



3

ORGANISM DEVELOPMENT

We have seen many changes around us. Many changes can be seen with visible eye and we can feel them. There are some changes that we cannot see easily with our eyes easily. Many species of organisms are born on earth. These changes take a long time than a human life to be seen. Therefore, humans cannot see the sequence of development of these changes. But scientists have collected many proofs and facts to prove these changes. Many types of organisms and their species (some of them are alive) and some of them have evolved through organic development.

Close your eyes and think about many living objects. Many organisms will come in front of you. Some of the common elements will be plants, animals and birds. Do you know that bacteria converts milk into curd or cause diseases like T.B. are also living organisms. Even eatable mushroom is also an example. Scientists have estimated that around 1 crore species or organisms are developed on earth. Scientists have the knowledge of around



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20 lakh organisms. All these organisms living together and form a balance. The balance of all these organisms is called bio diversity. Due to the growth of biological development, biological diversity is found on earth.

We will study the process of development of life on earth in this lesson.



OBJECTIVES

After reading this lesson you will be able to:

- Tell about the time and the process of earth formation
- Tell about the time of earth's development and the present position of atmosphere
- Tell how dinosaur type organisms got extinct
- Tell the sequence of human development

3.1 DEVELOPMENT OF LIFE

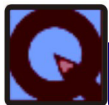
Development means change. Development is the changes from which new species of organisms are developed. New species take time to develop. The situations of earth are constantly changing. Therefore, it is necessary to adapt with these changes. These changes are necessary with the situations. The species which are unable to coordinate with these changes die and get extinct, for example - dinosaur. All new species originate from their predecessors.

Charles Darwin (1809-1822) was a great scientist. He collected many logics and said two important things for development.

1. All the specie organisms originate from the development process.
2. All the process of biological development is called natural selection of spices.

This means that all natural organisms choose and reproduce such organisms that are adaptable to environment.

This explains that when environmental situations change then the original generation makes new species, this is the reason when with time many new species originate, this includes many type of organisms like bacteria, protozoa, fungi, plants, animals and humans, these species have many common things, like breathe in one way or another doing activities like getting nutrition etc.



INTEXT QUESTIONS 3.1

1. Name the scientist who is called the 'father of biological development' ?
2. Name any two common process which are essential to love for every organism?



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3.2 DEVELOPMENT OF ONE LIVING CELL ORGANISM TO MULTI CELL ORGANISM

You have seen that the physical conditions of earth are changing and this has led to many developmental changes in organisms. Now we will study how situations change on earth and who was the first being that evolved. There were many changes in the development process which has led to the development of many species and organisms. The process of development for biological process is considered to be natural selection.

You will be surprised to know that earth was not there before billion years, slowly- slowly natural changes came into place and earth became around 4-5 billion years ago. You will also be surprised to know that Indian Vedic scriptures also believe the development of earth by that time. There are many stages of development which are given below.

First stage: there was no water on earth, clouds only thundered. However, slowly temperature declines, started raining and water was collected on earth. There was no organism till date.

Second stage: first of all very small micro organisms evolved in water. These ate the predecessors of every organism now days. There one branch of bacteria is also seen today, there was no open oxygen in atmosphere in this stage.

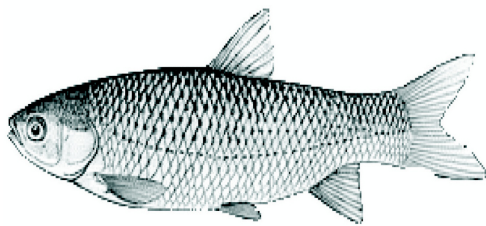
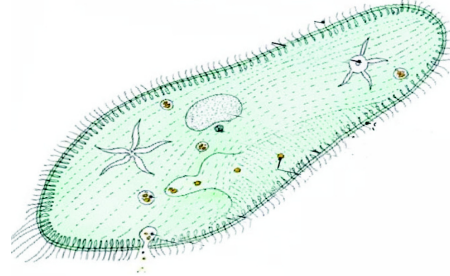
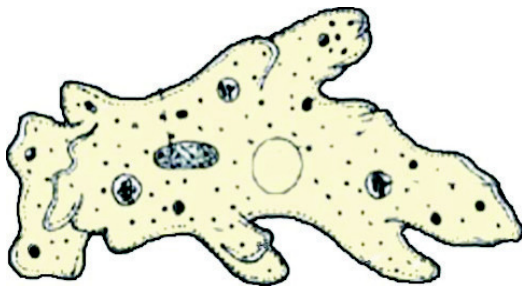
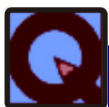


Fig. 3.2 development from single cell organism to multi cell organism

Third stage: single cell organisms went through many changes and the process of photo synthesis became possible. Oxygen increased in atmosphere. Many kinds of organisms took birth. After micro organisms Algae came into existence which is found in ponds and single cell protozoa were also born. Due to development of changes in single cell predecessor, many single cell organisms like fungi, plants and humans were also developed.



INTEXT QUESTIONS 3.2

1. Who were the first organisms to evolve?



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2. A group of organisms is given below. Write them in ascending order of their development:

Plants, fungi, animals, bacteria, algae and protozoa

3. Name the life giving gas which was not present in atmosphere in early days?
4. Who evolved first- plants or animals?

3.3 DINOSAURS AND THEIR EXTINCTION

Changes in development process are not seen in common, but many facts suggest that organisms have evolved from development. Fossils are also such facts. Fossils are the remains of those organisms which were present on earth before. These are found after digging mountains or stones. The bodies of many organisms take the shape of stone after a time period.

