

UNIT 5

PRESERVATION AND CONSERVATION



Wow, that creature is huge!

Amazing!

The pupils of 6 Bestar had the opportunity to visit a virtual reality exhibition. They saw what Earth was like during the prehistoric times. Earth looked the same but they had never seen the animals which were exhibited. Why is that so?

Extinct Animals

Have you ever seen these animals. These animals have long been extinct. What does that mean?

Extinct means no longer exists on Earth.

Let us discover these animals that once lived on Earth.



Tasmanian wolves became extinct due to extreme hunting, loss of habitat, and epidemic diseases.



The **dodo birds** were flightless birds found in Mauritius. They became extinct due to excessive hunting by sailors while their eggs were eaten by rats and cats.



Mammoth

Mammoths resembled elephants. They existed during the ice age. Their number was thought to have reduced due to extreme weather change and finally became extinct because they were hunted by humans.

SCIENCE INFO

Brontosaurus measured 20.1 metres long from their heads to tails and they weighed 34.5 tonnes. Meanwhile, elephants usually have heights around 6.5 metres and they weigh 5 tonnes.



Tyrannosaurus Rex



Tyrannosaurus Rex



Dinosaurs became extinct due to extreme weather change.



The hindquarters of a **quagga** resemble a horse while the front part of the body resembles a zebra. It was hunted for its skin and meat until it became extinct.



Sabre-toothed tigers had very long canines, up to 30 cm. This animal also lived during the ice age and became extinct due to extreme weather change.



Sabre-toothed tiger

Name these extinct animals. What other extinct animals can you name?



Animals and Plants That Are Facing the Threat of Extinction

Did you know that there are millions of animal and plant species living on Earth? However, the number of animals and plants are declining each day. When their numbers keep on declining and they are in danger of becoming extinct, we say that these animal and plant species are facing the threat of extinction.



pitcher plants

What animal and plant species are at risk of becoming extinct?



slipper orchids



hornbills



tongkat ali plant



Rafflesia



elephant



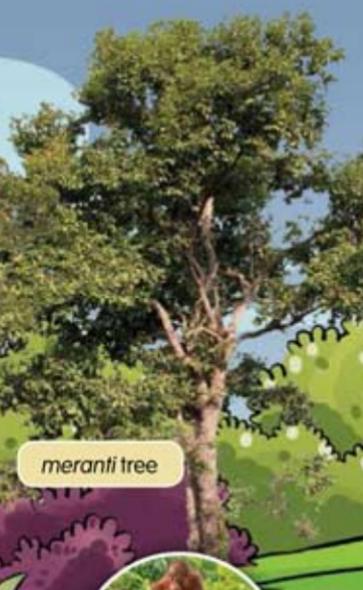
Malayan tiger



keruing tree



cengal tree



meranti tree



panda



orangutan



rhinoceros



dugong



Malayan tapir



Why are large animals more likely to be at risk of extinction?

List other animals and plants that are also facing the threat of extinction.



Factors That Cause the Threat of Extinction to Animals and Plants

Did you know that human activities are the greatest threat to animals and plants? Excessive and uncontrolled use of natural resources cause their numbers to decline.

Habitat destruction

Humans build roads and develop new towns. These activities destroy the natural habitat of animals and plants. Forests are also burned to make way for planting new crops.



new town development



road construction

Illegal hunting

Humans excessively hunt and harvest different types of animals and plants to make **medicine, food, ornaments, and clothes.**



forest burning



Rafflesia is sold as traditional medicine



pangolin is sold as food



expensive ornaments made from elephant tusks



handbag made from crocodile skin



coat made from tiger skin

Pollution

Disposing of trash such as plastic waste can trap animals. This can also cause **flash floods**.

Oil spill and toxic waste can kill aquatic animals and plants in the sea and at coastal areas.



Natural disasters



tornado



landslide



flood



earthquake

Natural disasters such as tornadoes, landslides, floods, and earthquakes also destroy the habitat of animals and plants.

Global warming

The emission of gases such as carbon dioxide creates a layer of trapped heat in the atmosphere. This causes Earth's temperature to rise. The continued increase in the temperature causes ice in the North and South Poles to melt and thus, raising the sea level. As the coasts are submerged, the coastal animals and plants lose their habitats.

