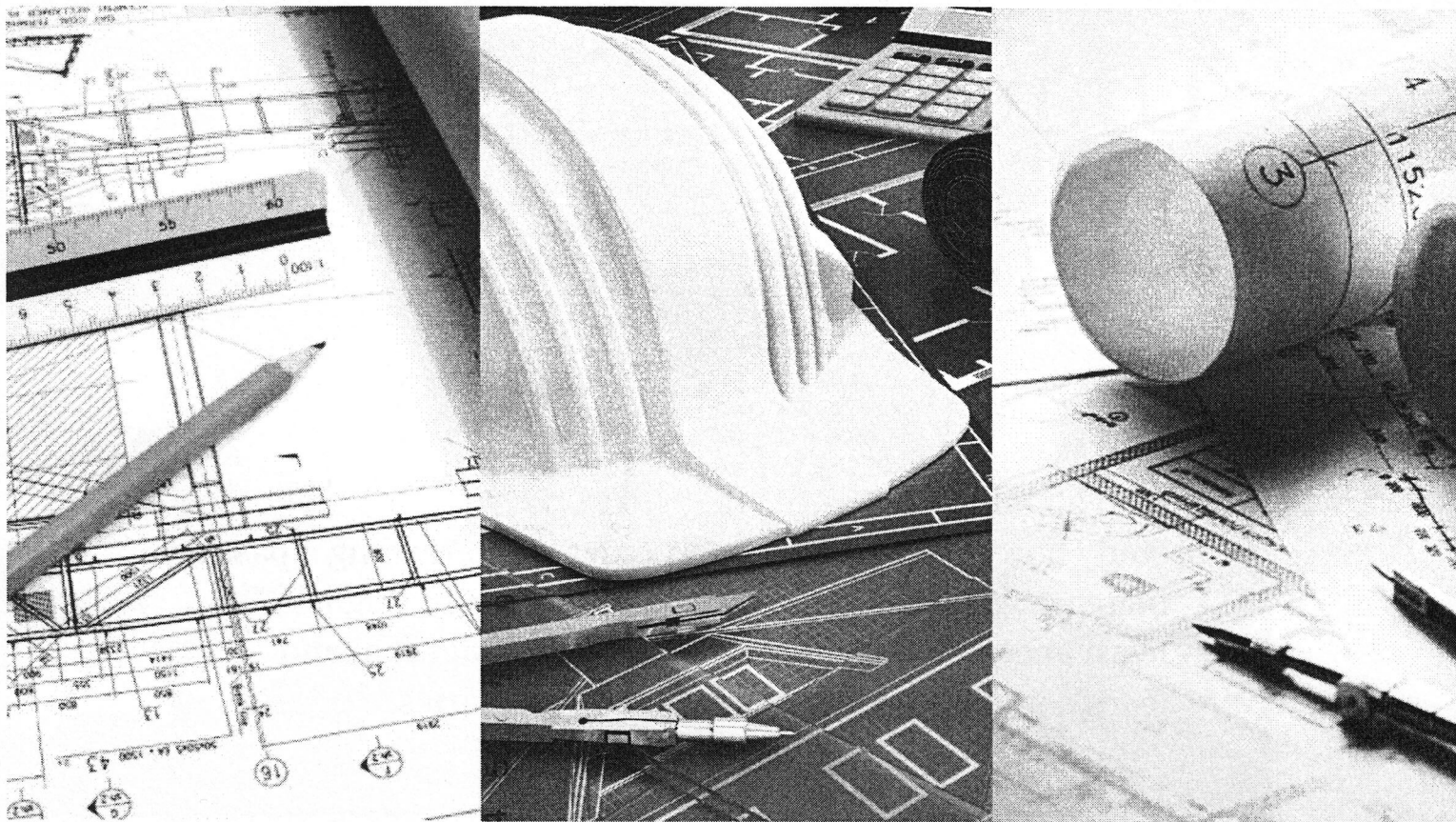




AMIRKABIR
UNIVERSITY OF TECHNOLOGY
THERAN POLYTECHNIC

English Dynamo

for the Students of Science and Engineeri



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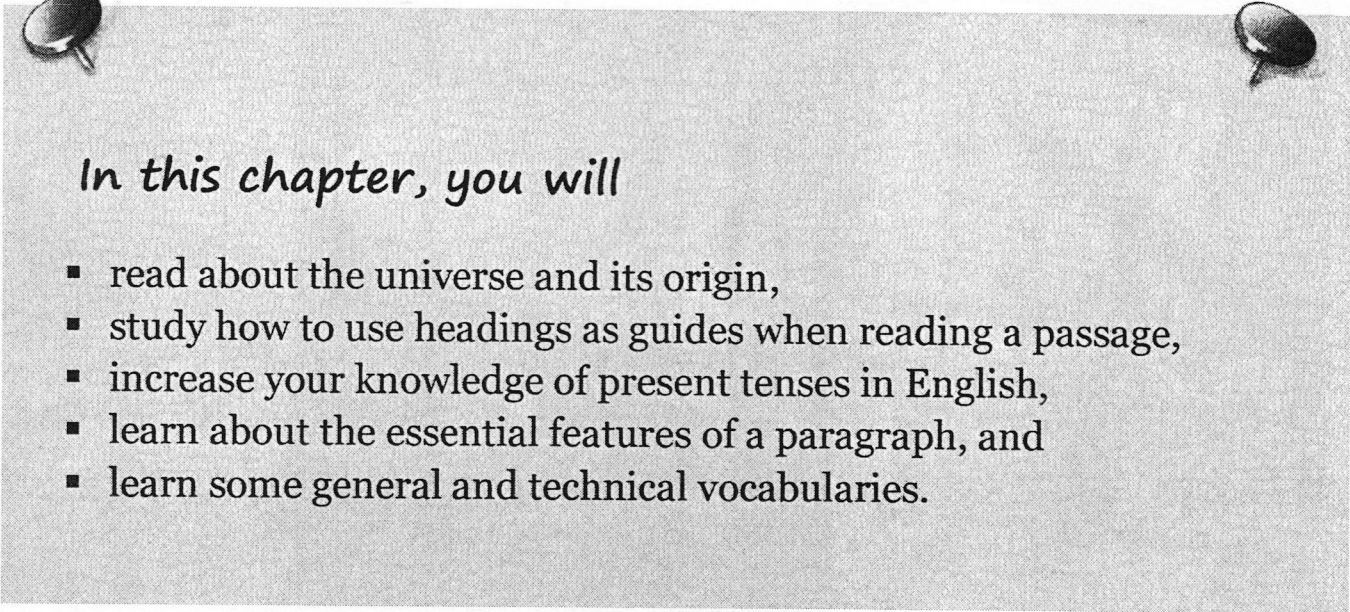
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1

The Origin of the Universe



In this chapter, you will

- read about the universe and its origin,
- study how to use headings as guides when reading a passage,
- increase your knowledge of present tenses in English,
- learn about the essential features of a paragraph, and
- learn some general and technical vocabularies.



TUNE IN FOR THE READING

Reading Strategy 1: USING HEADINGS AS GUIDES

Headings in a passage can work as guides, helping us better understand the content and meaning of an essay. A passage may contain one main heading and some subheadings. The paragraphs under one subheading address the same topic.

In the reading passage, find the main heading and subheadings; then discuss the focus of each part of the text under each subheading:

- Heading:
- subheadings:

Visual Hints

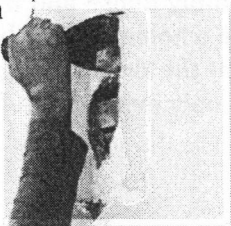
Look at the following pictures. They illustrate three actions. Try to match each picture with the relevant verb from the box below expressing that action.

Split apart

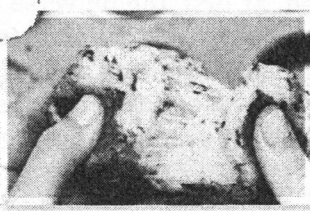
Pull apart

Scrape

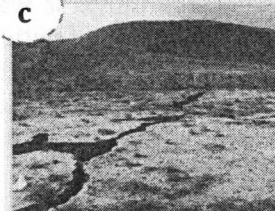
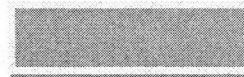
a

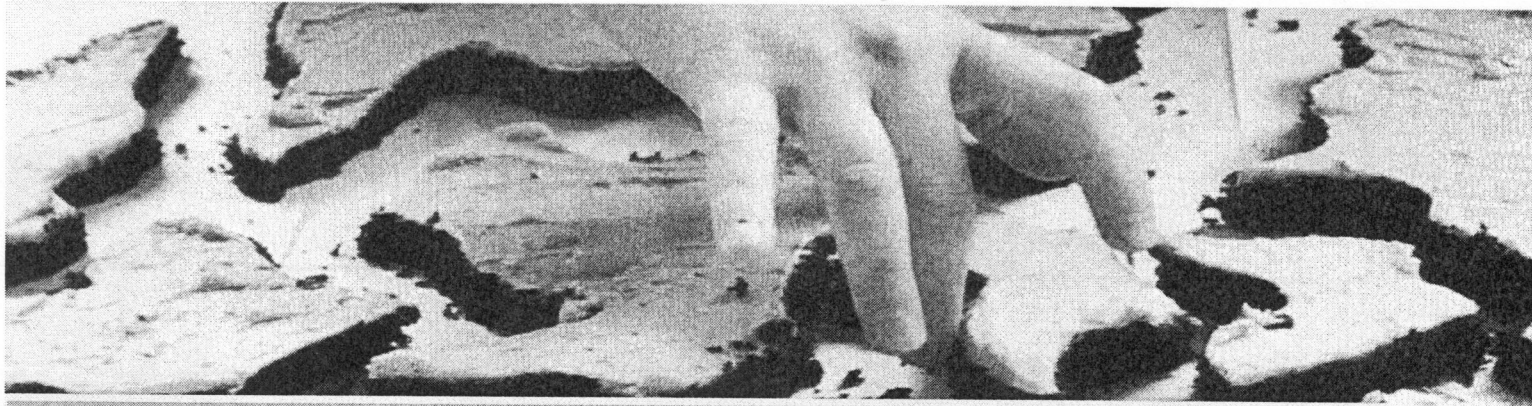


b



c





READING



Universe, the Earth, and Life

Part 1

What does 'Universe' Imply?

We use the word 'universe' to mean everything that exists; from the Earth to the most distant parts of space that *astronomers* can possibly see. People used to think that the Earth was the center of the universe. Although the Earth is important to us, we know now that it is a little planet going round the sun, which is just one of millions of ordinary stars in our *galaxy*. The universe contains countless galaxies of stars. The furthest ones we can see are so distant that their light takes thousands of millions of years to reach us. This delay means that we are seeing them now as they actually were long ago. We can also tell that the galaxies are rushing apart. The most distant galaxies we know about are travelling at $\frac{9}{10}$ of the speed of light.

Astronomers keep finding more distant ones, but there is a limit to how far we could ever see, even with *incredibly* powerful telescopes. If there is anything beyond our universe, we can never know what it is. Astronomers have found out that the universe we know started thousands of millions of years ago. It is changing and getting bigger all the time as the galaxies rush apart. Thousands of millions of years in the future, the stars may stop shining and the universe might *shrink*.

The Big Bang Theory

Most scientists believe that the universe started thousands of millions of years ago with an event that they call the 'Big Bang'. It was some kind of *explosion* in which all the matter and energy in the universe was created. At first, the universe was incredibly dense and hot. Later, as it expanded outwards, the galaxies and the stars formed. The whole universe has continued expanding since the Big Bang. Scientists are fairly sure that the theory is right since they found a faint radio signal that seems to fill all of space. The only explanation for the radio signal is that it is the energy left over from the Big Bang.

/ə'strɒn.ə.mərz/

/'gæl.ək.si/

/frɪŋk/

/ɪn'kred.ə.bli/

/ɪk'spləʊ.ʒən/

TECHNICAL CHECK 1



A. Recalling Information. Choose the best option for the following items.

1. The word 'universe' refers to
 - a) whatever created from the Earth
 - b) everything that exists
 - c) the center of the world
 - d) galaxies and planets around people

2. Based on the evidence gathered from the light of stars, it is concluded that
 - a) the galaxies have been rushing apart and might shrink in the future
 - b) the universe is in a constant process of expansion and contraction
 - c) the light could not have reached us if there were no telescopes
 - d) our knowledge about the universe is enough to know its origin
3. 'Big Bang' theory stands witness to the fact that
 - a) explosions were the main cause behind the formation of the world
 - b) all the matter and energy was created in the universe
 - c) the universe got denser and hotter by time
 - d) the expansion of the world will continue to fill the space

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. A huge number of stars and galaxies constitute the universe.
2. The farthest galaxies of which we are aware move roughly at the speed of light.
3. A weak radio signal seeming to fill all the space proves the Big Bang Theory.

Part 2

Plate Tectonics and Continents Formation

The *explanation* of what has happened to the surface of the Earth is known as 'Plate Tectonics'. The skin or 'crust' of the Earth is about 70 km thick and is divided into plates that *float* on the *slushy* part of the second layer or the 'mantle'. Plates move slowly (a few centimeters each year) over the Earth's surface. Over millions of years this has caused continents to split apart and collide.

On some parts of the ocean floor, plates pull apart. New crust is formed when molten material from

undersea *volcanoes* rises to fill the gaps. There are other plate *boundaries* where one plate is pushed under another. These areas also have volcanoes and earthquakes. In other places plates *scrape* sideways, splitting the crust.

Similar fossils of ferns and reptiles have been found in South America, Africa, India, and Antarctica. These could not have crossed the oceans, so they must have lived on the same land at some time in the past. If you cut out the continents on a world *geological* map and put them together like a 'jigsaw puzzle', you can match rock formations. This is not a *coincidence*. The rocks were formed when the land was a single continent. This continent, which geologists call *Pangaea*, split and the separate parts moved to their present positions.

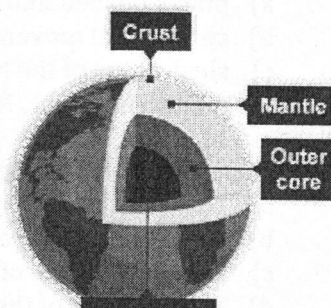


Figure 1.1. The Earth's Forming Layers

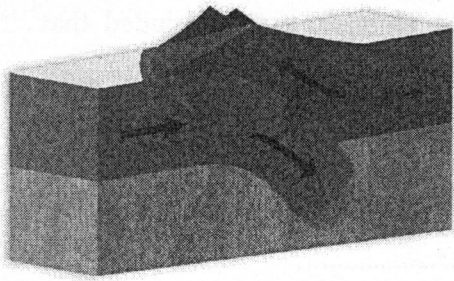


Figure 1.2. Plate Boundary Convergence

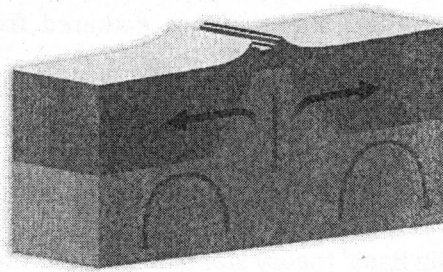


Figure 1.3. Plate Boundary Divergence

TECHNICAL CHECK 2



A. Recalling Information. Choose the best option for the following items.

1. Plate Tectonics refers to
 - a) the floating parts on the solid part of the Earth
 - b) split parts of the continents and the formation of the oceans
 - c) an explanation of the changes the Earth's surface has witnessed
 - d) the slow movement of the continents during a year
2. Which of the following contributes to the formation of new crust?
 - a) plates pushed under another plate
 - b) continental movements
 - c) slushy part of the mantle
 - d) molten materials from undersea volcanoes
3. Which of the following might prove that continents were once united?
 - a) The crossing of the fossils across the oceans
 - b) The matching of rock formations in different continents
 - c) The coincidence of geological maps and rock formation
 - d) The co-living of the same animals on some continents

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. Over millions of years, continents have moved to their current locations.
2. That the rocks match each other proves the existence of the volcanoes.
3. Similar fossils of ferns and reptiles have crossed South America to Antarctica in the distant past.

Part 3

Life Formation on the Earth

When the Earth was first formed, there was no life at all. The surface of the Earth was very hot then, and nothing could have lived. It took about 1,000 million years for the Earth to become suitable for life. It is very hard to imagine how life could arise from non-living things. For years, *biologists* could not understand how the very complicated plants

and animals, including ourselves, could have come from simple chemicals.

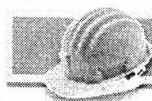
Scientists think that life arose from chemicals that entered the atmosphere from volcanoes, thousands of millions of years ago. Geologists can tell from ancient rocks that these chemicals included hydrogen, methane, ammonia, and water. Experiments have shown that these chemicals will form into molecules called amino acids quite easily. Amino acids are the building blocks of proteins, and proteins are the main substances of living things. Experiments in laboratories have suggested that *lightning* and radiation from the Sun triggered the formation of amino acids. These dissolved in the oceans where, over millions of years, they formed proteins and then simple cells.

These simple cells were like small bags of protein with an outer *membrane* which could take in (feed) other chemicals and divide to form new cells (reproduce). The oldest fossils that have been discovered are 3,500 million years old.¹

/baɪˈɒlə.dʒɪst/

/ˈlaɪt.nɪŋ/

/ˈmem.breɪn/



TECHNICAL CHECK 3

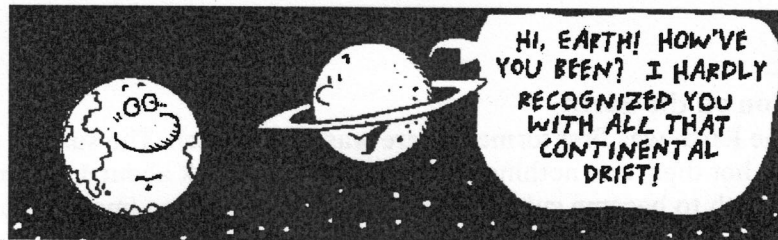
A. Recalling Information. Choose the best option for the following items.

