

Mastodon Curriculum for Grade 5

Mathematics**Diet Delight**

- Standard 5.1.4 Interpret percents as a part of a hundred. Find decimal and percent equivalents for common fractions and explain why they represent the same value.

Lesson: Mastodons ate about 500 pounds of food per day. Thirty percent of that amount consisted of balsam saplings. Forty percent consisted of young aspen trees. Zero percent consisted of osprey and saber-toothed cats. The remainder consisted of branches/leaves of thick deciduous undergrowth. Shade (using a different color for each food item) a 100-square grid to reflect the percent each food item accounted for in the mastodon's diet. State what fraction each food item accounted for.

Lesson: Construct a bar graph that shows the same data for amounts mastodons ate.

For Evaluating, Thinking/Interpreting and Concluding

Problem: Explain why zero percent of diet consisted of osprey and saber-toothed cats.

Problem: If the mastodon ate three meals a day with its biggest meal in the morning and its smallest meal in the evening, construct a 100 square grid to show amounts consumed for each meal in a day's time. Label a section of the grid for the morning, noon, and evening meals. Then, determine what percents of each item mastodon ate for each meal. How many correct answers could there be? Explain. How can you check your work to make sure you don't have a mistake?

Problem How likely is it that mastodons ate three meals a day? Explain your reasoning.

It's as Plane as Nose on Your Face

- **Standard 4:** Geometry/Identify, describe, draw, and classify triangles as equilateral, isosceles, scalene, right, acute, obtuse, and equiangular

Lesson: Using the outline of the mastodon shape included in Appendix, fill in the mastodon shape using only triangles. Try to use as many of the different types of triangles as you can. Label each type (may use numbers or colors or words) to identify each type. If you were able to use any congruent triangles, mark a star or asterisk on them. You may use a geoboard or other tool to help you with the project.

Lesson: Make a bar graph showing the number of each type of triangle you used in the lesson above. Include in the graph ALL the types of triangles available to you (those listed in the Standard). You will have a "zero" on the bar graph for those you did not use.

Lesson: In thinking about the types of triangles you used, which was the most useful type, most difficult to use? If you could have added any other geometric shape to the listing of triangles, which shape would it be and why?

Ugh! There's a Mastodon in my Classroom

- **Standard 5.5.2:** Solve problems involving perimeters and areas of rectangles, triangles, parallelograms, and trapezoids, using appropriate units.
- **Standard 5.5.3** Use formulas for the areas of rectangles and triangles to find the area of complex shapes by dividing them into basic shapes.
- **Standard 5.5.4** Find the surface area and volume of rectangular solids using appropriate units.

Lesson: Using the formula to determine area of a rectangle (Use A for area, l for length, and w for width), determine the number of mastodons that can fit in your classroom.

(Note: Assume that mastodons were about 8 feet high at the shoulder and about 12 feet tall altogether. Assume they were about 5 feet thick (wide) at their biggest point and had ears 1 to 2 feet long. From tip of tail to end of proboscis, assume they were about 9 feet long. Measure your classroom for length and width. Measure in feet and yards. Which unit is easier to use for this problem? Explain in words--orally to the class--the process you used to solve this problem. This is a good problem for small group work.)

Lesson: How many mastodons would fit in your kitchen/living room/bedroom at home? Choose the unit of measure you feel is most appropriate to the problem. (How quickly did students realize that most houses don't have 12 ft. ceilings; thus 0 mastodons would fit? If ceilings are high enough, however, students might need to find area of kitchen or other room by dividing the space into various shapes and measuring those and then adding to determine the total area.

Lesson: How big would a cage or confined space have to be in Area for one mastodon to stand in, for four mastodons to stand in? To turn around in? Explain your reasoning. (Discussion may go to: *Should* mastodons be caged or confined?)

