

For Our Common Future



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We Live on the Same Earth

I. Home for Life in the Universe	2
The Only One Earth	2
Limited Resources on the Earth	6
II. Common Home	9
Prosperous Life on the Earth	9
East Asia Linked up with Common Mountains and Rivers and Sea	13
III. Protect our Homeland	16
Our Homeland Faces Threats	16
Conserve and Protect Biological Diversity	20
Be in Harmony with the Nature	25
IV. Stories from China, Japan and Korea	26

I. Home for Life in the Universe

The Only One Earth

If you were the astronauts, you could be deeply moved when you went into space and watched your home - the Earth, from the distance. That blue planet is so beautiful with surrounding white patchy clouds and blue sea, and it is so small in the vast expanse of the space.



Figure 1.1 The Earth in Space



Compared with other planets in the solar system, only the Earth is so unique to be the common home of human beings and millions of living creatures!

Activity 1.1



Think of what are the conditions for the existence of living creatures. Are there other planets in the solar system equipped with these conditions?



(1) What's your idea?

.....

(2) Discuss with your classmates.

.....

(3) Share your ideas with us.

.....



According to scientists' calculation, the age of the solar system is more than 5 billion years, while the earth was formed 4.6 billion years ago. After long years of slow evolution, about 3.8 billion years ago, the life was born on the Earth. But it is not until 2-3 million years ago that human-being appeared on the earth.

Activity 1.2



If the Earth's history could be compressed into 12 hours, then when did life appear on earth? What time did humans appear? Mark your results on the following timeline.



In the vast universe, the earth is very small. However, there are thousands upon thousands of “us” and numerous living creatures on the Earth. The Earth is the only, common home for about 7 billion people and 14 million kinds of plants, animals and microorganisms.

During the 1920s, American scientists conducted an expensive experiment entitled “Biosphere II”, who tried to simulate and replicate the Earth's environment. Unfortunately, the experiment eventually failed in 1994. The fact that Oxygen could not smoothly circulate was an important cause of biosphere II’s failure. The fact tells people again that the Earth is the only homeland of all mankind, and it can not be recreated, so humans should protect it.

