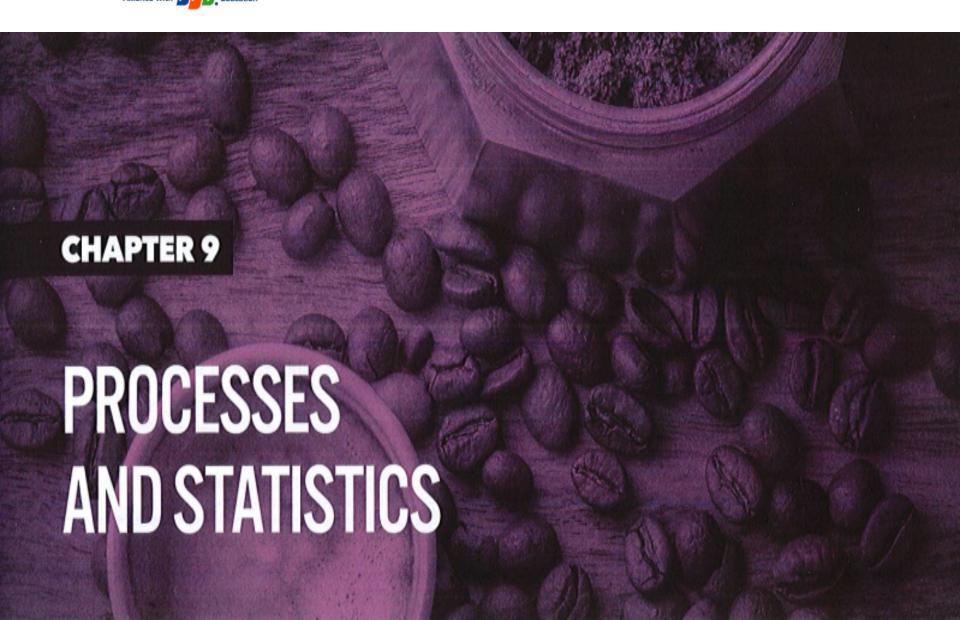
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#### **ACADEMIC ENGLISH**





### CHAPTER 9. PROCESS AND STATISTICS

#### In this chapter, we will

- 1. Learn how to describe processes and satistics
- 2. Use the passive voice to descibe a process
- 3. Analyze statistics on life expectancy
- 4. Learn how to represent statistics accurately
- 5. Add emphasis to sentences
- 6. Study conditional sentences
- 7. Write two paragraphs: one describing a process and the other describing statistical data





#### TASK 1 EXPLORE THROUGH WRITING

Human life expectancy is a statistical measure of how long, on average, people are expected to live. What factors do you think affect life expectancy in different countries?



#### **DESCRIBING A PROCESS**

Decribing a processes is common subject areas. For example, if you take an engineering course, you will need to show that you understand how different machines operate; in other fields, you may be asked to describe the stages of an experiment. In either case, you need to read carefully and provide an accurate description of the process.



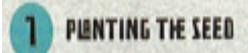
#### **Coffee Production**

Drinking a cup of coffee is a regular everyday activity for many people, but few are aware of the complex process involved in getting the coffee bean from the plant to the coffee shop. Read the infographic opposite to learn more about this process.







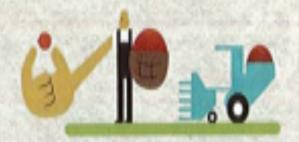


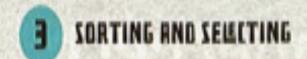
A few green coffee beans are kept to be used as seeds for the next crop of coffee trees.



### Z HARVESTING AND PICKING

On larger, flatter farms coffee cherries can be harvested by machines. In other parts of the world, they are still handpicked.





First step: removing debris, stones, twigs.



Second step: Berries are thrown into a water tank to remove unripe ones which float at the surface.









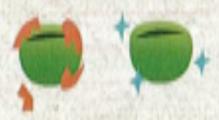


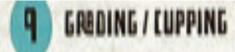
In this stage, coffee can be stored for several months or years depending on the temperature and humidity.





