



Invertebrates

Objectives and State Standards:

- ☉ Students will name one animal with a backbone and one animal without a backbone. (Science Standard 3.1)
- ☉ Students will name the four stages of a butterfly's life cycle. (Science Standard 3.3)
- ☉ Students will name their five senses and name one part of an insect's body used to sense. (Science Standard 3.3)

Activities for before your visit:

- ☉ **Classification:** In small groups or as a class, give students a pile of objects (buttons, colored shapes, leaves, etc.). Have students divide objects into groups by some common characteristic such as color, shape, etc. Have students explain why they grouped the objects the way they did. Explain that they just did the job of a scientist! To make it easier to study animals, scientists divide animals into groups just like the students did with the objects. This way, scientists all over the world know what group an animal belongs to by the characteristics of that animal. Have students glue their objects to a piece of paper in the groups they formed.
- ☉ **Classification of vertebrates and invertebrates:** Have each student find two animal pictures from magazines. Divide the pictures into vertebrates and invertebrates and tape them up on the board so that everyone can see them. (You might have to bring extras to be sure that there are a good variety of invertebrate pictures. See Photo Gallery download or use calendar pictures.) Explain that animals can be divided into two groups by whether they have a backbone or don't have a backbone. Have students feel their backbone so they know they have one. Explain that there are many more kinds of animals without backbones than there are animals with backbones. Invertebrates (animals without a backbone) usually have either no hard parts or their hard parts are on the outside of their bodies. This hard outside is called an exoskeleton. When they visit the Butterfly Pavilion, they will be going on an invertebrate hunt to get a closer look at some invertebrates.
- ☉ **Life Cycles:** Read "The Very Hungry Caterpillar" by Eric Carle. Review the four stages of the butterfly's life cycle. In the book, the butterfly comes out of a cocoon. Tell the children that butterflies actually emerge from a chrysalis and only some moths emerge from a cocoon. Have the students act out the different stages of the butterfly's life cycle. Look for a chrysalis, a cocoon, a butterfly, and a moth during your visit to the Butterfly Pavilion.
- ☉ **Miss Muffet:** To learn more about spiders, have the Butterfly Pavilion's "Miss Muffet" outreach program come to your classroom. For more information on this program call (303) 469-5441, ex. 1862.

Activities for after your visit:

- ☉ **Pavilion Review:** Draw two pictures of animals that you saw at the Butterfly Pavilion.
- ☉ **Invertebrate Story:** As a class, write a story about a day in the life of an invertebrate. Where does it live? What does it eat? How does it protect itself?
- ☉ **Senses:** Do the "Tuned-In Tots" activity from Ranger Rick's Nature Scope Incredible Insects. Show the students pictures of different-shaped antennae. Explain that antennae are very important to insects because insects use them to sense what is around them. Give the students foil or pipe cleaners and have them make their own antennae. Have the students wear their antennae while you discuss their senses. Ask them to name their five senses and name what parts of their bodies they use for these senses. Now discuss how insects can use their antennae for feeling, smelling, and communicating. Discuss what would happen to an insect if it lost an antenna.

Resources:

Meet the Arthropods by Ellen Doris
The Very Hungry Caterpillar by Eric Carle
Insects and Spiders by Dorling Kindersley
Ranger Rick Nature Scope Incredible Insects
www.earthlife.net/insects/six.html
[Http://www.uky.edu/agriculture/entomology/ythfacts/entyouth.htm](http://www.uky.edu/agriculture/entomology/ythfacts/entyouth.htm)
[Http://www.earthlife.net/insects/six01.html](http://www.earthlife.net/insects/six01.html)