- The main substance of living things is
a) cells b) amino acids c) proteins d) water
- What was the main push behind the formation of amino acids?
a) Experimental laboratories c) Lightning and sun rays
b) Protein absorption d) Living things around us
- The first form of life was created in the
a) chemicals which entered the atmosphere
b) small bags of proteins
c) simple cells forming amino acids
d) oceans over millions of years

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

- Hydrogen, methane, ammonia, and water form amino acids and these, in turn, form proteins and these, in turn, make simple cells.
- Biologists very easily found that human beings are made of molecules.
- It is not very complicated to know how life could have arisen from inanimate things.

¹ The text is adapted from *Oxford children's Encyclopedia* (Worrall, 1991).



Source: www.neistadscience.no

VOCABULARY PRACTICE



Practice A. The following vocabulary items are taken out of the reading selection in this chapter. Check your vocabulary knowledge by choosing the best definition or meaning for each word:

1. Rush apart:
2. Collide:
3. Shrink:
4. Left over:
5. Dissolve:
6. Scrape:
7. Identical:

Practice B. Complete the sentences with the correct word from the table.

Noun	Verb	Adjective	Adverb
Explosion Explosive Explosiveness	Explode	Explosive	Explosively
Trigger	Trigger	Triggered Triggering	—
Dissolution Dissolvent	Dissolve	Dissolvable Dissolved	—

1. Drop two tablets in a glass of water and let them
2. In fact, during the last few decades the use of as a source of energy has found many applications in engineering.
3. The car crash a lot of bad memories for me.
4. Polymers that become fluid in a special can be used in a printing process as electronic ink.
5. Hydrogen becomes dangerous if it accumulates in the upper spaces of a structure.

LANGUAGE FUNCTION: PRESENT TENSE IN A NUTSHELL



Present Simple

Pronouns	Statement	Negative	Interrogative
I, you, we, they	(simple verb) speak	Don't speak	Do + subject + speak
She, he, it	(simple verb + s) speaks	Doesn't speak	Does + subject + speak

- expresses facts (permanent truth or states):
*Rice **grows** in the North of Iran.*
*Water **boils** in 100° C.*
- expresses customs and habitual activities:
*Iranians **celebrate** the rebirth of nature in Nowrouz.*
- expresses future when used with a future time indicator:
*The instructor **arrives** in ten minutes.*
- expresses instant actions happening or decided just now:
*I completely **understand** what you mean.*

Present Progressive

Pronoun	Statement	Negative	Interrogative
I	am + speak + ing	am + not + speak + ing	am + I + speak + ing
You, we, they	are + speak + ing	are + not + speak + ing	are + subject + speak + ing
She, he, it	is + speak + ing	is + not + speak + ing	is + subject + speak + ing

- expresses an activity(s) continuing at the moment of speaking:
*We **are working** on structure section of the book right now.*
- expresses an activity or a set of activities taking place over a given period of time:
*She **is taking** only three courses this quarter.*
- expresses near future time:
*My sister's plane **is arriving** in Tehran.*

Present Perfect

Pronoun	Statement	Negative	Interrogative
I, you, we, they	have + (past participle) spoken	have not + (past participle) spoken	have + subject + (past participle) spoken
She, he, it	has + (past participle) spoken	has not + (past participle) spoken	has + subject + (past participle) spoken

- expresses an action that started in the past and has continued up to now:
*We **have lived** in this city for ten years.*
- When used with words like 'just' and 'already,' it expresses an action that started in the past but finished recently or very close to the moment of speaking:
*I **have just finished** painting that door.*

Note: Present perfect time expressions include:

Since	for	yet	already	just
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Present Perfect Continuous

Pronoun	Statement	Negative	Interrogative
I, you, we, they	have + been + speak + ing	have not + been + speak + ing	have + subject + been + speak + ing
She, he, it	has + been + speak + ing	has not + been + speak + ing	has + subject + been + speak + ing

- emphasizes the continuous nature of an action that has started in the past and is still going on:
I have been standing here under the rain for an hour!
- expresses an action that is *uninterrupted*, to emphasize the duration or number of the activity:
I have been working on the project for the past six hours.

Note: Present perfect and present perfect continuous can be used interchangeably, but the meaning of some verbs (such as *arrive*) prevents them from being used in continuous format.

LANGUAGE FUNCTION



Practice A. Complete the following sentences with present simple, progressive, or perfect form of the verb inside each parenthesis. In some blanks more than one tense may be correct.

Mehrshad and Ali (be) graduate students in the Department of Polymer Engineering at Amirkabir University of Technology. They (be) students at this university for one year. Amirkabir (have) the distinction of being a very well-established university of technology in Iran. This semester, Ali (work) in the polymer lab on Mondays. He (take) only six courses this semester, so he (have, not) that much assignments.

It is lunch time now! Many students (stand) in line in the buffet and (wait) for someone to take their order. Mehrshad and Ali (be) in line for fifteen minutes, and they (get) a little impatient. That's why Mehrshad (prefer) to eat in the dorm cafeteria because the service (be) faster.

Their semester break (begin) next week, and Ali (travel) back to his hometown to visit his family. He (have, not) that much money left, so he (plan) to go by bus. His bus (depart) at eight o'clock in the morning. Both Mehrshad and Ali (register) for the general English course next semester.

Practice B. Use present perfect or present perfect continuous to complete the following sentences. For some sentences, both tenses might be used.

1. My brother (fail) his math exam two times because he doesn't learn complicated mathematical formulas. However, he (study) for four hours every day for the past week.
2. I (receive, not) my paycheck from my employer over the past two months.
3. She (think) about moving to Shiraz, but she (not/make) a definite decision yet.
4. My roommate (play) music since 2 P.M. this afternoon, and he is driving me crazy.

NOUN CONSTRUCTION AND PRACTICE



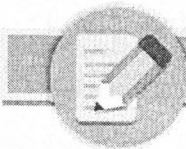
Nouns can be formed using *suffixes* added to the end of a word to change the grammatical function (or part of speech) of the original word and make a new word. For example, the verb *read* is made into the noun *reader* by adding the suffix *-er*. Look at the table on the next page (containing the most common noun-making suffixes). To practice making nouns with suffixes, add appropriate suffixes to the words listed in the second table. Then use the nouns to complete the sentences that follow.

Noun-Making Suffixes and Examples			
-acy	<i>accuracy, bureaucracy</i>	-ing	<i>building, feeling</i>
-age	<i>baggage, postage</i>	-ism	<i>socialism, tourism</i>
-al/ial	<i>arrival, burial</i>	-ist (person)	<i>socialist, geologist</i>
-ance/ence	<i>reliance, dependence</i>	-ity/-ty	<i>necessity, cruelty</i>
-ancy/ency	<i>redundancy, efficiency</i>	-ment	<i>sediment, movement</i>
-ant/ent	<i>assistant, student</i>	-ness	<i>readiness, usefulness</i>
-ary/ery/ory	<i>sedimentary, fishery</i>	-ship	<i>friendship, membership</i>
-dom	<i>boredom, freedom</i>	-th	<i>depth, growth</i>
-ee	<i>employee, trainee</i>	-tion/sion	<i>production, expression</i>
-er/or/ar	<i>user, conveyor, beggar</i>	-tude	<i>longitude, magnitude</i>
-hood	<i>childhood, neighborhood</i>	-y	<i>economy</i>
-ics	<i>physics, plastics</i>		

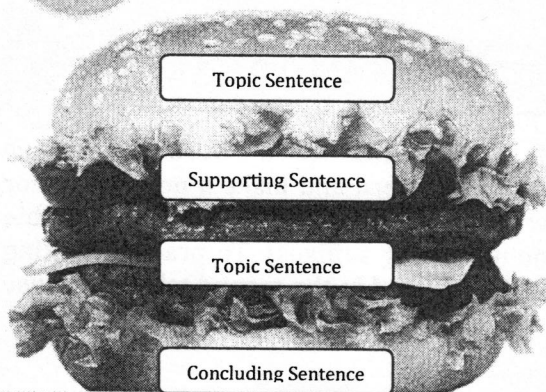
Word	Noun	Word	Noun
expand		geology	(person).....
necessary		major	
convey		bury	
combust		coincide	

1. It is generally believed that the Indo-Iranians followed the practice of for their dead.
2. Rapid of software industry in recent years is amazing.
3. The complete of carbon and hydrocarbons rarely occurs in nature.
4. You chose exactly the same color as us—what a!

5. have discovered rocks which contain fossilized single-celled organisms.
6. The to have access to larger markets is really important.
7. The of employees have university degrees.
8. The traditional way to moving products in plants across the world was using heavy
.....



WRITING ESSENTIALS

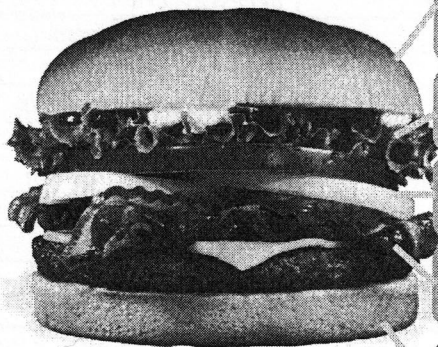


A paragraph has different layers very similar to what you have in a hamburger. The first layer is the *topic sentence* that presents the main idea of the paragraph. Main idea needs to be supported by other sentences in the paragraph which are referred to as *supporting sentences*. The last layer of the paragraph is the *concluding* or *conclusion sentence*. Therefore, a paragraph usually contains one topic sentence, two or more supporting sentences, and a conclusion. The number of supporting sentences largely depends on your topic sentence. Each of these elements will be discussed in detail in the next section.

WRITE IT UP (SELF PRACTICE)



Look at paragraph two in the reading. Find the essential elements of a paragraph and complete the following figure:



Topic sentence:

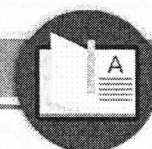
Supporting sentence 1:

Supporting sentence 2:

Supporting sentence 3:

Concluding sentence:

VOCABULARY SELF STUDY



Word	Pronunciation	Word	Pronunciation
Ancient	/ˈeɪn.fənt/	Galaxy	/ˈgæl.ək.si/
Antarctica	/ænˈtɑːrk.tɪ.kə/	Gap	/gæp/
Astronomer	/əˈstrɔː.nə.mə/	Geological	/dʒi.əˈlɒdʒ.i.kəl/
Biologist	/baɪˈɔː.lə.dʒɪst/	Identical	/aɪˈden.tɪ.kəl/
Boundary	/ˈbaʊn.dər.i/	Incredibly	/ɪnˈkred.ə.bli/
Building block	/ˈbɪl.dɪŋ ˌblɔːk/	Imply	/ɪmˈplaɪ/
Chemical	/ˈkem.i.kəl/	Laboratory	/ˈlæb.rə.tɔːr.i/
Coincidence	/kouˈɪn.sɪ.dəns/	Lightning	/ˈlaɪt.nɪŋ/
Collide	/kəˈlaɪd/	Membrane	/ˈmem.breɪn/
Continent	/ˈkɑːn.tən.ənt/	Molten	/ˈmou.l.tən/
Crust	/krʌst/	Pangaea	/pænˈdʒi.ə/
Dense	/dens/	Plate Tectonics	/ˌpleɪt tekˈtɒn.ɪks/
Distant	/ˈdɪs.tənt/	Plug	/plʌɡ/
Dissolve	/dɪˈzɔːlv/	Radiation	/reɪ.diˈeɪ.ʃən/
Explanation	/ek.spləˈneɪ.ʃən/	Rush apart	/rʌʃ əˈpɑːrt/
Explosion	/ɪkˈspləʊ.ʒən/	Reproduce	/riː.prəˈduːs/
Fern	/fɜːn/	Reptile	/ˈrep.taɪl/
Faint	/feɪnt/	Scientist	/ˈsaɪəntɪst/
Fairly	/ˈfer.li/	Scrape	/skreɪp/
Float	/fləʊt/	Shrink	/ʃrɪŋk/
Word	Pronunciation	Word	Pronunciation
Slushy	/ˈslʌʃ.i/	Universe	/ˈjuː.nə.vɜːs/
Substance	/ˈsʌb.stəns/	Trigger	/ˈtrɪɡ.ə/
Surface	/ˈsɜː.fɪs/	Volcano	/vɔːlˈkeɪ.nou/

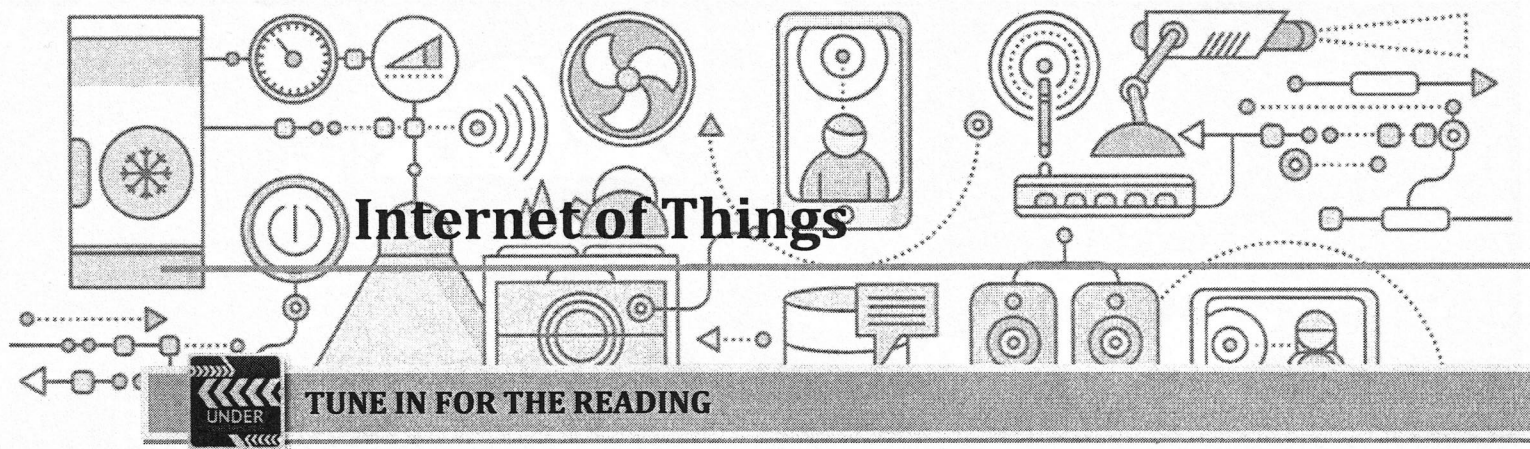
CHAPTER 2

Internet of Things



In this chapter, you will

- read about the Internet of Things (IoT),
- learn what it means to make inferences when reading a text,
- increase your knowledge of past tenses in English grammar,
- learn about the topic sentence in a paragraph, and
- learn some general and technical vocabularies.



Reading Strategy 2: Inferences (Deriving Conclusions from Indications)

Inferences are made all the time, every day. Look at the following example to see how common they are:

- *Sarah's toddler is in bed upstairs. She hears a bang and crying. Sarah can infer that her toddler fell out of the bed.*

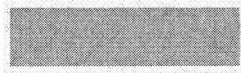
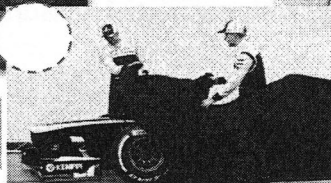
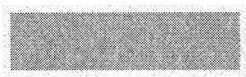
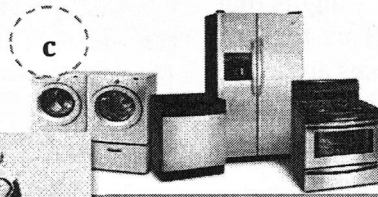
Making an inference involves using what you know to make a guess about what you do not know. This is done by using the clues in the text along with your own experiences to figure out what is *not directly said*.

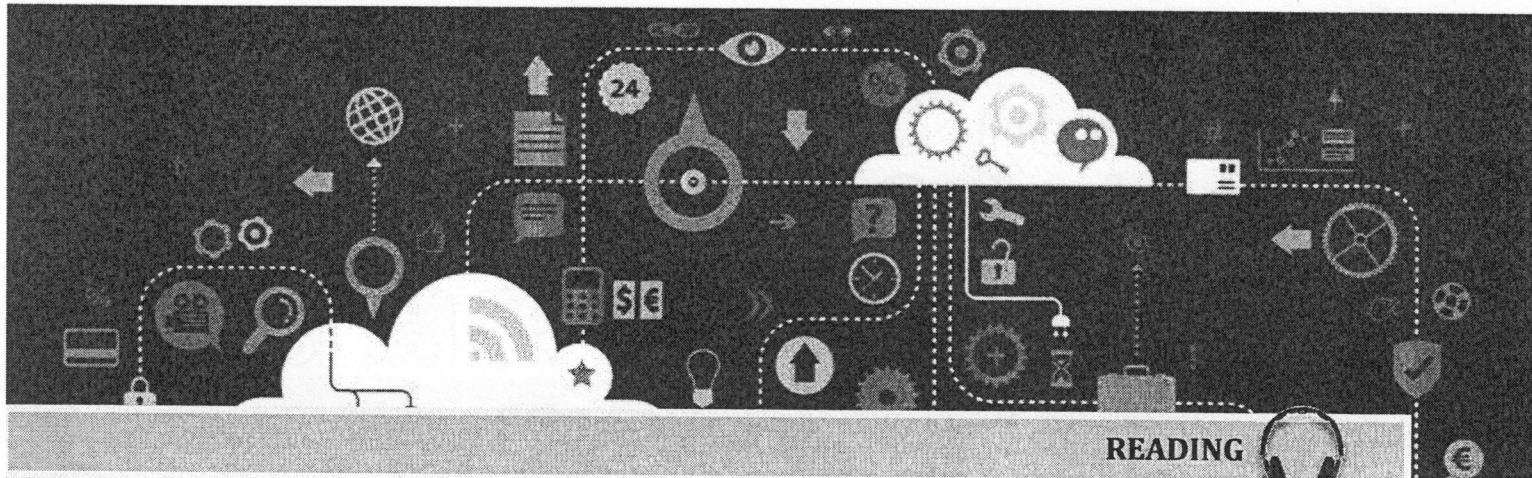
Inferencing questions can be recognized by the word 'infer', or 'imply' or 'suggest' in the question prompt. Inference means something that is only suggested in the text, rather than being directly stated. You need to be able to understand the concepts in a reading passage to logically see what else the author is trying to imply.

