

### Appendix

Examples of assessment questions which are used in Kenyan text books

Which one of the following is NOT a storage pest.

- A. Weevil
- B. Rat
- C. Cutworm
- D. White ant

(JKF; Primary Science Education Foundation Science 7 P.45)

Copy and complete these sentences using the following words:

producers    sunlight    carbon dioxide    depend    meat

Plants depend on \_\_\_\_\_, water and \_\_\_\_\_ in order to grow. Plants are called \_\_\_\_\_. Carnivores eat \_\_\_\_\_ so they \_\_\_\_\_ on other animals for their food.

(Macmillan; Macmillan Primary Science, Pupil's book 7 P.60)

Copy and complete these sentences using the following words:

interdependent    petals    nectary    nectar    pollen    anthers  
pollinated    variation

Sunbirds depend on flowering plants for their \_\_\_\_\_. They have specially adapted beaks to enable them to reach right down to the \_\_\_\_\_ at the base of the \_\_\_\_\_.

When sunbirds visit a flower for nectar, \_\_\_\_\_ is brushed onto their bodies from the \_\_\_\_\_ of the flower. In this way the flowers are cross \_\_\_\_\_. Cross-pollination is important since it creates \_\_\_\_\_ in \_\_\_\_\_ next season's plants. Flowers and sunbirds are \_\_\_\_\_.

Arrange each list of organisms into a food chain:

- (a) cow, human, grass
- (b) weaverbird, maize, hawk
- (c) caterpillar, cabbage, hawk
- (d) grass, lion, wildebeest

(Macmillan; Macmillan Primary Science, Pupil's book 7 P.61)

Maria collected common pests and put them into two groups as shown below.

**Group X**

- Weevils
- Mice
- Rats

**Group Y**

- Stalkborer
- Aphid
- Cut worm

Which one of the following rules did Maria use to group the pests?

- A. Pests of grain crops and those of non-grain crops.
- B. Pests that can be controlled by scaring and those that can be controlled by hand pruning
- C. Storage pests and field pests.
- D. Insect pest and non insect pest.

(Loughorn, Understanding Science, Pupil's Book 7 pp.36-37)

Class seven pupils matched the following parasites to their effects on the animals. Which one did they match wrongly?

- A. Fleas – skin irritation.
- B. Tapeworms – liver bleeding.
- C. Mites – skin damage.
- D. Roundworms – swollen belly.

Most of the external parasites feed by

- A. sucking plant juices.
- B. eating digested food.
- C. sucking the host's milk.
- D. sucking the host's blood.

Examples of internal parasites are

- A. tapeworms, roundworms, ringworms.
- B. ringworms, roundworms, liver flukes.
- C. liver flukes, ringworms, tapeworms.
- D. tapeworms, roundworms, hookworms.

Dipping animals in a dip wash or spraying them helps to control

- A. internal parasites.
- B. external parasites.
- C. worms of all types.
- D. fleas only.

(Oxford; Science in Action7 P.57)

Copy and complete these sentences using the following words:

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- nectary
- nectar
- pollen
- anthers
- pollinated
- variation

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(Macmillan; Macmillan Primary Science, Pupil's book 7 P.61)

After harvesting grains, Mukulima was advised to apply a chemical dust to the grain before storing it. Which one of the following was the reason for applying the dust?

- A. To protect the grains from rotting.
- B. To protect grains from field pests.
- C. To keep the grains dry.
- D. To protect grains from storage pests.

(Loughorn; Understanding Science, Pupil's Book 7 P.36)

### Appendix

Examples of materials which are used in Kenyan text books

#### Interdependence among plants

##### Support

##### Support

Plants that have weak stems get support from plants with strong stems. They grow upwards and are able to receive sunlight on their leaves for photosynthesis to take place. Such plants are called climbers or creepers.

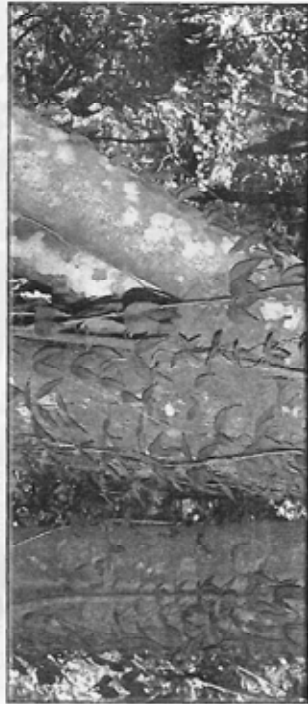


Figure 5.1: Plants getting support from other plants

(Oxford; Science in Action 7 P.38)

##### Support

Now look at these plants.