All other layers still surrounding the beans are being removed. The two steps in the milling process are hulling and polishing.





Professional coffee graders classify the coffee bean quality by their "primary and secondary defects"







Coffee is being shipped to where it's needed. Direct trade and fair trade to support farmers and consumers.





Green coffee beans heated up to over 400F The duration of the roast will result in different characteristics and flavors.



12 PACKEGING

To protect the beans from air and moisture and to stay fresh for weeks the packaging should be sealed well.













#### TASK 2 MATCH TERMS TO DEFINITIONS

Match the following key terms from the infographic to their definitions.

brewing	cupping	fermenting	grinding harvesting
milling	pulping		

- 1. Removing the skin and pulp around the beans
- 2. Assessing the quality of the coffee
- 3. Picking the cherries from the shrubs
- 4. Reducing something solid to smaller particles
- 5. Converting sugars to acid or alcohol
- 6. Preparing by mixing with hot water
- 7. Removing outer layers of the beans



#### REVIEW OF THE PASSIVE VOICE

#### TASKS 3 ANALYZE PASSIVE-VOICE SENTENCES

The sentences below describes the process of making maple syrup. First, read the sentences and underline the verbs in the passive voice. The answer the questions that follow.



- 1. A hole is drilled into the trunk of sugar maple tree.
- 2. A metal spout is inserted into the hole.
- 3. A bucket is hung on the tree to collect sap.
- 4. Lids are placed on the buckets to keep out rain and other things such as leaves and insects.
- 5. The sap is collected and boiled over a wood fire to reduce the water content.
- 6. When the sap is golden, it has become maple syrup.



## TASK 4 USE THE PASSIVE VOICE TO DESCRIBE A PROCESS

Look again at Figure 1 and write sentences in the passive voice that describe the first four stages of coffee production. Do not sate the agent if it is unknown or unimportant.

- 1. Seeds are planted to produce the next crop.
- 2. Coffee cherries are harvested by hand or machine.
- 3. Berries are sorted in water to remove unripe ones.
- 4. The skin and fruit surrounding the bean are removed.



#### **DESCRIBING STATISTICS**

#### **FACTOR 1**

Think critically about the statistics while you read and write

- Consider how reliable they are
- If you suspect they may be unreliable, do not use them.

#### **FACTOR 2**

Select statistical data that is relevant to your task

Look for the main findings, patterns, and changes such as highs, lows, and fluctuations.

#### **FACTOR 3**

Represent the statistics accurately and do not change their meaning or mis-represent the data

Use precise vocabulary (see the Vocabulary section, p.109) to explain patterns and changes



- In bar charts, statistics are presented in shaded bars between vertical and horizontal axes to provide a visual comparison for readers.
- In graphs, statistics are represented and compared via horizontal or diagonal lines, also between vertical and horizontal axes.



 Figure 2 below, published by the government organization Statistics Canada, shows statistical data on life expectancy for Canadian men and women over the last 100 years. For example, it illustrates that between 1940 and 1942, females' life expectancy at birth was more than three years longer than that of males, and that between 1995 and 1997, the gap reached nearly six years.



#### Read Figure 2 and do the related tasks

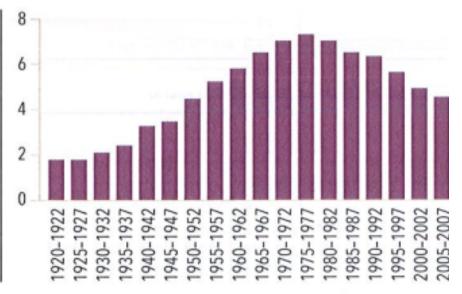
#### GAP BETWEEN MALES AND FEMALES IN LIFE EXPECTANCY AT BIRTH, 2013



male NewBorns can now expect to live 21 YEARS more than in the 1920s.



remale Newborns can now expect to live 23 YEARS more than in the 1920s.



da. (2017, July 12). Mortality trends in Canada, 2013. Retrieved from https://www150.statcan.gc.ca/n1/daily-quotidien/170712/g



#### TASK 5 THINK CRITICALLY ABOUT STATISTICS

Your decision whether to use the statistics you are reading will depend on their degree of reliability. Reliable statistics should come from peer-reviewed academic publications or trusted government or non-government organizations. Do you think the statistics in Figure 2 are reliable? Explain why or why not.



