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Evolution of amphibians, reptiles and birds

SESSION AT A GLANCE

Information

*Amphibians,
reptiles and birds*

Craft

Worksheet 5
Dinosaur mask

Home activity

Stories from
the past - 3, 4,
5 and 6

*The fish who
walked !,*

The lost world ,

The first flight ,

*An interesting
friendship*

Preparing for the session

The story of evolution continues further in this session. In addition to the information presented through a flipchart, the session contains a craft activity. Instructions are provided at the end of the session for making a dinosaur mask; practise assembling one yourself as some of the children might require your help.

You will have to make enlarged photocopies (A3 size) of the dinosaur mask given at the end of the session, in advance. Make sure that sides A and B of the mask are on different pages.

Main ideas

- The first large animals to start living on land were the amphibians, that is, animals that can live on land as well in the water.
- After them came the reptiles. We call some of these dinosaurs.
- From the dinosaurs developed the first birds.

To conduct the session you will need

- Flipchart. *Amphibians, reptiles and birds*
- A3 size copies of Worksheet 5 (one set per child)
- Copies of Stories from the past - 3, 4, 5 and 6 (one copy of each per child)



Conducting the session

Activity 1

Information

Amphibians,
reptiles and birds

Start with a brief recap of the preceding two sessions, that is, the beginning of life on earth and the development of different life forms under the seas and on land. Then continue with the story, using the flipchart.

Frame 1

In the last session we had talked about the different kinds of fish that lived in the sea many crores of years ago. These fish were evolving in different ways. Some fish developed lungs as well as gills. This development was very important because these fish could take in oxygen from the air as well as from water. This gave them many advantages - they could now move about on land; they could survive even if the pools they lived in went dry in the summer; there was plenty of food on land and they were safe from the huge monsters that gobbed them up in the seas.



Frame 2

All this did not happen overnight. These animals changed gradually over lakhs of years. At first they could spend only a little time on land but as time went by, they became better at breathing in air and moving on land. They still lived close to the water to keep their skins moist, and went back to it to lay their eggs but the move onto land had begun.



Frame 3

We still see descendants of those creatures today. They are called amphibians. They can live both in water and on land. Can you think of any such animals? Frogs and toads are two examples.



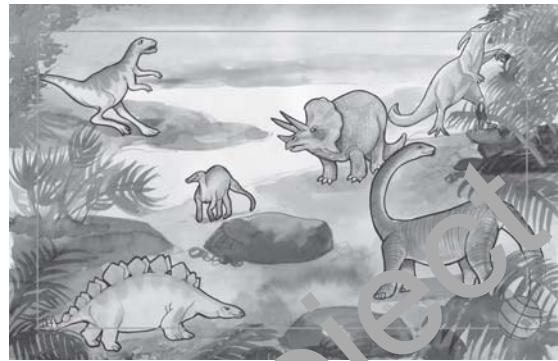
Frame 4

Sometime later other creatures developed that lived entirely on land. Their skins became tough and did not need to be kept wet. Their eggs developed hard shells that did not dry up in the sun and so could be laid on land. In fact, they needed water only to drink. We call these crawling creatures, reptiles. There were many varieties and sizes of reptiles. One group was so extraordinary, that the animals look like something from a story book. It is difficult to believe that such creatures actually walked the earth. We call these animals dinosaurs.



Frame 5

Have you heard of dinosaurs or seen any pictures of them? If you have, then you must have realised that most of them were huge. And indeed some were larger than tall buildings, but there were also tiny ones no bigger than chickens. Remember we had talked about trees as tall as ten-storeyed buildings? Well, some dinosaurs grew as big as that. They were the only ones who could eat the leaves of those trees. This gave them a big advantage, much like the giraffes of today. We know from bones found by scientists that many of these creatures were plant eaters. And where there were such huge plant eaters, there must have been huge meat eaters too - to catch and eat them.



Frame 6

Do we see any such creatures around today? No. It is certainly true that at one time they were the mightiest creatures on earth. They had spread all over the world except in the areas where it was too cold to live.



What could have happened to them? Some scientists believe this is what may have happened ...

About 6.5 crore years ago, the world went through a great change of climate. It began to get colder and colder. Plants could not survive this cold. This may very well have killed the dinosaurs - first the plant eaters would have gone and then the meat eaters who ate them.

Frame 7

The only dinosaurs to survive the extreme cold were those that could dig down deep into the earth where it was a bit warmer or move into the water that retained heat much longer than air. We can see some of their descendants around us today. They are the crocodiles, the lizards, the tortoises and the turtles – these are our living dinosaurs !



Frame 8

Birds also developed during the time of the dinosaurs. The earliest fossils of birds found show that their mouths had rows of teeth and their bones and tails were heavy. But they had feathers, which is why we can call them the ancestors of today's birds. They probably did not fly too well; rather they most likely hopped and leaped from branch to branch and tree to tree.



Why did certain dinosaurs take to the air ? Probably the same reason why some fish first came onto land - remember how some fish developed the ability to breathe in oxygen directly from the air and this advantage made it possible for them to live on land ? Similarly, when some reptiles grew feathers and developed wings, these gave them a new advantage. A small creature struggling to survive would be able to save itself from bigger creatures on land if it could fly away.

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Frame 9

Do you remember the word evolution ? It was going on all the time in thousands of different ways in all the creatures that lived.

Sometimes small changes made such a big difference that it seemed that suddenly

a new animal had sprung out of nowhere. But by now we know that every change took thousands if not lakhs of years to happen. From the first birds to the thousands and thousands that live today, many changes have taken place, as part of the process of evolution. You have only to look around you or see pictures to appreciate the immense variety. It is hard to imagine that all these birds are related to the dinosaurs.



Activity 2

Craft

Worksheet 5

Dinosaur mask

Summing up

Give each child a copy of Worksheet 5, side A and B of the mask, enlarged to A3 size. Children can colour the mask and you can show them how to assemble it. Instructions are given at the end of the session.

Conclude the session by making the following points.

We have spoken about plants and fish, tall trees, dinosaurs and birds. But what about cats and dogs and tigers and elephants ? And what about human beings ? They appeared on earth much later than the animals we have talked about so far. In the next session, we will see how these creatures, so familiar to us, developed.

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Home Activity

Stories from
the past - 3, 4,
5 and 6

*The fish who
walked!*

The lost world,
The first flight,

*A special
friendship.*

At the end of the session, distribute copies of *Stories from the past - 3, 4, 5 and 6*. These are stories of the lungfish, the dinosaur, the first bird, and flying insects and flowers. To help children enjoy the stories, you could read each story out to them first. This will make it easier for them to read it on their own at home. They can also colour the pictures and file the stories in their personal folders.

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