Less heat is released back into the space which causes Earth to become warmer.

Heat from the Sun reaches Earth.

Gases from factories and vehicle exhaust fumes increase the volume of carbon dioxide in the air. These gases create a layer that traps heat.



Every year, the ice in the North Pole gradually melts due to global warming.



The sea level rises and destroys the habitat of plants and animals.

Describe all the factors that cause the threat of extinction to animals and plants.



Preservation of Animals and Plants

Preservation of animals and plants is necessary to protect them from extinction. What does preservation mean?



Preservation means keeping animals and plants in their original and balanced state.



How are the methods of preservation implemented?

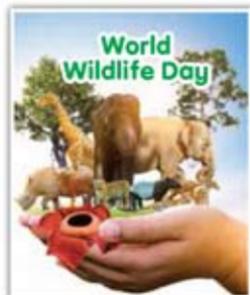
Selective logging

Selective logging is carried out to reduce its impact to the environment. This method also protects the habitat of animals and plants.



Educate the public

The public is educated on the importance of protecting animals and plants from the threat of extinction.



World Wildlife Day Campaign

Boycott products made from endangered species

Consumers and buyers should make wise decisions by not purchasing products made from endangered animals and plants.



turtle eggs



pitcher plants

Enforcement of laws

Laws are strictly enforced to protect animals from the threat of extinction.

In Malaysia, animals such as the Malayan tigers, Malayan tapirs, orangutans, elephants, turtles, and tree shrews are protected by the law.



Malayan tiger



Malayan tapir



tree shrew

Reduce, reuse, recycle

Reusing and recycling goods are practised in order to help prevent further exploitations of animals and plants.



Reducing, reusing, and recycling plastic can help reduce pollution.



Reducing, reusing, and recycling paper can help reduce logging activities.

Gazette forest reserves and marine parks as protected areas

Forest reserves such as the National Forest Reserve, marine parks, and RAMSAR sites are protected by the law and those caught violating the law would be given severe punishment.

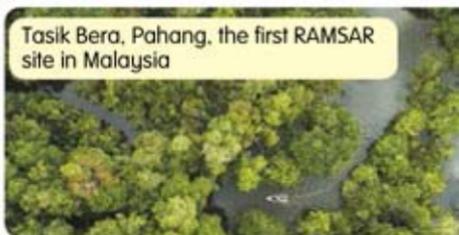
National Park, Pahang



Tun Sakaran Marine Park, Sabah



Tasik Bera, Pahang, the first RAMSAR site in Malaysia



SCIENCE INFO

RAMSAR site is a wetland area that is designated under the Convention on Wetland that took place in Ramsar, Iran in 1971. The convention provides the framework for preserving and conserving the wetlands from further destruction.



Conservation of Animals and Plants

What is conservation? Conservation means returning animals and plants to their natural conditions.

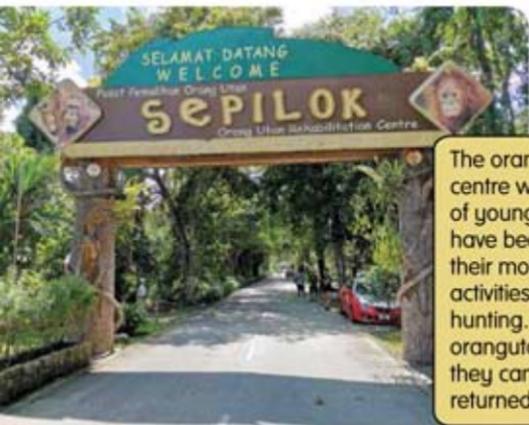
Setting up conservation centres

Conservation centres such as the turtle sanctuary and orangutan rehabilitation centre help ensure these animals have a higher chance of living in their natural habitats.

Let's look at some conservation activities.



The turtle sanctuary was set up to monitor and protect female turtles when laying their eggs. This increases the hatching and survival rate of baby turtles.



I already know how to swing. I cannot wait to go back to the forest.

The orangutan rehabilitation centre was set up to take care of young orangutans that have been separated from their mothers due to logging activities, agriculture or illegal hunting. At the centre, young orangutans are trained so that they can survive when they are returned to their natural habitat.