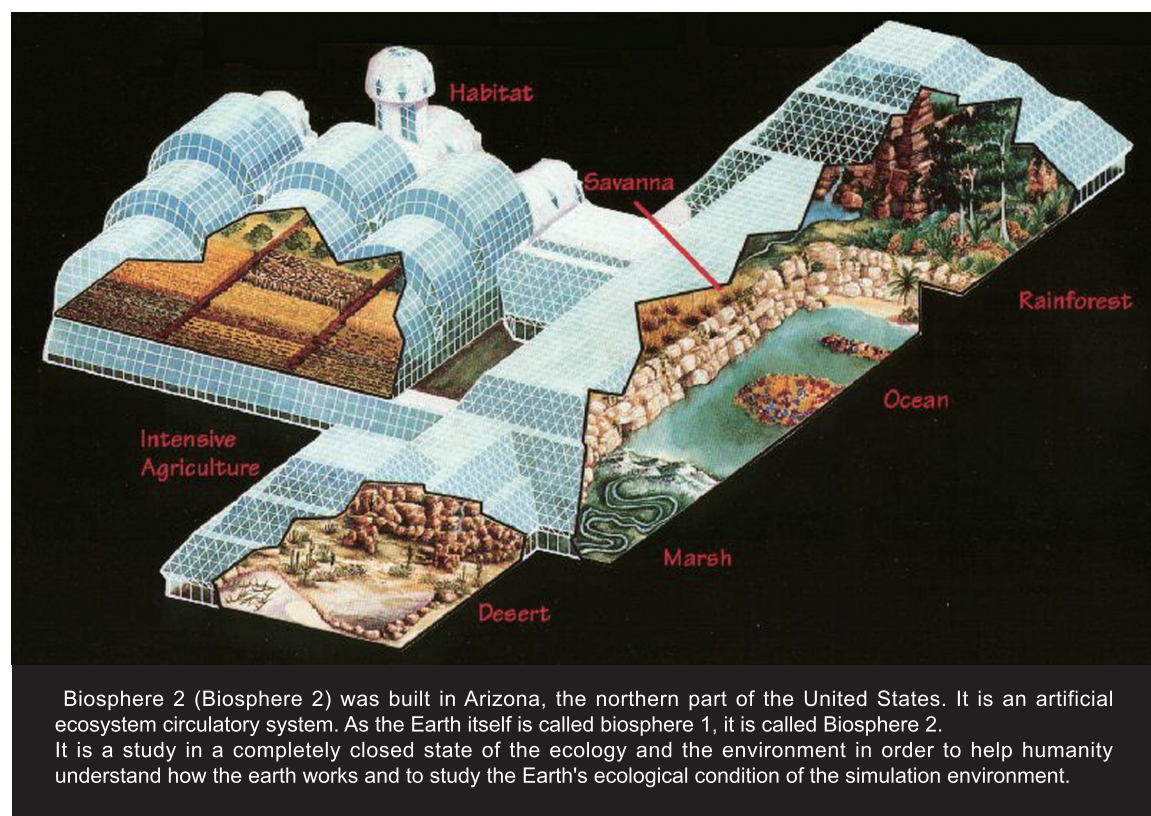


Figure 1.2 Biosphere II

Limited Resources on the Earth

The Earth is like a selfless mother, who provides various resources for human survival and production. However, the natural resources on earth are very limited. Take energy as an example, it took millions of years, even billions of years for the coal and petroleum used by us to form. If the exploitation of these resources is uncontrolled, these resources will be used up soon.

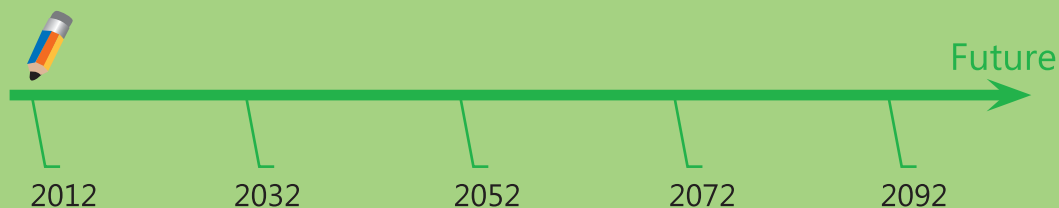
Activity 1.3



The following table lists some data on global reserves and consumption of different resources in the world, and in accordance with this speed, how many years can these resources be used? Mark your results on the following timeline.

Resources	Global reserves *	Global consumption / year
Petroleum	1653 billion barrels	About 32.1 billion barrels
Coal	860.938 billion tons	About 5.586 billion tons
Natural gas	208.4 trillion cubic meters	About 3.22 trillion cubic meters

source: 2012 "BP World Energy Statistics Yearbook"




There are some resources that could renew and serve for humans for long-term. However, due to the uncontrolled destruction and over-exploitation of humans, some of these resources disappeared before they could renew, and others were destroyed and lost their regeneration capacity. This results in a series of environmental problems and ecological disasters, which bring serious threats to the existence of humans.

