

ANIMAL TRACKS

Students find the area of different animal tracks found along the Mississippi River.

TEACHER NOTES FOR DISCUSSION

This activity provides a nontraditional way for students to think about the concept of *area*. Just multiplying the length and width will not work for this problem since it is dealing with irregular shapes. Students can use a variety of strategies. Have students share their methods for identifying shapes' areas with a partner and the class. In discussing and sharing methods, rich classroom communication and discourse will develop.

STANDARDS AND BENCHMARKS

National Council of Teachers of Mathematics. *Curriculum and Evaluation Standards for School Mathematics*. <http://standards-e.nctm.org/1.0/normal/standards/intr_MAIN.html>, March 16, 2000.

Standard 6: Problem Solving

- apply a wide variety of strategies to solve problems and adapt the strategies to new situations
- build new mathematical knowledge through their work with problems

Standard 3: Geometry and Spatial Sense

- analyze characteristics and properties of two- and three-dimensional geometric objects

Objective

By the end of this activity, students should be able to compare the area of irregular shapes.

Time Considerations

Instructor preparation:
30 minutes

Student activity:
one or two classes

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UNDERSTAND YOUR MISSION

You will use your problem solving skills to compare tracks found along the Mississippi River.

LEARN THE LINGO

area

the surface included within a set of lines



CHART A COURSE FOR EXPLORATION

While walking along the banks of the Mississippi, you discover animal tracks. You identify these sets of tracks as being mink, muskrat, deer, River otter, Great Blue heron, and Bald eagle. You wonder which animal has larger feet. Can you tell which paw prints have the largest area? Devise a method to determine which paw print is largest. Which is smallest? Justify your findings and share them with a partner.

Gather Your Supplies

- grid paper
- paper
- pencil
- scissors
- string
- tiles
- transparencies

Go Beyond

Find the perimeter of the paw.

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Mink

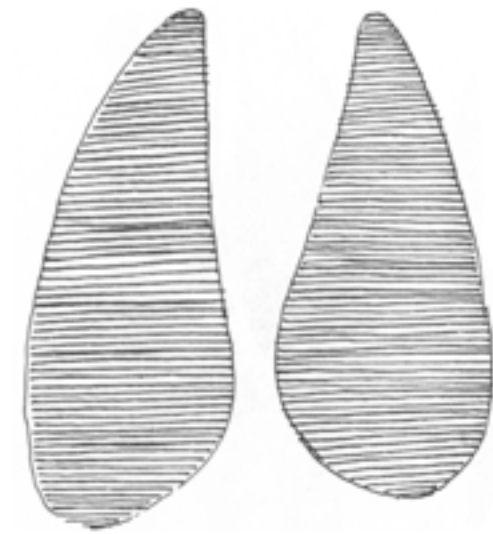


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Muskrat



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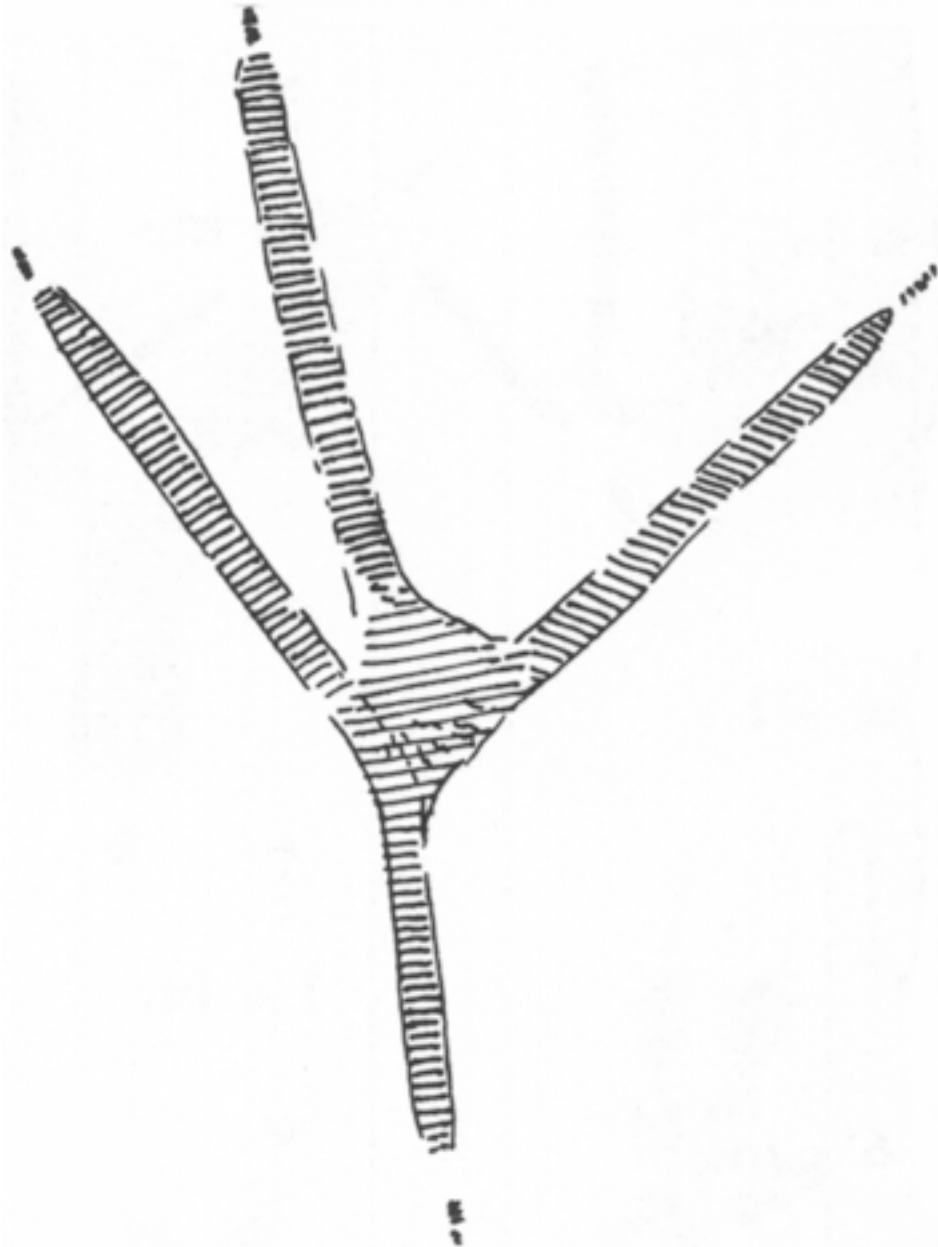
Deer

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River otter

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Great Blue heron

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Bald eagle

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Write a paragraph that explains how to find and compare the area of irregular shapes. Explain as many ways as possible.

Paragraph Rubric

0	No answer, or wrong answer based on an inappropriate plan.
1	Explains one way of finding the area of irregular shapes. Needs more detail.
2	Explains two ways of finding the area of irregular shapes.
3	Thoroughly explains multiple ways of finding the area of irregular shapes such as using grid paper, cutting out pieces, comparing part to the whole.

REFERENCES

———. Mathematics in Context. Encyclopedia Britannica Educational Corporation, 1998.

Iowa WILD, Aquatic Education Program, Iowa Department of Natural Resources, Des Moines, Iowa, 1990

Miller, Dorcas. *Track Finder*. Nature Study Guild, 1981.

Olaus, Murie J. *Peterson Field Guides: Animal Tracks*. Houghton Mifflin Co., 1974.