Visual Hints

Look at the following pictures. Try to match each picture with the relevant word from the box below expressing that action.

use-by date organ implant appliances unveil





What is the Internet of Things?

Part 1

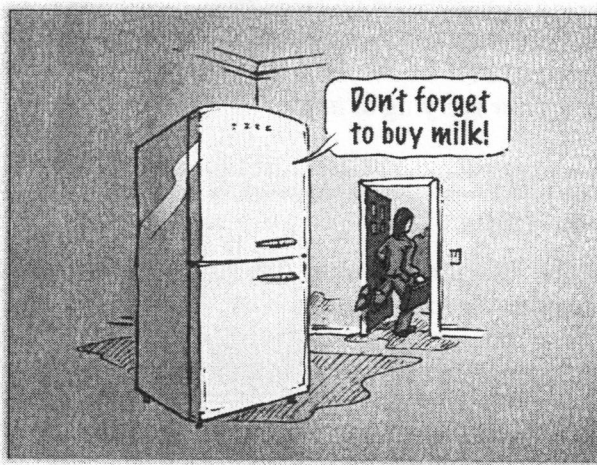
The Internet of Things (or as it is also known, IoT) is not a new concept: for decades, it has been discussed in tech companies, and the first internet-connected toaster was *unveiled* at a conference in 1989. IoT refers to the use of the Internet to connect devices—ranging from cars kitchen *appliances*, and even heart monitors—to us and each other. As defined by IoT Agenda (2020) a thing, in IoT, can be a person with a heart monitor implant, an automobile that has sensors to alert the driver when tire pressure is low, or any other natural or man-made object that can be *assigned* an IP address and provided with the ability to transfer data over a network.

/ʌn'veild/
/ə'plai.ənsɪz/

/ə'saɪnd/

As the Internet of Things continues to grow, more devices will join that list. A popular example is the smart *fridge*: what if your fridge could tell you it was out of milk, sending text messages when its internal cameras found there was none left, or that the packed food was past its use-by date?

IoT is more than smart homes and connected devices, however. It also includes smart cities—think of connected traffic lights that monitor traffic and tell us to slow down or how many spaces are left in a car park, or smart bins that signal when they need to be emptied—and industry, with connected sensors for monitoring crops.



/frɪdʒ/

Figure 2.1. Source: Next Up Speaker Management

TECHNICAL CHECK 1



A. Recalling Information. Choose the best option for the following items.

1. In paragraph two, what does none refer to?

a) camera

b) milk

c) fridge

d) list

2. Which of the following is **NOT** an example of IoT?
 - a) crop-monitoring devices that inform farmers of harvest time
 - b) a connected traffic viewing system that monitors traffic
 - c) a smart refrigerator that keeps track of the items inside it and their expiration date
 - d) an oven with an alarm ring to signal when the assigned baking time is over
3. It can be *inferred* from the text that
 - a) IoT is more than smart homes and connected devices.
 - b) Smart traffic lights are a way to increase efficiency.
 - c) A smart fridge can inform you what you have run out of.
 - d) Drivers can understand that the pressure is low through sensors.

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. A thing in IoT can only be man-made objects that can be assigned IPs.
2. The first internet-based operating device was introduced in the past decade.
3. A heart monitor implant is an example of an IoT device.

Part 2

Is it Safe?

Any innovation and new technology has its own downsides, and *privacy* and security issues appear to be the greatest challenges in the Internet of Things. A lot of personal information (such as the electronic devices you frequently use or the time you spend at home) is collected by smart devices and shared with or kept in other device/third party databases. Despite these, as Kobie (2015) puts, hackers have not paid much attention to IoT because there are likely not many people using connected devices for an attack against them to be worth, but as soon as there is a financial benefit to hacking smart homes, the cyber crimes related to it will also increase.

So the short answer is yes, IoT is relatively safe: you are not likely to face serious loss or damage because of your smart meter. However, there is no *guarantee*, and so far not enough is being done to ensure IoT is not the next big hacking target. As a result, several tech companies are focusing on cyber security in order to secure the privacy and safety of all this data.



TECHNICAL CHECK 2

A. Recalling Information. Choose the best option for the following items.

1. Hackers have not put much attention in IoT because
 - a) IoT cyber security is so high and cannot be hacked
 - b) it is not financially beneficial as the number of users is still low
 - c) cyber crime rate remains relatively low
 - d) users do not face serious loss or damage

2. The most significant challenge confronting IoT is
 - a) safe passage and storage of users' data
 - b) selecting ground-breaking innovations to use
 - c) number of people using smart connected devices
 - d) its dependency on a single product

3. Personal information collected from different devices in IoT is

a) never shared with other devices	c) stored in databases
b) lost as soon as it is used	d) held in a smart meter

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. Thus far, great actions have been done to ensure IoT is not the next big hacking target.
2. There is little possibility that hackers turn to IoT in future.
3. Tech companies are not responsible for the cyber security of their users' data.

Part 3

How will the Internet of Things Affect Business and Work?

This all depends on the type of industry: manufacturing is perhaps one of the targets as IoT can help manufacturers to organize tools, machines, and people, and track where they are. There are literally hundreds of companies like Amazon linked to the Internet of Things, and the list should only expand in the coming years. Different businesses are also top adopters of IoT solutions because they use it to "lower operating costs, increase productivity, and expand to new markets or develop new product offerings" (Business Insider, 2016).

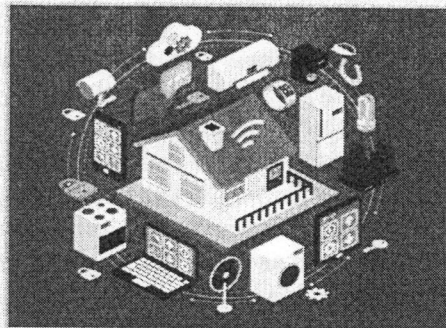


Figure 2.2. Source: MarTech Today

Farmers have also been drawing on connected sensors to monitor both crops and cattle, to improve production and *efficiency*, and to track the health of their herds. For example, to monitor and control the irrigation system remotely, farmers can use IoT sensors to collect data from the soil of cultivated areas. These sensors send their data using a wireless, energy-efficient connection to a central monitoring console.

Connected devices will likely make their ways into most businesses and industries, the way computers and the Internet did. The examples are endless. Imagine your security access card being used to track where you are in the building, so your boss can calculate how much time you are spending in the kitchen making tea. Another interesting example is a printer *capable* of telling the print service company when it is running out of toner. Detailed information about the exact nature of the problem and parts required to fix it can be transmitted to the service provider and their engineers, largely improving the possibility of a first-time fix.

/ɪˈfi.ə.n.si/

/ˈkeɪ.pə.bəl/

/ˈɪn.fən.si/

What will internet of things look like in the future?

Technology is full of ups and downs—it is often difficult to decide on whether an innovation is truly ground-breaking or not, “but the internet of things is one of those wider ideas that is not dependent on a single project or product” (Kobie, 2015). Smart appliances may find their ways into the future, or pushed aside by newer technologies, but the idea of smart technologies capable of making decisions independent of human data will continue. IoT is still in its *infancy*, but with thousands of new devices going online every day, all service organizations will soon draw on it. A decade from now, everything could be connected. Regardless of the way we call it, IoT is a real technology—but how it would be in the future is a question that even Google cannot answer.



TECHNICAL CHECK 3

A. Recalling Information. Choose the best option for the following items.

1. Which of the following is **NOT** an essential part of internet of things?
 a) a network b) smart meter c) a toner d) monitoring sensors
2. Which sentence is **NOT** true?
 a) IoT is at its early stages of development right now.
 b) No one can tell whether a technology would become ground-breaking in future.
 c) You may find the answer to the question of the future of IoT in Google.
 d) Like other technologies, IoT has its own security challenges.
3. What is the best main idea of the third paragraph?
 a) Farmers are using IoT to improve their crops and herds.
 b) The best place to use IoT is in the offices.
 c) Security access card is an example of IoT devices used in business.
 d) IoT is finding its way into most businesses the way that the Internet did.

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. Despite all ups and downs in the future of technology, the idea of autonomous smart devices making decisions for themselves will continue.
2. The future of IoT is largely unknown because the devices it connects might be pushed away by new technologies.
3. Amazon was the first user of IoT in the business world.

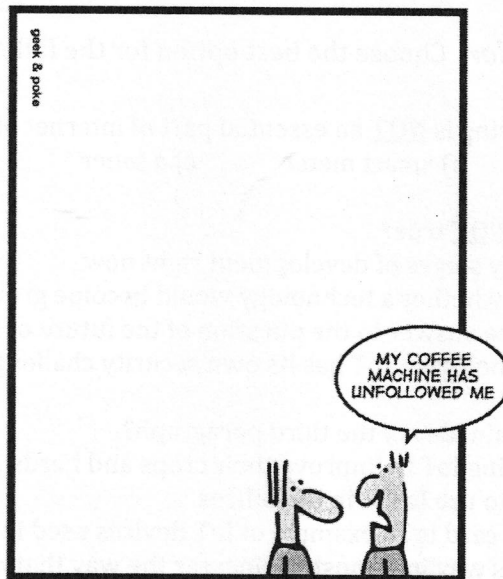


VOCABULARY PRACTICE

Practice A. Match the words on the left to their definitions on the right column.

- | | | |
|-------|--------------------|--|
| | 1. guarantee | a. usefulness; effectiveness |
| | 2. ground-breaking | b. a large group of animals of the same type that live |

.....	3. cattle	together
.....	4. adopt	c. follow the movements or trail of someone/thing
.....	5. infancy	d. innovative; pioneering
.....	6. herd	e. a situation that tests someone's abilities
.....	7. track	f. give
.....		g. a written promise to repair or change a product over a specific period of time
.....	8. monitor	h. having the ability
.....	9. assign	i. the time when someone is a baby or a newborn
.....	10. capable	j. choose to follow
.....	11. efficiency	k. observe
.....	12. challenge	l. cows and bulls that are kept for their meat and milk



THE INTERNET OF THINGS

Source: <https://www.ninjamarketing.it/2014/03/18/le-nuove-frontiere-delladvertising-dal-sxsw/>

Practice B. Now, read the sentences carefully and replace the italicized word(s) or phrase with an appropriate synonym from the text.

1. An anonymous message warned police to the possibility of a terrorist attack at the bus station.
2. The security device that was used to record the presence of the things in the room was not properly functioning.
3. The employees have been moved to the new department.
4. Unemployment and inflation are often the disadvantages of market economy.
5. These beautiful old towns have remained quite untouched by tourism.

Practice C. Complete the sentences with the correct word from the table.

Noun	Verb	Adjective	Adverb
guarantee	guarantee	guaranteed	—
challenge challenger	challenge	challenging challenged	challengingly
innovation innovator	innovate	innovative	innovatively

- The two must continue their fight until one can win the championship.
- The product costs €100, which includes shipment and a three-year
- Adolescents their parents' authority and are more influenced by their friends.
- This job offer includes insurance and a minimum income.
- To think means to create imagined worlds and to find solutions for any possible problems.



LANGUAGE FUNCTION: PAST TENSES IN A NUTSHELL

Past Simple

Verb Type	Statement	Negative	Interrogative
Regular	Subject + verb + ed <i>We help ed</i>	didn't + simple verb <i>We didn't help</i>	did + subject + simple verb <i>Did we help</i>
Irregular	Subject + changed verb <i>We went</i>	didn't + simple verb <i>We didn't go</i>	did + subject + simple verb <i>Did we go</i>

- talks about an action with short duration in the past:
*I **went** to the bank yesterday.*
- talks about a habit in the past:
*When I was a child, I usually **played** badminton with my friends in the backyard.*

Past Continuous

Pronouns	Statement	Negative	Interrogative
You, we, they (were)	was/were + verb + ing <i>We were helping</i>	was/were + not + verb + ing <i>We were not helping</i>	was/were + subject + verb + ing <i>Were we helping</i>
I, s/he, it (was)			

- expresses an action that continued for rather a long period in the past:
*I **was studying** English yesterday.*
- expresses an action that continued with a specified time period in the past:
*From nine to eleven p.m. last night, I **was watching** TV.*
- expresses two actions that were happening at the same time in the past:

They **were drinking** coffee while Mason **was washing** the dishes.

4. expresses an action that was happening before a simple past action:

Mary **was passing** the street when someone stopped her and asked for direction.

Past Perfect

Pronouns	Statement	Negative	Interrogative
I, you, s/he, it, we, they	had + past participle <i>Had gone</i>	had + not + past participle <i>Had not gone</i>	had + subject + past participle <i>Had they gone</i>

1. expresses an action that happened and finished before any other action in the past. There are some time expressions that signal the use of past perfect:

Sentence 1 (past perfect) <i>They had finished the dinner</i>	before	Sentence 2 (simple past) <i>she arrived.</i>
After	Sentence 1 (past perfect), <i>They had finished the dinner,</i>	Sentence 2 (simple past) <i>she arrived.</i>
Sentence 1 (past perfect), <i>They had gone</i>	by the time	Sentence 2 (simple past) <i>Tim got home</i>
When	Sentence 1 (simple past), <i>Tim got home,</i>	Sentence 2 (past perfect) <i>They had gone.</i>

Note: If the two actions happened at the same time in the past only simple past is used before and after 'when.'

Past Perfect Continuous

	Statement	Negative	Interrogative
I, you, s/he, it, we, they	had + been + verb + ing <i>Had been waiting</i>	had + not + been + verb + ing <i>Had not been waiting</i>	had + subject + been + verb + ing <i>Had they been waiting</i>

1. emphasizes the continuous nature of an action that happened before any other action in the past: *I **had been waiting** for you for an hour when you **arrived**.*

LANGUAGE FUNCTION



Practice A. Read the two sentences in each part and decide which action happened first. Then use one of the time expressions (i.e., after, before, when, or by the time) to connect the sentences. It might be possible to use more than one time expression for some of the sentences.

- The tornado occurred. The weather forecast on TV warned the people to expect it.
.....
- About two third of the students handed in their answer sheets. I arrived at the exam hall.

-
3. Unfortunately, they froze to death. The police found them.
-
4. Sam called me to talk about the project. I finished my cup of tea.
-

Practice B. Read the following text and fill in the blanks with the correct form of the verbs in the parentheses.

- The lights (go) out as we (discuss) the plans for the birthday party.
- While the woman (get) out of the car, the driver suddenly (move).
- This morning, while I (walk) past the supermarket, I (notice) something strange hanging from the roof.
- Last week, my friend and I (decide) to visit Masouleh. When we (arrive), there (be) hundreds of people walking up and down the narrow streets, buying gifts and souvenirs. As we (move) toward the center of the town, we (stop) one of the locals and (ask) him what (happen). He (tell) us that at that time of the year the town (be) usually filled with tourists from all over the country and abroad.
- By the time they left the town, the mechanic (repair) the car.
- After they (open) the door, they saw the room was a complete mess.
- Linda and John (wash) the car when it (start) to rain. They (put) everything away and (run) into the house where their mother (make) cookies.



VERB CONSTRUCTION AND PRACTICE

Although it is not always possible to identify a verb by its form, some word-endings (suffixes) can show that the word is probably a verb. These suffixes include:

-ize/ise:	apologize, authorize, generalize, compromise
-ify:	amplify, classify, codify, purify
-ate:	accumulate, communicate, associate, populate
-en:	awaken, brighten, broaden

Add appropriate suffixes to the words listed in the table on the next page to turn them into verbs. Then use the verbs to complete the sentences that follow.

Word	Verb	Word	Verb
loose		recognition	
concentration		proliferative	
soft		generative	
comprised		evacuation	

1. Selling food will increase the club's ability to income.
2. It is hard to focus and, but it is a skill that can be learned.
3. Doctors are trained to the symptoms of different diseases.
4. The screws holding the bed together had
5. Small businesses have in recent years.
6. A thousand people were from their homes following Hurricane Irma.
7. The higher the concentration of these minerals, the more sodium needed to the water.
8. The course is of nine lectures and five seminars on mechanical engineering.

WRITING ESSENTIALS



The overall structure of a paragraph was introduced in the previous chapter. Here, the first part of a single paragraph, i.e. the *topic sentence*, will be discussed.

As discussed in the previous chapter, the topic sentence presents the main idea of the paragraph by showing the focus of the text and highlighting what the paragraph talks about. Although the topic sentence can be anywhere in a paragraph, in academic essays, it is usually at the beginning of each paragraph.

Every topic sentence has a *topic* and a *controlling idea*. While the topic tells readers what your paragraph is about, the *controlling idea* indicates what is going to be said about the topic. For example, if the topic sentence is, '*Researchers encounter many difficulties when conducting an experiment*,' the topic is 'conducting an experiment' and the controlling idea is 'many difficulties.'

WRITE IT UP (SELF PRACTICE)



Read the following topic sentences and try to identify the topic and controlling idea.

1. Topic Sentence: There are many reasons why cookies and confectionaries in this town are considered the best in the world.
Topic: Controlling idea:
2. Topic Sentence: Violence in sport stadiums can be attributed in part to the lack of adequate social understanding.
Topic: Controlling idea:
3. Topic Sentence: Redesigning a house requires a good taste of architecture.
Topic: Controlling idea:
4. Topic Sentence: Studying in a well established university is important for a number of reasons.
Topic: Controlling idea:
5. Topic Sentence: Being an effective teacher requires certain skills and qualities.
Topic: Controlling idea:



VOCABULARY SELF STUDY

Word	Pronunciation	Word	Pronunciation
Adopter	/ə'dɒptə/	Ground-breaking	/'graʊnd,breɪ.kɪŋ/
Appliance	/ə'plaɪ.əns/	Guarantee	/,ɡer.ən'ti:/
Assigned (adj)	/ə'saɪnd/	Implant	/ɪm'plænt/
Capable	/'keɪ.pə.bəl/	Infancy	/'ɪn.fən.si/
Cattle	/'kæt.əl/	Innovation	/,ɪn.ə'veɪ.fən/
Challenge	/'tʃæl.ɪndʒ/	Monitor (n-v)	/'mɑ:.nə.tə/
Crops	/krɒ:ps/	Relatively	/'rel.ə.tɪv.li/
Cyber crime	/saɪ.bə,kraɪm/	Target	/'tɑ:r.ɡɪt/
Downside	/'daʊn.saɪd/	Toner	/'təʊ.nə/
Efficiency	/ɪ'fɪf.ən.si/	Tracking	/'træk.ɪŋ/
Ensure	/ɪn'ʃʊr/	Unveil	/ʌn'veɪl/
Fix (n)	/fɪks/	Use-by date	/'ju:s,bai,det/

CHAPTER 3

Gamification

In this chapter, you will

- read about gamification,
- learn about how some punctuation patterns can help you get the meaning of the unknown words,
- increase your knowledge of future tenses in English grammar,
- learn about the role of supporting sentences in a paragraph, and
- learn some general and technical vocabularies.