Activity 1.4

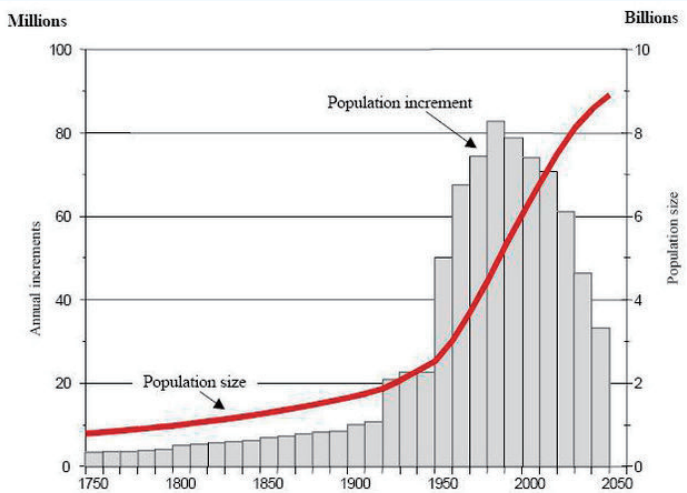


Think about the following resources (you can fill in other resources you know), which is renewable? Is it unnecessary to save these resources? Can they be used by humans at will?



Forest		
Wind energy		
Solar energy		
.....		

With the increasing use of natural resources and increasing global population, humans inevitably have to further develop and use lands, forests, grasslands, water resources, energy, mineral resources and other resources, thus bringing great pressure to the environment and resources on the earth and making the earth's resources become increasingly scarce.



1.3 Global Population Growth in the Past 400 Years

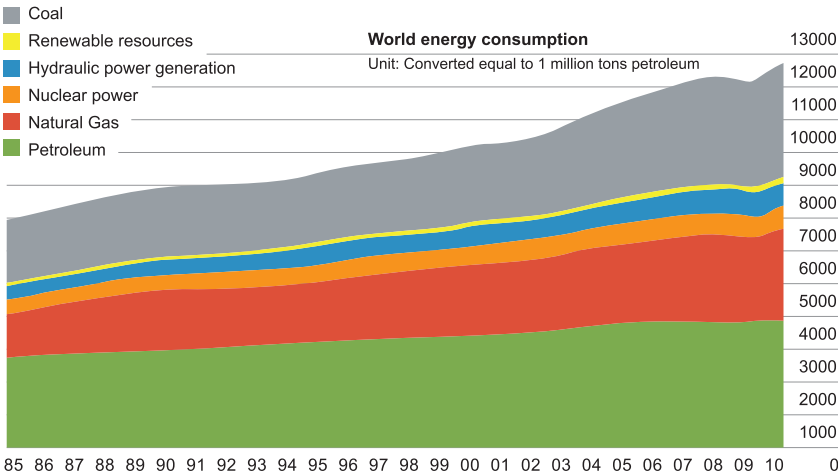


Figure 1.4 Global Energy Consumption Per Capita Example of Coal

II. Common Home

Prosperous Life on the Earth

A variety of colorful living creatures live on the Earth. From the equator to the poles, and from the ocean bottom with a depth of over 11000 meters to the peak of Everest Mount with an elevation of over 8000 meters, living creatures live and multiply on the earth's crust, no matter if it is mountain, plain, rocky desert, farmland, forest, grassland, river, lake or sea. The range full of life on the surface of the earth is called the biosphere.

