FUN ACTIVITY SURVIVAL OF THE SPECIES

APPARATUS AND MATERIALS

Scissors, glue, pictures of animals, and manila cards.

INDIVIDUAL ACTIVITY

STEPS

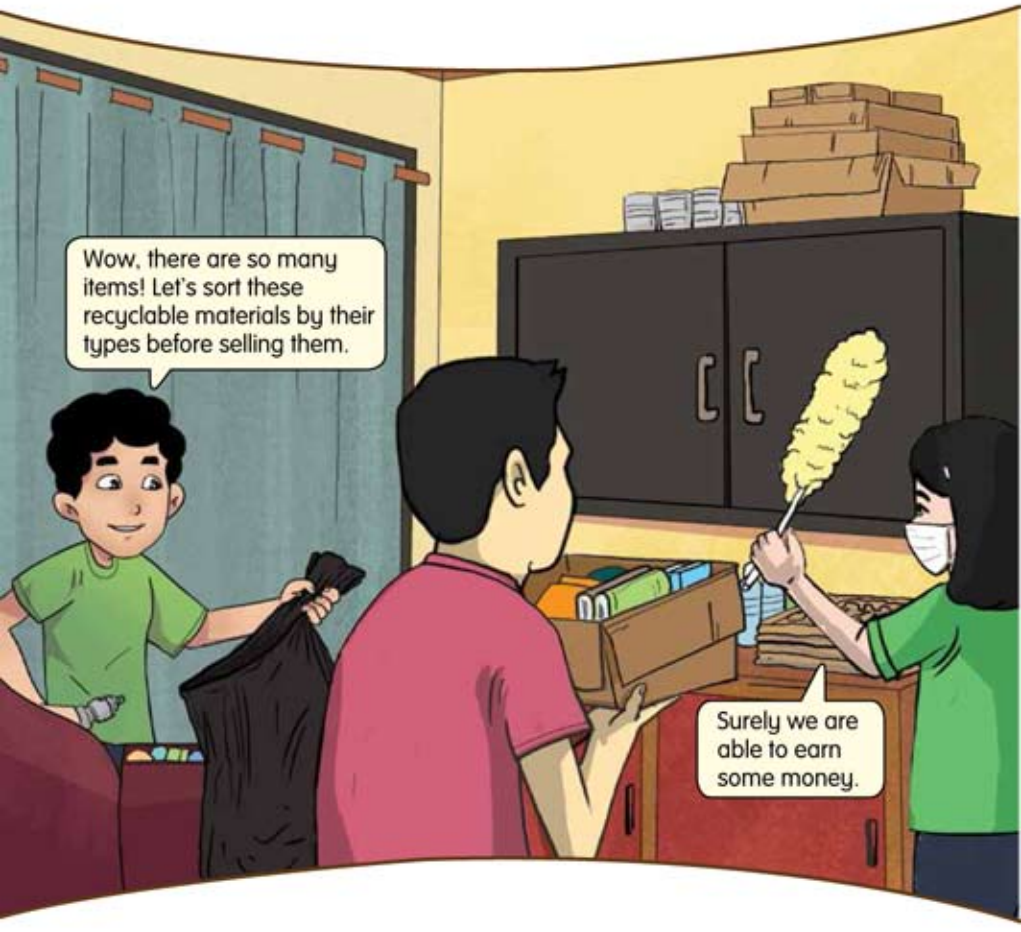
1. Select some examples of how animals ensure the survival of their young.
2. Draw or print some pictures of your choice of animals and their young. Paste them on the folded manila cards as shown below.
3. Paste the pictures showing how the animals ensure the survival of their young on each fold.

4. Exhibit your work and discuss with your friends.

(a) Why do animals protect their young? Explain.
(b) How do geese, lizards, and snails protect their eggs?

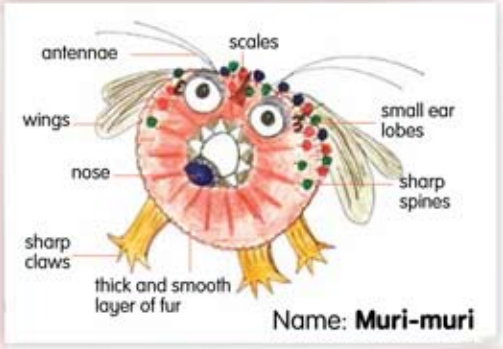
IMAGINARY ANIMAL

The pupils of Year 5 Zamrud are helping Mr Zaki to clean the school storeroom that stores recyclable materials. The materials are collected from the pupils and their parents during the recycling campaign conducted by the Science Committee of the school. Observe the situation below.