Gamification



TUNE IN FOR THE READING

Reading Strategy 3: PUNCTUATION PATTERNS

As discussed earlier, the meaning of the words in a text can be inferred and guessed using contextual clues one type of which includes 'punctuation patterns.' They can help you understand the reading by offering hints to the meanings of vocabulary items. Synonyms, short definitions, item descriptions, or examples are sometimes given between particular punctuation patterns. These include:

1. Quotation marks (" ")
2. Parenthesis ()
3. Dash (—)

Scan the text using the punctuation hints to find the meaning of the words listed below in the reading:

1. involvement
2. user
3. different ways of presenting in Prezi

.....

.....

.....

Visual Hints

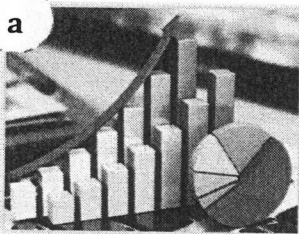
Look at the following pictures. Try to match each picture with the relevant action or noun from the box below.

Accumulate

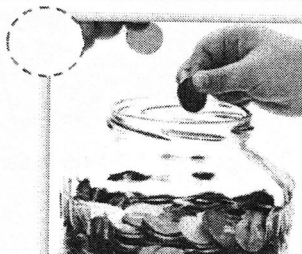
Campus

Statistics

a



.....

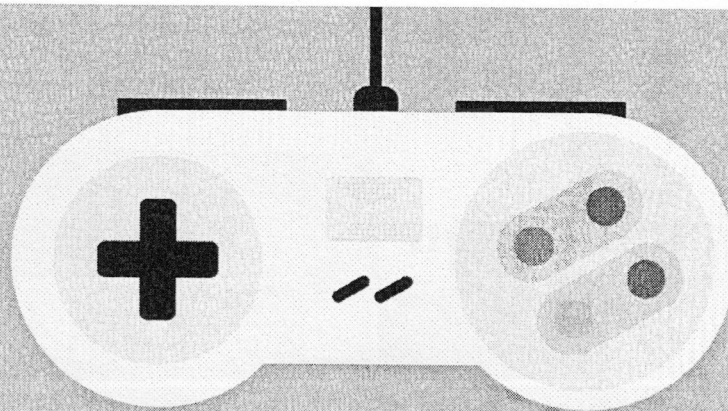


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c



.....



READING



Gamification

Part 1

The increasing popularity of games and the use of them in business and education are not at all surprising. Games are an important part of our life, and everyone plays them; whether it is with a console or mobile, or in the offline world.

The concept of gamification and its techniques in non-gaming environments is a fast *emerging* practice in business. The use of gamification tools and methods has also the potential to benefit educators and project managers from all industries because of their *fundamental* potential to shape and influence customer/user behavior.

/ɪ'mɜː.dʒɪŋ/

/ˌʌn.də'men.təl/

Game or Gamification?

Gamification stems from computer games industry and refers to the use of game elements outside games in order to *engage* users and solve problems. A full game is not Gamification. Gamification does not offer a whole gaming experience, but some game elements are used.

/ɪn'geɪdʒ/

Within the past decade, a growing number of organizations have been using gaming techniques and game-style rewards in order to motivate employees and customers. This growing popularity of gamification has been *facilitated* by the increased availability of appropriate technology such as smartphones and tablets, which can support a gamification environment. The main benefits of gamification include: increased engagement, higher motivation levels, increased interaction with the user (customer or employee), and greater loyalty.

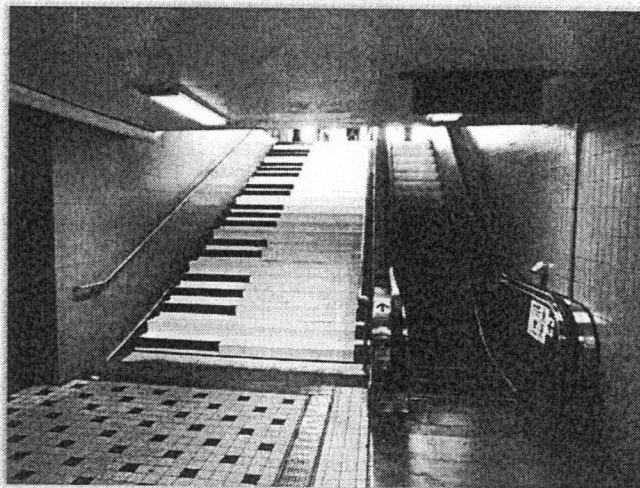


Figure 3.1. A Subway in Germany (Source: KJ Vogelius)

/fə'sɪl.ə.tet/



TECHNICAL CHECK 1

A. Recalling Information. Choose the best option for the following items.

1. Gamification means
 - a) providing users with the experience of real games to increase their engagement.
 - b) giving rewards to gaming employees to motivate them.
 - c) using features of real games to increase user involvement and solve problems.
 - d) facilitating the appropriate use of games in relevant technologies such as smart phones.
2. Which of the following is **NOT** among the main advantages of gamification?
 - a) greater customer loyalty
 - b) increased technology availability
 - c) greater employee interaction
 - d) increased number of users
3. The reason gamification works well in almost every discipline is that it
 - a) is popular in education and business.
 - b) is a fast emerging concept.
 - c) shapes users' behavior.
 - d) enables users to earn points.

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. Gamification has its roots in computer engineering.
2. Gamification refers to the use of gaming features in a game environment.
3. Deciding on which game elements to use in gamification is the main task of a project manager.

Part 2

Why are People Interested in Gamification?

Software provider Bunchball has described the attraction of gamification in a very interesting way: two people playing monopoly every day for a week would get bored very quickly, but if you add in another element—statistics—it starts to take on another *dimension*. How many times each person won, which properties were most profitable, how much money each player *accumulated*; all these elements add another level to the game. The statistics become the game and people want to outplay each other. It is the *excitement* created by the collection of a number of statistics, and the use of those statistics, that can *encourage* people to do tasks they would ordinarily consider uninteresting or repetitive. It is this use that has created a high level of interest within business and education worlds.

There are four main areas under gamification. The understanding and correct use of these four areas together produce an environment in which engagement, loyalty, and motivation will grow. The four areas are:

/,dɪ(aɪ)'men.ʃən/
/ə'kju:.mjə.leɪt/

/ɪk'saɪt.mənt/
/ɪn'kɜ:.ɪdʒ/



Figure 3.2. Sample Gamification Badges (Source: The TransPerfect E-Learning & Development Group)

- Points: something for 'players' to earn,
- Rewards: something for 'players' to spend their earned points on,
- Badges: something to show others the success 'players' have achieved, and
- Leader boards: a method of gaining real-time feedback which is visible to everyone.

/bædʒ/

A good example of Gamification in action is the start-up PromiseUp. The app offers people the possibility to turn every promise they make into a bet e.g., plans to eat healthier or to exercise every week. By turning it into a bet with their friends, PromiseUp users can earn badges and points. The adding of game elements to a specific goal makes it a lot more fun to achieve personal goals.

TECHNICAL CHECK 2



A. Recalling Information. Choose the best option for the following items.

1. To increase user loyalty and engagement, a gamification environment needs to
 a) offer users points, rewards, and success markers.
 b) focus on user progression to the next level.
 c) promote users to outplay each other.
 d) provide users with statistics on their service.
2. Which of the following statements is **NOT** true about PromiseUp?
 a) The app uses gamification to promote user engagement and competition.
 b) The app turns bets into badges and points.
 c) PromiseUp is a weight loss start-up app.
 d) App users try to have a healthy life style.
3. The immediate reaction to users' action and success is provided by
 a) points b) rewards c) badges d) leader boards

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. It is the excitement resulting from collecting statistics about a task that promotes gamification in different industries.

.....

2. Statistics can promote excitement, which in effect makes people do things that otherwise might find them uninteresting.
3. Adding game elements to a particular objective increases the possibility of success.

Part 3

/æm'bæs.ə.də/
/a:l'tɜː.nə.tɪv/

Another interesting example of gamification is Prezi *Ambassador* Program. Prezi is a popular *alternative* to Microsoft PowerPoint. Because the service is online and offers a completely different way of presenting—zooming or turning pictures instead of regular slides—it has certain advantages compared to PowerPoint. Many people have probably used Prezi at least once.

However, because it works completely different from Microsoft PowerPoint, it is a big challenge to get the general public to use Prezi. Therefore, an important target is students, at colleges as well as universities. If they are used to work with Prezi, there is a good chance they will continue to do so when they work at a company.

/'kæm.pəs/

To reach this group, Prezi has started the Prezi Ambassador Program. Students from all over the world can apply for an unpaid position as Prezi Ambassador for their campus. There is only one Ambassador per campus. Ambassadors write a plan to make Prezi popular on their *campus*, for example by doing presentations and workshops for other students. These activities will earn them points. Moreover they compete against each other for big prizes like a trip to the Prezi offices in San Francisco and Budapest. Also, the work experience looks good on their resumes and sometimes it is possible to earn college or university credits. The key game elements Prezi uses in this program are leader boards and points. This way Prezi uses Gamification to get students from all over the world to promote the service and collect new users.

In general, players are very involved with the games they play. This involvement—or engagement—is one of the great challenges in educations. Educational institutions could learn from games in this regard. Education might be the profession which can progress most by using Gamification techniques, because of the similarities between learning and gaming. In gaming, it is all about completing levels, obtaining certain skills, and similarly education focuses on progression to the next grade, passing exams, and gaining knowledge and skills. All these similarities to games considered, it should be a piece of cake to motivate and engage students².



TECHNICAL CHECK 3

A. Recalling Information. Choose the best option for the following items.

1. Which of the following is **NOT** true about a Prezi ambassador?
 - a) The ambassador can use Prezi full featured without payment.
 - b) The ambassador can promote Prezi by making presentations using the service.
 - c) The ambassador can win a college degree by earning points against other ambassadors.

² Some parts of this text have been adapted from *Association for Project Management* (2014) report on gamification.

- d) The ambassadors can strengthen their education/work resumes by this work experience.
2. The main challenge confronting Prezi is
 a) attracting public users' attention. c) offering a different way of presenting.
 b) promoting user competition. d) finding ambassadors to present service.
3. is considered as the main concern and challenge of education.
 a) Completing levels c) Obtaining certain skills
 b) Passing exams d) Achieving engagement

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. The real-time feedback feature in gamification can be inspirational for educational institutions to overcome their challenges.
2. Among various disciplines, education can take the most out of gamification due to the similarities between gaming and learning.
3. Prezi uses badges as the main game element.

VOCABULARY PRACTICE



Practice A. Match the numbered words from the reading selection to their definition in the column on the right.

.....	1. motivate	a. available as another possibility or choice
.....	2. emerging	b. a part, feature, or way of considering something
.....	3. fundamental	c. collect
.....	4. engage	d. a person who represents an activity or country
.....	5. dimension	e. to give support and confidence to someone
.....	6. accumulate	f. basic, of central importance
.....	7. encourage	g. gain money or something in return for a service
.....	8. feedback	h. participate or get involved in
.....	9. earn	i. a difficult task that tests someone's abilities
.....	10. alternative	j. reaction to someone's product or performance
.....	11. ambassador	k. provide someone with a reason for doing something
.....	12. challenge	l. becoming obvious or visible

Practice B. Complete the sentences with the correct word from the table.

Nouns	Verbs	Adjectives	Adverbs
concept conceptualization	conceptualize	conceptual	conceptually
emergence	emerge	emerging emerged	-
engagement	engage	engaging engaged	engagingly

1. He argued that morality could be as a series of principles based on human reason.
2. War with an superpower like China would mean World War Three.
3. The colorful patterns in his recent works marked the of a new approach in realistic painting.
4. I'm afraid, I have a previous so I cannot attend the meeting.
5. It is sometimes easier to illustrate an abstract by analogy with something concrete.



LANGUAGE FUNCTION: FUTURE TENSE IN A NUTSHELL

Future Simple

can be expressed using

1. Will + (Simple) Main Verb:
 - for actions that happen in the future:
*The next flight **will land** at 8:00 a.m.*
 - for future actions that are not previously planned, or for which decisions are made right now:
*A: I left my cell phone in your car. B: I **will bring** it for you.*
 - for type I conditional sentences to explain a future possibility:
*If you study carefully, you **will pass** the exam.*
2. To be Going to + (Simple) Main Verb:
 - for future actions that have been previously planned:
*We **are going to visit** Barcelona this summer.*
 - for future predictions for which there exist external signs and proofs at the moment of speaking:
*You are driving so fast and carelessly. We **are going to have** an accident.
Look at those dark clouds in the sky. It **is going to rain**.*

Future Continuous

can be expressed using will + be + Main Verb + ing

1. to show an action that will be in progress at a given time in the future:
*Don't call me tonight. I **will be studying** for the exam.*
2. to show an action that will continue to happen at different times:
*In this course, I **will be giving** surprise quizzes to my students.*

Future Perfect

is formed using will + have + past participle

- to express an action that will finish (for sure) at a specified time in the future:
*We **will have finished** building this mall by next January.*

Note: time expressions beginning with 'before,' 'by,' and 'in' are usually followed by this tense.

Future Perfect Continuous

is formed using will + have been + main verb + ing

- to emphasize the continuous nature of an action that will happen in future: *By tonight, I will have been working on this project for three days nonstop.*

LANGUAGE FUNCTION



Practice A. Fill in the blanks with the correct form of the verbs inside the parentheses.

1. My grandfather (to be) 70 next Thursday.
2. Just a moment. I (help) you with the bags.
3. We (fly) to Isfahan this October to attend a conference.
4. Watch out! You (hurt) yourself.
5. Look! They (wash) the car.
6. If she passes her driving license, she (buy) a car.

Practice B. Fill in the blanks with the correct future tense for the verbs inside the parentheses.

1. It (to snow) in Brighton tomorrow evening.
2. Do you think the teacher (to mark) our homework by Monday morning?
3. After you (to take) a nap, you (to feel) a lot better.
4. This summer, I (to live) in Brighton for four years.
5. I don't think you (to have) any problems when you land in Isfahan.
6. By the time we get home, they (to play) football for 30 minutes.
7. We (have) dinner at a seaside restaurant on Sunday.
8. When you (to get) off the train, I (to wait) for you by the ticket machine.
9. This time next week I (ski) in Switzerland!

WRITING ESSENTIALS



In addition to a topic sentence, a paragraph needs supporting sentences to develop the main idea. This is accomplished by offering examples, reasons, definitions, facts, descriptions, and explanations. The type of support you use for your topic sentence largely depends of the purpose of your paragraph. Keep in mind to always have your supporting sentences focused on the topic sentence to establish unity in the paragraph. Unrelated supporting sentences result in an unclear paragraph. Look at the following paragraph by Conlin (1983, p. 12). The numbered sentences are supporting the topic sentence:

I learned what it meant to be responsible for the consequences of my decisions only after I went to a weekend party when I should have studied for a math exam... ¹The consequences of my decision... were clear when I got back with a notice that I was on academic probation. ²I spent two semesters of almost steady studying before I

was back in good standing. ³Now, whenever I have a difficult decision to make, I remind myself, "If you get yourself into it, you'll have to get yourself out." It was a tough lesson, but I learned that making a decision means taking the responsibility for its consequences.



WRITE IT UP (SELF PRACTICE)

Read the list of sentences below and reorder them into a paragraph. Try to identify the type of support provided for the topic.

Compare two methods of teaching prepositions and explain which one is more successful

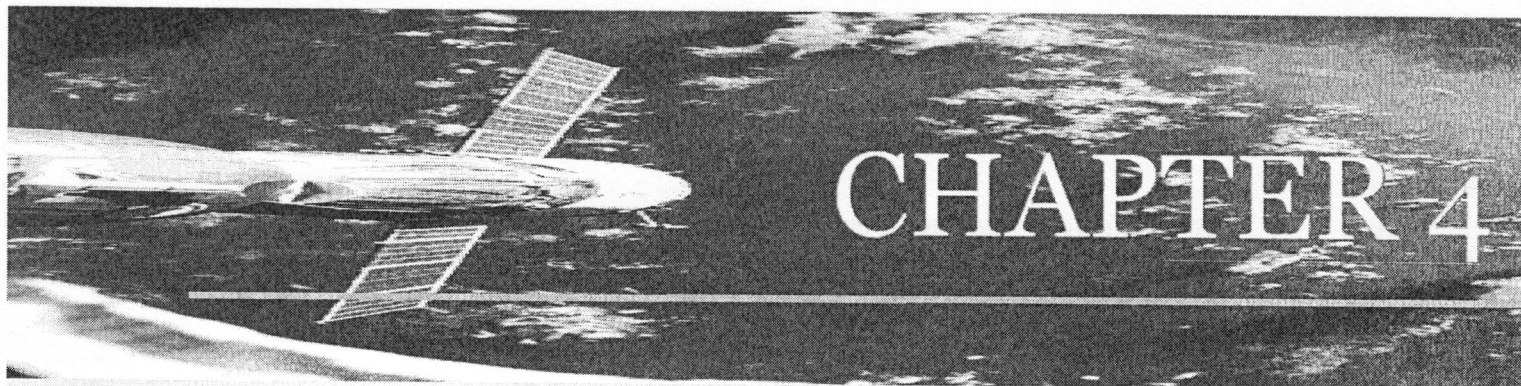
1. Such language differences make teaching of this area very difficult.
2. Another method takes a cognitive linguistics approach, in which prepositions are studied in relation to spatial relationships.
3. Using prepositions correctly in English is very difficult if English is not a person's first language.
4. The essay which follows gives a brief history of prepositional theory and compares the traditional and cognitive linguistics approaches, arguing that a cognitive linguistics approach helps students to understand the concepts underlying prepositions and so is more effective in helping students to use prepositions correctly.
5. Prepositions are small connecting words that do not necessarily exist in other languages, or may not have exactly the same meanings.
6. One popular teaching method relies on students learning combinations of nouns and prepositions.