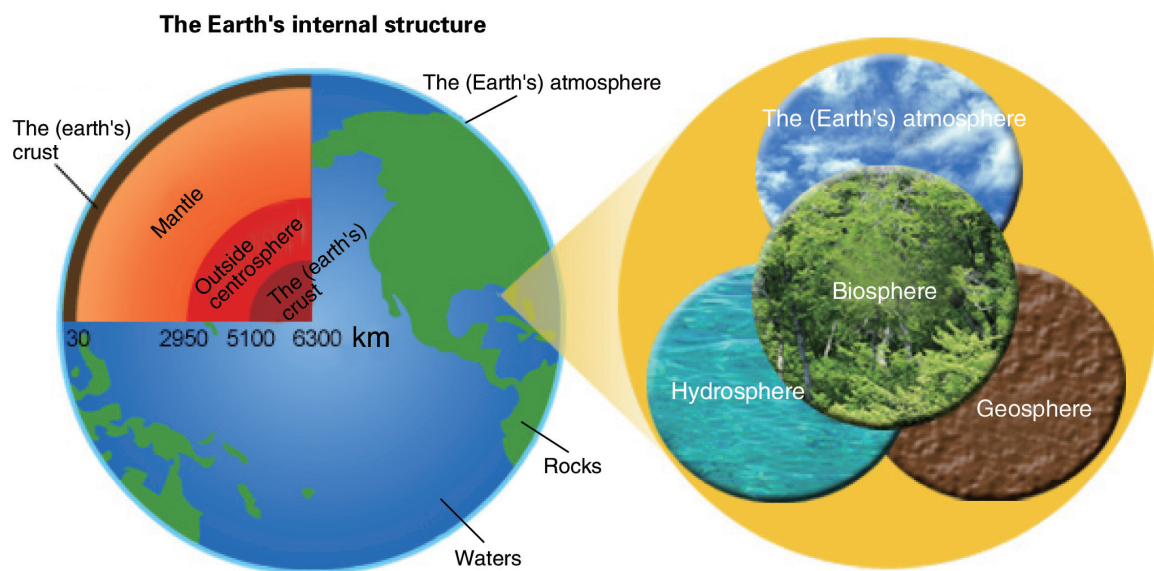


Figure 2.1 Biosphere

According to incomplete statistics, there exist about more than 1.6 million kinds of modern living creatures, including about more than 400 thousand kinds of plants, about more than 1.1 million kinds of animals and at least about 100 thousand species of microorganisms. Scientists estimate that 8 million to 10 million kinds of living organisms may actually exist on earth.

After a long evolution of billions of years, these living organisms are formed. In the history of the earth, the living creatures that once lived may be as many as 1 billion kinds! Compared with all the species that once lived on earth in the past 3 billion years, the number of modern species is just a drop in the ocean.

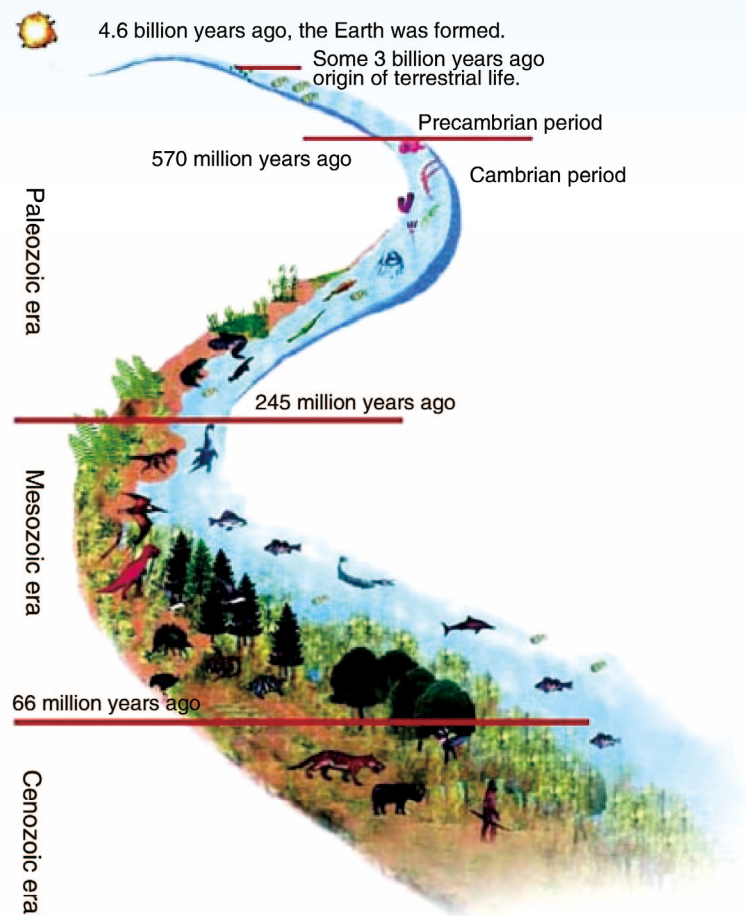


Figure 2.2 Biological Evolution

A huge number of colorful living creatures are not unrelated, but maintain manifold and complicated links with each other. Among them, food chain is the most basic phenomenon.

