue
4. many tourists
5. high buildings
6. A crowd of people

6.13 Join the following pair of sentences with 'so ... that' or 'such ... that'.

1. The teacher spoke fast. I couldn't understand the lesson.
2. It was a short holiday. We couldn't visit all the places.
3. The level of the oil is low. The engine may not start.
4. It rained heavily. Nobody could attend the match.
5. I live in a small town. I go to work on foot.

6.14 Join the following pair of sentences with 'too ... to'.

1. The engine is too hot. It may not start.
2. The plane is flying high. It cannot be seen.
3. The story was amazing. I cannot forget it.

Safety Corner

6.15 Read the following safety advices, close your book and then try to remember what you have read.

1. Avoid spitting in public places.
2. Put wastes in dustbins.
3. Don't spill oil into the sewage manhole.
4. Don't inhale poisonous gases.
5. Keep away from polluted sites.

Writing

6.16 Write a composition on pollution.

Unit Seven

Maintenance

Vocabulary

7.1 Identify the person who is doing the maintenance in the following pictures.



7.2 Fill in the blanks with the suitable word from the list below.

(available, valve, emergency, electrical, main, systems)

In case of emergency, home owners should know the location of:

1. The ----- water shut-off valve.
2. The gas shut off -----.
3. The shut-off switches for the heating and air conditioning -----.
4. The ----- shut-off switches.
5. Extra house keys are ----- in case of an emergency.
6. A list of ----- phone numbers.

Speaking

7.3 Discuss in pairs the following questions.

1. What are the things you can fix at home?
2. Do you have the tools to fix things? What do you have?
3. Is it important to have a tool kit at home? Why?
4. What are the things that you cannot fix and you employ a specialist for?

Reading

Maintenance

7.4 Try to answer the following questions before you read the text below.

1. What does maintenance mean?
2. What do routine actions of maintenance help keeping?
3. What do the actions of maintenance include?
4. What are the types of maintenance?
5. Which is more expensive; the preventive or the corrective maintenance? Why?

Maintenance involves fixing any sort of electrical or mechanical device when it becomes out of order or broken (known as repair, unscheduled maintenance). It also includes performing routine actions which keep the device working (known as preventive maintenance) or prevents trouble from arising (scheduled maintenance).

Maintenance may be defined as: all actions which retain or restore an item in or to a state in which it can perform its required function. The actions include the combination of all technical and corresponding administrative, managerial, and supervision actions.

Maintenance operations can be categorized by whether the product remains the property of the customer, i.e. a service is being offered, or whether the product is bought by the reprocessing organization and sold to any customer wishing to make the purchase.

The former of these represents a closed loop supply chain and usually has the scope of maintenance, repair or overhaul of the product. The latter of the categorizations is an open loop supply chain and is typified by repair and remanufacture. The main characteristic of the closed loop system is that the demand for a product is matched with the supply of a used product. Neglecting benefit write-offs and exceptional activities the total population of the product between the customer and the service provider remains constant.

Maintenance types:

Generally speaking, there are two types of maintenance in use:

- Preventive maintenance, where equipment is maintained before break down occurs. This type of maintenance has many different variations and is subject of various researches to determine best and most efficient way to maintain equipment. Preventive maintenance is effective in preventing age related failures of the equipment.
- Corrective maintenance, where equipment is maintained after break down. This maintenance is often most expensive because worn equipment can damage other parts and cause multiple damage.

7.5 Read the text again to complete the following.

1. Maintenance includes ----- any out of order device.
2. Performing routine actions means -----.
3. In a closed loop supply chain, product -----.
4. In an opened loop supply chain, product -----.
5. Preventive maintenance is effective in -----.

6. In preventive maintenance, equipment is maintained ----- where in corrective maintenance, equipment is maintained -----.

7.6 Make sentences by matching the beginnings (1 - 5) with the endings (a - e).

1. Maintenance keeps the device
 2. It aims at retain an item to a state in which
 3. In the closed loop system, the demand for a product
 4. Preventive maintenance is effective in
 5. Corrective maintenance is expensive because
-
- a) preventing age related failure of the equipment.
 - b) is matched with the supply of a used product.
 - c) in a working order.
 - d) worn equipment can damage other parts and cause multiple damage.
 - e) it can perform its required function.