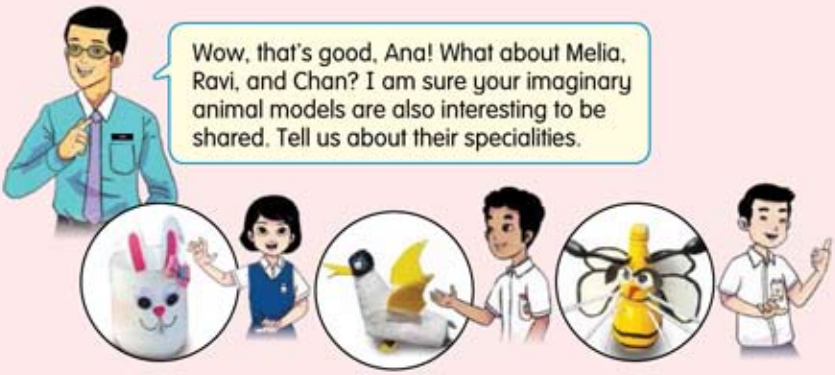

Mr Zaki, can I have some of these boxes and tools?
Sure, Chan. What do you want to do with them?
I want to do a project using recyclable materials.
Oh, I see! The Science Committee of the school will be organising a competition to create an imaginary animal model. We have just learned about the specific characteristics and behaviours of animals to protect themselves. I encourage all of you to join the competition.
Sure, Mr Zaki. I will join it. This box will be used to make the wings of my imaginary animal model.
Wow, that's interesting! I will also join the competition. This plastic bottle will be used to make the nose of my imaginary animal model.
That's good. All your projects will be displayed during the science fair later.

Let us look at the imaginary animal model made by Ana.



The sketch of Ana's imaginary animal model

Ana's imaginary animal model



FUN ACTIVITY IMAGINARY ANIMAL

APPARATUS AND MATERIALS

A4 paper, pencils, and coloured pencils.

INDIVIDUAL ACTIVITY

STEPS

1. Sketch a model of your imaginary animal on the A4 paper.
2. Label the specific characteristics and behaviours of your imaginary animal model.
3. Suggest the needed materials and apparatus to build your imaginary animal model.
4. Then, make your imaginary animal model.
5. Present your work in front of the class.

(a) Explain the specific characteristics of your imaginary animal that can be used to protect it from enemies and extreme weather.

(b) What will happen if your imaginary animal does not have the specific characteristics as mentioned?

(c) In your opinion, why does God create different specific characteristics for animals to protect themselves?

(d) How those characteristics ensure the balance of nature?

FOOD CHAIN

Living things in a habitat is interdependent for food sources. Identify the animals in the situation below and state their food.

Based on the situation at the mangrove swamp, what is the food for each identified animal?

A food chain is the **food relationship among living things**.

Therefore, based on all the living things identified in the habitat at the mangrove swamp, we can state that:

The relationship is shown as follows:

This food chain can finally be summarised as follows:

fruits → squirrel → snake → eagle

arrow (→) means **eaten by**

The food relationship among the living things above is an example of a food chain in a mangrove swamp habitat. Build examples of other food chains in this habitat.

PRODUCER AND CONSUMER

Let us identify the **producers** and **consumers** based on the food chain in a mangrove swamp habitat.

Do you still remember about photosynthesis? In the presence of sunlight, plants make their own food. Therefore, plants are called **producers**.

Mr Zaki, can other living things be producers?

No, because only plants can carry out photosynthesis. Where do plants get their energy from?

Plants get their energy from the sunlight. The sunlight is the source of energy for plants to carry out the process of photosynthesis.

That's right. So, can you identify the producers and consumers by using other examples of living things found in the mangrove swamp?

Producers obtain energy from the Sun. What about other animals such as squirrels, otters, snakes, and eagles that cannot make their own food? Where do these animals get their energy source from?

A squirrel is a **consumer** that feeds on fruits.

An otter is a **consumer** that feeds on fish.

Thus, the squirrel and otter obtain energy from the food they feed on.

Living things can also be related in terms of **energy transfer** as follows:

Squirrels are consumers that obtain energy by eating fruits.

Snakes are consumers that obtain energy by eating squirrels.

