Workbooks for CSEC Age 16+

AUTHORS: **Biology and Chemistry: Anne Tindale**
Physics: Terry David

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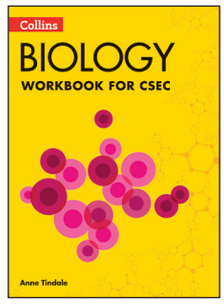

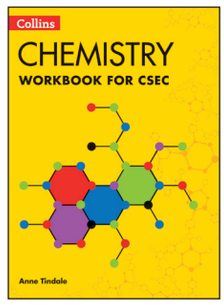

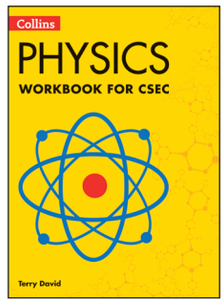

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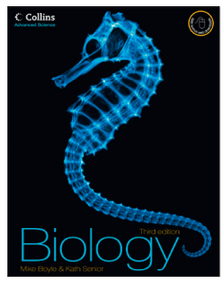

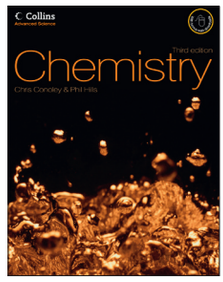

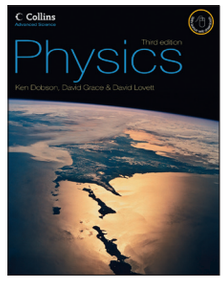

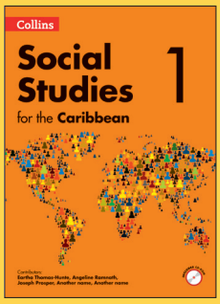

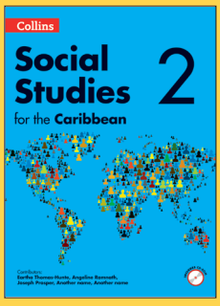

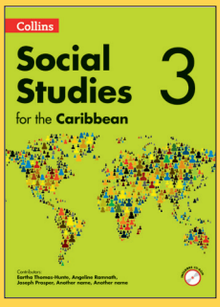

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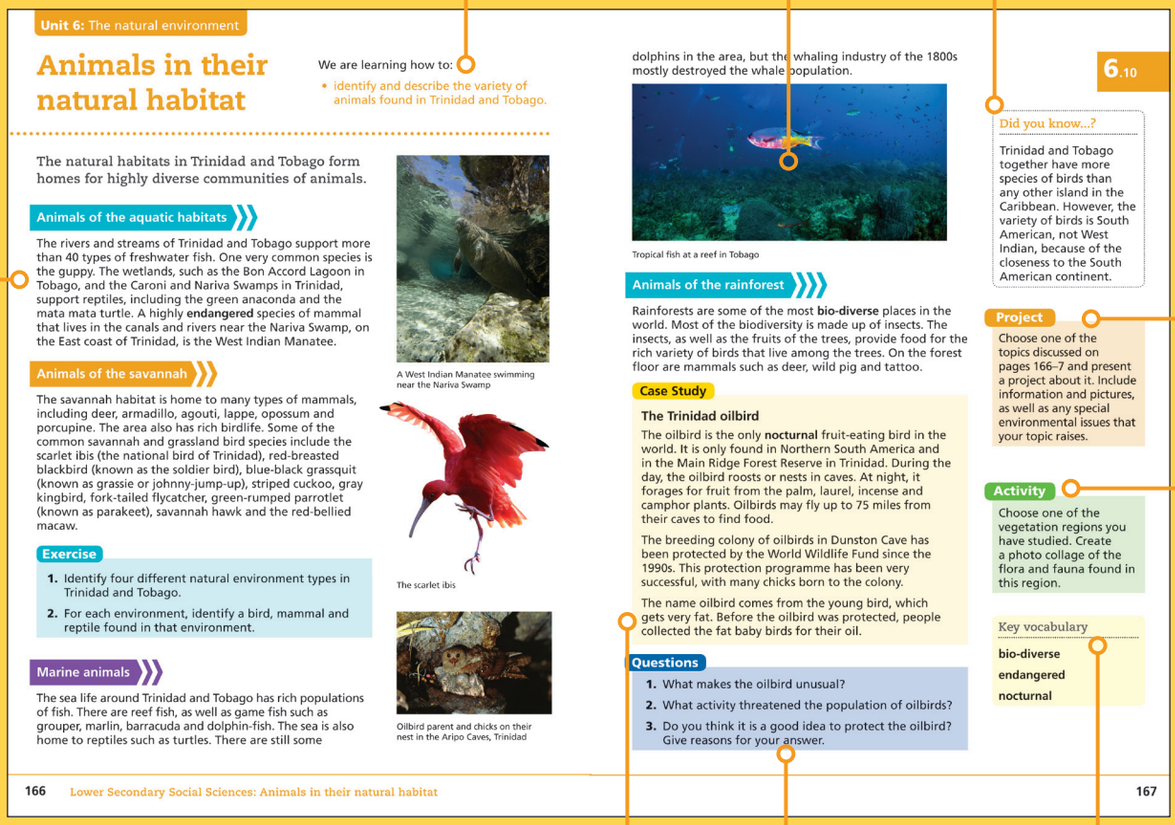