Using tendrils for support

Twining round for support

(JKF; Primary Science Education Foundation Science 7 P.28)

##### Habitat

##### Habitat

Some plants live on other plants. These plants are called parasites. They get food and shelter from them. Examples of parasites are lichen, mistletoe and moss, which are found on the stems of trees. Lichen is green, grey or yellow in colour. It grows on rocks, tree trunks, roofs and walls.



Figure 5.2: Plant parasite

(Oxford; Science in Action 7 P.39)

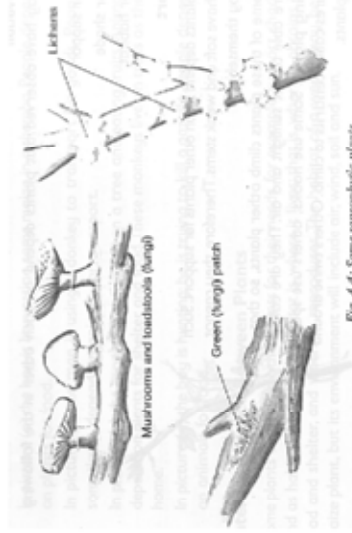


Fig. 4.4: Some saprophytic plants

(KLB; Primary Science Pupil's Book for Standard Seven P.46)

##### Shade

##### Shade

Some small plants lose water easily due to direct exposure to sunlight. When they grow under big trees, they lose less water. This happens especially in forests where they are protected by tall trees.



Figure 5.4: Plants growing under others

(Oxford; Science in Action 7 P.39)

**Shade**

Some plants cannot survive in bright sunlight and rely on the shade provided by other plants. They only grow well under the shade of other plants. The shade protects the plant from damage by the intense sunlight.



Figure 4.5: Some plants depend on other plants for shade

(Macmillan; Macmillan Primary Science, Pupil's book 7 P.40)

**Soil fertility**

soil fertility.

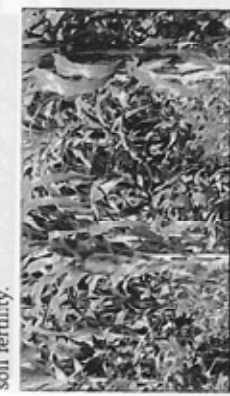


Figure 5.6: Intercropping

Maize and beans can be planted together. This is called **interplanting** or **intercropping**.

When plants die and rot, they are said to decompose. Decomposition adds fertility to the soil. The soil gets soft and rich in humus. Plants growing on this soil are healthy.

(Oxford; Science in Action 7 P.40)

**Interdependence among plants and animals**

**Interdependence among plants and animals**

**Food and nutrients**

Green plants make their food during photosynthesis. Many animals eat green plants for food because they do not make their own food. Animals that eat plants only are called herbivores.



Figure 5.8: A carnivore eating

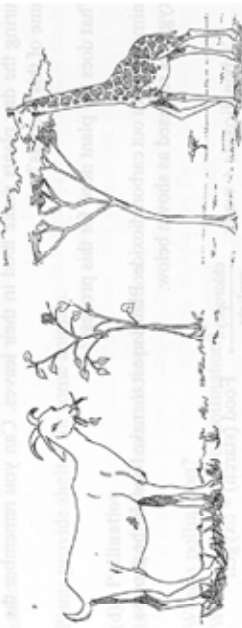


Figure 5.7: Herbivores grazing

Some animals eat other animals that eat plants. This means they feed on the plants indirectly. Animals that eat other animals are flesh eaters. They are called carnivores.

(Oxford; Science in Action 7 P.40)

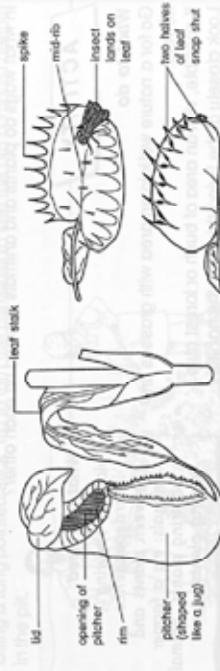
**Look at these animals.**



(JKF; Primary Science Education Foundation Science 7 P.31)

**Food**

Some animals feed only on plants. These animals are known as **herbivores**. Examples of herbivores are cows, goats, buffaloes, sheep, giraffes, etc. Some plants feed on animals! These plants, called **insectivorous plants**, feed on insects. You can see some examples in Figure 4.7



(Macmillan; Macmillan Primary Science, Pupil's book 7 P.42)

**Oxygen and carbon dioxide**

During photosynthesis, the plants use **carbon dioxide** gas from the air and release **oxygen** gas into the air. When animals eat food, they use the food to release energy needed for body processes. The food is 'burned' in a process called **respiration**. During this process, animals use **oxygen** from the air and release **carbon dioxide** into the air. You can see from this that animals need plants to supply them with oxygen for respiration, and plants need animals to supply them with carbon dioxide for photosynthesis.