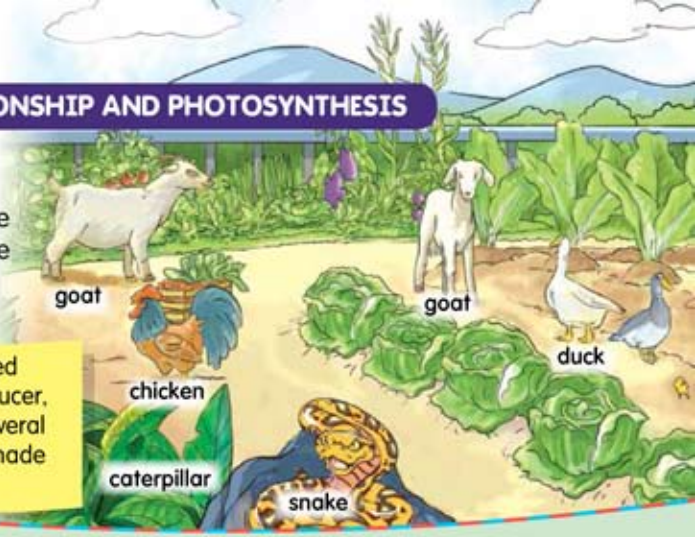
Eagles are consumers that obtain energy by eating snakes.

arrow (⟶) also shows the **flow of energy transfer** in a food chain

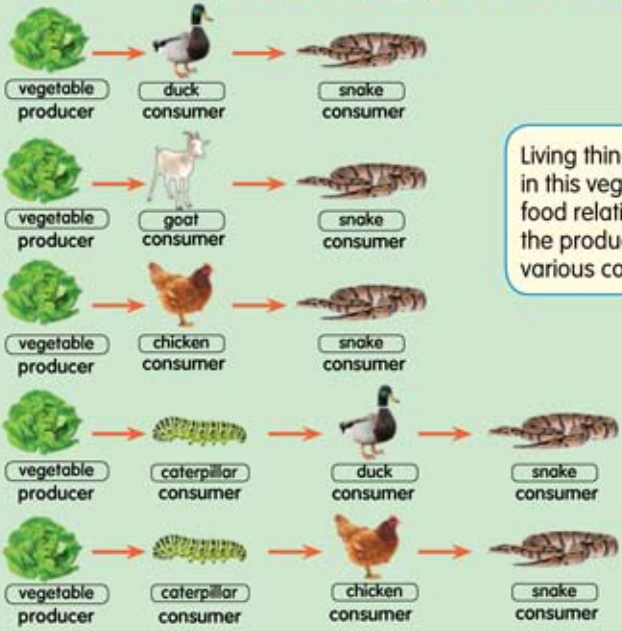
What is the main source of energy for the food relationship above?

FOOD RELATIONSHIP AND PHOTOSYNTHESIS

The relationship in a food chain also causes energy to be transferred. Observe the situation in this farm.



Based on the identified consumers and producer, energy transfer in several food chains can be made as follows:



Living things that are found in this vegetable farm form food relationships between the producer and the various consumers.

Therefore, the food chain also shows the relationship between the living things in terms of energy transfer.

The diagram below shows the food relationship among living things. It shows the process of photosynthesis in terms of energy transfer in the food chain of a paddy field habitat.

The Sun is the main source of energy in an ecosystem. The Sun provides light and heat energy.

The paddy plant is the producer that absorbs energy from sunlight to carry out the process of photosynthesis.

Energy is transferred to the end consumer which is the eagle that eats the snake. The eagle also eats the duck and the chicken.

SCIENCE INFO

An ecosystem is an ecological system of natural living things that live together, interact, and depend on one another in a habitat. An ecosystem includes its environments such as water, soil, air, and the Sun as the source of energy.

The duck and the chicken are among the consumers that eat paddy plants. Therefore, these consumers get energy from the paddy plants.

Energy is transferred to the next consumer which is the snake that eats the duck and the chicken.

What is the importance of the food relationship among living things in terms of energy transfer?

FOOD WEB

Now, you have identified the living things in several habitats including those in the vegetable farm. Caterpillars, ducks, chickens, goats, and snakes are the living things found in this vegetable farm.

Below are the food chains that can be built based on the habitat in the vegetable farm.