Many huge dinosaurs used to live on earth around 15 crore years ago. There was no bird or mammals on earth at that time.

Many fossils of dinosaurs have been found after digging of earth. They belong to reptiles group of animals. Now a days lizard, snakes, tortoise and crocodile come in this category.

A figure is given below; you can imagine the big body of dinosaurs from this picture. There were many species of

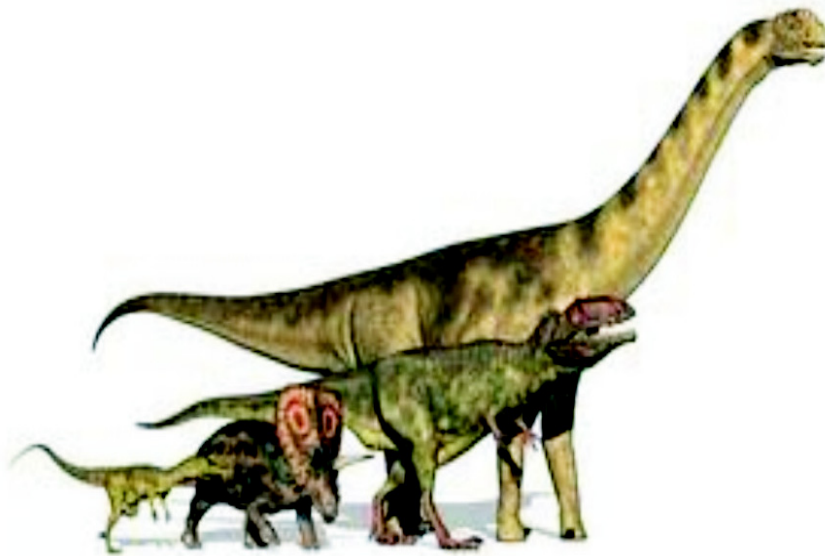


Fig. 3.3 Dinosaur

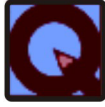
dinosaurs, some used to live in water, some could fly in air and some could walk on land. Dinosaurs used to rule earth 230 lakh year ago to 65 lakh years ago. You could see them everywhere at that time. Some used to eat plants and some were carnivores.

A big lizard is found in Comodo Island in Pacific Ocean and represents dinosaur. It is called Commodo Dragon.

Dinosaurs were living a happy life on earth at that time, slowly the environment on earth changed. Some scientists believe that due to spreading of a specific radiation all dinosaurs die and got extinct. Dinosaur is a good example to learn about development.



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**INTEXT QUESTIONS 3.3**

1. Name any two animals which are found now days and belong to dinosaur category of animals?
2. What are fossils?
3. Write one cause for the extinction of dinosaurs?

3.4 DEVELOPMENT IS STILL GOING

Humans evolved on earth around 20 lakh years back. Humans have many ancient features but it is most complex and high level of development that took place because of maximum development of human mind. Human body is going through change but these changes are very micro, human development is going and still is going.

Humans are considered similar to ape (like chimpanzee).

Every organism of the earth is going through changes. For example, India suffered form malaria in the decade of 1950. The species of mosquito spreading malaria was destroyed by D.D.T. but soon it was known that many mosquitoes could not die in presence of D.D.T. They had undergone natural selection ad the number of such resistant mosquitoes increased from generation to generation. Development not only means making new species but also the development of new symptoms in any species.



INTEXT QUESTIONS 3.4

1. Is development still happening in the world?
2. Our country had controlled malaria completely but why it is happening again now?
3. What do you mean by development?



WHAT HAVE YOU LEARNT

- Biological diversity is the result of developmental change which leads to the evolution of new species.
- There are many development changes which cannot be seen but many can prove it. Fossil is an example.
- Development means the development of complex organisms from common organisms.
- Development changes happen because of the situations on earth and some organisms could not face these changes. They die or get extinct where some organisms adapt to changes situation and can live.
- Charles Darwin (1809-1822) believes that all organisms gave a common development. He gave natural selection for the development process.
- Earth evolved before 4 to 5 billion years ago. The situations on earth were not according to life at that time.



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- Organism evolved around 3 billion years ago. These were bacteria.
- Single cell organisms like protozoa came.
- Multi cell fungi, plants and organisms evolved one after the other.
- The structure of organism was simple in beginning but became complex later on.
- Many species of dinosaurs were present on earth at a time.
- Humans developed at the last stage of development family of organisms.
- Nature is developing regularly, D.D.T resistant mosquitoes is a good example of this.

**TERMINAL QUESTIONS**

1. What do you mean by development? Why changes happen because of development ?
2. Give two contributions of Charles Darwin related to development?
3. To which group of animals dinosaur belong? Give two examples of the group?
4. Why we cannot use D.D.T. to kill mosquitoes?



ANSWERS TO INTEXT QUESTIONS



Notes

3.1

1. Darwin
2. (1) breathing
(2) nutrition

3.2

1. Bacteria
2. Bacteria, Protozoa, fungi, Algae, plants and animals
3. Oxygen
4. plants

3.3

1. Lizard, snake
2. Fossils are the remains that are found after digging mountains. Dead bodies of some animals become fossils after some time on earth.
3. Dinosaurs extinct after changes on earth.



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3.4

1. Yes, now a days
2. Mosquitoes became resistant to D.D.T. therefore, this happened.
3. New species have developed but many new characteristics are also developed in species.