Pronunciation

7.8 English Diphthongs

1. /ou/ as in: over open phoned load
2. /au/ as in: out house now how
3. /ai/ as in: eyes island I'm five
4. /ei/ as in: aim age ache make
5. /oi/ as in: oil ointment boil noise
6. /iə/ as in: ears clearly feared near
7. /uə/ as in: sure purely doer fewer
8. /eə/ as in: air fair bear aeroplane

Activity

7.9 Pronounce the following words and then write the diphthong sound in the blank.

cloud ----- nice ---- poor ---- may ---- dear ---- toy ---- go ----- hair ----

Grammar

7.10 Clauses of Contrast

- Noor is poor but she is happy.
- He didn't want their help, but he had to accept it.

1. ALTHOUGH + SUB + VERB

- Although it snowed heavily, Yousif came to the meeting.
- Even though he is very talented, he isn't very successful.
- Though he is very talented, he isn't successful.
- He is very talented, but he isn't successful though. [informal]

2. IN SPITE OF / DESPITE

- + -ING
- + NOUN
- + THE FACT THAT + SUBJ + VERB
- In spite of living here for years, they didn't like it.
- In spite of the weather, ...
- Despite the fact that it is raining,
- It is raining. Yet, we'll go on a trip.

Activities

7.11 Join the pair of sentences with although.

Adil isn't well- paid. He has a very important job.

Although Adil has a very important job, he isn't well- paid.

1. Muna wasn't wearing a coat. It was very cold.
2. Sami has enough money. He doesn't have a computer.
3. Nadia was hungry. She didn't eat much.
4. It was late. The children didn't sleep.
5. Hani likes cars. He doesn't have one.

7.12 Complete the sentences with although, in spite of, despite or but.

Although it rained heavily, they enjoyed the holiday.

1. My brother slept ----- it was very hot.
2. Noor is very rich ----- he isn't happy.
3. Maha went to work ----- she was ill.
4. ----- working hard, Duraid couldn't finish the report.
5. Salwa couldn't buy a laptop ----- the fact that she was saving money.
6. ----- being young, Hala couldn't walk for distances.

7.13 Join these sentences using the word in brackets.

He went out. He was tired. (despite)

He went out despite being tired.

1. I enjoyed the movie. The story wasn't my type. (in spite of)
2. She went to work early. The traffic was terrible. (but)
3. They are not rich. They are happy. (in spite of)

4. I feel tired. I slept well. (although)
5. We are neighbours with the Browns. We hardly see each other. (despite)
6. He was injured. He managed to go to the nearest hospital. (although)

Safety Corner

7.14 Read the following safety advices, close your book and then try to remember what you have read.

Few maintenance tips

1. Wash and wax your car regularly to protect the paint.
2. Regular oil changes are very important to keep your engine in a good shape.
3. Change transmission fluid regularly.
4. Try to avoid overheating the engine; this may cause serious problems.
5. Brakes, steering and suspension can be properly inspected when the car is on the lift.

Writing

7.15 Write an e-mail message to a maintenance mobile workshop asking for assistance to repair your house security system. Your letter should contain references to how, when it can be done and how much you should pay.

Unit Eight

Revision Two

1. Read and then memorize the following brain damaging habits.



1. No Breakfast

People who do not take breakfast are going to have a lower blood sugar level. This leads to an insufficient supply of nutrients to the brain causing brain degeneration.

2. Overeating

It causes hardening of the brain arteries, leading to a decrease in mental power.

3. Smoking

It causes multiple brain shrinkage and may lead to Alzheimer disease.

4 High Sugar consumption

Too much sugar will interrupt the absorption of proteins and nutrients causing malnutrition and may interfere with brain development

5. Air Pollution

The brain is the largest oxygen consumer in our 20 body. Inhaling polluted air decreases the supply of oxygen to the brain, bringing about a decrease in brain efficiency.

6. Sleep Deprivation

Sleep allows our brain to rest. Long term deprivation from sleep will accelerate the death of brain cells.

7. Head covered while sleeping

Sleeping with the head covered increases the concentration of carbon dioxide and decrease concentration of oxygen that may lead to brain damaging effects.

