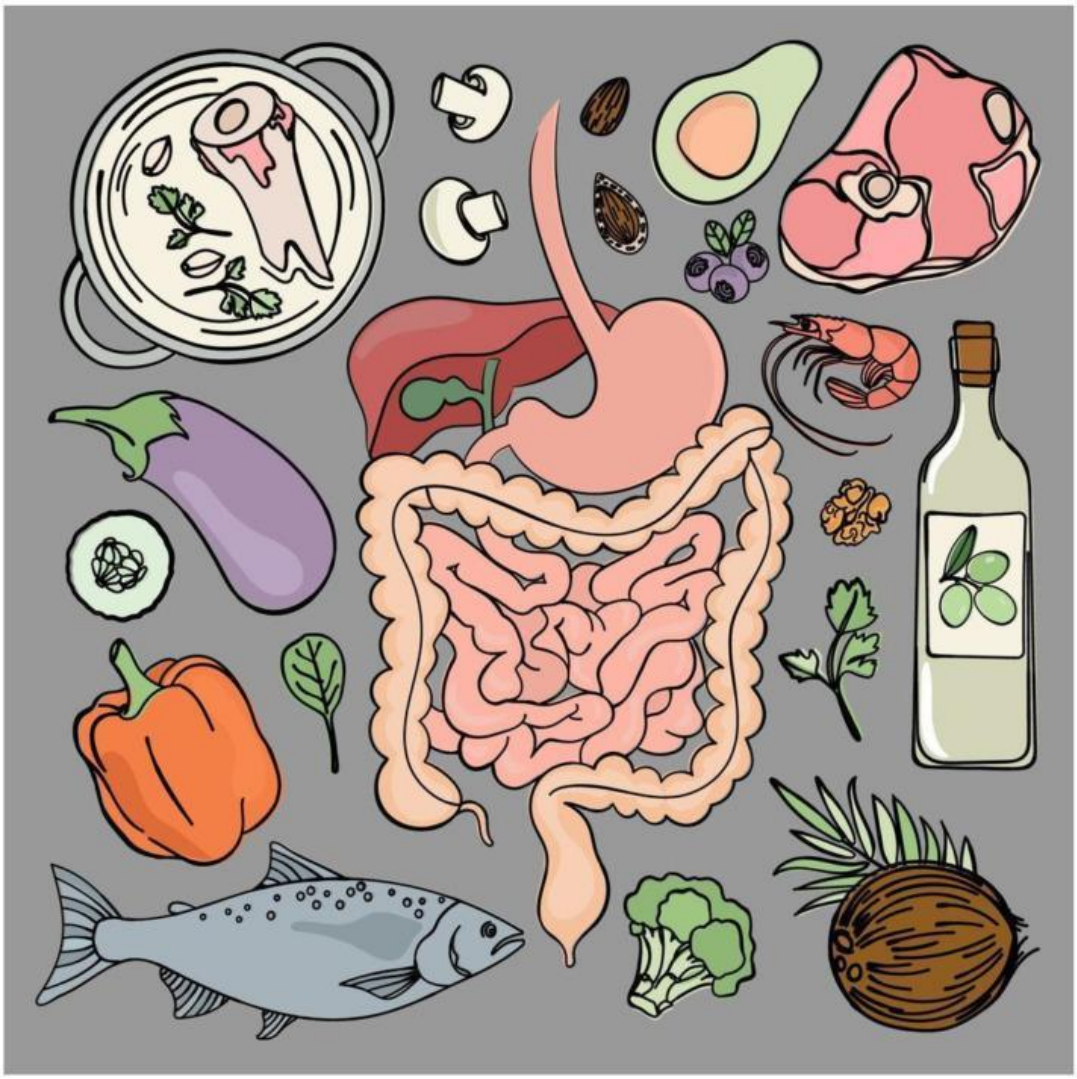
Date:

CSEC HUMAN AND SOCIAL BIOLOGY WORKBOOK 2



NAME:_____

TEACHER: _____

YEAR: 2025-2027

Prepared by: Simone Haughton 2010, 2011, 2012, 2013, 2025

LIVEWORKSHEETS

Date:

DIGESTIVE SYSTEM



In order to maintain life and good health we must eat properly. Nutrients are chemical substances found in the food that we eat. Digestion is the process where large, complex pieces of insoluble food are broken down into much smaller pieces of soluble food. These pieces of food are so small that they can be easily absorbed into the walls of the intestines from where they enter the bloodstream to be carried to all living tissues in the body.