## TASK 6 SELECT RELEVANT STATISTICAL INFORMATION

Refer to Figure 2 to identify the key facts and trends in life expectancy for Canadian men and women between 1920 and 2013

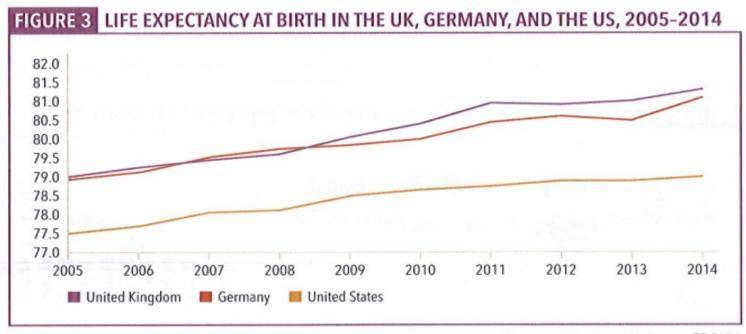


- 1. The overall finding for female newborns: In 2013, female newborns could expect to live 23 years more than in the 1920s.
- 2. The overall finding for male newborns: In 2013, male newborns could expect to live 21 years more than in the 1920s.
- 3. An overall pattern: The difference in life expectancy between male and male and female newborns in Canada rose steadily between 1920 and 1977, with women living longer, before falling steadily from 1977 to 2012.
- 4. 4. The high and low points: In 1920, the difference in life expectancy between Canada-born males and male and females was at its lowest point, with women outliving men by two years. The rate reached its peak of approximately seven years in 1977.



#### TASK 7 SHOW UNDERSTANDING OF STATISTICS

Read Figure 3 below and indicate whether the sentences that follow are true or false



World Bank. (2018). Life expectancy at birth, total (years). Retrieved from https://data.worldbank.org/indicator/SP.DYN. LE00.IN?end=2014&locations=DE-GB-US&start=2005&type=shaded&view=chart&year=2016



		True	False
1.	Life expectancy at birth in Germany increased to 79.5 years in 2007.		
2.	Between 2011 and 2012, there was a slight increase in life expectancy at birth in the UK.		
3.	From 2009 to 2011, life expectancy at birth in the US fell gradually.		
4.	Between 2010 and 2014, life expectancy at birth in the US went up by two years.		
5.	Life expectancy at birth in the UK rose steadily from 2007 to 2011.		



When describing statistics, use precise vocabulary to represent the different changes. The following tables present some common words and phrases for describing statistical data. The examples are about life expectancy but do not represent the data in Figure 3.



### VOCABULARY

#### REPRESENTING STATISTICS ACCURATELY

#### Increases and Decreases

Type of Word	Vocabulary	Examples	
2000	Chas dollar	Increases	
Nouns	an increase a rise growth	There was <b>a</b> 10% <b>increase/rise</b> in life expectancy from 1945 to 1965.  There was <b>growth</b> in life expectancy in most countries after 1965.	
Verbs	go up grow increase rise	Life expectancy went up / grew / increased / rose by 10% between 1945 and 1965.	
		Decreases	
Nouns	decrease drop fall	There was a decrease/drop/fall in life expectancy in the UK after 2011.	
Verbs	decrease drop fall go down	Life expectancy decreased / dropped / fell / went down in the UK after 2011.	



Type of Word	Vocabulary	Examples
increased to	n in Gennamy	Degrees of Change
Adjectives	gradual steady	The table shows a <b>gradual/steady</b> decrease in the birth rate in EU countries from 2000 to 2017.
	slight small	There was a <b>slight/small</b> increase in access to free public health care in the 1990s.
	dramatic rapid	Table 2 shows a <b>dramatic/rapid</b> increase in Internet connectivity from 2010 to 2015.
Adverbs	gradually steadily	The table shows that the birth rate in EU countries decreased gradually/steadily from 2000 to 2017.
	slightly	Access to free public health care increased <b>slightly</b> in the 1990s.
	dramatically rapidly	Table 2 shows that the rate of Internet connectivity increased dramatically/rapidly from 2010 to 2015.