Unit 6: The natural environment

Animals in their natural habitat

6.10

We are learning how to:
- identify and describe the variety of animals found in Trinidad and Tobago.

The natural habitats in Trinidad and Tobago form homes for highly diverse communities of animals.

Animals of the aquatic habitats

The rivers and streams of Trinidad and Tobago support more than 40 types of freshwater fish. One very common species is the guppy. The wetlands, such as the Bon Accord Lagoon in Tobago, and the Caroni and Nariva Swamps in Trinidad, support reptiles, including the green anaconda and the mata mata turtle. A highly **endangered** species of mammal that lives in the canals and rivers near the Nariva Swamp, on the East coast of Trinidad, is the West Indian Manatee.

Animals of the savannah

The savannah habitat is home to many types of mammals, including deer, armadillo, agouti, lappe, opossum and porcupine. The area also has rich birdlife. Some of the common savannah and grassland bird species include the scarlet ibis (the national bird of Trinidad), red-breasted blackbird (known as the soldier bird), blue-black grassquit (known as grassie or johnny-jump-up), striped cuckoo, gray kingbird, fork-tailed flycatcher, green-rumped parrotlet (known as parakeet), savannah hawk and the red-bellied macaw.

Exercise

1. Identify four different natural environment types in Trinidad and Tobago.
2. For each environment, identify a bird, mammal and reptile found in that environment.

Marine animals

The sea life around Trinidad and Tobago has rich populations of fish. There are reef fish, as well as game fish such as grouper, marlin, barracuda and dolphin-fish. The sea is also home to reptiles such as turtles. There are still some dolphins in the area, but the whaling industry of the 1800s mostly destroyed the whale population.

A West Indian Manatee swimming near the Nariva Swamp

The scarlet ibis

Oilbird parent and chicks on their nest in the Aripo Caves, Trinidad

Tropical fish at a reef in Tobago

Animals of the rainforest

Rainforests are some of the most **bio-diverse** places in the world. Most of the biodiversity is made up of insects. The insects, as well as the fruits of the trees, provide food for the rich variety of birds that live among the trees. On the forest floor are mammals such as deer, wild pig and tattoo.

Case Study

The Trinidad oilbird

The oilbird is the only **nocturnal** fruit-eating bird in the world. It is only found in Northern South America and in the Main Ridge Forest Reserve in Trinidad. During the day, the oilbird roosts or nests in caves. At night, it forages for fruit from the palm, laurel, incense and camphor plants. Oilbirds may fly up to 75 miles from their caves to find food.

The breeding colony of oilbirds in Dunston Cave has been protected by the World Wildlife Fund since the 1990s. This protection programme has been very successful, with many chicks born to the colony.

The name oilbird comes from the young bird, which gets very fat. Before the oilbird was protected, people collected the fat baby birds for their oil.

Questions

1. What makes the oilbird unusual?
2. What activity threatened the population of oilbirds?
3. Do you think it is a good idea to protect the oilbird? Give reasons for your answer.

Did you know...?

Trinidad and Tobago together have more species of birds than any other island in the Caribbean. However, the variety of birds is South American, not West Indian, because of the closeness to the South American continent.

Project

Choose one of the topics discussed on pages 166–7 and present a project about it. Include information and pictures, as well as any special environmental issues that your topic raises.

Activity

Choose one of the vegetation regions you have studied. Create a photo collage of the flora and fauna found in this region.