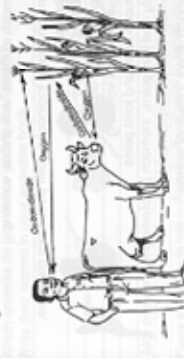


Figure 4.8: Interdependence of plants and animals for gases in the air

(Macmillan; Macmillan Primary Science, Pupil's book 7 P.43)

### Oxygen and carbon dioxide

During respiration, animals take in oxygen from the atmosphere. Green plants give out oxygen during photosynthesis. In this way, plants provide animals with oxygen. Animals give out carbon dioxide during respiration; plants use the carbon dioxide to make food during photosynthesis.

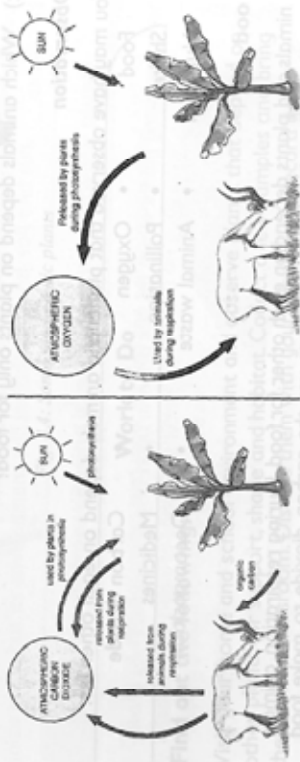


Fig. 4.6 : Plants and animals depend on each other for oxygen and carbon dioxide

(KLB, Primary Science Pupil's Book for Standard Seven P.48)

### Decomposition

Decomposition is the process of breaking down decaying matter from dead plants and animals. This process releases nutrients. The nutrients contain minerals that make the soil fertile for plants. Small animals called bacteria help in this process of decomposition.

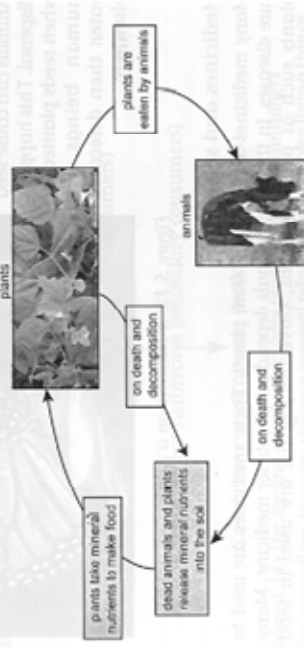


Figure 5.10: Interdependence among plants and animals on decomposition

(Oxford; Science in Action 7 P.41)

### Pollination

Many plants depend on animals for pollination. Insects such as bees and butterflies pollinate flowers as they move from one flower to another. Birds such as the sunbird also pollinate flowers.



(Longhorn; Understanding Science, Pupil's Book 7 P. 28)

Which animals do you notice visiting the flowers? Write their names in your exercise book.



Figure 4.11 Animals help in the pollination of plants by transferring pollen on their bodies

(Macmillan; Macmillan Primary Science, Pupil's book 7 P.45)

### Shelter

#### Shelter

Some animals depend upon plants for shelter against rain and hot sun. Other animals such as birds, insects and monkeys make their homes on trees.



Fig. 4.8: Birds make their nests on trees; monkeys live on trees

(KLB; Primary Science Pupils' Book for Standard Seven P.49)

### Pollination

Furniture and building materials

**Fuel, furniture and building materials**

People use trees as a source of fuel, either as charcoal or firewood. Trees are used as timber for building houses and making furniture.



Figure 5.13: Plants used for fuel and furniture

(Oxford: Science in Action 7 P.43)

**Medicines and spices**

Herbs have been used as medicine since ancient times. Different plants are used as herbal medicine by different communities for different illnesses. Table 2 lists some of these plants and the illnesses they are said to assist in healing.