#### Change and No Change

Vocabulary	Examples		
Changes			
fluctuate (verb)  a fluctuation (noun)	The percentage of homes without access to clean water fluctuated during the 20-year period.  There was a fluctuation in the percentage of homes access to clean water fluctuated during the 20-year period.		
No Change			
be/stay/remain the same be/ remain constant be/remain unchanged	The number of children lacking nutrion was/stayed/remained the same from 2012 to 2015.  The number of children lacking nutrion was/remained constant/unchanged between 2012 and 2015.		



Vocabulary	Examples			
High and Low Points				
peak (verb)	The number of children receiving free public education peaked in 2008.			
reach a high point/ reach a peak	The number of children receiving free public education reached a high point/reached a peak in 2008.			
fall to	The number of children attending private schools fell to 9% in 2008.			
reach a low point	The number of children attending private schools reached a low point of 9% in 2008.			



#### TASK 8 REPRESENT STATISTICS ACCURATELY

Complete the sentences so that they accurately represent the statistics in Figure 3 (see p.108)

2. Between 2012 and 2013, there was ------ in life expectancy at birth in Germany.

1. Life expectancy at birth in Germany ------ from 2005 to 2011.

- 4. Life expectancy at birth in the UK ----- in 2014.
- 5. Between 2005 and 2014, life expectancy in the United States ------ 1.5%.



#### TASK 9 ADD EMPHASIS TO SENTENCES

Add emphasis to the sentences below, following the prompts in parentheses

1. Life expectancy rose steadily in Germany from 2005 to 2021, but it fells slightly
from 2012 to 2013. (Emphasize the fall from 2012 to 2013 by writing a complex
Sentence beginning with although.)

2. Life expectancy is related to people's lifestyle habits and is affected by access to Health care. (Add emphasis to the whole sentence by placing the adverb *not only* at the beginning.)

3. Life expectancy in the UK underwent a steady rise from 2005 to 2011, and it experienced a small drop between 2011 and 2012. (Emphasize the drop by writing a complex sentence beginning with *after*.)

\_\_\_\_\_\_

4. If I had known how addictive junk food is, I would not have eaten it so often. (Add emphasis to the whole sentence by placing the adverb *never* at the beginning of the Independent clause and reversing the order of the clauses.)



In conditional sentences, the action or state described in the main clause will occur if the condition of the *if* clause is met.

If people gain access to free health care, life expectancy will increase.



If clause



Main clausse



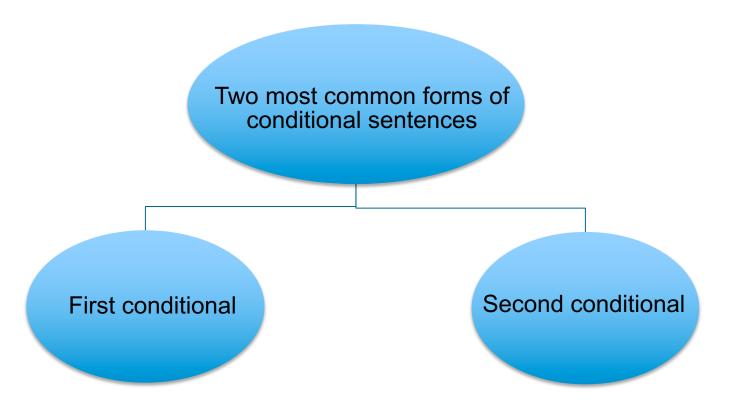
The concept of the sentence is that life expectancy will increase only if people gain access to free health care. In other words, the condition (gaining access to free health care) has to be met. To form conditional sentences correctly, you need to understand the concept and time idea and match them to the corresponding verb forms.

