

# Module 9 Assignment



## CULTURE 2 (ZOOLOGY, BOTANY & SCIENCE EXPERIMENTS)

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**Question 1:** Write a note on how to set up indoor and outdoor environment for introducing zoology and botany.

Presentation:

Preparing the Outdoor Environment for Zoology Materials:

- Bird Feeder
- Bird Bath
- Bird House



**Exercise:**

This exercise helps to attract wildlife and study it in the outdoor environment, especially for children aged 3+ years. Children can find great joy in observing birds, which can be attracted by establishing a variety of feeders. A birdbath also offers an interesting opportunity to watch birds, however, care must be taken to keep it clean as well as to change the water daily. The directress may wish to set up some birdhouses, preferably with the children's assistance. Depending on the environment, salt licks in the water, and a variety of feed otherwise may be put out to attract other forms of wildlife. On outdoor trips and nature walks, the teacher should look at tracks so that on the stroll, the children may have the opportunity to study insects, habitats of different lifeforms, under rocks, leaves, in the barks of trees, etc. Most importantly, the children should be shown how to behave in an outdoor setting, i.e., with respect and care for the environment.

**Presentation:**

Preparing the Indoor Environment for Zoology Material:

- Pet cages
- Tanks
- Terrarium



#### Exercise:

This exercise helps to encourage the children (ideally aged 2+ years) to establish respect for other living creatures, as well as to develop a caring attitude towards animals, birds, fish, etc. while observing them and attending to their needs. Animals can be brought into the classroom permanently or temporarily, however, it must be ensured that no child is allergic to any of the animals being brought in. A proper living environment for the animals must be provided. Feeding and caring for animals provide attractive practical life exercises. Observing what and how the animals eat can also be very interesting, especially when the children are directly engaged in said activities. The children should be encouraged to observe how the animal(s) move. It is important to establish appropriate ways to handle the animals and any other routines which ensure the safety of the animals, as well as the children. It is very exciting to watch a life cycle develop, i.e., a frog or a mealworm. It is recommended that resources easily available be used in these exercises. Many people will be willing to bring animals to the school. In addition, trips to the zoo can be very informative. If a teacher chooses to keep animals within the classroom, suitable arrangements must be made for their care on weekends and during holidays.

#### Presentation:

Preparing the Outdoor Environment for Botany Materials:

- Tools for digging
- Tools for Hoeing

- Tools for Planting
- Tools for Raking
- Tools for Weeding
- Tools for Watering
- Tools for Harvesting
- Tools for Composting



### Exercise:

This exercise helps introduce activities that direct the child's attention toward plant life and raises their awareness of plants, their needs, and their importance to the earth and to us. If possible, a teacher should establish a garden in the outdoor environment. This garden should be aesthetically pleasing as well as functional, whereby children can subsequently enjoy eating their produce. Children can help prepare the ground by digging, hoeing, and then planting. They can also maintain the garden by weeding, watering, and eventually harvesting any crops. Plants may be started inside and then later replanted outside. In the fall, raking is a good activity. Maintaining compost helps to promote the idea of not wasting. In addition, planting can help attract animals and birds as well, allowing the children an opportunity to observe the animals feeding. Nature walks may also be arranged which emphasizes a sensorial experience for the children. The children should be encouraged to find their specimens from the ground so as not to harm a living sample. Ample time should be taken to explore and share with the children the living world around them which will help instill respect and interest in plant life.

### Presentation:

- **Preparing the Indoor Environment for Botany Material:**
- **Choice of plants**
- **Tools for the care and maintenance of plants and flowers**
- **Equipment for making products with plants and flowers**

### Exercise 1:

Everyday Life Activities; Watering, Misting, Removing Dead Leaves/Flowers, Washing Leaves: The choice of plants is important; consider the amount of

light the classroom receives. Start with a few plants and expand the number with success. Choose plants that are interesting for different reasons, i.e., flowering, non-flowering, different leaf shapes, edible, non-edible, etc. Early in the year, give a lesson on how to care for each plant. Removing dead leaves and washing leaves are interesting exercises. You may also make up a card for each plant which includes the following information: its name, where it was originally grown/came from, its watering and care needs, and any interesting facts concerning the plant.

### **Exercise 2:**

Rooting, Potting, and Repotting, Plant Propagation: Repotting a plant can be a very nice small group activity. Plant propagation can be very interesting, i.e., start with seeds or a sprouting bulb. The more ways of propagation shown to the children, the better it is for their understanding. Books on plants provide further information for the children. Encourage children to make a booklet for themselves; drawing a picture of what they did at each step.

### **Exercise 3:**

Flower Arranging, Pressing and Mounting Specimens, Making Sachets: Flower arrangement is a further way to boost interest in plants. A plant press can be made of layers of cardboard and newspaper. The children could make their own press, or you may have a commercial one they can all share. The children can identify the various leaf shapes and create booklets. In addition, children can make cards from mounted pressed flowers and greenery. They can also enjoy making sachets of potpourri with dried flowers.

### **Exercise 4:**

Food Preparation: Introduce plants on a sensorial level with an emphasis on taste. Include fruits and vegetables as part of the snack table. Fresh juice squeezed by hand is always popular. Discuss what part of the plant is edible, i.e., leaf, root, etc. Nutmeg or cinnamon can be grated and used in cooking or taken home. Planting a fruit or vegetable and then eating the produce is a great project. An herb garden can provide many activities. Sprouts are also fun to grow, and also tasty. In addition, you may wish to explore the importance of smell to taste.

Remember, what you are trying to give the children is a total experience with plants.

