Illinois Wild Mammals

1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

BACKGROUND: See the Background Information, especially the Characteristics, Activity Patterns, Feeding, Mobility and Hibernation sections.

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

MATERIALS: *Illinois Wild Mammals* resources trunk

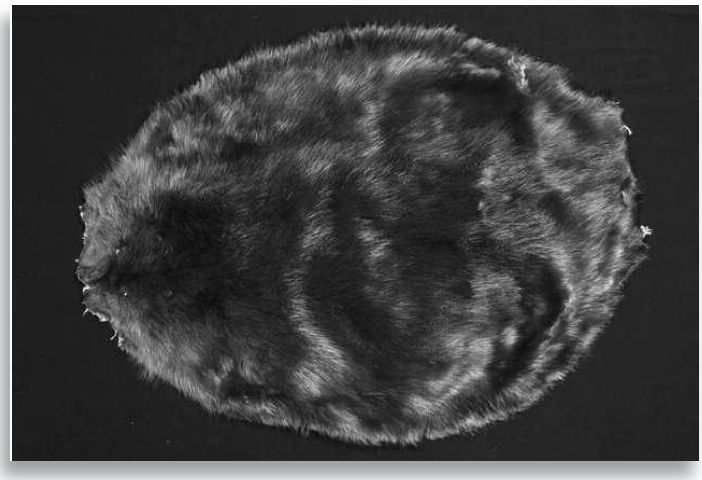
PLEASE NOTE: The *Biodiversity of Illinois* CD-ROMs are included in the *Illinois Wild Mammals Resources Trunk*. However, the information in the CDs has been updated, expanded and converted into a Web page at https://www2.illinois.gov/dnr/education/Pages/Biodiversity-of-Illinois.aspx. You may find the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

Suggested Activities

Activity 1

- The contents of the *Illinois Wild Mammals* resources trunk include skulls, pelts and track replicas. Have the students look at these items. What are skulls? Where is the skull of the mammal located in its body? Where is your skull? Why do these skulls have a different shape than a human skull? What could the shape of the skull tell you about the mammal that it came from? Look at features like the types of teeth, number of teeth, size of teeth, placement of the eyes, size of the brain case and length of the snout and try to explain how those features are useful. How are these mammals different from you?

Activity 2



- Now look at the pelts. Pelts are dried skin and its attached hair from the mammal. 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 3

- Look at the track replicas. They show you the type of feet that these mammals have. What do you notice about them? How are they different from your feet? How are your hands different from these mammals' feet?

Activity 4

- From what you have learned in looking at these items, how could you as a human be helped by some of these features that other mammals possess? What are some problems that humans have that could be helped by developing structures or traits that are more like those of other mammals? For example, if your skull was shaped like that of the coyote, how could that help you? If you had webbed feet like a beaver, how could that help you? Would these structures cause problems as well?

Activity 5

- Talk about some problems that humans have. Are there any problems that could be solved by developing something like a feature found on another mammal? Can other mammals help us? For example, some mammals see well at night. What could we develop that would allow humans to see well at night? Some mammals have strong claws. What could we do if we had strong claws? Male white-tailed deer have antlers. If we had antlers, would that help us? Bats have the ability to hear much better than we do. Would we benefit by being able to hear as bats do? Have each student select a human problem that could be solved by copying some feature that a mammal possesses. The student should design and make some representation of what this new feature would look like, what mammal and feature he/she chose to copy and be able to explain its benefit.

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-ROMs to look for other features in Illinois mammals that might be beneficial to humans.

Engineering: Activity five is engineering-based and can be used for evaluations.

Mathematics: The size of the skulls can be measured in activity two.

Training

Additional training about Illinois mammals and on implementing this topic to support performance expectation 1-LS1-1 can be obtained through ENTICE (Environment and Nature Training Institute for Conservation Education) workshops from the IDNR. *Illinois Wild Mammals* is an example of a related workshop. See the "Resources" page for more information. The IDNR Division of Education also provides training sessions at teacher conferences throughout the state.

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