(a) vegetable → duck → snake

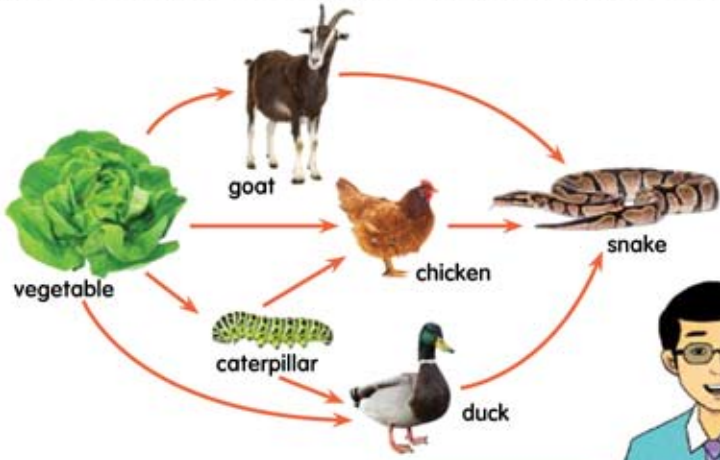
(b) vegetable → goat → snake

(c) vegetable → chicken → snake

(d) vegetable → caterpillar → duck → snake

(e) vegetable → caterpillar → chicken → snake

These food chains can be combined to form a food web as shown below.



What is a food web?

Observe the pond habitat in the picture above. What are the living things that can be found in the habitat?

There are waterweeds, small fish, big fish, tadpoles, frogs, storks, grasshoppers, and snails in this habitat.

It seems that tadpoles, small fish, snails, and grasshoppers also eat the same food which is the waterweeds.

Below are some food chains that can be built based on the pond habitat.

(a) waterweed → snail → stork

(b) waterweed → tadpoles → stork

(c) waterweed → small fish → frog → stork

(d) waterweed → grasshopper → frog → stork

(e) waterweed → small fish → big fish → stork

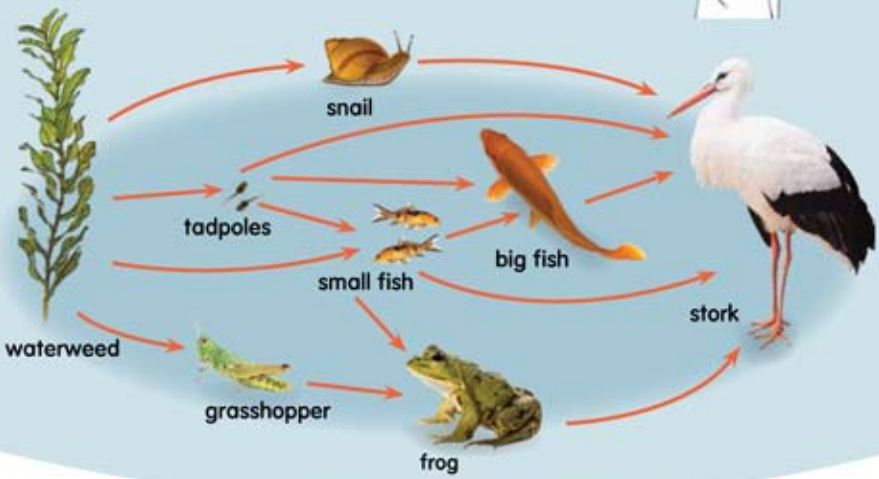
(f) waterweed → tadpoles → small fish → stork

(g) waterweed → tadpoles → big fish → stork

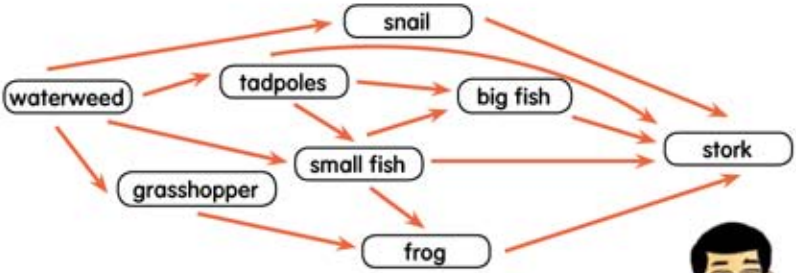
(h) waterweed → tadpoles → small fish → big fish → stork

Now, let's combine all the food chains that have been built into a food web as shown below.

Mr Zaki, this is a food web diagram that I have built based on all the earlier food chains.



The food web can be summarised as shown below.



Identify other food chains in this habitat and combine them to form a food web.