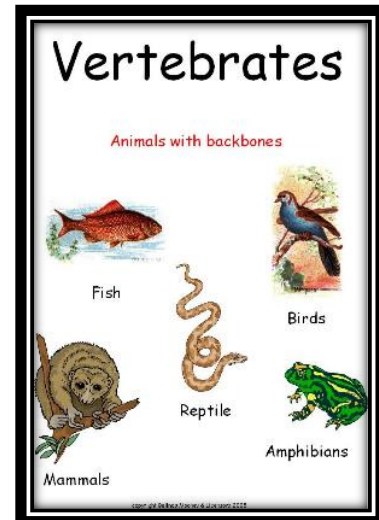
These exercises help introduce the children to the care of living plants. On an informal level, they introduce the use of plants, our dependence on plants for food, as well as aesthetic reasons. Summarily, they stimulate interest in plant life among children.



**Question 2:** Explain how the children are introduced to the vertebrates and invertebrates, five classes of vertebrates and then the body parts of a typical animal of each classes.

**Presentation:**

- Vertebrate and Invertebrate Material:
- Vertebral Column Model
- Set of pictures of Vertebrates and Invertebrates
- Box for sorting with two compartments, labeled Vertebrate and Invertebrate



**Exercise:**

This exercise, preferably carried out for children aged 4 years and up, helps children identify animals with, as well as without vertebral columns. The directress introduces the spinal cord to a small group of children, noting that the backbone is made up of many little bones called vertebrae. In the center of the bones is what is called the spinal cord.



The soft discs are between the bones so that they do not rub together. The children are shown where their backbone is, and they are made to feel it. They are also shown the movement of the column and encouraged to move in different ways. They can be told, "You have a backbone, you are a vertebrate. Animals without a backbone are called invertebrates". They are also introduced to the set of cards and made to identify the animals. They may be helped in sorting out the pictures into the appropriate categories by prompting their observations. It should also be emphasized how the tails of the vertebrate animals are an extension of their backbone. When finished, the children can check their work by the coding on the back. The children may also be shown skeletal models which they enjoy looking at, in addition to cards with skeleton overlays for a variety of animal exposure.

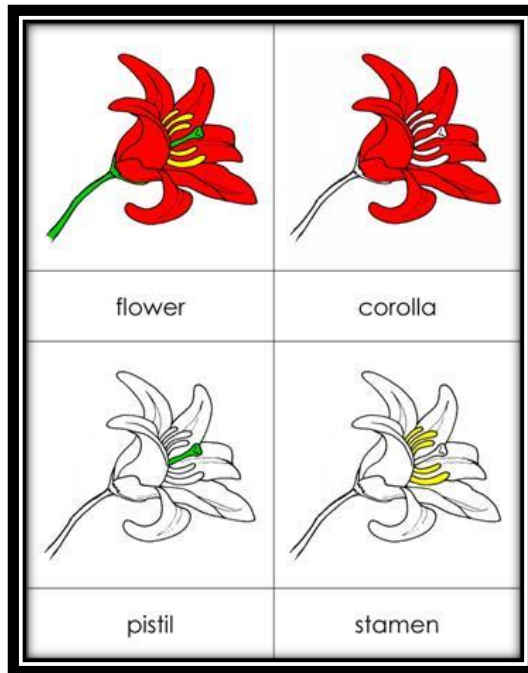
## Five Classes of Vertebrates:

1. **Birds:** Birds are animals that have feathers and that are born out of hard-shelled eggs. All birds have feathers and birds are the only animals that do. The feathers on a bird's wings and tail overlap. Because they overlap, the feathers catch and hold the air. This helps the bird to fly, steer itself, and land.
2. **Fish:** Fish are vertebrates that live in water and have gills, scales, and fins on their body. There is a lot of different fish and many of them look very odd indeed. There are blind fish, fish with noses like elephants, fish that shoot down passing bugs with a stream of water, and even fish that crawl onto land and hop about!
3. **Reptiles:** Reptiles are a class of animals with scaly skin. They are cold-blooded and are born on land. Snakes, lizards, crocodiles, alligators, and turtles all belong to the reptile class.
4. **Amphibians:** Amphibians are born in the water. When they are born, they breathe with gills like fish. But when they grow up, they develop lungs and can live on land.
5. **Arthropods:** Any animals that have more than four jointed legs are arthropods. Insects, spiders, and crustaceans all belong to this class of animals.

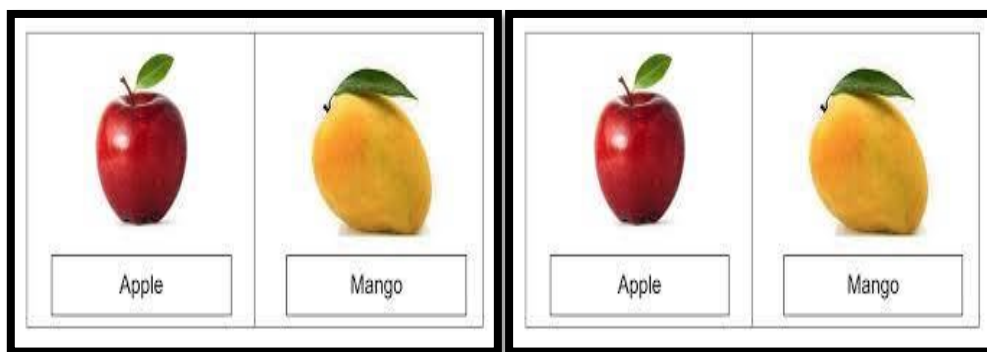


**Question 3:** Prepare the following material and send to your tutor along with the assignment; (15 Marks). four part nomenclature material for the part of a flower. two-part classified cards of the common fruits in Pakistan.

Four-part nomenclature material for the part of a flower.



Two part classified cards of the common fruits in Pakistan.



**Question 4:** Carry out any five science experiments mentioned in this book. Take pictures while working, and send them to your tutors. (15 Marks)