Pangolins are one of the endangered animals in Malaysia. According to some people, the pangolin scales, meat, and skin are believed to have medicinal properties. Suggest ways of preservation and conservation to overcome this situation.



Replanting

Replanting is carried out to replace damaged forests where logging activities have taken place. Seeds or seedlings are planted in the cleared area.

reforestation



replanting in a mangrove swamp



The Importance of Preservation and Conservation

What are the effects of preservation and conservation of animals and plants that are facing the threat of extinction?



Preventing extinction

Preservation and conservation help reduce the factors that threaten the animals and plants, as well as increasing their population.



Ensuring animals and plants are not overexploited

Reusing, reducing, and recycling reduce the dependence on natural resources. These activities help to protect animals and plants from overexploitation.



Maintaining a clean and healthy environment

Controlled logging such as selective logging and replanting activities help maintain the oxygen-carbon dioxide balance.

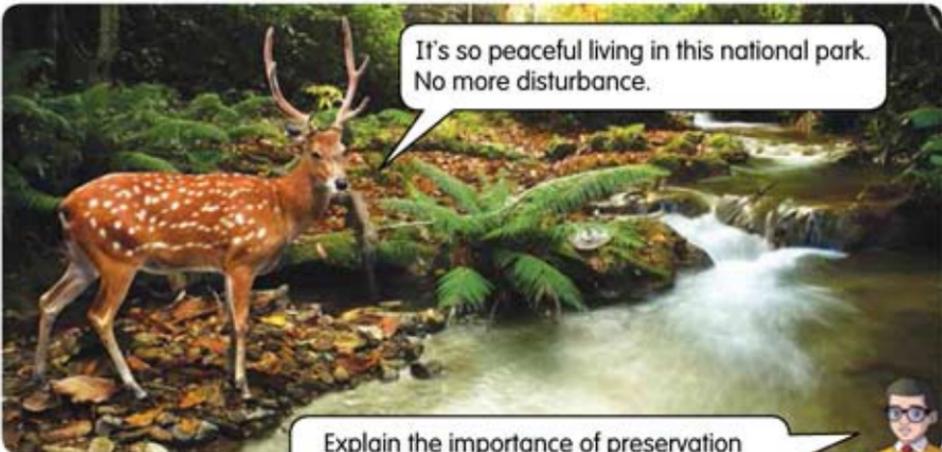


Preventing loss of habitat

Designated sites such as forest reserves, marine parks, and RAMSAR sites help prevent animals and plants from losing their habitats.

SCIENCE INFO

Plants only provide a small amount of oxygen to humans. The biggest producers of oxygen on Earth are the algae that live in deep oceans.



Explain the importance of preservation and conservation of animals and plants.





Threat of Extinction to Animals and Plants Visual Exhibition

Apparatus and materials: glass jars, animal and plant models, small-sized waste materials, marker pen, adhesive tape, cooking oil



Steps:

1.



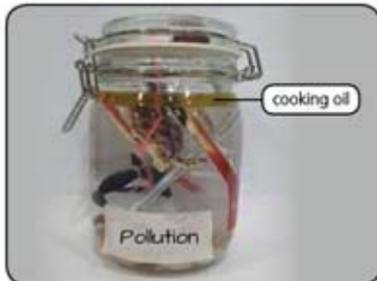
Gather several glass jars. Label each glass jar with a factor that causes the threat of extinction to animals and plants. For example, label "Pollution" on one of the glass jars.

2.



Insert a few animal models such as a fish and a turtle. Then, fill the glass jar with water until it is full.

3.



Creatively, place a few small-sized waste materials to represent pollutants such as plastic food wrappers, plastic straws, and cooking oil.

4.



Other groups will produce other visual exhibits to describe different factors that cause the threat of extinction to animals and plants.

5. Exhibit the work of your group at one corner of the class. Explain the threat factor of your glass jar and suggest suitable preservation and conservation methods to your friends.



Questions:

1. What are the factors that cause the threat of extinction to animals and plants?
2. Explain ways of preservation and conservation of animals and plants with examples.
3. How do you help preserve and conserve the environment to make it more sustainable?



