CITY OF BLOOMINGTON
parks and recreation

Environmental Education for Bryan Park

1) Rock Out! (K.1.1, K.1.2, 1.1.1, 1.1.2, 1.2.3, 2.1.5, 3.2.1-6)

Theme: Collect, observe, and categorize samples from around Bryan Park Creek. Learn about the rock formations of Southern Indiana and get hands on exposure to these materials.

Supplies: Science journals, writing utensils, variety of rock samples collected throughout the park, hand sanitizer for after-activity cleanup

Activity: Students are provided a variety of rock samples from the Bryan Park Creek. They should try to identify what type of environment the rock came from (Is it muddy? Is there dirt or algae on the rock? Does it seem dried out?) The students should sketch the rock or its characteristics, and describe what it looks like. Is it layered, crumbly, or solid? Is it heavy or light? Compare the areas where these rocks originated and hypothesize about the habitat the rock may have been part of. What position could the rock have been in, relative of living things? In the water, covering insects, under a bush, wedged between other rocks? Through this activity, students should develop skills of observation and see even non-living things as part of a living natural system.

2010 Indiana Science Standards for this activity:

K.1.1. Use all senses as appropriate to observe, sort and describe objects according to their composition and physical properties, such as size, color and shape. Explain these choices to others and generate questions about the objects. (Slate, smooth, coarse, etc)

3.2.1 Examine the physical properties of rock samples and sort them into categories based on size using simple tools such as sieves.

3.2.2 Observe the detailed characteristics of rocks and minerals. Identify rocks as being composed of different combinations of minerals.

3.2.3 Classify and identify minerals by their physical properties of hardness, color, luster and streak.

3.2.4 Identify fossils and describe how they provide evidence about the plants and animals that lived long ago and the nature of their environment at that time.

3.2.5 Describe natural materials and give examples of how they sustain the lives of plants and animals.

3.2.6 Describe how the properties of earth materials make them useful to humans in different ways. Describe ways that humans have altered these resources to meet their needs for survival.

2) In the Wild (K.1.1, K.1.2, K.3.1, K.3.2, 1.3.3, 1.3.4, 1.3.5, 2.2.2, 2.2.5, 2.3.2, 3.2.5, 3.2.6)

Theme: Here students have the opportunity to identify animals living in the area, observe characteristics and natural habitats, and develop hypotheses about these animals' behaviors and lifestyles.

Supplies: Images of animals present in the park. See Biological Attributes for links.

Activity: Observe or discuss what types of animals live in park: What could their habitats be? What would they use for their homes? What would they eat? What might be their predators? Observe and draw physical features of common animals. Describe and compare some of these animals in terms of shape, texture of body covering, size, color, etc. Incorporate factors such as wind and how it might affect animals, and the sun heating up the Earth and what animal responses might be (reptiles versus bunny)

2010 Indiana Science Standards for this activity:

K.1.2 Identify and explain possible uses for an object based on its properties and compare these uses with other students' ideas.

1.3.3 Observe and explain that plants and animals have basic needs for growth and survival: plants need to take in water and need light, and animals need to take in water and food and have a way to dispose of waste.

1.3.4 Describe how animals' habitats, including plants, meet their needs for food, water, shelter and an environment in which they can live.

1.3.5 Observe and describe ways in which animals and plants depend on one another for survival.

2.3.2 Compare and contrast details of body plans and structures within the life cycles of plants and animals.

3) Plants in the park (K.3.1, K.3.2, K.3.3, 1.3.1, 1.3.3, 1.3.4, 1.3.5, 2.3.1, 2.3.2, 3.2.5, 3.3.1, 3.3.2)

Theme: This activity allows students to begin understanding the components of the trees around them. They can examine the leaves, the bark, the fruits of each plant. Students also consider the tree's place in an ecosystem and how it absorbs its food while providing food and shelter for other organisms.