Table 2: Some plants and illness they are said to assist in healing

Plant	Good for ...
garlic (kitungu scamu)	intestinal parasites, ulcers, stomach ache, coughing and high blood pressure
ginger (tangawizi)	stomach ailments, sore throat, vomiting
aloe vera	stomach ulcers, toothache, joint pains, skin diseases, diabetes
pumpkin (seeds)	intestinal worms
sunflower (seeds)	helps digestion and joints
tomato	helps to control vomiting
stinging nettle	reduces fever and joint pains
wheat	body and joint pains, stomach problems and common cold
cabbage	stomach ulcers, common cold
carrot	stomach ulcers, intestinal worms
neem tree	is said to treat over 40 different diseases, among which are stomach ulcers, malaria, fever, etc.

(Macmillan: Macmillan Primary Science, Pupil's book 7 P.44)

**Food chain**

The dependence of animals on plants and other animals for their food can be shown as a **food chain**. For example, gazelles eat grass while lions eat gazelles. This can be written as a food chain:

grass → gazelle → lion

The arrows represent 'is eaten by'. Another example is:

grass → locust → lizard → hawk

In this food chain the locust eats the grass, the lizard eats the locust and the hawk eats the lizard. These food chains are illustrated in Figure 4.13.

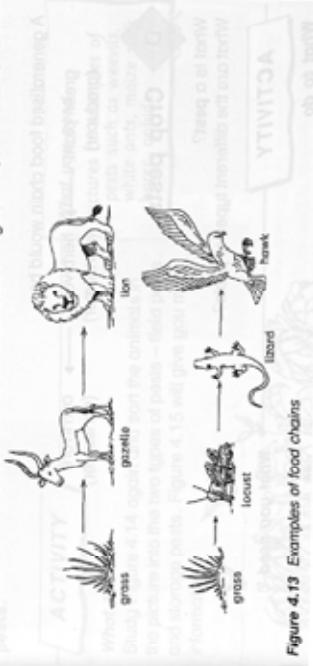


Figure 4.13: Examples of food chains

(Macmillan: Macmillan Primary Science, Pupil's book 7 P.47)





**Crop Pests**



Figure 6.1: Examples of crop pests

(Oxford: Science in Action 7 P.46)

The table below shows some crop pests, crop attacked and part of crop

Pest	Crop attacked	Part of crop attacked
 Aphid	Vegetables, beans, sorghum, carrots, peas, citrus fruits.	Suck plant sap on leaves and fruits. They leave brown marks on the leaves.
 Cutworm	Maize, beans, tomatoes, wheat, rice, cabbage etc.	They cut young stems at the ground level.
 Stalkborer	Maize, sugarcane, sorghum	They make holes on stems.
 Weaverbird	Maize, millet, rice, wheat, sorghum	They eat grains.

(Longhorn, Understanding Science, Pupil's Book 7 P.32)

The table below shows some field pests, the crops they attack and the parts of the plant they attack.

Pests	Examples of crops attacked	Part of plant attacked
Aphids	Tobacco, beans, sorghum, groundnuts, peas, carrots, cabbages, citrus fruits.	Suck plant sap on leaves and fruits. They leave brown patches on the leaves.
Army worms	Grass, sorghum, wheat, rice, maize, millet, beans.	They eat the leaves.
Stalkborer	Maize, sugarcane, sorghum.	They make holes in the stems.
Cutworms	Maize, wheat, rice, cabbages.	They eat the stems at the ground level.
Locusts	Almost all plants.	They eat every available leaf.
Quelea, weaverbird, Termites	Cereals such as maize, wheat, sorghum, rice and millet. Maize, millet, sorghum, beans, wheat, rice.	They eat the grains. They eat all parts of the crop plants.

(Oxford, Science in Action 7 P.47)