A sustainable environment is our responsibility to maintain. The natural resources and the global ecosystem must be protected so that there will be enough resources for the present and future generations.



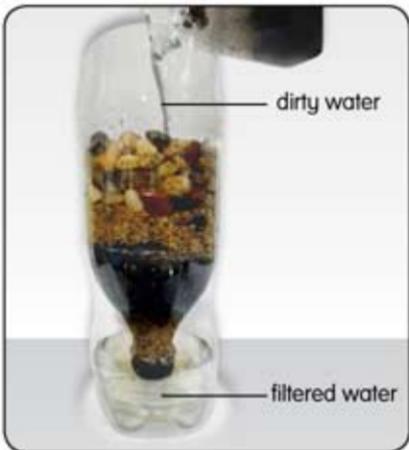
In groups, make a water filter using a plastic bottle, cup, scissors, nail, hammer, stopwatch, and objects such as gravel, sand, and charcoal powder.

Steps:

1. Form a group of two to three pupils. Check and determine the materials that will be used as the filtering materials. You may cut the materials into smaller sizes.
2. Cut the bottom part of a plastic bottle.
3. Make a hole on the bottle cap using a nail. Screw the cap back onto the bottle.
4. Put the filtering materials in layers. The water filter should consist of at least three filtering materials.
5. Pour a cup of dirty water into the plastic bottle. The water filter should be able to filter the dirty water in less than a minute. Share your water filter with the other groups.



Be careful when using sharp tools.



The filtered water is still not safe for drinking.



MIND REFLECTION

1. Some of the extinct animals are the dodo birds, mammoths, Tasmanian wolves, dinosaurs, quaggas, and sabre-toothed tigers.
2. The endangered animals and plants are as follows:

Endangered animal	Endangered plant
elephant, rhinoceros, orangutan, panda, Malayan tapir, Malayan tiger	<i>meranti tree, keruing tree, cengal tree, Rafflesia, pitcher plant, slipper orchid, tongkat ali plant</i>

3. Factors that cause the threat of extinction to animals and plants are destruction of habitat, illegal hunting, pollution, natural disasters, and global warming.
4. Ways of preservation and conservation of animals and plants are as follows:

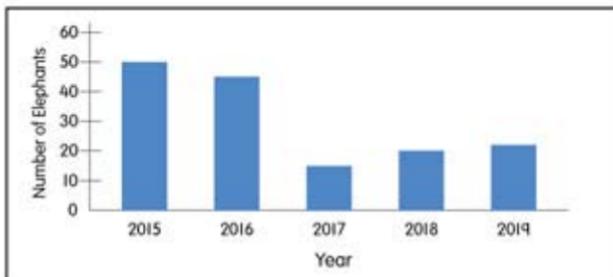
Preservation	Conservation
<ul style="list-style-type: none">• selective logging• educate the public• boycott products made from endangered species• enforcement of laws• reduce, reuse, recycle• gazette forest reserves and marine parks	<ul style="list-style-type: none">• setting up conservation centres• replanting

5. The importance of preservation and conservation are as follows:
 - preventing extinction
 - ensuring animals and plants are not overexploited
 - maintaining a clean and healthy environment
 - preventing loss of habitat



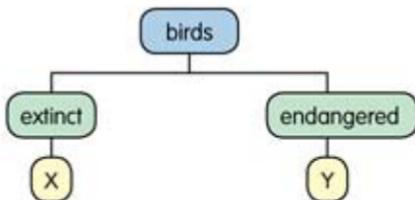
MIND TEST

1. State the meaning of preservation and conservation of animals and plants.
2. The information below shows the number of elephants in forest X recorded from 2015 to 2019.



Based on the bar chart above, answer the questions below.

- (a) State your observation.
 - (b) State an inference on the numbers of elephants for the following years.
 - (i) from 2015 to 2017
 - (ii) from 2017 to 2019
 - (c) Suggest two ways to prevent elephants from facing extinction.
3. The diagram below shows the classification table of birds.



- (a) Name the bird:

X: _____ Y: _____

- (b) Can the conditions of bird X be improved? Explain.
- (c) Suggest three suitable ways to conserve bird Y.