Therefore, the role of the digestive system is to break down the large insoluble pieces of food we eat into smaller, soluble particles so that the body can use them to build and nourish cells and provide energy. The digestive system is therefore the system where nutrition occurs. Nutrition encompasses five stages:

1. *Ingestion*: the intake of food in the mouth
2. *Digestion*: the break-down of food along the alimentary canal
3. *Absorption:* this is the diffusion of digested food into the intestines before being sent to the liver and blood stream
4. *Assimilation*: the utilization of the digested food by the cells and organs of the body.
5. *Excretion*: the release of metabolic waste from the body.

   Egestion is the removal of undigested food that was never absorbed by the body. This food passes through the alimentary canal and is removed as feces through the anus. It is mainly plant material that humans are not able to digest.

   .

LIVEWORKSHEETS

Date:

Student's Work

Read page 2 and fill in the blanks. Read the activities of the people below and state if what they are doing invloves **ingestion, digestion, absorption, assimilation,** or **excretion**.

1. After nutrients moved from the small intestine into Anil's bloodstream, this shows _____.
2. Inside Jada's stomach, enzymes are breaking down the chicken she ate; this shows _____.
3. Kiara's cells used the absorbed nutrients to grow stronger and repair tissues; this shows _____.
4. Omar went to the bathroom to remove waste products from his body; this shows _____.
5. Marley chewed and swallowed a piece of pineapple; this shows _____.
6. After digestion, the soluble food molecules passed through Ravi's intestinal wall into the blood; this shows _____.
7. Sarah took a big spoonful of soup and swallowed it; this shows _____.

LIVEWORKSHEETS

Date:

The Food We Eat

There are seven major nutrients found in the food we eat. They are:

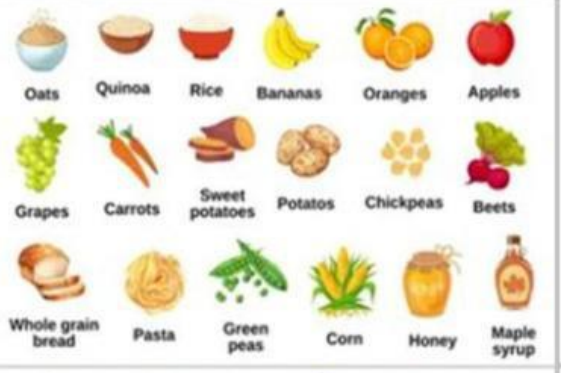
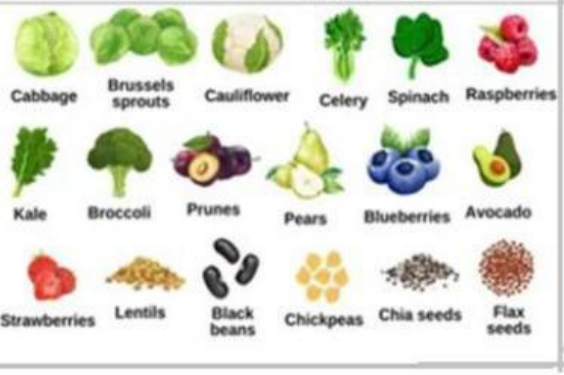
1. Carbohydrates
2. Proteins
3. Lipids (fats and oils)
4. Minerals
5. Vitamins
6. Water
7. Dietary fibre (cellulose / roughage)

Carbohydrates, Proteins and Fats are the nutrients that we need to eat in large amounts (macronutrients). Water and fibre are also very important for our health even though they have no nutritional values and do not ad to our intake of calories. Vitamins and minerals are only needed in small amounts in order to be effective (micronutrients). Of the seven nutreints, carbohydrates, proteins and fats need to be broken down into smaller digestible pieces.

The table on the other page compares carbohydrates, proteins and fats along with sources (foods that are rich in them), their smallest sub-units (what is absorbed after they are broken down during digestion) and assiciated deficiency diseases (illnesses that happen to the body if we do not eat enough of the nutrient).