Control of crop pests

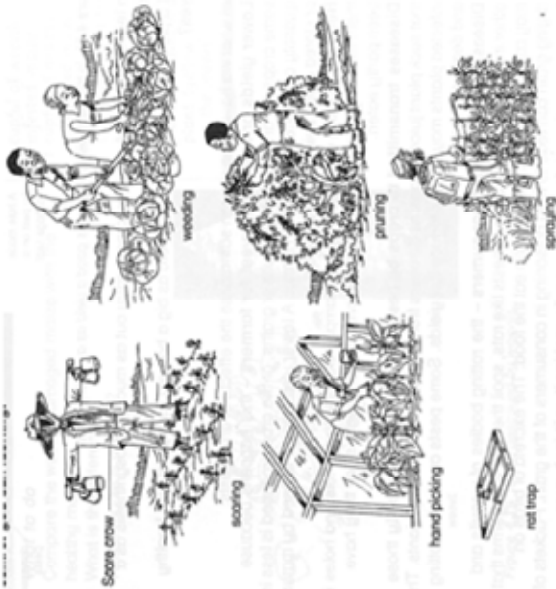


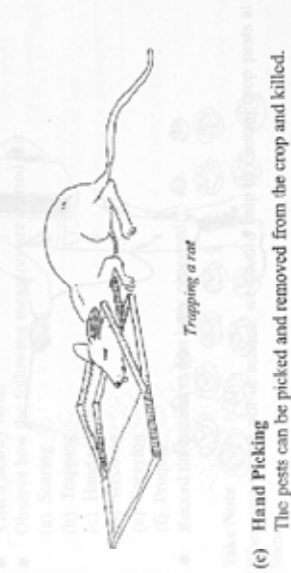
Figure 4.21 Various methods of pest control

(Macmillan, Macmillan Primary Science, Pupil's book 7 P.54)

(b) Trapping

Some pests like moles and rats can be trapped using special traps. The trap is placed in the path of the pest with a bait. As the animal comes for the bait it is caught.

How are rats and moles trapped in your area?



(c) Hand Picking

The pests can be picked and removed from the crop and killed.

(JKE; Primary Science Education Foundation Science 7 P.43)

Storage Pests

Storage pests

Crop harvests are stored for future use. There are pests that attack and spoil the stored crop. Some of these pests are rodents and grain borers.



(Oxford; Science in Action 7 P:49)

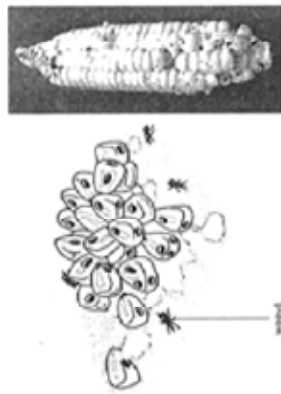


Figure 4.19 Maize damaged by weevils

(Macmillan; Macmillan Primary Science, Pupil's book 7 P:52)

Storage pests attack stored crops.

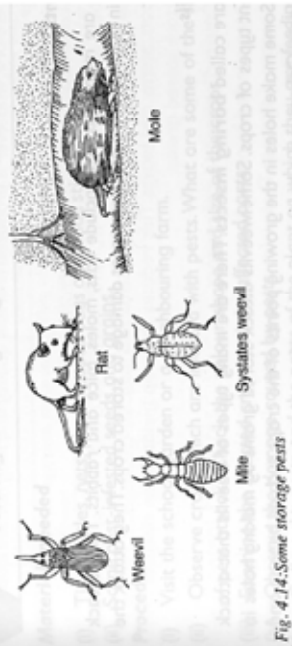


Fig. 4.14: Some storage pests

(KLB; Primary Science Pupil's Book for Standard Seven P:57)

Effects of external livestock parasites  
The table below shows examples of external livestock parasites, the animals they attack and their effects on livestock.

Parasites	Animals attacked	Effects on the animals
Ticks	Cattle, sheep, goats, horses, camels, pigs and donkeys.	<ul style="list-style-type: none"> <li>• Cause loss of blood</li> <li>• Irritate the skin.</li> <li>• Damage the skin and hides.</li> <li>• Transmit diseases such as East Coast Fever.</li> </ul>
Fleas	Poultry, rabbits, pigs, cows, goats, sheep.	<ul style="list-style-type: none"> <li>• Irritate the skin.</li> <li>• Make the host weak.</li> </ul>
Lice	Sheep, goats, horses, cattle, pigs, poultry.	<ul style="list-style-type: none"> <li>• Irritate the skin.</li> <li>• Cause loss of blood.</li> </ul>
Mites	Cattle, sheep, goats, poultry, donkeys, horses.	<ul style="list-style-type: none"> <li>• Damage skins and hides</li> <li>• Cause discomfort to the animals.</li> <li>• Cause sores on the skin.</li> <li>• Damage wool on sheep.</li> <li>• Loss of weight.</li> </ul>
Tsetse flies	Cattle, sheep, goats, donkeys, camels, horses.	<ul style="list-style-type: none"> <li>• Cause loss of blood.</li> <li>• Irritate the animal.</li> <li>• Their bites are painful.</li> <li>• Transmit diseases such as trypanosomiasis.</li> </ul>

(Oxford; Science in Action 7 P:53)