Province of the

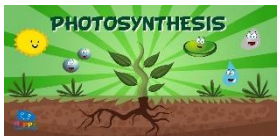
# EASTERN CAPE

EDUCATION

## DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)

## HOME SCHOOLING SELF-STUDY WORKSHEET ANSWER SHEET

| | | | | | |
|---|---|---|---|---|---|
| **SUBJECT** | LIFE SCIENCES | **GRADE** | 11 | **DATE** | 07 April 2020 |
| **TOPIC** | Photosynthesis | **TERM 1 REVISION** | | **TERM 2 CONTENT** | ✓ |

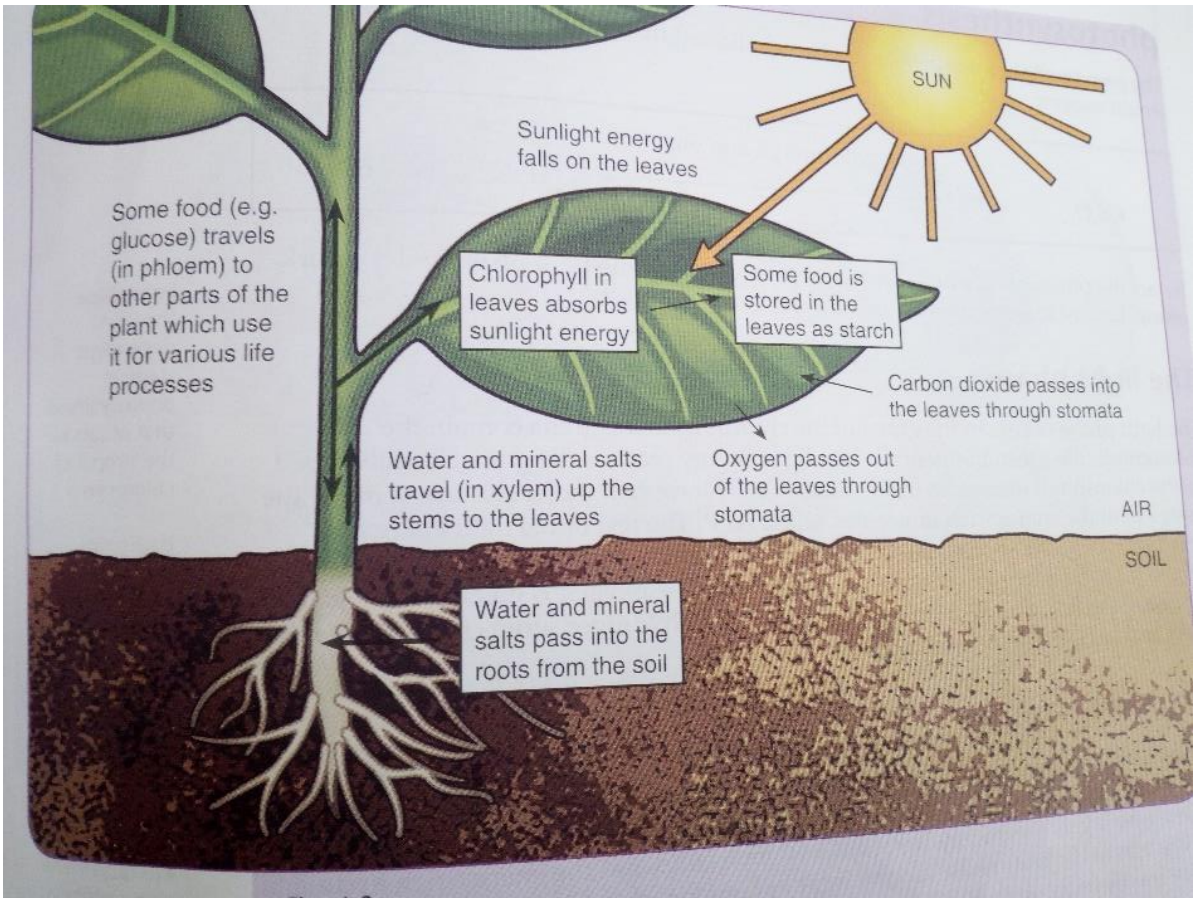



**WORKSHEET 1: Possible answers**

1. Organisms require energy for body processes such as growth, movement, cell division; maintain a constant body temperature and active transport.
2. Plants and the sun.

3. **Plants** produce their own food through the process of photosynthesis and are said to have **autotrophic nutrition.**
   Organisms, for e.g. **animals** who eat their food, have **heterotrophic nutrition.**

4.




***Taken from Solutions for All (Macmillan)***

5. Chlorophyll, radiant energy, water and carbon dioxide are necessary

6 Glucose is formed and Oxygen is released as a waste product.

Radiant energy, Chlorophyll and Enzymes

7. Carbon dioxide + water → glucose + oxygen

8 $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

**ACTIVITY 1: Memo**

1. Where do plants get the water, they that they need for photosynthesis? From the soil
2. How does the water get to the leaves? Water travel (in xylem) up the stem to the leaves
3. Where do the plants get the carbon dioxide that they need for photosynthesis? From the air
4. How does the carbon dioxide get into the leaves? Carbon dioxide passes into the leaves through stomata
5. Where do plants get the light energy that they need for photosynthesis? From the sun
6. What is the green pigment chlorophyll used for? Chlorophyll in leaves absorbs sunlight energy
7. What organelle contains chlorophyll? Chloroplast
8. What happens to the oxygen that the plants produce as a by-product of photosynthesis?
   Oxygen passes out of the leaves through stomata
9. What happens to the glucose that the plants produce during photosynthesis? The plant uses glucose in the process of cellular respiration. It is also used to synthesise other kinds of food substances, for example lipids, proteins and starch. Starch is a form of stored energy in the plant

**ACTIVITY 2: Crossword puzzle memo**

| No. | TERM | EXPLANATION |
|---|---|---|
| 1 | Cellular respiration | The process during which cells break up glucose molecules to release energy that the cells can use (8,11) |
| 2 | Autotrophs | Organisms that can produce their own food from the substances available in their surroundings using light (10) |
| 3 | Water | An inorganic compound needed for photosynthesis. (5) |
| 4 | Glucose | An energy-rich molecule that the cells in the plant use in the process of cellular respiration (7) |
| 5 | Chlorophyll | A plant pigment that absorbs sunlight. (11) |
| 6 | Oxygen | A by-product of photosynthesis. (6) |
| 7 | Heterotrophs | Organisms that cannot synthesize their own food and rely on other organisms — both plants and animals — for nutrition. (12) |
| 8 | Six | Number of molecules of oxygen produced along with one molecule of sugar. (3) |

| | | |
|---|---|---|
| 9 | Anabolic | Chemical reactions that occur when small, simple molecules are synthesized into large, complex molecules (8) |
| 10 | Food chain | The links between the energy that carnivores get from eating to the energy captured by photosynthesis. (4,5) |
| 11 | Herbivore | An animal that eats plants. (9) |
| 12 | Photosynthesis | A process that occurs in green plants whereby they trap sunlight energy and use it to make food and release oxygen (14) |