Concept: whether something is a fact, a real or imaginary possibility, or an impossibility

Time idea: whether the sentence refers to past, present, or future time

Verb forms: past, present, future, or other verb forms







#### **First Conditional**

If you change your unhealthy lifestyle, you will increase your chances of living a longer and healthier life.

Concept: a real possibility (The person is likely to make a lifestyle change.)

Time idea: any time from the present (now) to the future

Verb forms: present tense (if clause), future tense (main

clause)



#### **Second Conditional**

If you change your unhealthy lifestyle, you would increase your chances of living a longer and healthier life.

Concept: an imaginary possibility (The person is unlikely to make a lifestyle change.)

Tiem idea: any time from the present (now) to the future

Verb forms: past tense (if clause), would + infinitive (main clause)



#### TASK 10 COMPLETE FIRST- AND SECOND-CONDITIONAL SENTENCES

1.	If more people in the developing world had access to
	free public health care, (second
	conditional – improvement in life expectancy)
2.	If access to free public health care increases,
	(first conditional-growth in life expectancy
	rates)

- 3. ----- if I were you. (second conditional-advice not to eat fatty food)



#### **WRITING STYLE**

## TASK 11 WRITE FIRST- AND SECOND-CONDITIONAL SENTENCES (p. 114) Open writing task

Look back at the exploratory writing you did for Task 1 (see p.103). Write three first- or second-conditional sentences that relate to what you wrote about life expectancy.

3			





### TASK 11 WRITE FIRST- AND SECOND-CONDITIONAL SENTENCES (p. 114) Open writing task

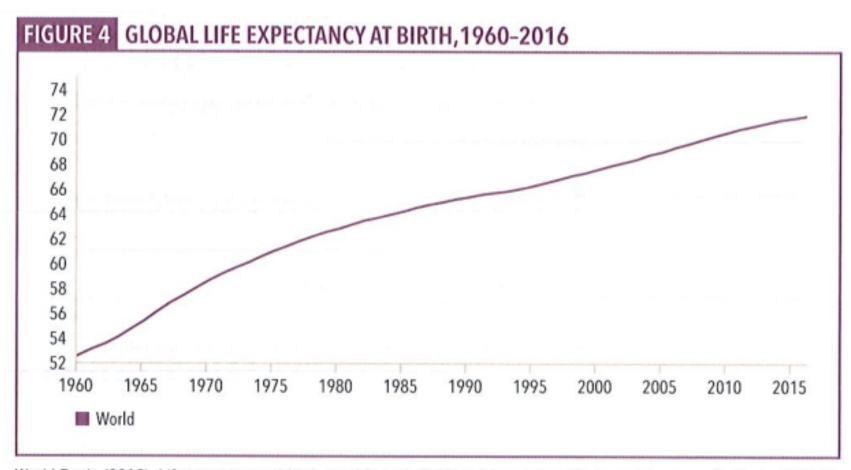
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#### WRITING STYLE

- 1. Write a paragraph that describes the coffee production process shown in Figure 1 (see p.104). Add to the four sentences you wrote for Task 4 to describe the overall process. Use the passive voice as appropriate and a range of different types. Add linking words from Appendix 1 to make the paragraph cohesive.
- 2. Write a paragraph that describes the statistical data in Figure 4 below, which is a graph published by the World Bank. It shows global statistics for life expectancy at birth from 1960 to 2016. Introduce the graph and publisher, describe the overall pattern of the graph, and then focus on specific high and low points in the data.



#### **WRITING STYLE**



World Bank. (2018). Life expectancy at birth, total (years). Retrieved from https://data.worldbank.org/indicator/SP.DYN. LE00.IN?end=2016&start=1960&type=shaded&view=chart&year=2016



### CHAPTER 9: PROCESS AND STATISTICS

#### **HOMEWORK FOR TODAY**

1. Review Chapter 9 and complete all the Tasks

1. The below graph shows labor force employment in the USA between 1930 and 2010. Write a paragraph to describe it.



#### USA labour force Employment, 1930-2010

