GRADE: K-8th
TIME: ½-1 hour
SEASON: All

HABITAT SUNPRINTS

National Science Teaching Standards

A. Science as **INQUIRY**
C. LIFE Science
F. Science in **PERSONAL** and **SOCIAL PERSPECTIVE**

Objective:

Through this creative art exercise, students will be able to observe organisms and objects representative of a particular habitat.

Pre Activity:

- Brainstorm types of habitats you think will be found at Springbrook (in Iowa).
- Discuss what you might see in the habitats you will visit at Springbrook: woodland, prairie/meadow, wetland/marsh, pond, rotten log, shrub. What could you find in each habitat that would be representational for making a sunprint?
- Take a hike around your school; what kinds of habitats did you discover? Describe the living and non-living things found. What would be representational of the habitats you just observed?

Equipment:

* blueprint paper (1/2 of an 8.5"x11" sheet per student)
* clipboard (1 per student)
* plastic pane (1 per clipboard)
* prepared beforehand: large jar with small rocks in the bottom. With caution, pour in enough liquid ammonia NOT to go past the top of the rocks (the rocks keep the blueprint paper from getting saturated with ammonia).
* optional: Action Cards - on separate page (gives students specific information on the habitat their sunprint will represent)

Introduction:

Inform students they will be using a special technique to record various habitats and objects found in them. Sunlight is one environmental factor in a habitat and students will be using sunlight to make a record of objects found in a habitat. A sunprint, or photogram, is a good technique for observing the objects in a habitat. Sunprints are like photographs made without a camera or darkroom and they provide an interesting method of recording evidence of plants and animals in their natural habitat. Habitats studied can include: meadow, shrub, woodland, pond, yard, etc. (Option: Hand each student, or group, an Action Card. Students are to design a habitat sunprint on the blueprint paper following the instructions on their Action Card.)

Procedure:

1. Demonstrate or explain the sunprint technique to the students:

a. Pass out a clipboard and plastic pane to each student.

b. Have students gather enough natural objects to fit on a 1/2 sheet of paper (leaves, flower tops/petals, grasses, fluffy plant fuzz (like dandelion seed ball), seed head, discarded deer hair, feathers, etc.- discourage picking living materials and live creatures). Also, discuss what poison ivy leaves/plants look like so they do not choose those. Materials should be FLAT. Inform students that only the general shape of the object will show.

c. As students return indoors with their objects, give them a 1/2 sheet of blueprint paper. (Try to keep exposure of the blueprint paper to ANY kind of light to a minimum.) Have students write their names on the back of their paper then place the blueprint paper on the clipboard with the yellow side up. (When the treated side of the blueprint is not exposed to light, it will be yellow to yellow-greenish.) The students should work quickly to arrange the natural objects on top of the blueprint paper. To hold the arrangement in place, place the plastic pane on top of the design and clip it onto the clipboard.

d. Holding the clipboard design side up, expose the design/blueprint paper to sunlight, while holding the edges of the plastic pane securely down onto the design. (Make sure thumbs/fingers are not over the blueprint paper so they do not become part of the design.) Make sure students hold clipboard level - when tipped, sunlight can seep under the natural objects creating a lesser effect. The blueprint paper will turn white in about 60 seconds. (If it is cloudy out, it will still work, though it may take a little longer.)

e. After the blueprint paper has turned white, have students bring design to you. **Make sure they do not perform the following step until just before the paper is ready to be placed into the jar with ammonia.**

Take off the plastic pane, remove the nature objects, and put blueprint paper into ammonia jar for about 2-3 minutes. (You may put more than 1 paper in the jar at a time.) The time period may vary depending on the strength of the ammonia. It does not matter if prints are left in the jar a long time since they cannot be over-developed. The natural object(s) imprinted on the blueprint paper will turn blue.

f. Have the student put clipboard and plastic pane away and return natural objects to the outdoors.

Post Activity:

- Have the students describe their sunprints and how it was representational of the habitat.
- Make a class collage of the sunprints. Were all of the different habitats displayed? If not which ones were missing?

Post Discussion:

- What did you find in your habitat? Did you find evidence of animals? What?
- As you were observing what producers could you identify? Consumers? Decomposers?
- Were the consumers: herbivore, carnivore, omnivore? How do you know this?
- Did your habitat look healthy or unhealthy? What evidence supports your choice?
- Discuss the importance of balance needed within habitats and among all habitats?
- How do you think the other habitats of Springbrook affect the habitat you studied?
- What do we get from each habitat that helps our existenc

Make a sunprint from a WOODLAND habitat
using material from that habitat.

ACTION CARD 1

Make a sunprint from a MEADOW habitat
using material from that habitat.

ACTION CARD 2

Make a sunprint from a SHRUB habitat
using material from that habitat.

ACTION CARD 3

Make a sunprint from a ROTTEN LOG habitat using material from that habitat.

ACTION CARD 4

Make a sunprint from a MARSH habitat using material from that habitat.

ACTION CARD 5

Make a sunprint from a habitat using only plants found in the YARD. Can you be creative enough to make animal shapes using the plants?

ACTION CARD 6