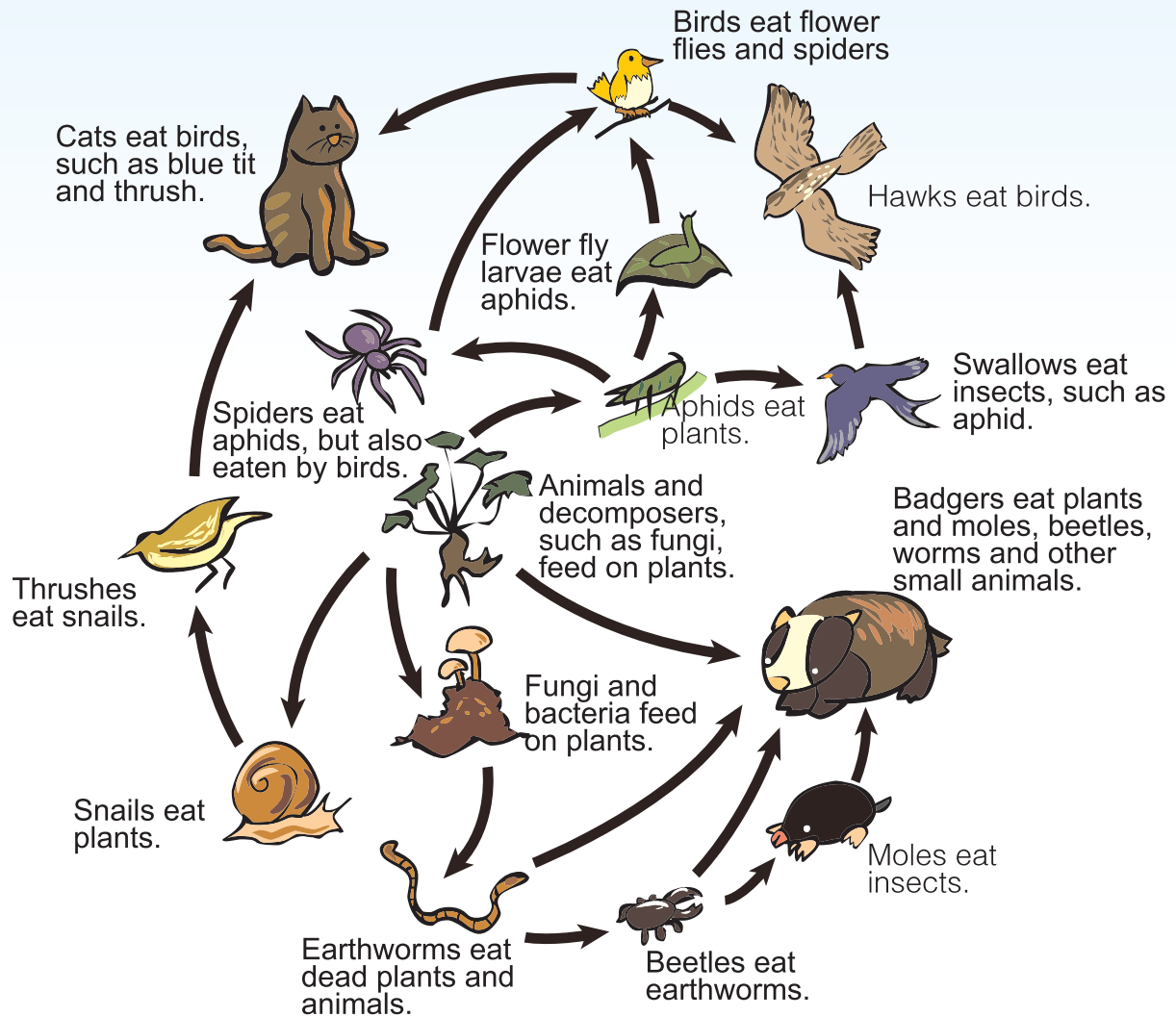


Figure 2.3 Food Webs

In the biosphere, different living creatures depend on each other; all of them form a complex network of relationships. If the connection of this network is damaged, it is difficult, even impossible, to be repaired.