Key vocabulary

bio-diverse
endangered
nocturnal

166 Lower Secondary Social Sciences: Animals in their natural habitat

167

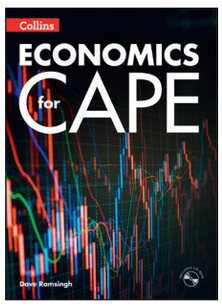
Make the content accessible with clear explanations about each topic

Provide real-life context and give further information with case studies

Enable teachers and students to check progress with quick questions

Highlight vocabulary crucial to understanding that students may not have come across before

Collins Economics for CAPE



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AUTHOR: Dave Ramsingh

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- Clear concise text describing key economic concepts in straightforward English
- Diagrams, bulleted lists and tables to summarise information
- Examples of common student errors and misconceptions
- Helpful hints and step by step guidelines wherever possible
- Section summaries and End of Unit summaries to aid revision
- Practice questions at the end of each Unit, to enable students to assess their progress

LEARNING OBJECTIVES

- Explain the shape of the supply curve for a firm and industry.
- Demonstrate and explain extension and contraction of supply.
- Demonstrate and explain shifts of the supply curve.
- Explain and calculate price elasticity of supply (PES).
- Calculate and interpret supply elasticities.
- Identify and explain periods of production.

REQUIRED KNOWLEDGE

Introductory knowledge of supply curves and the causes of their movements to the right or left.

TOPIC VALUE

When hurricanes and other natural disasters strike in Caribbean territories the prices of agricultural products rise. Stocking up on basic and survival items is a natural response. When items are in abundance prices are cheaper. This chapter provides an insight on supply.

Introduction

Chapter 6 explored output theory in the short and long run. Important issues related to production were also examined. This chapter explores the issue of supply as it relates to providing goods and services for the markets.

Supply may be defined as the quantity of goods or services that firms are willing and able to offer to the public for sale at different prices per time period.

A farmer may reap just 200 peppers to offer for sale to his customers and leave the rest in his field. His supply is therefore 200 peppers; the remaining quantity is considered stock.

The supply curves of individual farmers are added together horizontally to reflect the market supply of goods for all farmers in that industry. Individual and market supply curves are typically left to right and sloping upward to the right to reflect the law of supply.

This law states that more of a good is supplied at higher prices and less at lower prices, all other things remaining equal (*ceteris paribus*). This positive relationship between quantity supplied and price may be explained by:

- **Higher prices that offer better prospects for profit**
- **Firms that cannot survive at low prices enter with increased quantity when prices are higher**
- **Supplying more goods requires more factors of production, leading to higher costs which are reflected in higher prices.**

A supply curve for watermelons (see figure 7.1) may be plotted from a supply schedule (see table 7.1).

Table 7.1 The supply schedule

Price ($)	Quantity (kg)
10	400
9	300
8	200
7	100
5	40

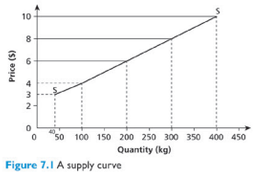

Figure 7.1 A supply curve

Factors affecting supply

Factors that affect the supply of a good or service are: price factors; and non-price factors.

Price factor

This refers to the prevailing price of a good that, when high, is an incentive to produce in expectation of profit.

Non-price factor/determinants

These are also called the conditions of supply that affect supply in a positive or negative way. The conditions of supply are:

- **The cost or prices of the inputs of production, e.g., land, labour, capital or raw materials**
- **Good or bad weather (for agricultural goods)**
- **Disease, pests or drought (for agricultural goods)**
- **Changes in technology**
- **Changes in the prices of other commodities**
- **The economic objectives of a firm**
- **Government indirect taxes, subsidies, regulations**
- **Time.**

Movements along a supply curve

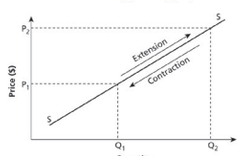

Figure 7.2 Movements along a supply curve

In figure 7.2, an extension of supply is a movement from left to right along the supply curve in response to a price change. Non-price factors are assumed to remain fixed when prices change. Note the change from Q_1 to Q_2 when prices rise from P_1 to P_2. The assumption made in this analysis is the short-run period.

A contraction of supply is exactly the opposite of extension. When prices fall from P_2 to P_1 supply falls from Q_2 to Q_1 (non-price factors remain fixed).

A change in supply

A change in supply refers to a shift of the supply curve to the right or left, depending on whether the change is positive or negative. This shift may be caused by a change in any of the non-price factors, as shown in table 7.2 below.