Paragraph Source: Miller and Warner (2017)



VOCABULARY SELF STUDY

Word	Pronunciation	Word	Pronunciation
Accumulate	/ə'kju:mjələit/	Engagement	/in'geɪdʒmənt/
Alternative	/ɔ:l'tɜ:nətɪv/	Facilitate	/fə'sɪləteɪt/
Ambassador	/æm'bæsədə/	Feedback	/'fi:dbæk/
Appropriate	/ə'prəʊpɪət/	Loyalty	/'lɔɪəlti/
Badge	/bædʒ/	Motivate	/'mɒtɪveɪt/
Console	/kən'saʊl/	Outplay	/ˌaʊt'pleɪ/
Dimension	/ˌdaɪ'menʃən/ /ˌdɪ'menʃən/	Profession	/prə'feʃən/
Emerge	/ɪ'mɜ:dʒ/	Profitable	/'prɑ:fɪtəbəl/

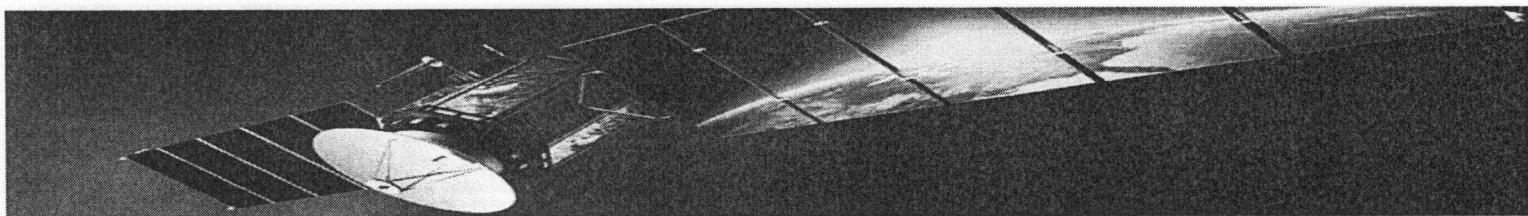


CHAPTER 4

Space Exploration

In this chapter, you will

- read about space exploration,
- learn how to use the scanning strategy for better comprehension of the reading passage,
- increase your knowledge of passive forms in English grammar,
- learn about minor supporting sentences in a paragraph, and
- learn some general and technical vocabularies.



TUNE IN FOR THE READING

Reading Strategy 4: SCANNING

Scanning is a strategy used for locating details and specific pieces of information in a piece of text without reading everything. Learning to use your hands while scanning is also very helpful in locating specific information. When your hand moves down a list of names, you see not only the name your finger is pointing to, but also the names above and below. Let your eyes work for you when searching for information. Keep the concept of *keywords* in mind while scanning. Use scanning technique to find out what each of the following dates and numbers refer to.

1957	
1970s	
3500	
1986	

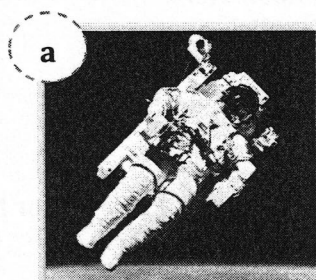
Visual Hints

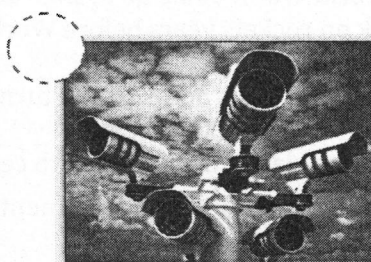
Look at the following pictures. Try to match each picture with the relevant word in the box below.

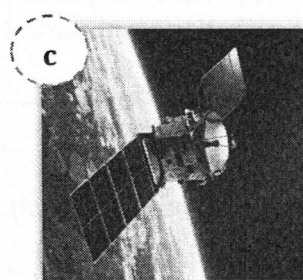
Surveillance

Satellite

Astronaut







Part 1

/æn'tɪk.wə.ti/

/ˈgræv.ə.ti/

/və'laɪ.sə.tiz/

/,saɪ.məl'teɪ.ni.əsli/

/siməl'teiniəsli/

/ˈmɪs.əl/

/a:r:tʃt/

1. It could be *inferred* from the text that
 - a) The Chinese were the first to launch rockets into space.
 - b) There were no space rockets before 1950.
 - c) Earliest work on space rocket engines occurred in different countries at the same time.
 - d) Human's dreams about space is not recent.
2. Which item is **NOT** true?
 - a) Nazis were the first to use rockets for military purposes.
 - b) V2 missiles could hit targets as far as 300 kilometers away.
 - c) The Nazi missiles in World War II could go as high as 90 Kilometers.
 - d) Nazis had started work on rockets years before World War II.
3. It was in the that the first rockets could turn around the Earth.
 - a) 1930s
 - b) 1940s
 - c) early 20th century
 - d) latter half of the 20th century

1. Nazis were the first in modern days to use rockets for military purposes.
2. Rockets developed in the first half of the 20th century were strong enough to escape the Earth's gravity.
3. Early 20th century's practical work on rocket engines designed for spaceflight occurred in Germany, the United States and Russia.

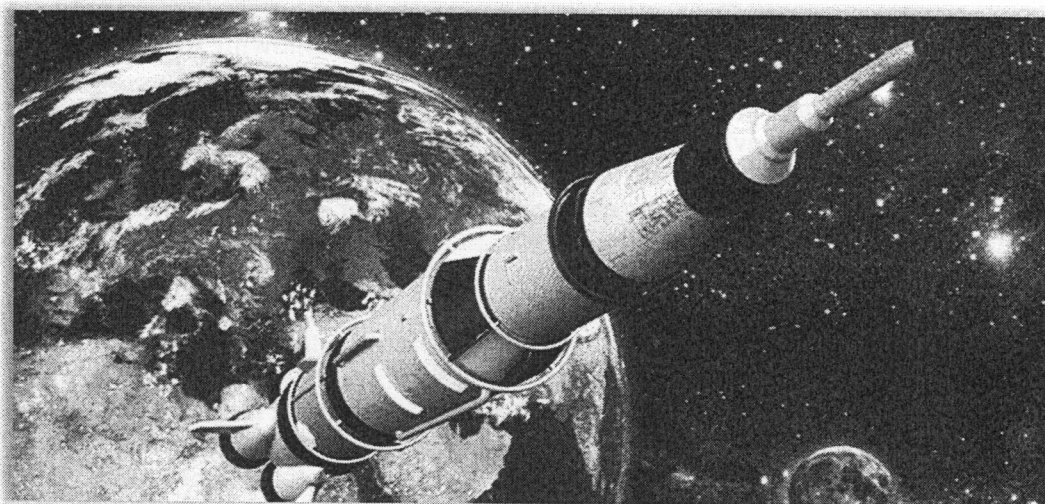


Figure 4.1. Commercial Space Exploration. (Source: <https://itac.nyc.commercial-space-exploration-next-frontier-manufacturers/>)

Part 2

After World War II, the United States and the Soviet Union created their own *missile* programs. On October 4, 1957, the Soviets launched the first artificial satellite, Sputnik 1, into space. Four years later on April 12, 1961, Russian Lt. Yuri Gagarin became the first human to orbit Earth in Vostok 1. His flight lasted 108 minutes, and Gagarin reached an altitude of 327 kilometers (about 202 miles).

The first U.S. satellite, Explorer 1, went into orbit on January 31, 1958. In 1961 Alan Shepard became the first American to fly into space. On February 20, 1962, John Glenn's historic flight made him the first American to orbit Earth.

'Landing a man on the moon and returning him safely to Earth within a decade' was a national goal set by President John F. Kennedy in 1961. On July 20, 1969, *astronaut* Neil Armstrong took "a giant step for mankind" as he stepped onto the moon. Six Apollo missions were made to explore the moon between 1969 and 1972.

During the 1960s unmanned spacecraft photographed and probed the moon before astronauts ever landed. By the early 1970s, orbiting communications and navigation satellites were in everyday use, and the Mariner spacecraft was orbiting and mapping the surface of Mars. By the end of the decade, the Voyager spacecraft had sent back detailed images of Jupiter and Saturn, their rings, and their moons. Skylab, America's first space station, was a human-spaceflight highlight of the 1970s, as was the Apollo Soyuz Test Project, the world's first internationally *crewed* (American and Russian) space mission.

TECHNICAL CHECK 2



A. Recalling Information. Choose the best option for the following items.

1. It is **NOT** true that
 - a) The US and the Soviet Union had a very strong competition in their space programs.
 - b) Russia was ahead of the US in many spaceflights.
 - c) It took Americans 8 years to carry out their plan for stepping on the moon.
 - d) Armstrong's flight was America's first attempt to study the moon.
2. Which item is **TRUE**?
 - a) The best use of communication satellites were made in the 1980s.
 - b) The first satellites were launched in the late 1950s.
 - c) Before 1970s, Russia and the US had started cooperation rather than competition.
 - d) By the early 1970s, spacecrafts were probing different planets in the galaxy.
3. The Mariner Spacecraft had sent back images of by the end of the late 1970s.
 - a) The Moon
 - b) Jupiter
 - c) Saturn
 - d) Mars

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. John Glenn's historic flight made him the first human to orbit Earth.
2. Over time, space exploration changed competition to cooperation between the US and Russia.
3. The International Space Station is a symbol of cooperation in space exploration among countries.

Part 3

In the 1980s, satellite communications expanded to carry television programs, and people were able to pick up the satellite signals on their home dish antennas. Satellites discovered an ozone hole over Antarctica, pinpointed forest fires, and gave us photographs of the nuclear power-plant disaster at Chernobyl in 1986. Astronomical satellites found new stars and gave us a new view of the center of our *galaxy*.

In April 1981, the launch of the space shuttle Columbia led to a period of *reliance* on the reusable shuttle for most civilian and military space missions. Twenty-four successful shuttle launches fulfilled many scientific and military requirements until January 1986, when the shuttle Challenger exploded after launch, killing its crew of seven.

The Challenger tragedy led to a reevaluation of America's space program. The new goal was to make certain a suitable launch system was available when satellites were *scheduled* to fly. Today this is accomplished by having more than one launch method and launch facility available and by designing satellite systems to be compatible with more than one launch system.

/ˈgæl.ək.si/
/rɪˈlaɪ.əns/

/ˈskedjuːld/

/sə'veɪ.ləns/

The Persian Gulf War proved the value of satellites in modern conflicts. During this war allied forces were able to use their control of the “high ground” of space to achieve a decisive advantage. Satellites were used to provide information on enemy troop formations and movements, early warning of enemy missile attacks, and precise navigation in the featureless desert terrain. The advantages of satellites allowed the coalition forces to quickly bring the war to a conclusion, saving many lives.

Space systems will continue to become more and more integral to homeland defense, weather *surveillance*, communication, navigation, imaging, and remote sensing for chemicals, fires and other disasters³.



TECHNICAL CHECK 3

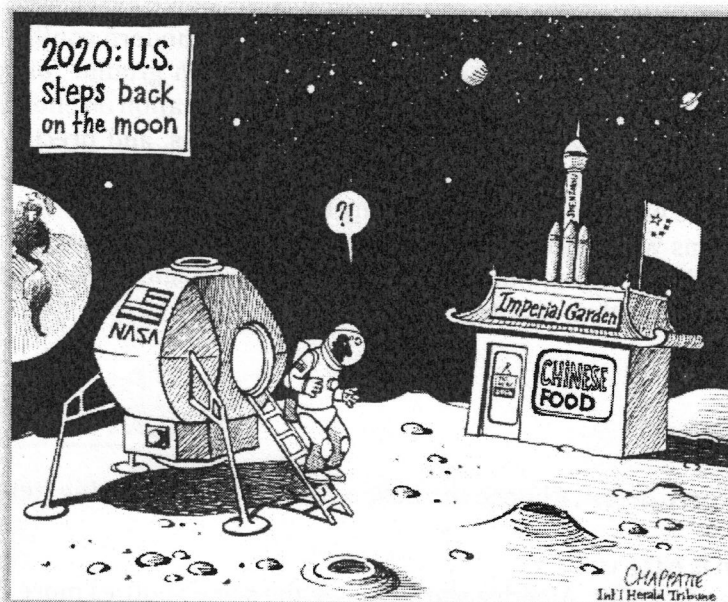
A. Recalling Information. Choose the best option for the following items.

1. Which item is **NOT** true?
 - a) In the early 1980s, America started using the same shuttles more than once.
 - b) The Challenger explosion made America revisit its plan for its space program.
 - c) In the 1980s, America made its satellites compatible with more than one launching systems.
 - d) The Persian Gulf War was probably the first example of the applications of satellites in modern conflicts.
2. It can be *inferred* that before 1981
 - a) satellites discovered an ozone hole over Antarctica.
 - b) shuttles were used several times for military missions.
 - c) shuttles were used just once.
 - d) the crew of Challenger were killed in an accident.
3. Which one is **NOT** mentioned among the non-military developments of satellites during 1980s?
 - a) Satellites carried television programs
 - b) Satellites found forest fires.
 - c) Astronomical satellites found new stars.
 - d) Satellites started to orbit the Earth

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. The Challenger accident was a turning point in America's space program.
2. During the Persian Gulf War, the allied forces' satellites navigated the enemy troops in the featureless desert.
3. The first photographs of the center of our galaxy were taken by the Voyager shuttle.

³ Adapted from Rozsascience (2015).



Source: <https://www.freedomspheonix.com/News/News-Link.htm?SeekNo=089342&EdNo=001>

VOCABULARY PRACTICE



Practice A. Go through the text and find a word or phrase which is synonymous to the words underlined in the following sentences.

1. Since ancient times, scientists have been interested in unification of human knowledge of nature.
2. Are you supposed to press these two buttons at the same time?
3. The Tyson-Douglas fight was one of the most memorable events in the boxing history.
4. Rescue teams have now determined the location of the ship.
5. The Parliament is examining claims of election fraud.
6. Even during war, life must go on for non-militants.
7. The terrorists had been kept under constant watch by our officers.
8. Can peace negotiations bring an end to years of combat?
9. This mission needs to be carried out in secret.
10. Write a comprehensive account of what happened during that period of the activity.

Practice B. Complete the sentences with the correct word from the table.

Noun	Verb	Adjective	Adverb
exploration explorer	explore	exploratory	—
accomplishment	accomplish	accomplished	—
precision	—	precise	precisely

1. Shiraz is a wonderful city to
2. It is difficult to know how much impact the changes will have.
3. His two daughters are both athletes.
4. The work is done with consistency and
5. This organization is giving dinner for top businesswomen to reward and recognize their



LANGUAGE FUNCTION: PASSIVE FORMS IN A NUTSHELL

What is Passive Voice?

English sentences are either *active* with the subject at the beginning of the sentence, or *passive* with the object at the beginning. In a passive voice sentence, the focus is on *the action* or what happened rather than who or what performed that action.

Active Voice	Subject	Verb	Object
	<i>Dean</i>	washed	<i>his car.</i>
Passive Voice	Object	Verb	(Subject)
	<i>The car</i>	was washed	<i>(by Dean).</i>

When using passive voice keep in mind that:

1. Only transitive verbs with an object can be turned into passive.
2. Passive verbs all have two features: (1) one form of *to be* verb and (2) past participle form of the main verb.
3. The doer of the action is not usually mentioned, but if it is needed, it appears after 'by' or 'with' at the end of the sentence.

Tense	Active Voice	Passive Voice
Simple Present	<i>washes</i>	<i>am/is/are washed</i>
Simple Past	<i>washed</i>	<i>was/were washed</i>
Simple Future	<i>will wash</i>	<i>will be washed</i>
Present Continuous	<i>am/is/are washing</i>	<i>am/is/are being washed</i>
Past Continuous	<i>was/were washing</i>	<i>was/were being washed</i>
Present Perfect	<i>has/have washed</i>	<i>has/have been washed</i>
Past Perfect	<i>had washed</i>	<i>had been washed</i>
Future Perfect	<i>will have washed</i>	<i>will have been washed</i>



LANGUAGE FUNCTION

Practice A. Fill the gaps with the correct verb tense in passive form.

1. America (discover) by Columbus in 1492.

2. Where is my car? It (repair) at this very moment.
3. The Sales Department (run) by Dr. Rahimi.
4. Most of the world's rubber (produce) in Asia.
5. By the time we arrived, the thief (catch) by the police.
6. Unfortunately, all the flights (cancel) due to the heavy snow, so I can't go to Tabriz.
7. They promised that the goods (ship) tomorrow.
8. That old building (demolish) by 2 p.m. tomorrow.
9. Last week, I (inform) about these problems.
10. She was not satisfied with the product so she (offer) a refund.

Practice B. Find the mistakes and correct them.

1. Our website was designing by a small company.
.....
2. Last month a few dozen employees have fired.
.....
3. When we arrived, our luggage had already taken to our room.
.....
4. The meeting holds in his office next week.
.....
5. Damaged goods cannot being returned.
.....
6. What would you answer if you were asking that question?
.....
7. Spanish is speaked in many countries in South America.
.....
8. The machine is out of order and has repaired.
.....
9. The spare parts have ordered yesterday.
.....
10. The thief was caught with the help of citizens.
.....

Practice C. For each sentence, choose either the active or the passive form of the verb.

1. Michael Schumacher (drive) for Ferrari in 2003.
2. In the UK, everyone (drive) on the left.
3. The Hamshahri newspaper (read) by many people in Iran.
4. The thieves (steal) the diamond last week.
5. This letter (should/type), not handwritten!
6. Millions of dollars' worth of damage has been caused by a storm which (sweep) across the north of the United States last night.
7. The River Karoon (burst) its banks after heavy rain.
8. Wind speeds (reach) ninety miles an hour in some places.
9. Electricity lines (bring) down, leaving thousands of homes without electricity.
10. One young girl (take) to hospital after she broke her leg.