FUN ACTIVITY FOOD WEB

21ST Century Learning

GROUP ACTIVITY

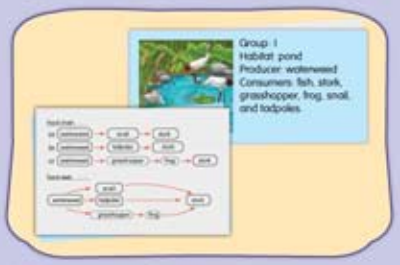
APPARATUS AND MATERIALS

Marker pens, pictures of various habitats, and manila cards.

STEPS

1. Observe the given pictures. Identify the habitats in the pictures.

2. Discuss and identify the producer and consumers in each of these habitats.



3. Build some food chains on the manila cards. Based on the food chains, build a food web.

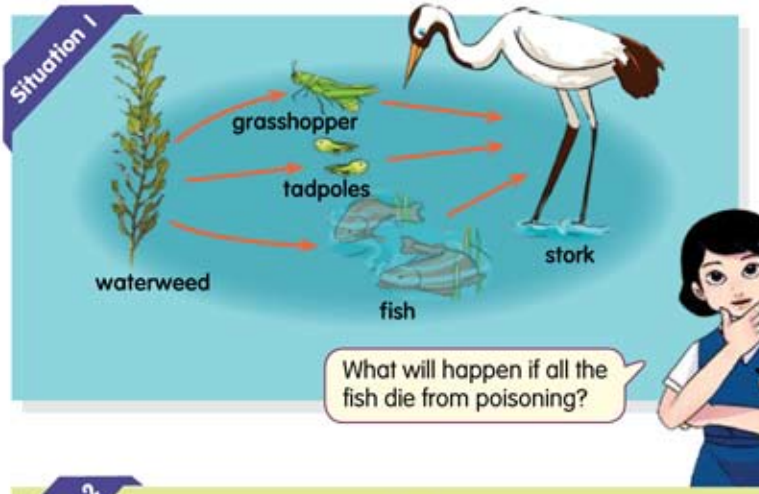
4. Present your work in front of the class.

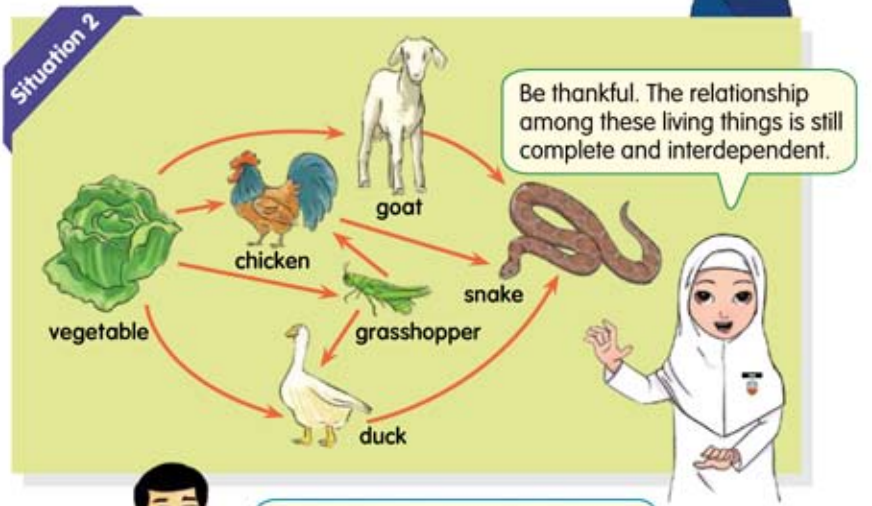
(a) What is the main source of energy in this habitat?
(b) Classify the producer and consumers in each habitat using suitable graphic organisers. Discuss.

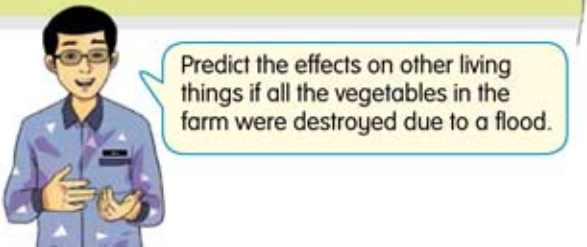
TEACHER'S NOTES Teachers prepare pictures of different habitats.

3.3.4, 3.3.5, 3.3.7

In the food web, energy is also transferred from one living thing to another.







EFFECTS OF POPULATION CHANGE

In a habitat, the energy transfer occurs continuously in the food chain. Any changes in the population of living things will affect the whole ecosystem.

Mr Zaki, how does a population change occur in a food chain?