Activity 2.1



What kind of living creatures can be found on your campus? Where do they live? After your daily walk, write down the living creatures you found, and draw a "Distribution Map of Living Creatures on Campus".



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East Asia linked up with Common Mountains, Rivers and Sea

The vast majority of living creatures, including humans, live in the space of about 100 meters thick above the earth's land surface and in the sea. They are distributed in different regions of the world. Among the regions, East Asia is one of the regions with the richest biodiversity in the world.

China, Japan and Korea are in East Asia. They are also mutually dependent neighbors. All of the three countries are rich in biodiversity, and many species are distributed in the three countries. Some animals move back and forth yearly among China, Japan and Korea.

Beautiful white-naped cranes are a kind of bird like this. They breed in Northeast China, where most of wetlands are located, and they migrate south every winter, and after a stopover in Han River Basin in Korea, they continue to fly and pass the winter in Korean Peninsula, Southwest Japan and the Yangtze River Basin.



Figure 2.4 One Fly-route of White-naped Crane among China, Japan and Korea



Activity 2.2



In addition to white-naped crane, can you find other animals which migrate in Japan, Korea and China?

In addition to white-naped crane, the crested ibis, black-faced spoonbill, black bear and other animals are also rare species in East Asia. Do you know which animal or plant species are rare in East Asia? Try to find information, complete the following form for these species.

Files of rare animals and plants in East Asia



My name is:

I am mainly distributed:

(in three countries) (in two countries, namely____) (only in____)

My picture:

Folk tales and legends about me:

III. Protect our Homeland

Our Homeland Faces Threats

Now, there are various threats to the world's ecological environment and biodiversity. Some of these threats are natural, while others are man-made.

Activity 3.1



What kinds of impact may the following factors cause on biodiversity? Are they natural or man-made ones?

In daily life, according to your observations, which phenomena or factors may cause bad effects on the ecological environment?

Rainstorm

Deforestation

Earthquake

Water pollution

Global warming

Land reclamation

Air pollution

Acid rain



During the long geological age, most species extinctions were caused by natural disasters. However, in the modern days, most of extinctions are caused by human's destruction.

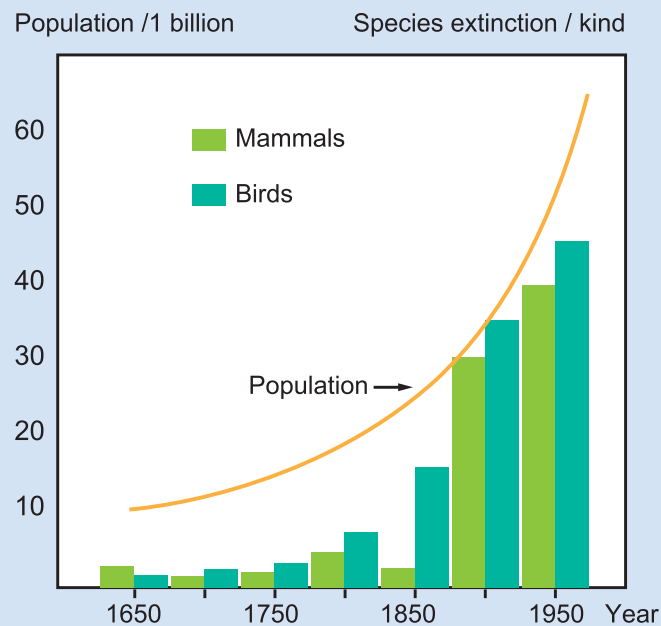


Figure 3.1 Trend of Species Extinction in the World

With the increase of human activities and the innovation of technologies, the efficiency of developing and utilizing biological resources has been greatly improved, and the rate of extinction has also been greatly increasing. In recent 400 years, the extinction of species on earth is accelerating. Nowadays, 10,000-20,000 kinds of species extinct yearly. The rate of species extinction is 1 million times faster than the rate of species formation.