2. Complete the following sentences with a suitable relative pronoun.

1. That is the man ----- helped me when I fell down in the street.
2. Is that your car? No, mine is the one ----- is parked just opposite the bank.
3. That is the woman ----- complained about the room service.
4. This is the park ----- we first met. Do you remember?
5. So, Abdullah is the man ----- son came on the school trip with us? I didn't know.
6. If you have any question, ask the girl ----- is standing at the desk. She'll help you.
7. They had to put away the dog ----- bit the boy. It was too dangerous.
8. I'm looking for a person ----- surname begins with a "k".
9. Do you still go to that place ----- we used to go as students?
10. The heating is not working. Do you know anyone ----- can fix it?

3. Join the following sentences using relative pronouns beginning with the words given. Omit the pronoun if possible.

1. The girl is my sister. I'm talking to the girl.

The girl ----- is my sister.

2. This is the chair. The carpenter repaired it last week.

This is the chair -----.

3. She is married to a man. He is richer than her.

She is married to a man -----.

4. She is the friend. She helped me with my homework.

She is the friend -----.

5. That is the swimming-pool. I used to go swimming there.

That is the swimming-pool -----.

6. That is the man. His wife is a famous actress.

This is the man -----.

7. A doctor examined me last Friday. He was really kind.

The doctor ----- was really kind.

8. The woman called the police. Her car had been stolen.

The woman ----- called the police.

9. I went to a restaurant last week. It was very expensive.

The restaurant ----- was very expensive.

10. I saw a film last night. It was very interesting.

The film ----- was very interesting.

4. Complete the sentences below with *although* - *despite* - *in spite*.

1. _____ the weather was bad, we enjoyed our trip.
2. The children slept well _____ the noise.
3. _____ earning a low salary, Linda gave money to her parents.
4. John rarely sees Paul _____ they live in the same town.
5. Julie failed the exam _____ of working very hard.
6. _____ it was cold, she didn't put on her coat.
7. Tom went to work _____ not feeling very well.
8. Anna never learned the language _____ she lived there for two years.
9. _____ of the difficulty, they managed to climb to the top of the mountain.
10. I couldn't eat _____ I was very hungry.

5. Rewrite the following sentences using *so...that*.

Example:

He is too proud to admit his mistake.

He is so proud that he admits his mistake.

1. The bag is too heavy for me to lift.
2. He is too weak to walk.
3. This news is too good to be true.
4. He is too young to travel alone.
5. He was too late to catch the train.
6. The case is too urgent to be postponed.
7. He is too short to be a good basketball player.
8. It is too late for us to start a new lesson.
9. He is too young to understand the consequences of his action.
10. It is too early to predict the outcome.
11. He is too simple-minded to be a successful businessman.

6. Fill in the blanks with 'so' or 'such'.

1. He was ----- nervous that he broke his glass.
2. Today is ----- a nice day that we can go walking.
3. She is ----- shy that she doesn't want to come with us.
4. This restaurant provides ----- tasty food that it is always crowded.
5. I was ----- late that we decided to take a taxi.
6. He is ----- intelligent that he can speak five languages.

