Illinois Wild Mammals

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

BACKGROUND: See the Background Information, especially the Characteristics, Activity Patterns, Feeding and Mobility sections. The *Kids for Trees* unit from the IDNR also contains Background Information that is relevant to seed dispersal.

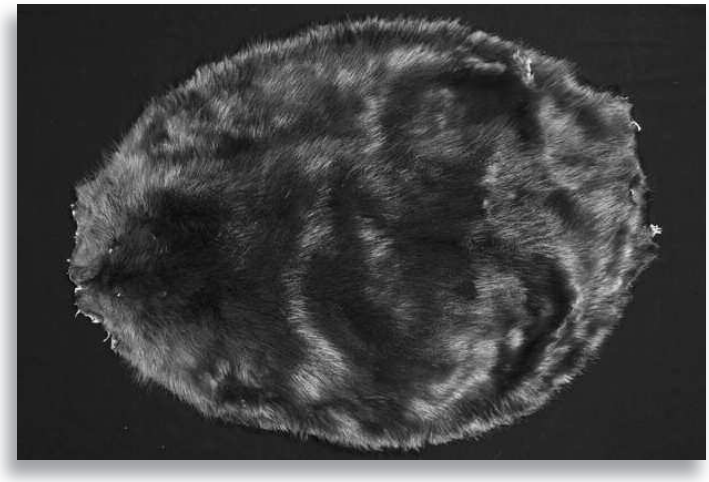
OBJECTIVE: Students will use Illinois-specific mammal resources to observe, draw conclusions and develop a model.

MATERIALS: *Illinois Wild Mammals* resources trunk

PLEASE NOTE: The *Biodiversity of Illinois* CD-ROMs are included in the I*llinois Wild Mammals Resources Trunk*. However, the information in the CDs has been updated, expanded and converted into a Web page at https://www2.illinois.gov/dnr/education/Pages/Biodiversity-of-Illinois.aspx. You may find the information easier to access at this Web page.

Suggested Activities

Activity 1



- Pelts are part of the contents of the *Illinois Wild Mammals* resources trunk. Pelts are dried skin from the mammal with the hair attached. You can learn a lot by observing the pelts. Look closely. What do you see? How do you think the hair on these mammals helps them to survive? Students should be able to provide several reasons.

Activity 2

- Animal fur can help some plants to survive, too. How do you think that is possible? Discuss their ideas. Have you ever seen a dog with cockleburs in its fur? Cockleburs are the seed pod, or fruit, of a plant. Each of them is filled with tiny seeds. Each seed is a potential new plant. Each cocklebur is covered with little hooks that get caught in fur. What does the dog do when it finds a cocklebur stuck in its fur? It uses its teeth to pull the cocklebur out, and then spits it on the ground. What has the dog just done? Not only did it remove the cocklebur from its fur, but it also took the seeds from the plant and moved them to a new location, helping the plant to spread its seeds and survive. Sometimes the seeds just fall off as the mammal walks. Have you ever been in a field with native grasses in the fall? What do you see when you come out of the field? Usually, you are covered in plant seeds. What do you do? You pick them off and throw them down. What did you do? You helped the plant transport its seeds.

Activity 3

- Have the students think about what kinds of features seeds would need to possess in order to be carried far

by mammal fur. Each student should design and build a model of a seed that incorporates these features. They should be able to explain the features of their model to the class.

Activity 4

- Ask the class to think of and discuss some other ways that mammals could help plants disperse their seeds. What about fruits, like blackberries or persimmons? Many mammals eat these fruits. There are scat replicas in the resources trunk. These are replicas of the solid waste produced by the mammal. You can't see what is in the scat from using the replica, but you can often see seeds in scat left by real mammals. The soft fruit around the seed dissolves in the digestive tract of the mammal that ate it, but the hard seed passes through with no change and is deposited with the rest of the animal's solid waste in a new location far from the parent plant. Other means of dispersal can include squirrels burying nuts away from the parent tree, and the American beaver dragging seeds along with branches it has cut from trees. Take the students on a walk to find and observe seeds. Talk about the different shapes and sizes of seeds. Hypothesize whether each type of seed might or might not be moved away from the parent plant by a mammal.

STEM Connections: Evaluations

Science: The activities shown above are science-based and can be used for evaluations.

Technology: Students can use the *Biodiversity of Illinois* CD-ROM series and Internet resources to find examples of plant seeds that have developed to stick to fur and other items.

Engineering: The activity in item three is an engineering activity and can be used for evaluation.

Mathematics: Have the students try the model that they built. Use a paper towel roll covered with an old sock (turned inside out) for the seed to attach to. Each student can walk along a designated route at the same pace holding the paper towel roll on the ends. Students can measure how far each of them was able to walk before the "seed" fell off. If they reach the end of the route with the seed still in place, they win! Discuss the characteristics of the seeds that traveled the farthest. What could have been done to the other seeds to make them better at "sticking?" NOTE: Students with physical disabilities may need help with the walking portion of the activity. If so, it may be best to work with pairs or teams of students.

Training

Additional training about Illinois mammals and on implementing this topic to support performance expectation 2-LS2-2 can be obtained through ENTICE (Environment and Nature Training Institute for Conservation Education) workshops from the IDNR. *Tracks, Scats and Habitats, Reading the Signs* and *Illinois Wild Mammals* are examples of related workshops. See the "Resources" page for more information. The IDNR Division of Education also provides training sessions at teacher conferences throughout the state.

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

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