LIVEWORKSHEETS

Date:

TYPE	IMPORTANCE	GOOD FOOD SOURCES	DEFICIENCY DISEASE
PROTEINS	**Proteins** are essential for building and repairing tissues. Proteins are the foundation of muscles, skin, and organs. They also support immune function and hormone production, keeping your body strong and healthy. **Broken down to amino acids sub-units**		KWASHIORKOR
CARBOHYDRATES	**Carbohydrates** are the body's primary source of energy. Carbohydrates fuel your daily activities and brain function. They're crucial for maintaining stamina and focus, especially when sourced from whole grains, fruits, and vegetables. **Broken down to glucose sugar sub-units**		MARASMUS
FATS	Healthy **fats** are vital for energy storage, brain health, and hormone regulation. They also help absorb essential vitamins (A, D, E, K) and protect organs, making them a key part of a balanced diet. **Broken down to fatty acids and glycerol sub-units**		DRY SKIN
FIBERS	**Fibers** are indispensable for digestive health. Fibers regulate blood sugar levels, lower cholesterol, and promote a healthy gut. Found in fruits, vegetables, and whole grains, they keep your system running smoothly. **Not broken down by the human body**		CONSTIPATION

LIVEWORKSHEETS

Date:

Student's Work

Read page 2, 4 and 5 and answers the questions below.

1. Write the names of the various foods under the correct headings below.



Carbohydrates	Proteins	Lipids / Fats

2. Multiple Choice: Circle the letter of the correct answers below.

1. Digestion is the process where:
a) Soluble food becomes insoluble
b) The body stores extra food c) Food is removed from the body
d) Large, insoluble food is broken into small, soluble pieces

2. Which stage of nutrition is the **intake of food into the mouth**?
a) Assimilation
b) Ingestion
c) Absorption
d) Excretion

3. Which of the following is a **macronutrient**?
a) Vitamins
b) Minerals
c) Carbohydrates
d) Water

4. Which nutrient helps the body but **does NOT provide calories**?
a) Fibre
b) Carbohydrates
c) Proteins
d) Fats

LIVEWORKSHEETS

Date:

3. Fill in the Blanks

Use the words in the box below to complete the sentences.

absorption	assimilation	carbohydrates	digestion	excretion
insoluble	micronutrients	nutrients	proteins	soluble

5. _____ are chemical substances found in the food that we eat.
6. Large, _____ food pieces are broken into small, _____ pieces during digestion.
7. The process of breaking down food along the alimentary canal is called _____.
8. _____ is when digested food moves into the intestines and then into the bloodstream.
9. _____ is when the cells of the body use the digested food.
10. Getting rid of waste from the body is called _____.
11. _____ and fats must be broken down into smaller digestible pieces.
12. Vitamins and minerals are needed in small amounts and are called _____.
13. _____ and proteins are examples of macronutrients that give us energy.
14. Carbohydrates, proteins and fats need to be broken down because they are too large and _____.

LIVEWORKSHEETS

Date:

4. True and False. Write TRUE if the statement is true and FALSE if it is false.

15. Water and fibre have no nutritional value but are still important for health.

    _____

16. Digestion happens so food can be carried in the blood to all parts of the body.

    _____

17. Assimilation means taking food into the mouth. _____

18. Excretion removes metabolic waste from the body. _____

19. Vitamins and minerals are needed in large amounts. _____

5. Short Answer. Answer the questions below.

(a) Define the term digestion. (**2 marks**)

_____

_____

(b) List three stages of nutrition (in the correct order) that occur after digestion. **(3 marks**)

_____

(c) Explain why digestion is necessary before nutrients can enter the bloodstream.(**3 marks**)

_____

_____

_____

LIVEWORKSHEETS

Date:

6. Re-read the notes above and use the information to fill out the Summary Chart below.

FEATURE	NUTRIENTS		
	CARBOHYDRATES	PROTEINS	FATS
1. Use in the body [2 marks each]			
2. Sources [2 marks each]			
3. Building blocks / Subunits [2 marks each]			

LIVEWORKSHEETS

Date:

Vitamins and Deficiency Diseases

Vitamins are essential nutrients that the body needs in small amounts to stay healthy. They are **organic substances**, meaning they are made only in living things. Some vitamins are **fat-soluble**, meaning they can be stored in the body's fat tissues. Others are **water-soluble**, meaning they dissolve in water and cannot be stored, so they must be eaten more regularly. Each vitamin has important functions and deficiency diseases that occur if the body does not get enough.

Vitamin A is a **fat-soluble** vitamin. It is important for good eyesight, healthy skin, and proper growth. Common food sources include **carrots**, **spinach**, and **eggs**. A lack of Vitamin A can lead to **night-blindness**, where a person cannot see well in dim light.