There are many reasons for the changes in the population of living things. For examples, tremendous weather changes and the spread of a pandemic.

Unplanned forest exploration.

Forest fire.

Illegal hunting activities.

SCIENCE INFO

A population is a group of living things or species found in a habitat. Population change indicates a change in the number of species in the habitat.

Population change in the food chain of a habitat will disrupt other living things. Food relationships among living things are also affected. This causes a major change to food chains and food webs.

Predict other effects on living things due to a population change in the food web of a habitat. Describe.

FUN SCIENCE

MINI TERRARIUM

Build a mini terrarium using used materials such as aquariums, pebbles, soil, small plants, and suitable small animals. Decorate your mini terrarium creatively.

SCIENCE INFO

Terrarium is a transparent container used to preserve plants or small animals by creating a similar environment to their natural habitats.

MIND REFLECTION

1. The survival of an animal species is the ability for animals to maintain their species to avoid extinction.

2. Animals have specific characteristics on parts of their bodies and behaviours to protect themselves from enemies as follows:

- big and sharp claws.
- stings that can release venom.
- patterns that resemble fake eyes on the wings.
- strong leg muscles.
- sharp spines.
- inflating the bodies that have sharp spines.
- poisonous.
- spurting out black ink.
- curling up the bodies.
- hard shells.
- produce bad smell.
- hard scales.
- sharp horns.
- raising quills with sharp spines.
- detaching parts of the bodies.
- withdrawing parts of the bodies into the shells.
- live in groups.

3. Animals have specific characteristics on parts of their bodies and behaviours to protect themselves from extreme weather as follows:
   - thick fur.
   - short and densed feathers.
   - thick layers of fat.
   - wallow in water or mud.
   - large ear lobes.
   - hibernate.
   - small ear lobes.
   - migrate.
   - humps.

4. Animals protect their eggs in various ways as follows:
   - hide their eggs.
   - incubate their eggs.
   - lay their eggs on the surface of rocks.
   - bury their eggs in the soil.
   - lay many eggs.
   - slimy eggs.
   - smelly eggs.

5. Animals ensure that their young survive in various ways as follows:
   - protect their young.
   - suckle their young.
   - raise their young in pouches.
   - feed their young.
   - place the young in their mouths.
   - attack the enemies when their young are in danger.

6. Survival of species is important for the balance of the ecosystem.

7. A food chain is the food relationship among living things.

8. A food web is a combination of more than one food chain.

9. Producers are living things that can make their own food by carrying out the process of photosynthesis.

10. Consumers obtain energy from eating other living things.

11. The Sun is the main source of energy in an ecosystem.

12. The balance of an ecosystem will be affected when there is a major population change in a habitat.

13. If population change occurs in a food web of a habitat, animals will lose their natural habitat and food source. The animals may also die or migrate to other places to look for a new habitat.

MIND TEST

Answer all questions in the Science exercise book.

1. What is meant by the survival of animal species?
   A. The ability of animals to protect their young.
   B. Animals migrate to other places when there is no food.
   C. Animals can prevent their species from extinction.
   D. Animals have specific behaviours to find a mate.

2. Identify the following animals with their specific characteristics to protect themselves from enemies.

(a) 

(b) 

(c) 

(d) 

3. Match each phrase to the correct animal.

lays many eggs

incubates its eggs

produces slimy eggs

4. How do the following animals keep their young alive?

(a) 

(b) 

(c) 

5. Observe the situation below and answer the following questions:

A cat tried to catch a lizard but it only managed to catch the tip of the lizard's tail.

(a) In your opinion, has the cat succeeded in catching the lizard? Give an inference for your answer.

(b) What is the specific behaviour of the lizard that protects it from the cat?

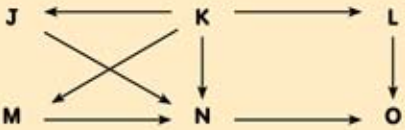
(c) How can this behaviour protect the lizard?

(d) Give an example of another animal that has similar specific behaviour as the lizard.

6. State the meaning of each of the following terms.

producer | food chain | food web

7. The diagram below shows the food web in a habitat.



(a) Build three food chains based on the living things in this habitat.

(b) How many omnivorous animals are present in this food web?

(c) If K were destroyed due to a pandemic, predict the impact on the populations of N and O.

(d) What is the main source of energy, producer, and consumers in this habitat?

(e) Based on the diagram, predict K, L, N and O.

(f) What is the importance of food relationship among living things?