ADJECTIVE CONSTRUCTION AND PRACTICE

Like nouns and verbs, adjectives can be identified by specific suffixes. These suffixes are referred to as adjective making suffixes. The following table lists the most common adjective-making suffixes.

Common Adjective-Making Suffixes and Examples			
-able/ible	visible, valuable	-ic	basic, sympathetic
-al	original, typical	-ing	boring, frightening
-ant	reliant, significant	-ish	Irish, stylish
-ary	primary, secondary	-ive	excessive, productive
-ed	bored, coordinated	-ous	ambiguous, enormous
-ent	efficient, persistent	-y	cheery, noisy, rainy
-ful	resourceful, stressful	-less	effortless, helpless
-ly	friendly, lovely	-ian	Iranian, African

Add appropriate suffixes to the words listed to make adjectives. Then use the adjectives to complete the sentences below.

Word	Adjective
amazement	
fame	
thrill	
differ	
spontaneity	
power	

1. This car is from any other car in the market.
2. The city is a World Heritage Site and is for its classical music.
3. His jokes seemed, but were in fact carefully prepared beforehand.
4. It is how long this man can hold his breath and work hard underwater.
5. It was a experience to see the boats afloat over the stream.
6. The radiation would be at least 50 times above normal, enough to kill exposed life.



WRITING ESSENTIALS

In the previous chapter, we discussed supporting sentences and their role in the paragraph. In this chapter, we want to focus on the type of supporting sentences or details one can offer to the reader in a paragraph. Keep in mind that there are two kinds of details or supports: major and minor.

The topic sentence and its major supporting details form the basic structure of a simple paragraph. While the major details explain and develop the topic sentence, the minor details expand the major supporting sentences. Consider the following example. The first sentence is the topic sentence. The italicized ones are major supporting sentences. And the numbered ones are the minor supporting details.

Studies reveal that people's first names can have an influence on them. Some names reflect on people in a positive way. ¹ For example, one survey showed that American men consider the name Susan to be very common. ² And participants in a British study thought Tony to be the name of someone very friendly. *However, other names can have a negative impact.* ¹ In one study, for instance, teachers gave lower grades to essay supposedly written by boys. ² Another study found girls with unpopular names did worse on IQ and achievement tests than girls with more appealing names.

Paragraph Source: *Ten steps to advancing college reading skills* by John Langan and Lynn Jenkins (1993, p. 14-37).

WRITE IT UP (SELF PRACTICE)



Read the following paragraph and identify the topic sentence, major supporting sentence(s), minor supporting sentences, and the reworded topic sentence. Write T (for the topic sentence), Ma (for major support), Mi (for minor support), and Re (for reworded topic sentence) in each blank.

Steps to Positivity in the Classroom

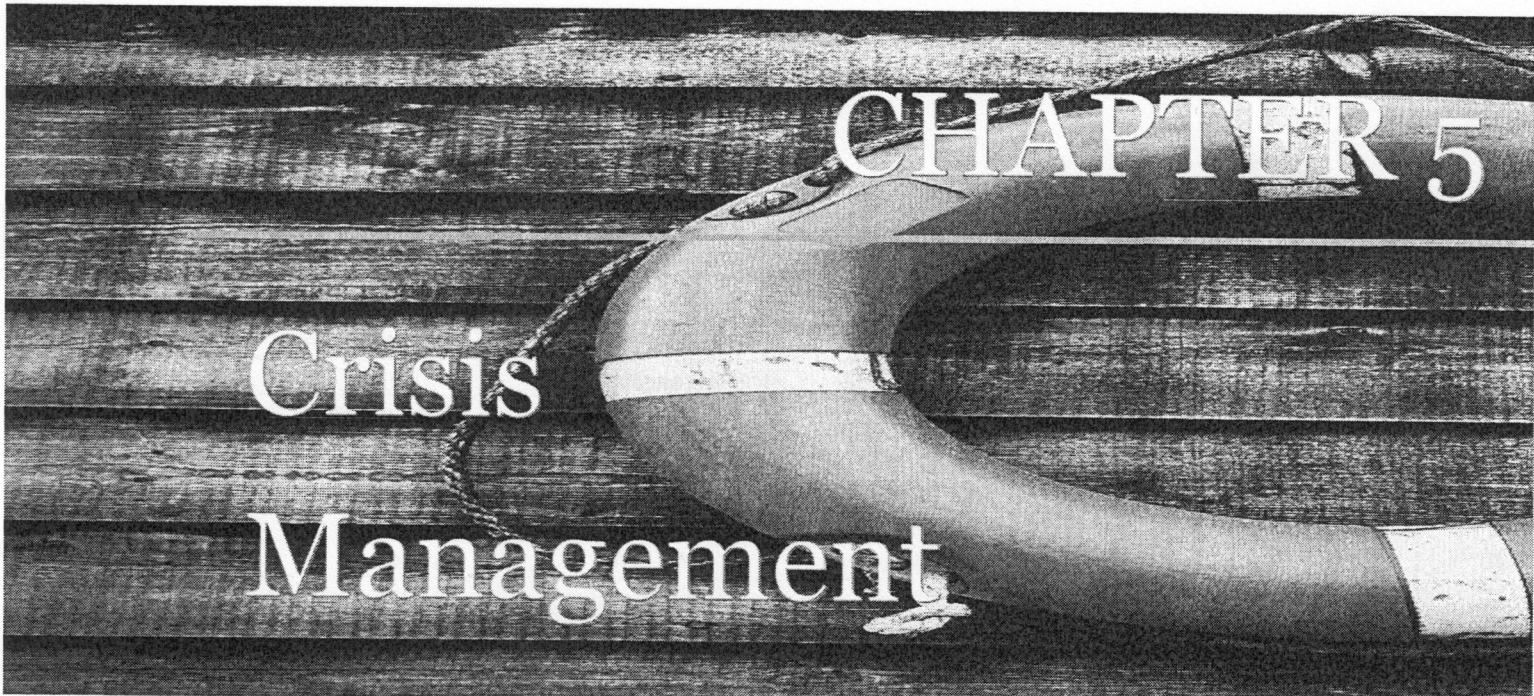
¹.....Success in college depends on many things, but one of the most important is having a positive attitude. ².....There are many ways to develop a positive outlook. You can try using encouraging self-talk to motivate yourself. ³.....For example, if you tell yourself that you are smart and can be successful, you are more likely to do well in your classes. ⁴.....Helping others to be successful is also a way of maintaining a positive attitude. ⁵.....When you see that college is not a competition, you will see success come to you and those who work closely with you. ⁶.....Finally, you can develop a positive attitude by viewing difficult situations as opportunities to grow. ⁷.....For example, if you are struggling in a class because the material is challenging, don't let yourself feel down about it. Instead, take action! ⁸.....Visit with your professor or form a study group. ⁹.....Getting help will enable you to learn the material and therefore do better in your class. ¹⁰.....By using encouraging self-talk, helping others, and utilizing difficult moments as an opportunity to grow, you will have the optimistic outlook that will enable you to succeed in college—and in life!

Paragraph	Source:	Major	and	Minor	Supporting	Details
http://content.nroc.org/DevelopmentalEnglish/unit03/Foundations/major-and-minor-supporting-details.html						



VOCABULARY SELF STUDY

Word	Pronunciation	Word	Pronunciation
Accomplish	/ə'kɑ:m.plɪʃ/	Lead (v)	/li:d/
Ally	/'æɪ.lɪ/	Long-distance	/ˌlɒŋ'dɪs.təns/
Altitude	/'æɪ.tə.tu:d/	Map (v)	/mæp/
Antarctica	/æn'tɑ:rk.tɪ.kə/	Military	/'mɪl.ə.ter.i/
Antenna	/æn'ten.ə/	Missile	/'mɪs.əl/
Antiquity	/æn'tɪk.wə.tɪ/	Mission	/'mɪʃ.ən/
Arch (v)	/ɑ:rtʃ/	Navigation	/'næv.ə.ɡert/
Artificial	/ˌɑ:r.tʃə'fɪ.əl/	Occur	/ə'kɜ:/
Astronaut	/'æs.trə.nɑ:t/	Orbit	/'ɔ:r.bɪt/
Attach	/ə'tætʃ/	Overcome	/ˌoʊ.və'kʌm/
Available	/ə'veɪ.lə.bəl/	Per	/pɜ:/ /pə/
Ceremonial	/ˌser.i'mou.ni.əl/	Pick up	/pɪk'ʌp/
Civilian	/sə'vɪl.jən/	Pinpoint	/'pɪn.pɔɪnt/
Coalition	/kou.ə'lɪʃ.ən/	Possibility	/ˌpɔ:s.ə'bɪl.ə.tɪ/
Communication	/kə'mju:.nə'keɪ.jən/	Power-plant	/'paʊ.ə.ˌplænt/
Compatible with	/kəm'pæt.ə.bəl wɪð/	Precise	/prə'saɪs/
Conflict	/'kɒn.flɪkt/	Probe	/praʊb/
Crew (n - v)	/kru:/	Range	/reɪndʒ/
Decade	/'dek.eɪd/ /dek'eɪd/	Reevaluation	/ˌri:ˌvælju'eɪʃən/
Decisive	/dɪ'saɪ.sɪv/	Reliance	/rɪ'laɪ.əns/
Defense	/dɪ'fens/	Remote	/rɪ'məʊt/
Design	/dɪ'zaɪn/	Requirement	/rɪ'kwəɪr.mənt/
Disaster	/dɪ'zæs.tə/	Reusable	/ˌri:'ju:.zə.bəl/
Exploration	/ˌek.splə'reɪ.jən/	Ring (n)	/rɪŋ/
Facility	/fə'sɪl.ə.tɪ/	Rocket	/'rɒk.ɪt/
Featureless	/'fi:tʃə.ləs/	Satellite	/'sæt.əl.aɪt/
Fulfill	/fʊl'fɪl/	Schedule	/'skedju:l/
Galaxy	/'gæl.ək.sɪ/	Shuttle	/'ʃʌt.əl/
Giant	/'dʒaɪ.ənt/	Simultaneously	/ˌsaɪ.məl'teɪ.ni.əsli/
Gravity	/'græv.ə.tɪ/	Spacecraft	/'speɪs.kræft/
Highlight	/'haɪ.laɪt/	Spaceflight	/'speɪs.flɑɪt/
Homeland	/'hoʊm.lænd/	Step onto	/step'ɑ:n.tu/
Integral	/'ɪn.tə.grəl/	Surveillance	/sə'veɪ.ləns/
Land (v)	/lænd/	Terrain	/tə'reɪn/
Latter	/'læt.ə/	Troop	/tru:p/
Launch	/lɑ:ntʃ/	Velocity	/və'lɑ:sə.tɪ/



CHAPTER 5

Crisis

Management

In this chapter, you will

- read about crisis management,
- learn about how prefixes can help you guess the meaning of the words in a text,
- increase your knowledge of parallel construction in English grammar,
- learn about how to make your paragraph a coherent one, and
- learn some general and technical vocabularies.

Crisis Management



TUNE IN FOR THE READING

Reading Strategy 5: PREFIXES

A *prefix* is placed at the beginning of a word to modify or change its meaning by adding particular meaning to the word to which it is attached. This is a list of some of the most common prefixes in English. Read the text carefully and find examples to fill the blanks in the following table.

Prefix	Meaning	Example	Prefix	Meaning	Example
a-, non-	without	anoxic	ex-	out, previous	extract
ab-	away, from	abnormal	hemi-	half	hemisphere
ante-	before	antecedent	hyper	more	hyperactive
anti-, ant-	opposite	antibiotic	un-, in-, im-, il-, ir-, dis-	negation	
com-, con-	jointly	converse	inter-	between	international
de-	down	decrease	pre-	before	
infra-	beneath		re-	again	
un-	negation	unimportant	under-	below	underdeveloped

Visual Hints

Look at the following pictures. Try to match each picture with the relevant noun from the box below.

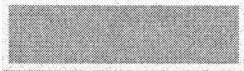
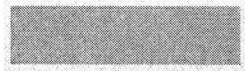
Landslide

Tsunami

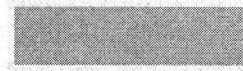
Flood

Tornado

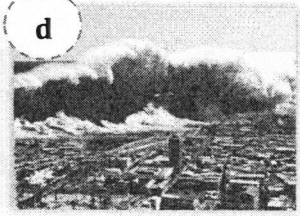
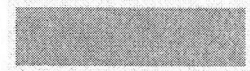
a



c



d



UNPREPARED

READING

Crisis Management

Part 1

What is a Crisis?

Crisis refers to a change, sudden or *evolving*, which causes a problem that must be addressed immediately. For a business, crisis is anything that causes serious damage to its employees or reputation. It usually has three main characteristics. First, it is the result of sudden disturbing events that harm people in a country, region, area, or an organization. Second, it generally takes place on a short notice. Third, it creates a feeling of fear and *threat* among the individuals.

/i'vɑ:lviŋ/

/θret/

There are limitless types of crises, but for better analysis, they are traditionally divided into two main types: industrial and natural crises. However, recently terrorist crises are also added to these groupings. Natural crises are created by acts of nature and are generally beyond the control of human beings. Some examples of natural crises include: earthquakes, *Tsunamis*, floods, tornadoes, and landslides. On the contrary, industrial crises are situations in which organized activities are the source of major damage to human life and natural and social environments. Such crises can range from wars to *bankruptcy* which happens when an organization fails to pay its debts.

/tsu:'nɑ:.mi/

/'bæŋ.krəpt.si/

Before they occur, the majority of crises send a set of early warning signals, which announce the possibility that a crisis will take place; these signals are sometimes very weak or hard to detect.

TECHNICAL CHECK 1



A. *Recalling Information.* Choose the best option for the following items.

1. Which one is **NOT** mentioned as an example of a crisis?
a) bankruptcy b) war c) landslide d) debt
2. Which one is **NOT** among the three necessary features of a crisis?
a) It is the result of sudden disturbing events that harm people.
b) It usually happens on a short notice.
c) It always causes death and injury to people.
d) It creates a feeling of fear and threat among the individuals.

3. It can be *inferred* from this text that
- Crises are traditionally divided into industrial and natural types
 - Industrial crises mostly intentionally happen due to human activities
 - Terrorist attacks are examples of industrial crises
 - Industrial crises cause damage to human life and social environments

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

- A crisis has no detectable signals.
- Industrial crises have caused more damage to humans than natural crises.
- The crises resulting from environmental factors which are beyond human control are called natural crises.

Part 2

What is Crisis Management?

Whatever the cause of the crises, it is generally accepted that exact solutions for a crisis cannot be *prescribed*; rather crises should be managed. Crisis management refers to the art of dealing with the negative impacts of unexpected events or situations on people, organizations, and countries in the best possible way. Crisis management approach depends on the crisis. For example, it can take the form of a routine financial control in a company for preventing unlawful activities.

The most important step in crisis management, however, is preparedness. Preparedness stands for developing a center for

- systematic analysis of possible threats, opportunities and future developments, which may bring about new risks, and
- the use of certain strategies to come out of crisis conditions and also decision on the future course of action

so that potential and developing threats may be known, examined, and *mitigated* as early as possible. As noted by the Institute for Public Relations (2007), "preparation involves creating the crisis response plan, selecting and training the crisis management team, and conducting exercises to test the plan and team". To be effective, crisis response plans should be flexible, identifying at the local level the number of people who might need emergency support, the number of hospital beds required, and safe evacuation roads in case of natural or terrorist crises. This information needs to be made available to the emergency services and those involved in crisis management.



TECHNICAL CHECK 2

A. Recalling Information. Choose the best option for the following items.

- The strategy which is picked up in crisis management depends on the
 a) crisis b) response plan c) preparedness d) infrastructure

2. To be effective, a crisis response plan should at the time of crises.
 - a) select and train crisis management team
 - b) examine possible threats
 - c) prevent unlawful activities
 - d) identify safe evacuation roads
3. Once the required information for devising effective crisis response plans is collected, it should be forwarded to
 - a) the training team
 - b) emergency services and committees
 - c) news agencies to inform people
 - d) the Ministries of Transport

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. Preparedness is the most important step in crisis management.
2. Crisis managers should get prepared for not only the crises but also future new risks.
3. One of the missions of crisis management committees is prescribing solutions for crises.

Part 3

Tehran Disaster Mitigation and Management Organization

An earthquake in Tehran is considered the most important threat to the Iranian capital as it could *severely* damage the city. For this reason, a special protection program for earthquakes was created by the Ministry of the Interior in 2005 with a committee for earthquake emergency preparedness including all the related agencies. This organization aims to: (1) increase the safety of the city by carrying out careful studies before the earthquake, (2) do necessary actions to increase the effectiveness of Tehran's crisis management system when a crisis happens to reduce the losses, and (3) manage *reconstruction* of the city after the crisis.

Source: Tehran Disaster Mitigation and Management Organization.

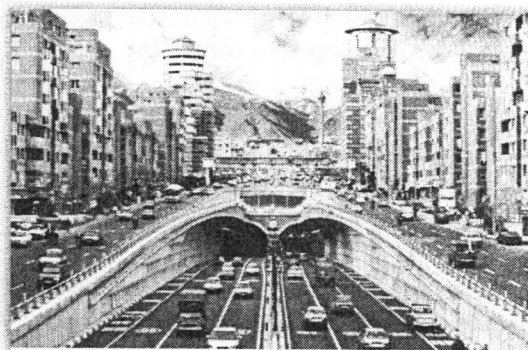


Figure 5.1. Navaab District Tehran

/sə'vɪr.li/

/,ri:.kən'strʌk.tʃən/

The System for the Analysis and Visualizing Risk Scenarios in Mexico (SAVER)

Developed in 2010, this system shows the efforts of the Mexican government to use risk information for *emergency* preparedness. The system collects risk maps and geographical information on weakness of hospitals, schools, public *infrastructure*, and population in one single database. Ministries like the Ministry of Social Development,

/'vɪʒ.u.əl.aɪz/

/ɪ'mɜ:.dʒən.si/

/'ɪn.frə'strʌk.tʃə/

the Ministry of Communications and Transport and the Ministry of Public Education have provided valuable data and information on their infrastructure in order to feed the system's database. Using this information, the system can create scenarios on potential damages and what populations may be affected based on disasters.