Vitamin B is actually a group of water-soluble vitamins that help with energy release and proper nerve function. Foods rich in B vitamins include **whole grains**, **meat**, and **beans**. A deficiency in certain B vitamins can cause **beri-beri**, a disease that affects the nerves and muscles, leading to weakness and difficulty walking.

Vitamin C is a **water-soluble** vitamin needed for healing wounds, maintaining healthy gums, and strengthening the immune system. It is found in **citrus fruits** like oranges, **tomatoes**, and **broccoli**. Not getting enough Vitamin C causes **scurvy**, a disease that leads to bleeding gums, weakness, and slow wound healing.

Vitamin D is a **fat-soluble** vitamin that helps the body absorb calcium for strong bones and teeth. Good sources include **sunlight on the skin**, **milk**, and **oily fish** such as salmon. Without enough Vitamin D, a person may develop **rickets**, a condition in children where the bones become soft and bend easily.

Vitamin E is a **fat-soluble** vitamin that protects cells from damage and supports the immune system. It can be found in **nuts**, **seeds**, and **vegetable oils**. A deficiency of Vitamin E is rare but can cause **nerve and muscle problems**, including muscle weakness.

Vitamin K is a **fat-soluble** vitamin needed for blood clotting. This helps the body stop bleeding after a cut or injury. Sources of Vitamin K include **leafy green vegetables**, **liver**, and **broccoli**. A lack of Vitamin K can lead to **bleeding and blood-clotting problems**, where the blood cannot clot properly.

Understanding these vitamins helps us make healthy food choices and avoid deficiency diseases.

LIVEWORKSHEETS

Date:

Student's Work

Read the information on page 10 about Vitamins and Deficiency Diseases and complete the table below.

Vitamin	Fat or Water Soluble?	Three Sources	Importance in the Body	Deficiency Disease
A				
B				
C				
D				
E				
K				

LIVEWORKSHEETS

Date:

Minerals and Deficiency Diseases

Minerals are chemical substances found in food that the body needs to stay strong and healthy. Unlike vitamins, minerals are **inorganic substances** and come from the Earth, soil, rocks and water and enter our food through plants and animals. Each mineral plays an important role in the body, and a lack of any of them can lead to health problems.

Calcium is one of the most important minerals for **strong bones and teeth**, proper nerve function, and muscle contraction. Good sources of calcium include **milk and dairy products**, **leafy green vegetables**, and **sardines**. A lack of calcium can lead to **rickets**, a condition where bones become soft and weak, especially in children.

Magnesium helps the body maintain healthy muscles and nerves, supports energy production, and keeps the heartbeat steady. Foods rich in magnesium include **nuts**, **whole grains**, and **dark green vegetables** like spinach. A deficiency in magnesium can cause **muscle cramps**, **weakness**, and **irregular heartbeat**.

Fluoride helps protect teeth from decay and strengthens bones. It is commonly found in **fluoridated water**, **tea**, and **seafood**. Without enough fluoride, a person may develop **tooth decay** and weaker tooth enamel.

Iodine is needed for the thyroid gland to make hormones that control growth and metabolism. Sources of iodine include **iodised salt**, **seafood**, and **dairy products**. A deficiency can lead to **goitre**, a swelling of the neck caused by an enlarged thyroid gland.

Phosphorus works with calcium to build strong bones and teeth and is also involved in energy release inside cells. Foods high in phosphorus include **meat**, **beans**, and **milk**. If a person does not get enough phosphorus, they may suffer from **weak bones**, fatigue, and poor growth.

Sodium helps regulate the body's water balance, supports nerve function, and helps muscles contract. It is found in **table salt**, **bread**, and **processed foods**. Low levels of sodium can lead to **muscle cramps**, **dizziness**, and **low blood pressure**.

Iron is needed to make haemoglobin, the substance in red blood cells that carries oxygen around the body. Good sources of iron include **red meat**, **beans**, and **spinach**. An iron deficiency causes **anaemia**, which leads to tiredness, weakness, and shortness of breath.

These minerals are essential to good health, and eating a balanced diet helps ensure the body gets the right amounts to function properly.

LIVEWORKSHEETS

Date:

Student's Work

Read the information on page 12 about Minerals and Deficiency Diseases and complete the table below.

Mineral	Three Sources	Importance in the Body	Deficiency Disease
Calcium			
Fluoride			
Iodine			
Iron			
Magnesium			
Phosphorus			
Sodium			

LIVEWORKSHEETS