With the development of history, humans have more and more capacity to use and transform the environment, and the places where we live are also changing. This brings tremendous impacts on those living creatures that had lived on this land before humans.

Activity 3.2



Some people think that human activities improve ecological environment, thus having a positive effect on ecological environment. However, some others think that human activities destroy the harmony of the biosphere, break the ecological balance, and cause rapid deterioration of ecological environment, thus having a negative impact on ecological environment. Which opinion do you support? Write down your reasons.



.....

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Many species live around humans. With the development of society, due to house and road building, as well as other human activities, great changes have taken place to the environment, where living creatures and humans live together in the past and at present.



Figure 3.2 Changes to landscape of a city (comparison between 60 years ago and now)

Activity 3.3



Ask your parents, to recall the past, 5 years ago, what was the community now you live in like? What kinds of changes have taken place till now? Ask your parents and grandparents to see what kinds of changes occurred in an earlier time.

Conserve and Protect Biological Diversity

China, Japan and Korea are fully aware of the importance and urgency of conserving and protecting biological diversity. They have signed the international conventions for conservation of biodiversity. And they regard the protection of biodiversity as one of the priorities in the fields of environmental cooperation among them.



Activity 4.1



Here are some international conventions and agreements on conservation and protection of biological diversity. Has your country signed these conventions and agreements? What kind of changes will happen in our lives because of these conventions and agreements? Do you think the changes are acceptable?

Please draw a line to link the things on right and conventions on left if you think they are related.

Convention or agreement

Washington Convention
(Convention on International Trade in
Endangered Species of Wild Fauna
and Flora)

Ramsar Convention
(Convention on Wetlands of International
Importance especially as Waterfowl
Habitat)

Convention on Biological Diversity

International Convention for the
Regulation of Whaling

Convention concerning the Protection of
the World Cultural and Natural Heritage

Impact on life

Not to buy favorite purse made of
crocodile skin.

No hunting any whales

To protect wetlands

No hunting tigers

To establish a nature reserve in
pandas' habitat.

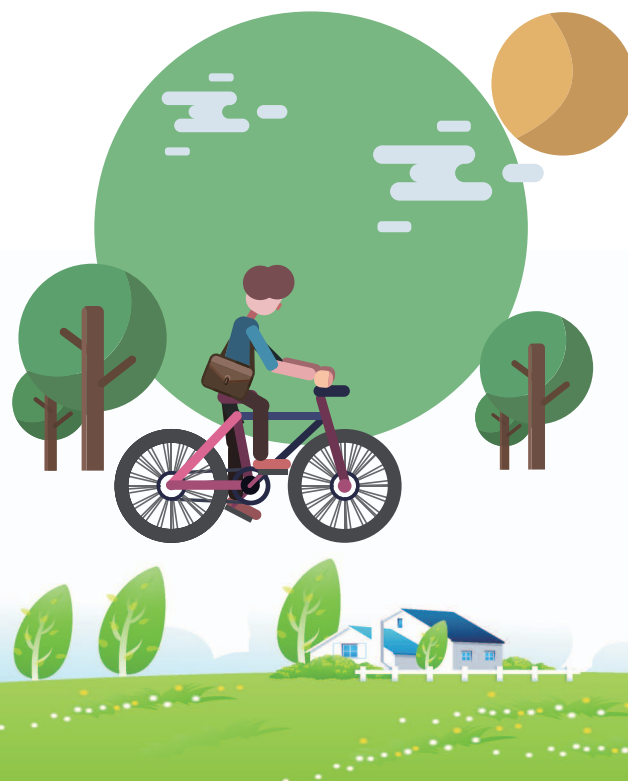
In order to conserve and protect our homeland, we should not only require active efforts from countries and governments, but also do whatever we could.