Source: National Disaster Prevention Center of Mexico (CENAPRED)



Figure 5.2. Palacio de Bellas Artes, Mexico City, Mexico (Image by Stockcam Getty Images)

Conclusion

The capability to manage crises should not be considered as an ability that can simply be achieved when needed. The development of the crisis management capability requires a systematic approach. Organizations, governments, and crisis management committees should actively learn from crises that affected other organizations and/or countries. In addition, recovery from crisis should be seen as an opportunity to restructure the affected area or organization rather than to return to previous normal situation; that is, moving toward a new normality.



TECHNICAL CHECK 3

A. Recalling Information. Choose the best option for the following items.

1. Reducing the losses of an earthquake in Tehran is the aim to be achieved by
 - a) empowering the crisis management system during the crisis.
 - b) managing the reconstruction of the city.
 - c) carrying out careful studies about the city structure.
 - d) providing valuable data on the city's infrastructure.
2. The main function of SAVER is
 - a) increasing the safety of the capital Tehran
 - b) collecting risk information on Mexico's population and infrastructure
 - c) doing research about the reasons of the pitfalls of Tehran's infrastructure
 - d) creating a map of Mexico's active faults and probable seismic areas
3. What is the best definition of crisis recovery proposed in this text?
 - a) returning to previous normal situation
 - b) learning from crises that affected other areas
 - c) constructing a new normality
 - d) managing the crisis-stricken area in the best way

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. Developing the ability to manage a crisis must be done according to a systematic method.
2. Tehran Disaster Mitigation and Management Organization has devised plans for before-, during-, and after-earthquake period.
3. The capability to manage crises can be developed when needed.

VOCABULRY PRACTICE



Practice A. Match the numbered words from the reading selection to their definition in the column on the right.

- | | | |
|-------|-------------------|---|
| | 1. prescribe | a. very seriously |
| | 2. evacuation | b. able to change or be changed easily according to situation |
| | 3. evolving | c. a suggestion that something unpleasant or painful will happen |
| | 4. severely | d. advise and authorize the use of (a medicine or treatment) for someone |
| | 5. reconstruction | e. developing gradually |
| | 6. landslide | f. way of doing something |
| | 7. disaster | g. the process of moving people from a dangerous place to somewhere safe |
| | 8. flexible | h. a sudden accident or a natural catastrophe that causes great damage |
| | 9. approach | i. a mass of rock and earth moving suddenly and quickly down a steep slope |
| | 10. threat | j. the process of building or creating something again that has been damaged or destroyed |

Practice B. Complete the sentences with the correct word from the table.

Noun	Verb	Adjective	Adverb
system	systematize	systematic	systematically
manager management	manage	managed managerial	managerially
prescription	prescribe	prescribed	—

1. The responsibilities of the head of the department were so great that he could not pay enough attention to his family.
2. The manufacturing processes in the factory need to be in order to be thoroughly compatible with the safety guidelines.

3. This first aid booklet is a good to reduce casualties during earthquakes.
4. He decided to continue his education in the field of
5. If you want to export crops and other products, they must meet internationally standards.



LANGUAGE FUNCTION: PARALLEL CONTRUCTION IN A NUTSHELL

What is Parallel Construction?

Parallel ideas need to be presented in parallel grammatical forms or constructions i.e., each part of a sentence uses the same grammatical structure to indicate that the ideas are equally important. Parallel structures are usually joined with coordinating conjunctions such as 'and' or 'or'.

Examples of Parallel Construction

And/or

- **Incorrect:** My parents always wanted me to get good education and doing my best to achieve my goals.
- **Correct:** My parents always wanted me to get good education and do my best to achieve my goals.

Between and And

- **Incorrect:** They put up a fence between their house and what appeared to be their neighbor's property.
- **Correct:** They put up a fence between their house and their neighbor's property.

Both and And

- **Incorrect:** His results, derived both from research and observation, are critical for the project.
- **Correct:** His results, derived from both research and observation, are critical for the project.

Neither and Nor; Either and Or

- **Incorrect:** Neither the responses to the questionnaire nor what we asked on the survey were answered.
- **Correct:** Neither the responses to the questionnaire nor the responses to the survey were answered.

Not Only and But Also

- **Incorrect:** They argued not only about the topic, but also they argued about the presentation of ideas in his paper.
- **Correct:** They argued not only about the topic, but also about the presentation of ideas in his paper.

Parallel Construction in a Series

Sentences with series, or lists, require particular attention to parallel construction.

- **Incorrect:** *After the crash, one of the survivors was injured, unconscious, and didn't respond.*
- **Correct:** *After the crash, one of the survivors was injured, unconscious, and unresponsive.*

The series, in the second sentence, has parallel elements (injured, unconscious, unresponsive are all adjectives).

LANGUAGE FUNCTION



Practice A. In the four sentences below, circle the correct word or phrase that gives the sentence a correct parallel structure.

1. Niki was excited about inviting friends, celebrating her birthday, and
a) a game
b) to play
c) playing a game
2. Not only did the team win the championship, but they also a new record.
a) set
b) setting
c) to set
3. When the weather outside is cold and, I prefer to stay at home.
a) starting to get rainy
b) rainy
c) getting rainy
4. Running, lifting, and are three of Nima's favorite activities.
a) baseball
b) the gym
c) snowboarding

Practice B. Correct the nonparallel elements in the following sentences.

1. His paper argues that the distinctive divergence in the two artists' styles was not only shaped by their mutual rivalry but also because of the personal tastes of fans.
.....
2. Unfortunately, some campers negatively affect the nature by pounding nails into trees, lantern burns, and damaging their roots with heavy equipment.
.....
3. An effective lecture is the one that is presented creatively, thoughtfully, and persuades others.
.....

4. The bird's feathers, which were vibrant, colorful, and like silk, distinguished it from the others.
.....
5. You are not only responsible for collecting data, but we also want you to present your findings in front of the committee.
.....



WRITING ESSENTIALS

In addition to providing support for the topic sentence in a paragraph, the writer needs to make sure that the paragraph is coherent. In other words, every single piece of information offered in the paragraph must clearly relate to the topic sentence. To have a coherent paragraph, a number of strategies should be considered.

1. To help the reader grasp the overall focus of the paragraph, the main key words and/or phrases need to be repeated and reworded.
2. To facilitate the process of reading the text, the use of parallel structures is largely recommended.
3. To improve the coherence, writers must consistently present verb tenses, numbers, and the point of view.
4. To establish the relationship between concepts and ideas, the use of transition words and phrases is suggested.

In the following paragraph, the author coherently leads the reader smoothly from the beginning to the end of the narration.

Sunset is the time of day when our sky meets the outer space solar winds. There are blue, pink, and purple swirls, spinning and twisting, like clouds of balloons caught in a whirlwind. The sun moves slowly to hide behind the line of horizon, while the moon races to take its place in prominence atop the night sky. People slow to a crawl, entranced, fully forgetting the deeds that must still be done. There is a coolness, a calmness, when the sun does set.

Paragraph Source: *Pattern Based Writing: Quick & Easy Essay*



WRITE IT UP (SELF PRACTICE)

This exercise aims at helping you understand the process of developing a paragraph coherently. The topic sentence is given. The supporting sentences are not in the correct order. On the blanks at the side, put the letters of the sentences in their proper order.

Topic sentence: There are some useful ways to get the grade you want in this class. Before the class, you must preview the lessons you will listen to tomorrow.

- a. Then you can listen to your teachers with the questions you found the day before.
- b. In the class, you have to listen to your teacher carefully.
- c. You can also confirm the knowledge you are not sure about, and it is an important way to improve your grade.
- d. The more exercises you do, the higher grade you will get.
- e. If you want to get the grade you want in this class, do these things before, in, and after classes.
- f. Previewing is a perfect learning habit to help you improve your learning efficiency.
- g. Your teachers are professional and dedicated, and they can solve all of your problems about your studies.
- h. Don't be slow—speak more English, and you will improve your speaking and listening.
- i. After previewing, you can know what the teachers will teach the next day.
- j. Listening carefully can also help you get more information or details about tests.
- k. Practicing more after class is also an important part. More practice for grammar or writing can help you to memorize.

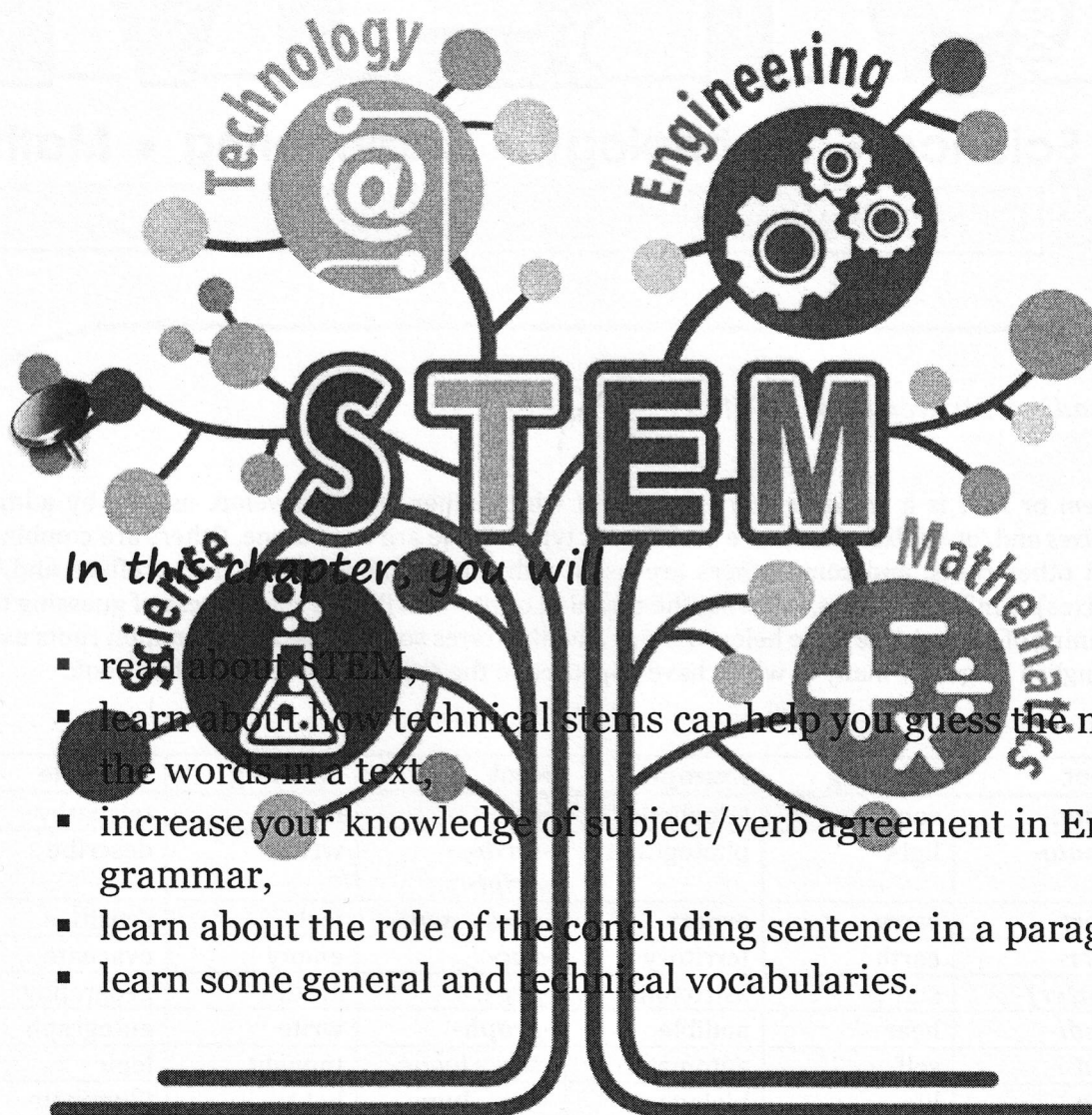
VOCABULARY SELF STUDY



Word	Pronunciation	Word	Pronunciation
Agency	/ˈeɪ.dʒən.si/	Reconstruction	/ˌriː.kənˈstrʌk.ʃən/
Announce	/əˈnaʊns/	Reputation	/ˌrep.jəˈteɪ.ʃən/
Bankruptcy	/ˈbæŋ.krəpt.si/	Routine	/ruːˈtiːn/
Contrary	/ˈkɑːn.tre.ri/	Severely	/səˈvɪr.li/
Crisis; Crises	/ˈkraɪ.sɪs/ /ˈkraɪ.sɪz/	Threat	/θret/
Debt	/det/	Tornado	/tɔːrˈnei.dou/
Detect	/dɪˈtekt/	Tsunami	/tsuːˈnɑː.mi/
Disaster	/dɪˈzæ.s.tə/	Unlawful	/ʌnˈlɑː.fəl/
Disturbing	/dɪˈstɜː.bɪŋ/	Visualize	/ˈvɪʒ.u.əl.aɪz/
Earthquake	/ˈɜːθ.kweɪk/		
Emergency	/ɪˈmɜː.dʒən.si/		
Evolve	/ɪˈvɑːlv/		
Flexible	/ˈflek.sə.bəl/		
Flood	/flʌd/		
Immediately	/ɪˈmiː.di.ət.li/		
Infrastructure	/ˈɪn.frəˈstrʌk.tʃə/		
Landslide	/ˈlænd.slaɪd/		
Management	/ˈmæn.ədʒ.mənt/		
Ministry of the Interior	/ˈmɪn.ə.stri. əv. ðə. ɪnˈtɪr.i.ə/		
Mitigate	/ˈmɪt.ə.ɡeɪtɪd/		
Prescribe	/prɪˈskraɪb/		

CHAPTER 6

STEM



In this chapter, you will

- read about STEM,
- learn about how technical stems can help you guess the meaning of the words in a text,
- increase your knowledge of subject/verb agreement in English grammar,
- learn about the role of the concluding sentence in a paragraph, and
- learn some general and technical vocabularies.

STEM

Science • Technology • Engineering • Math



TUNE IN FOR THE READING

Reading Strategy 6a: STEMS

A *stem* or *root* is a word or word part from which other words develop, usually by adding *prefixes* and/or *suffixes*. Stems are of different types. Some are used alone. Others are combined with other roots, and some others are used with one or more *affixes* (i.e., prefixes and/or suffixes). Similar to affixes, knowing the meaning of roots facilitates the process of guessing the meaning of a word. The table below defines and illustrates some of the most common roots used in English language, many of which have appeared in the reading selections of this book.

Root	Meaning	Example	Root	Meaning	Example
-phon-	sound	telephone	-tele-	far off	telepathy
-photo-	light	photograph	-scrib-, -script-	write	describe
-port-	carry	export	-sens-, -sent-	feel	sensitive
-terr-	earth	territory	-vac-	empty	evacuate
-ast(er)	star	astronomy	-geo-	earth	geography
-audi-	hear	audible	-graph-	write	autograph
-auto-	self	automatic	-log-, -logue-	thought	logic
-bio-	life	biology	-luc-, -lum-	light	illuminate
-dict-	say	dictate	-man(u)-	hand	manual
-duc-	lead, make	produce	-mand-	order	demand
-gen-	give birth	generate	-mis-, -mit-	send	transmit
-phil-	love	philharmonic	-vid-, -vis-	see	visible

Reading Strategy 6b: MATCHING HEADINGS WITH SECTIONS

As discussed in chapter one, headings act as readers' guide towards better understanding the text. Therefore, to gain an overall understanding of the idea of the text, one should read the headings prior to reading the text.

In the reading selection of this chapter, the headings are taken out. You need to match the following headings with appropriate sections in the text. For so doing, you may want to read the whole paragraph. However, you do not always have enough time to do so. Therefore, how should you find out about the headings? A useful strategy is reading the first sentence of the paragraphs in each section and, based on your understanding, matching the headings with the sections. To practice this technique, start reading the first sentences of each section in the reading selection of this chapter and then try to match the appropriate heading with each section.

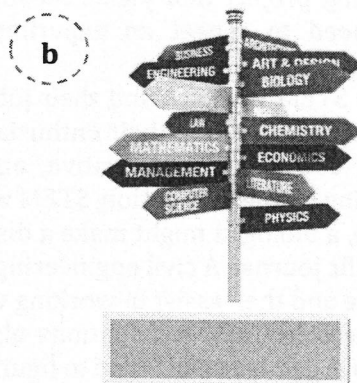
1. STEM: Rewards and Challenges
2. STEM Jobs' Needed Qualifications
3. Job Market in the Future
4. How to Prepare for the STEM Market

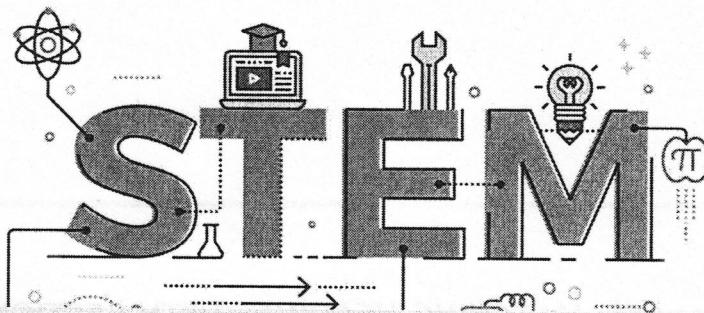
Visual Hints

Look at the following pictures. Try to match each picture with the relevant noun from the box below.



Disciplines **Occupations**





READING

STEM

Part 1

A.

/ɪg'zek.jə.tɪv/
/kou.ə'lɪf.ən/
/'bjʊə.rəʊ/

"The future of the economy is in STEM," says James Brown, the *executive* director of the STEM Education *Coalition* in Washington, D.C. That is where the jobs of tomorrow will be. Data from the US *Bureau* of Labor Statistics (BLS) support that idea. Employment in careers related to STEM—science, technology, engineering, and mathematics—is projected to grow to more than 9 million between 2012 and 2022. That is an increase of about 1 million jobs over 2012 employment levels.