For Evaluating, Thinking/Interpreting, and Concluding:

Problem: Estimate how big a park would have to be for a herd of 6 mastodons to walk around in. Explain how you went about determining your answer. What did you need to assume? Which unit of measurement worked best and why? (Good for small group or as individual challenge)

Problem: Design a wildlife park for mastodons.(This activity includes many of the Problem Solving items in Standard 7—especially if teacher requires students to explain their thinking.) Place items that would be necessary to mastodon survival (i.e., water source and other items) in the park. Include what you determine to be necessary amount of space for a renewable food source in the park. It will take some research to determine this last factor. Finally, what factors can't you resolve and why.

Picture This

- **Standard 5.61** Explain which types of displays are appropriate for various sets of data.

Lesson: State which type of graph (bar, line, or picture) would be most appropriate for the following sets of data:

- A Amounts and types of foods in mastodon diet
- B Amounts and types of foods in human diet
- C Numbers and types of teeth in various animals (1 or 2 graphs and why)
- D Number of toes in various animals
- E Life span of various animals
- F Habitat of various types of animals

Language Arts**A Proboscis by Any Other Name Is a Nose**

- **Standard 1:** Reading/Word Recognition and Vocabulary Development

Vocabularyasaurus Lesson: Learn as many of the words from the Mastodon Vocabulary List as you can fit into your studies. Use the Vocabulary Map in Appendix for your study.

Mastodon Vocabulary List**Carnivore****Catastrophe**

Dinosaur

Extinct

Fossil

Geology**Habitat****Herbivore**

Ice age

Insectivore

Land bridge

Life span

Mammoth

Mastodon**Migration**

Omnivore

Proboscis

Quadruped

Reptile

Sediment

Tusks

Vertebrae

Extinction Lesson (Oh Where, Oh Where Has My Mastodon Gone?)

For the concept of extinction, use the music/lyrics in the book *Crocodile Smile* by Sarah Weeks and Lois Ehlert (track 6 on the CD included with book). In fact, many of the tracks on this CD relate to balance, habitat preservation, and concern for other species as necessary conditions to support life.

Understanding extinction is a key outcome of the mastodon study. Check the Internet, ACPL holdings, and other locations for enriching materials on the concept of extinction. Ask students to list names of creatures they believe to be extinct and those they believe to be endangered. Discuss with students what they can do to make a difference.

One of the goals of the mastodon project is for student to understand their role as valuable members of their community with responsibilities to help where and how they can. If appropriate, class or individuals might wish to work to contribute to Saving the Rainforest or contacting environmentalists to ask what they can do, or contributing to local projects that improve our habitat.

Sleuthing About in the Muck

- **Standard 4:** Writing/Process/Research and Technology

Lesson: Use a thesaurus to identify alternative word choices/meanings for the following:

Mastodon
Mammoth
Habitat
Nose
Catastrophe
Migration
Dinosaur

Writing? It' a Good Thing

- **Standard 5:** Writing/Applications/Research Reports

Lesson: Write a research report (300 words or more) comparing the teeth of the mastodon and mammoth. Develop topic with facts, details, examples (drawings even!) and explanations. Use a minimum of three sources of information. One of sources (or more) must be from the Web. The Teacher Packet included in these materials can count as the Web resource IF student uses the internet to locate that information.

Lesson: Write a persuasive research paper (500 words or much more) that advocates making the mastodon a national emblem. Use the Internet to research how the mastodon was revered (if at all) by our Founding Fathers by such adventurers as Lewis and Clark, and by others at the time our government was being formulated and the West was being explored.

Lesson: Write a narrative (400 words or more) that features the Vocabularysaurus as the main character who wants to make some new friends. Show, rather than tell, the events/other characters of the story.

Lesson: Write a humorous skit (for 5 to 10 minutes) for presentation to lower grade/s in your school about something involving a mastodon. Suggestions might be:

- How mastodons brush their teeth
- Why mastodons have a big hump on their backs
- How to cook for a mastodon
- How to do the mastodon stomp
- Meeting a Vocabularysaurus on a dark and stormy night

Eats, Shoots, and Leaves

Standard 6: Writing/Written English Language Conventions

Lesson: Require that students use the grammar, punctuation, spelling, capitalization, and sentence structures specified for their grade level in the Indiana Standards for all their writing assignments.