Activity 4.2



Something we can do for the protection of our homeland, namely the Earth. Read the list below carefully. Think about what you can do in your daily life. Make an action plan for biodiversity protection.

- Learn more knowledge about the biodiversity.
- Tell other people about the knowledge on biodiversity.
- Eat more native species (fruits, vegetables, and animals), and know what the local special rare species are.
- Buy organic and ecological products.
- Go out by bicycle as much as possible, and encourage other people to take bicycles.



- Do not dump paint, gasoline or other toxic substances into the drains. Similarly, use rechargeable batteries. If you have to use regular batteries, remember to put them in appropriate collection bins.
- Recycle and reuse wastes as much as possible.
- Take more public transport, and promote public transport industry.
- Plant and protect native plants, do not trample on plants. Do not pick flowers. Do not walk indiscriminately on wetlands and beaches.
- **Be volunteers in local botanic gardens, forests, parks and nurseries.**
- Avoid using pesticides and herbicides.
- Boycott wild animal products, such as animal fur, ivory, musk, sea-turtle shells, or Tibetan antelope wool.
- Contact the environmental or agricultural departments at local or national levels, to understand how to help to protect the biodiversity.
- Consider the long-term impact of our actions.



My Action Plan



Blank writing area for the first step of the action plan.

Blank writing area for the second step of the action plan.

Blank writing area for the third step of the action plan.

Blank writing area for the fourth step of the action plan.



Be in Harmony with the Nature

Now, people start to change minds in building methods that destroyed the green and damage the nature, but to seek ways of coexistence between humans and the nature.

Activity 4.3



Paint a picture to show the theme of "My Ideal Living Environment", to describe the blueprint in your heart.



IV. Stories from China, Japan and Korea

In big cities, people are always busy with working; they walk hastily, and never concern about the other living creatures around us. In fact, there are many wonderful small lives around us: insects, geckos, bats, weasels, etc. If we observe carefully and calmly, and provide them with conditions for resting and feeding, we can easily make friends with the lives in the nature.



Try to talk. Do you know any story about being in harmony with the nature?

Stories from China

Pond agriculture

Pond agriculture is a good example of the ecological agriculture in the age of a rapid economic development and ensures that it doesn't pollute the environment in many southern rural areas. It features are: farmers adopt the principle of biological interaction support to establish field pond ecosystem. They dig ponds to breed fish, plant mulberry, use mulberry to breed silkworms, its excrement feeds the fish, a kind of pond sludge as fertilizer containing fish excrement on the bottom of pond, to form a closed ecological chain, known as pond agriculture. In the food chain, mulberry is producer, silkworm is primary consumer, fish is the secondary consumer, microorganism is the disintegrator, and materials are in one cycle to another cycle. In this way, the food chain can use waste comprehensively. This kind of production pattern, in terms of its characteristics, is in accordance with the spirit of ecological agriculture.



Stories from Japan

Fuyu Mizu Tanbo

The “fuyu mizu tanbo” rice-growing method is practiced across Japan, though on a limited scale, as an environment-friendly method as it does not use agricultural chemicals or other chemical substances.

The “fuyu mizu tanbo” are roosting, feeding and resting sites for many migratory waterfowls, which it leads to control weed and insect pests. Rice paddies flooded with water during winter offer good roosts for these birds, and they in turn play an important role in promoting biodiversity of rice paddies as their dung encourages propagation of microorganisms.

Spring comes, rice farmers can plant seedling without tilling as required in the conventional way of rice growing. Keeping rice paddies flooded during winter precludes the need to take in large quantities of water right before planting, thus avoiding concentrated water intake in a short span of time and promoting effective utilization of water resources.

Stories from Korea