Table 7.2 Factors that cause a shift in the supply curve

Non-price factors	Direction of shift
An increase in the cost of the factors of production. Output is reduced.	Shift to the left
New technology, innovation or invention and increased productivity, e.g., microchip revolution.	Shift to the right
Adverse weather conditions for agricultural produce. If drought affects crops, supply will decrease.	Shift to the left
Government indirect taxes, e.g., VAT will raise supply costs and negatively affect profit. Output is reduced.	Shift to the left
Government subsidies cause supply costs to fall. Firms raise output.	Shift to the right
If a substitute good becomes cheaper to produce, firms will switch away from the original product, e.g., from oranges to grapefruits if sold at the same price.	Supply curve for oranges shifts to the left
Goods in joint supply, e.g., beef and leather. The production of beef invariably coincides with the production of leather.	Supply curve for leather shifts to the right if beef production increases
Aim of producers: a firm plans to restrict supply to obtain a high price, e.g., the OPEC (Organization of the Petroleum Exporting Countries) cartel.	Shift to the left

Figure 7.3 shows rightward (increases in supply) and leftward shifts (decreases) in response to a change in non-price factors. Figures 7.4a and 7.4b show horizontal addition of individual supply curves to derive market supply curve.

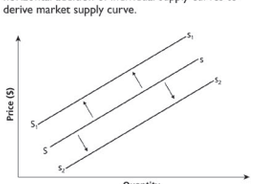

Figure 7.3 Shifting supply curves: left (S_1) and right (S_2)

If the supply curves of producer A, B and C are added horizontally, S_4 is the market supply curve as shown in figures 7.4a and 7.4b.

Key points

- **Supply is defined as the quantity of goods or services offered for sale at given prices per time period.**
- **More is supplied at higher prices because: of expectation of higher profits; it costs more to supply more; firms enter the industry in the long run in response to rising profits.**
- **Extension and contraction of supply are caused by price factors.**
- **Changes in the conditions of supply shift the supply curve to the left or right.**

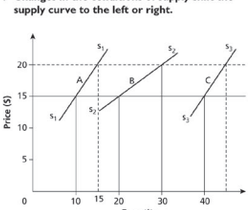

Figure 7.4a Supply curves of producers A, B, C

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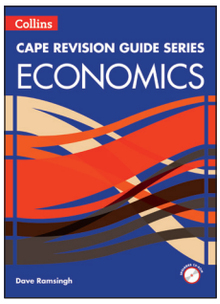

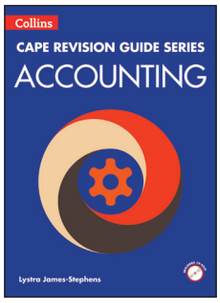

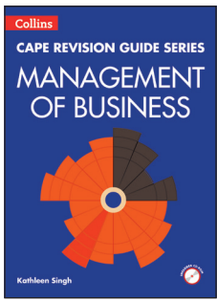

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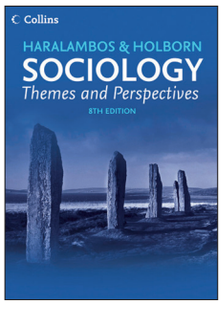

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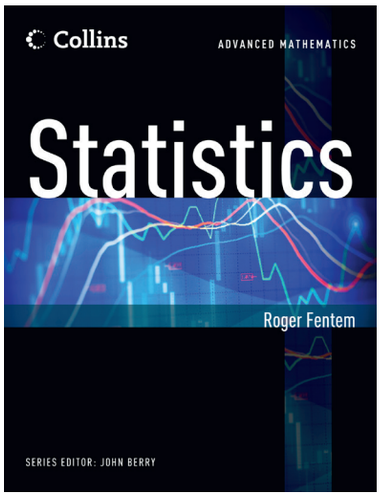

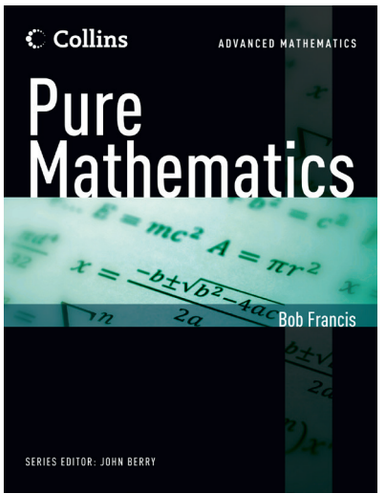

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