Mini Dictionary

| | | | | | |
|----------------|------------------|---------------|-----------------|---------------|----------------|
| abbreviated | مختصر | contaminate | يلوث | for instance | مثلاً |
| absence | غياب | coordinating | مساو في الأهمية | fumes | دخان |
| acid rain | أمطار حمضية | corrective | تصحيحي | globe | الكون |
| actuator | مشغل، محرك | correlative | مترباط | gloves | قفازات |
| administrative | إداري | corresponding | نظير، متناظر | glue | صمغ |
| airtight | محكم السد | crane | رافعة | goggles | نظارات اللحام |
| alert | منتبه | customer | زبون | gravel | حصي |
| Antarctica | القطب الجنوبي | dairy | ألبان | grip | يمسك بإحكام |
| apartment | شقة | degrade | يحط من شأن | growth | نمو |
| applause | استحسان | degree | درجة، مرتبة | hazardous | محفوف بالمخاطر |
| appropriate | مناسب | dependent | تابع | hermetically | بإحكام |
| atmosphere | جو | deposit | يترسب، يودع | hidden | مخفي |
| attract | يجذب | dessert | طبق من الحلوى | hug | يعانق |
| available | متوفر | destroy | يدمر | impact | صدمة |
| bakery | مخبز | detergents | منظفات | in vain | عبثاً |
| basics | أساسيات | development | تطور | indefinitely | بشكل غير محدد |
| beef | لحم بقر | diamond | ألماس | independent | مستقل |
| calculus | التفاضل والتكامل | distinguish | يميز | inhale | يستنشق |
| canning | تعليب | domestic | بيتي | install | ينصب |
| cells | خلايا | driven out | مبعد | integration | دمج |
| chain | سلسلة | dumping | إلقاء النفايات | involve | يتضمن |
| cheese | جبين | ecology | علم التنبؤ | iron | حديد |
| chickens | دجاج | ecstatic | مغتبط، منتشي | jam | مربى |
| citric acid | حامض الليمونيك | emerge | ينشأ، يبرز | jars | جرة |
| clapping | تصفيق | emergency | طواريء | laboratory | مختبر |
| clauses | عبارات | emit | يبعث | leak out | يتسرب |
| climax | ذروة | ensure | يضمن | limestone | حجر الكلس |
| cheese | جبين | entire | كلي، كامل | loaf | رغيف |
| coal | فحم | environment | بيئة | loop | عقدة |
| collapsing | انهيار | equal rank | مرتبة متساوية | low-acid | خفيف الحامضية |
| combination | تجميع | essential | أساسي، جوهري | maintenance | صيانة |
| compact | محكم، مترابط | exchange | تبادل | managerial | إداري |
| components | عناصر | explore | يستكشف | manufacturing | تصنيع |
| comprise | يشمل، يتضمن | extracted | مستخلص | mass | كتلة |
| consequences | عواقب | factors | عوامل | | |
| constant | ثابت، متواصل | factory | مصنع | | |
| container | حاوية | fear | خوف | | |

| | | | | | |
|----------------|---------------------|---------------|---------------|---------------|-------------------------------|
| materials | مواد | process | عملية | stretcher | نقالة الجرحى، موسعة الحذاء |
| microorganism | عضويات دقيقة | production | إنتاج | stuck | ملتصق |
| miners | عمال منجم | promote | يعزز | subordinating | ثانوي |
| mining | حفر مناجم | publish | ينشر | substances | مواد أولية |
| moisture | رطوبة | pumping | ضخ | sufficient | كافي |
| molds | | purchase | يشترى | supervision | إشراف |
| molten | مصهور | radically | تطرفي | surf | أمواج منكسرة |
| motivation | دافع | radioactive | إشعاعي النشاط | surprisingly | يشكل مدهش |
| museum | متحف | raw | خام | temperature | درجة حرارة |
| neglect | يهمل | refineries | معامل تكرير | tense | صيغة الفعل، متوتر |
| nutrients | مواد مغذية | regularly | بانتظام | thermometer | محرار |
| oil shale | صخر زيتي | remanufacture | يعيد تصنيع | together | سوية |
| on tenterhooks | على أحر من الجمر | reprocessing | إعادة تصنيع | tomato paste | معجون طماطة |
| organizations | منظمات | required | مطلوب | toxic | سام |
| overjoyed | يبتهج | rescue | ينقذ | trapped | واقع في شرك |
| packaged | مرزوم | respirator | كمامة، قناع | tunneling | شق نفق |
| par | معدل | retain | يحتفظ | unscheduled | غير منظم |
| pickles | مخللات | rock salt | أملاح صخرية | vacuum | فراغ |
| pinnacle | قمة، أوج | safe | أمين | valve | صمام |
| pneumonia | ذات الرئة | seal | ختم | variations | اختلافات |
| poisons | سموم | sensor | حساس | vendor | البائع |
| pollution | تلوث | set free | يحرر | ventilation | تهوية |
| potash | بوتاس | sewage | مجاري | vulnerable | قابل للجرح |
| poultry | دواجن | sites | مواقع | waste | نفاية |
| precious | نقيس، كريم | soft drinks | مشروبات غازية | wasted | مهمل |
| prepare | يحضر، يعد | spanning | قياس | wax | شمع |
| presence | حضور | spill | يسكب | withstand | يصمد |
| preserved | محفوظ | spit | يبصق | worldwide | على نطاق العالم |
| pressure | ضغط | spoilage | إفساد، تلف | yeasts | خمائر |
| preventive | وقائي | spores | بذرات | | |
| prevent | يقي، يمنع | sterilized | معقم، مطهر | | |