Overall, STEM occupations are projected to grow faster than the average for all occupations. And wages in these occupations were generally higher than the median for all occupations in May 2013. BLS projects overall STEM employment to grow about 13 percent between 2012 and 2022. This is faster than the 11-percent rate of growth projected for all occupations over the decade. But projected employment growth varies by occupation. Some of these occupations are in technology; others are related to math and engineering (See Table 6.1). BLS data show that workers in the STEM occupations earned a median annual wage of nearly \$76,000—more than double the \$35,080 median wage for all workers in May 2013. Many of the top-paying occupations are related to engineering.

B.

STEM work, like that of most jobs, is both rewarding and challenging. You might work on an interesting project that yields meaningful results, for example—but, to complete it, you might need to repeat an experiment many times or navigate complex government regulations.

/ɪnt-əl'ek.tʃu-ə-li/
/'stim.jə.leɪ.tɪŋ/
/ʌn'per.əl.eld/
/'tæn.dʒə.bəl/

Many STEM workers find their jobs *intellectually stimulating*. They enjoy collaborating with people who share their enthusiasm and working with cutting-edge technology. STEM offers a cooperative, innovative, and exciting work environment that is *unparalleled*. Depending on the occupation, STEM work may be creative and produce *tangible* results. For example, a biologist might make a discovery in the laboratory and publish that research in a scientific journal. A civil engineering technician may help design a storage facility or other structure and then assist in working with the contractor who builds it.

/ju:'ni:k/

Workers in STEM occupations also enjoy the variety of problems they solve. Every problem is a *unique* challenge to figure out. Even if you use similar skills, the way you apply them is different. Because many STEM fields involve rapid change, workers' professional development is also dynamic. There is always something more to learn. Do not expect an end. However, as rewarding as STEM work may be, it can sometimes be demanding and tedious. For example, projects may take hundreds of hours over weeks or months to

complete. And routine tasks may include cataloging data, filling out paperwork, and documenting observations.

Table 6.1. Selected STEM occupations with fast employment growth, projected 2012–22

Occupation	Job opening projected 2012-22	Employment		Median annual wage, May 2013	Typical entry-level education ¹
		2012	Projected 2022		
Software developers, applications	218,500	613,00	752,900	\$92,600	Bachelor's degree
Computer system analysts	209,600	520,600	648,400	81,190	Some college, no degree
Computer user support specialists ²	196,900	547,700	658,500	46,620	Bachelor's degree
Software developers, system software	134,700	405,000	487,800	101,410	Bachelor's degree
Civil engineers	120,100	272,900	326,600	80,770	Bachelor's degree
Computer programmers	118,100	343,700	372,100	76,140	Bachelor's degree
Sales representatives, wholesale and manufacturing, technical and scientific products ²	111,800	382,300	419,500	74,520	Bachelor's degree
Network and computer systems administrators	100,500	366,400	409,400	74,000	Bachelor's degree
Mechanical engineers	99,700	258,100	269,700	82,100	Bachelor's degree
Computer and information system managers ³	97,100	332,700	383,600	123,950	Bachelor's degree
Industrial engineers	75,400	223,300	233,400	80,300	Bachelor's degree
Architectural and engineering managers ³	60,600	193,800	206,900	128,170	Bachelor's degree
Web developers	50,700	141,400	169,900	63,160	Associate's degree
Electrical engineers	44,100	166,100	174,000	89,180	Bachelor's degree
Computer network architects ³	43,500	143,400	164,300	95,380	Bachelor's degree

¹Unless otherwise specified, occupations typically require neither work experience in a related occupation nor on-the-job training to obtain competency.

²In addition to the education specified, this occupation typically requires moderate-term on-the-job training for workers to obtain competency.

³In addition to the education specified, this occupation typically requires 5 years or more of work experience in a related occupation. Source: U.S. Bureau of Labor Statistics, Employment Projections program (employment, projections, and education data) and Occupational Employment Statistics survey (wage data).

TECHNICAL CHECK 1



A. Recalling Information. Choose the best option for the following items.

1. Which one of the following is **NOT** true about STEM occupations?
 - a) They will experience a high raise in future.
 - b) Their average salary will be higher in comparison with other jobs.
 - c) They will grow 13 percent more than other occupations.
 - d) Employment growth in STEM will be different in different occupations.

2. It can be *inferred* that
 - a) all tasks in STEM jobs are challenging.
 - b) between 2012 and 2022, most top paying jobs will be in engineering.
 - c) the employment level in 2012 must have been about 8 million.
 - d) rapid change in STEM work requires workers to keep updated.
3. According to the passage,
 - a) STEM jobs related to math enjoy a better situation than other STEM jobs.
 - b) work experience is of significance in most STEM occupations.
 - c) you need at least a bachelor's degree to be able to apply for an STEM job.
 - d) STEM work may sometimes be very boring.

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. All STEM jobs are predicted to equally grow in future.
2. STEM workers are generally earning twice more than workers in other occupations.
3. BLS is responsible for STEM job education in the United States.

Part 2

C.

Along with having a technical foundation, prospective STEM workers must have strong thinking and communication skills. People focus so much on math and science that they often ignore these skills. Ability to consider problems in different ways and then being able to explain a solution clearly is essential for success in STEM occupations. Critical and creative thinking also help STEM workers in problem solving to detect mistakes, gather relevant information, and understand how different parts or systems interact with each other. STEM workers also need thinking skills to develop innovative, cost-effective solutions. Workers who think creatively may approach a problem differently—for example, by *adapting* knowledge from other *disciplines*.

Communication skills are important too for working well with others and conveying information clearly, both orally and in writing. Flaws in communication are a common source of conflict. You will usually work with or for someone else, so having these skills will make you stand out. Communication skills include technical writing, public speaking, interpersonal communication, and the ability to explain difficult concepts simply. Learning some of these skills may seem intimidating at first, but practice helps.

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TECHNICAL CHECK 2



A. Recalling Information. Choose the best option for the following items.

1. What is the main idea for this section of the text?
 - a) Having a technical foundation is of utmost importance.
 - b) Thinking and communication skills are other important elements in STEM jobs.
 - c) Oral and written communication skills are necessary in STEM occupations.
 - d) The ability to consider problems in different ways and explain their solution is critical in STEM jobs.
2. According to the text, which of the following qualifications is NOT mentioned in the text as necessary for most STEM occupations?
 - a) Thinking skills
 - b) Communication skills
 - c) Experience and internship
 - d) Creativity
3. The ability to explain difficult concepts in simple words is an example of
 - a) thinking skills
 - b) technical skills
 - c) academic education
 - d) communication skills

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. Technical foundation and thinking and communication skills are all equally important.
2. In order to develop innovative solutions, STEM workers need strong communication skills.
3. According to the text, what distinguishes you from others is having strong thinking skills.

Part 3

D.

Many STEM occupations require at least a bachelor's degree. More technical and advanced jobs, including those in research, usually require a master's or doctoral degree. But STEM is not only for people who have a bachelor's or graduate degree. Many occupations typically require an *associate's* degree, and a small number require either some college but no degree or a high school diploma or *equivalent*.

In some STEM occupations, work experience in a related occupation is required at the entry level. For example, computer and information systems managers usually need at least 5 years of experience, first honing their technical skills in lower-level roles before moving to management. Even in occupations that do not require it, however, work experience often sets you apart. Companies want to bring you up to speed so you can be productive quickly. But there are so many skills you do not learn in school that you can only learn on the job. STEM workers advise you to look for internship, volunteer, and research opportunities as early as possible. Getting experience before

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graduation can help you determine whether a STEM career will be right for you. It is important to find something that excites you because working in STEM means making an investment in a passion.

As you broaden your experience, you should also broaden your network. Your network is more important than your *résumé* and should include mentors, business *colleagues*, and instructors. Develop a network by meeting people through work, volunteer, and internship positions; joining a club or working on a research project; and participating in job fairs, industry events, and online discussion boards⁴.



TECHNICAL CHECK 3

A. Recalling Information. Choose the best option for the following items.

1. What is the main idea for the last paragraph?
 - a) Developing relations with others in the profession is very important
 - b) Strengthening one's resume through a number of activities
 - c) Getting involved in a variety of activities in order to keep up-to-date
 - d) Working on a research project or participating in job fairs to develop one's skills
2. Which item was not much emphasized in the text by the author?
 - a) gaining experience
 - b) developing a good resume
 - c) developing a network
 - d) having the right degree
3. Which one is among the benefits of doing an internship?
 - a) developing one's network
 - b) gaining experience
 - c) seeing if an STEM job suits you
 - d) all of the above

B. Statement Accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. It is important that you start an internship soon after you graduate in an STEM job.
2. Not in all STEM jobs, related work experience is needed at the start.
3. Having done an internship may help you stand out among your colleagues.



VOCABULARY PRACTICE

Practice A. Go through the text and find a word or phrase which is synonymous to the words underlined in the following sentences.

1. A mistake in the break mechanism resulted in the recall of 500,000 cars by Hyundai.
.....
2. Speaking in front of the people has always been frightening and threatening for him.
.....

⁴ Adapted from *Occupational Outlook Quarterly* (Denis Vilorio, 2014)

3. Her disappearance was reported to the police department's Missing Persons Organization responsible for collecting information.
4. Dr. Shahabi's classroom sessions are always lively and encouraging, with pupils engaging in the discussions with full concentration.
5. It is important to note that this qualification is not of the same value of a degree.
6. Many software companies have applied and changed popular programs to make them apt for the new operating system.
7. Machines and technology are here to make our lives easier, not to do boring tasks for us.

Practice B. Complete the sentences with the correct word from the table.

Noun	Verb	Adjective	Adverb
adaptation adaptability adapter	adapt	adaptive* adaptable** adapted	—
graduate graduation	graduate	graduate graduated***	—
participation participant	participate	participating participative	—

* having an ability to change to suit different conditions

** able or willing to change in order to suit different conditions

***arranged in regular small stages or degrees

1. The government does not possess the capacity to endure such changes.
2. With a/n income tax, people who make more money pay a higher rate.
3. This will be a highly event, and you will be expected to work in groups and to contribute ideas.
4. The survivors in this life seem to be those who are to change.
5. He is studying M.Sc. in Bioengineering. He is a student.

LANGUAGE FUNCTION: SUBJECT/VERB AGREEMENT IN A NUTSHELL



Subject/verb agreement refers to the fact that the subject and the verb need to be similar in number. That is, if a subject is singular, its verb must also be singular; and vice versa. The main rules of subject/verb agreement are listed in the following table.

Rules	Examples
The prepositional phrases or any other words between subject and verb do not affect agreement.	<i>The <u>colors</u> of the rainbow are beautiful.</i>
In sentences starting with 'there' or 'here,' the subject always appears after the verb.	<i>Here are <u>the keys</u> you asked for.</i>
When two subjects are joined by 'and,' a plural verb form is used.	<i>The <u>book</u> and <u>the pen</u> are on the table.</i>
When words like 'each,' 'every,' or 'no' come before the subject, singular verb is used.	<i><u>Every man and woman</u> is required to check in.</i>

Rules	Examples
If singular subjects connected by 'or,' 'nor,' 'neither/nor,' 'either/or,' and 'not only/but also' need a singular verb. But plural subjected connected this way use a plural verb.	<u>Jessica or Mary</u> is to blame for the accident. <u>Neither parents nor the students</u> were informed about the new regulations.
If one singular and one plural subjects are connected by words 'or,' 'nor,' 'neither/nor,' 'either/or,' and 'not only/but also', the verb agrees with the subject closest to the verb.	<u>Either bears or lion</u> has escaped from the zoo.
Expressions like 'half,' 'none,' 'more,' or 'all' do not have any effect on the verb.	<u>All of the cupcake</u> is gone. <u>All of the cupcakes</u> are gone.
A singular verb is used for time or units of measurement.	<u>75° C of heat</u> is required to bake this cake.
Indefinite pronouns (everybody, everyone, nobody, no one, somebody, and someone) usually need singular verbs.	<u>Everybody</u> wants to live a happy life.
Gerunds take singular verb; but, when they are linked by 'and,' they take the plural form.	<u>Windsurfing and playing</u> the piano are my hobbies.
Collective nouns need a singular verb.	<u>The class</u> is waiting for the instructor to arrive.
Expressions like 'as well as,' 'along with,' and 'besides' do not have any effect on the singularity or plurality of a verb.	<u>Anger as well as stress</u> is the cause of most of the heart attacks.



LANGUAGE FUNCTION

Practice A. Choose the correct form of the verb from the choices presented.

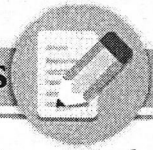
1. The book or the pen (is/are) in the drawer.
2. The team captain, as well as his players, (is/are) anxious.
3. Everybody (know/knows) Mr. Collins.
4. Five dollars (isn't/aren't) a lot of money.
5. The committee (decide/decides) how to carry out the project.
6. All of the books, including yours, (are/is) in that box.
7. There (was, were) fifteen candies in that bag. Now there (is/are) only one left!
8. Mathematics (is/are) Shiva's favorite subject.
9. George and Tamara (doesn't, don't) want to see that movie.
10. Some members of the faculty (are/is) present.

Practice B. Look at the underlined verb in each sentence and decide if it is correct or must be changed to have subject/verb agreement. There are sentences without any error.

1. The executive board, as well as some of the high ranking managers, were asked to resign because of the recent losses in company's profit.

2. Sarah claims that she desires to study at a well-known university, but her poor attention to studying do not indicate that she likes studying.
3. A pair of good quality trainers are required if you want to go jogging.
4. There are an overload of incomplete projects which has made him tired and stressed.
5. Amir and the pianist in his group proved that they were brilliant performers.
6. Tim's preference for buying luxury watches and brand new clothes are not indicative of what he enjoys, but simply signs of his desire to waste his money.
7. The best part of windsurfing with friends are the expressions on their face every time a giant wave approaches you.

WRITING ESSENTIALS



The final element of a paragraph is usually the *concluding sentence*. A concluding sentence signals the message that the paragraph has come to an end. Therefore, it is important not to point to new ideas or topics in the concluding sentence. An effective concluding sentence (1) restates the topic sentence, (2) is placed usually at the end of the paragraph, (3) does not contain new topics or ideas, and (4) reviews the main points discussed in the paragraph. This sentence usually begins with words such as: *as a result, thus, therefore, in general, lastly, overall, finally, in conclusion, and for this reason*. Read the following paragraph to see how the final sentence signals a sense of closure.

*The classroom is like all college classrooms except for the many dents in its walls. Like all classrooms, it has thirty chairs with writing arms, lined up in five rows with six chairs in each row; a blackboard that still has the assignment on it from the previous class and needs a good washing; the professor's desk, with a podium on it to hold his oft-used lecture notes; and tan, finger-marked walls. But for some unknown reason, chairs have been shoved hard and often against the walls, which have more and deeper dents than those in other classrooms. **Only its dented walls make this classroom different from all college classrooms.***

Paragraph Source: Conlin (1998, p. 3)

WRITE IT UP (SELF PRACTICE)



Read the following topic sentences and write a concluding sentence for each in a way that it best restates the main idea presented in the topic sentence.

1. Today, access to the Internet is believed by many to be essential for human life just like food and water.
.....
2. The educational system must teach students life skills and the fundamentals of living in a community.
.....
3. Living in the countryside offers advantages over the city life.
.....

4. Writing is not only a way to communicate but also a tool express one's ideas.
5. To avoid bankruptcy, business owners need to make routine check on the status of their companies and employees.



VOCABULARY SELF STUDY

Word	Pronunciation	Word	Pronunciation
Adapt	/ə'dæpt/	Ignore	/ɪg'nɔ:r/
Annual	/'æn.ju.əl/	Instructor	/ɪn'strʌk.tə-/
Associate's degree	/ə.sou.si.əts dɪ'gri:/	Intellectually	/ɪn.təl'ek.tʃu.ə.li/
Bachelor's degree	/bætʃ.əl.əz dɪ'gri:/	Interact	/ɪn.tə'ækt/
Broaden	/'brɑ:.dən/	Internship	/'ɪn.tə'nʃɪp/
Bureau	/'bjʊr.ou/	Intimidating	/ɪn'tɪm.ə.deɪ.tɪŋ/
Civil engineering	/sɪv.əl en.dʒɪ'nɪr.ɪŋ/	Investment	/ɪn'vest.mənt/
Collaboration	/kə.ləb.ə'reɪ.fən/	Master's degree	/mæs.təz dɪ'gri:/
Colleague	/'kɑ:.li:g/	Median	/'mi:.di.ən/
College	/'kɑ:.lɪdʒ/	Mentor	/'men.tɔ:r/
Conflict	/'kɑ:n.flɪkt/	Occupation	/ɑ:.kjə'peɪ.fən/
Contractor	/'kɑ:n.træk.tə-/	Project (v)	/'prɑ:.dʒekt/
Convey	/kən'veɪ/	Prospective	/prə'spek.tɪv/
Cooperate	/kəʊ'pɒr.ər.ət/	Regulation	/reg.jə'leɪ.fən/
Cost-effective	/kɑ:st.ɪ'fek.tɪv/	Resume	/'rez.ə.meɪ/
Critical	/'krɪtɪ.kəl/	Routine	/ru:'ti:n/
Discipline	/'dɪs.ə.plɪn/	Stand out	/stænd aʊt/
Employment	/ɪm'plɔɪ.mənt/	Storage	/'stɔ:r.ɪdʒ/
Enthusiasm	/ɪn'θu:zɪ.æz.əm/	Tangible	/'tæn.dʒə.bəl/
Equivalent	/ɪ'kwɪv.əl.ənt/	Tedious	/'ti:.di.əs/
Essential	/ɪ'sen.ʃəl/	Typically	/'tɪpɪ.kəl.i/
Executive	/ɪg'zek.jə.tɪv/	Unique	/ju:'ni:k/
Figure out	/'fɪgər aʊt/	Unparalleled	/ʌn'per.əl.eld/
Flaw	/flɑ:/	Volunteer	/vɑ:lən'tɪr/
Foundation	/faʊn'deɪ.fən/	Wage	/weɪdʒ/
Graduate	/'grædʒ.u.ət/	Yield	/ji:ld/

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