Supplies: science journals and writing utensils

Activity: Observe and draw physical features of common plants and animals. Describe and compare living animals in terms of shape, texture of body covering, size, weight, color and the way they move. Describe and compare living plants in terms of growth, parts, shape, size, color and texture. Classify living organisms according to variations in specific physical features (e.g., body coverings, appendages) and describe how those features may provide an advantage for survival in different environments. (what parts of plants are helpful in getting nutrients or deterring predators). Observe and explain that plants have basic needs for growth and survival: plants need to take in water and need light. Describe how animals' habitats, including plants, meet their needs for food, water, shelter and an environment in which they can live.

2010 Indiana Science Standards for this activity:

K.3.1 Observe and draw physical features of common plants and animals.

K.3.2 Describe and compare living animals in terms of shape, texture of body covering, size, weight, color and the way they move.
K.3.3 Describe and compare living plants in terms of growth, parts, shape, size, color and texture.
1.3.1 Classify living organisms according to variations in specific physical features (e.g., body coverings, appendages) and describe how those features may provide an advantage for survival in different environments. (what parts of plants are helpful in getting nutrients or deterring predators)
1.3.3 Observe and explain that plants have basic needs for growth and survival: plants need to take in water and need light
1.3.4 Describe how animals' habitats, including plants, meet their needs for food, water, shelter and an environment in which they can live.
1.3.5 Observe and describe ways in which plants depend on one another for survival.
2.3.1 Observe closely over a period of time and then record in pictures and words the changes in plants and animals throughout their life cycles-including details of their body plan, structure and timing of growth, reproduction and death.
2.3.2 Compare and contrast details of body plans and structures within the life cycles of plants and animals.
3.3.1 Identify the common structures of a plant including its roots, stems, leaves, flowers, fruits and seeds. Describe their functions.

Group Activities

A) Pine Cone Bird Feeders:

Theme: Learn how to create a bird feeder to enjoy the natural world in your own backyard!
Supplies: Large fallen pine cones, 12in piece of yarn or string, peanut butter, bird seed mix

1. Take a pine cone and tie a piece of string or yarn around the top.
2. Coat the pine cone with peanut butter.
3. Roll the pine cone in bird seed -- pat the seed into the peanut butter.
4. Hang in a tree for our feathered friends to enjoy!

B) Leaf Printing:

Theme: This activity can teach children about tree identification, but it can also be an art project that can be decorated with images found in nature.
Supplies: Blank paper, variety of fallen leaves, ink pad or crayons

1. Collect 5 or 6 leaves from trees in the park
2a. Press leaf onto an ink pad and then press onto a piece of paper.
OR
2b. Place leaf under a piece of paper and then rub a crayon over the top of the paper.
3. For a more complex design, switch colors and do another printing or rubbing on the same paper!

C) How Old is that Tree?

This must accompany the tree identification guide (to use proper growth factor).
Supplies: Cloth measuring tape (1 per group). Tree identification guide. Paper and pencil. Calculator or ability to do compound division. Growth factor chart (Visit the DNR website for a chart with common Indiana trees)
Diameter = circumference/pi
Diameter in inches x growth factor = tree age
Step 1) Identify a tree of the desired species.
Step 2) Measure 54 inches from the ground.
Step 3) At the 54 inch mark, measure the circumference of the tree (wrap measuring tape around tree).
Step 4) Take the circumference, divide it by pi. (C ÷ 3.1415) to find the diameter.
Step 5) Multiply the diameter by the growth factor in the chart below.

Tree Facts

Your name _____

Tree species _____

Tree height _____feet

Circumference _____ inches

Calculations:

_____ inches / 3 = _____ inches
Circumference Diameter

_____ inches **X** _____ = _____ years
Diameter Growth Factor Age of Tree

Growth Factors

American Elm – 4
Birch, River –3.5
Birch, White – 5
Black Cherry – 5
Basswood (Linden) – 3
Black Walnut – 4.5
Colorado Spruce – 4.5
Cottonwood – 2 (unconfirmed)
Green Ash – 4 (unconfirmed)
Ironwood – 7
Maple, Red – 4.5
Maple, Silver – 3
Maple, Sugar – 5.5
Oak, Pin – 3
Oak, Red – 4
Oak, White –5
Shagbark Hickory – 7.5

Bark or Leaf Rubbing