

Dinosaurs: Communicate by Graphing

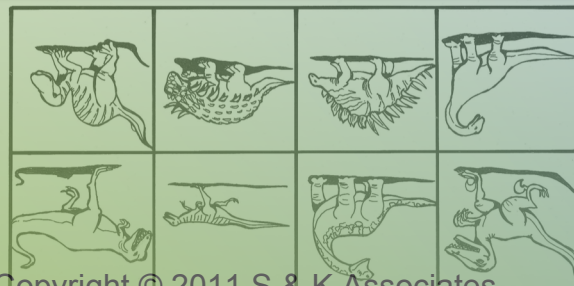
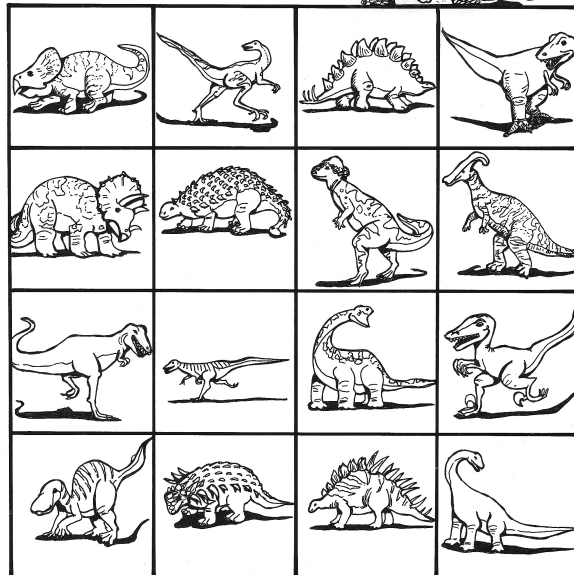
Primary Science

Lesson 3 from Dinosaurs and Fossils

by Sheryl Mercier and Karen Ostlund

Communicate about DINOSAURS

1. Look at the dinosaurs. How are they different?
2. Cut out the cards.
3. Think how to group them.
4. Glue cards to make a graph.
5. Name each group.



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Communicate About Dinosaurs



Materials: plastic model dinosaurs or cards with pictures of dinosaurs, graph (see directions below), scissors, color crayons, 18" X 12" construction paper for individual graphs

Teaching Tips: Make a graph six feet long and two feet wide on a sheet of butcher paper or a white shower curtain. Use a meter stick to draw a grid with four inch squares (6 X 18). Make two labels that say "Walked on 2 Legs" and "Walked on 4 Legs."

Have students sit in a circle. Pass out a dinosaur (card or plastic model) to each student. Go around the circle and have each student describe his or her dinosaur. Demonstrate how to graph the dinosaurs into groups by putting a large grid on the floor and asking students who have dinosaurs that walked on four legs to put their dinosaurs next to the label that says "Walked on 4 Legs." Then ask students who have dinosaurs that walked on two legs to put their dinosaurs on the grid next to the label that says, "Walked on 2 Legs." Ask questions such as, "How many more dinosaurs walked on ___ legs than ___ legs." Ask students for other ways that to graph the dinosaurs. Make a list on chart paper or on the chalkboard. Possible ways to graph dinosaurs include: size (i.e., smaller or larger than a chicken), having or NOT having a particular type of attack or defense structure (jaws, teeth, whip-like tails, tail spikes or clubs, claws, head horns or spikes, armored plates of bone), plant or meat eaters, long or short necks, etc. Graph the dinosaurs another way. Ask questions such as, "Which group has the most dinosaurs? Which group has the fewest dinosaurs? How many fewer dinosaurs are ___ than are ___." Hand out the student activity sheet and have students work collaboratively to cut out and graph a set of dinosaurs. After students have created a graph, ask them to glue it to a piece of 18" X 12" construction paper. Tell students to label each group on the graph. How did the graph help to organize the dinosaurs?

Connect to Content



Inquiry/Properties of Earth Materials/Dinosaur Tails: All dinosaurs had long tails whether they were 90 feet long or the size of a chicken. Many used their tail to balance the weight of the front part of the body that allowed them to run on their hind legs.

Properties of Earth Materials/Dinosaur Weapons and Armor: Many dinosaurs had horns and spikes on their heads that they may have used to charge an enemy. Marks on tailbones indicate that large muscles powered the tail, allowing dinosaurs to lash its whip-like end from side to side. Some dinosaurs had bony spikes on their tails or a bony club at the end of their tails to defend themselves. The plates of bone, which covered much of their bodies, protected armored

dinosaurs. Sharp claws were probably used to seize prey. Massive jaws and dagger-like teeth could be used to kill and rip apart prey.

Evidence, Models, and Explanation: Ask: How did the graph help you analyze the features of the model dinosaurs? (it was easier to tell and count how many dinosaurs were in each group) Was there anything about the dinosaurs that you couldn't find out by looking at the paper dinosaurs? (size, color, texture of skin, etc.)

Communicate About Dinosaurs Scoring Rubric

4 points correct, complete, detailed
 3 points partially correct, complete, detailed
 2 points partially correct, partially complete, lacks some detail
 1 point Incorrect or incomplete, needs assistance



Scoring Criteria	4	3	2	1
Followed directions and completed activity.				
Observed features of dinosaurs and suggested ways they are different.				
Cut out and glued the cards down to create a graph.				
Labeled each group of dinosaurs on the graph.				

Total Points _____

Dinosaur and Fossils Correlations: A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas

Communicate About Dinosaurs - Scientific Practices

Practice 2: Developing and Using Models:

Students observe pictures of dinosaurs and group them based on similarities and differences. Then they organize their results by constructing a graph.

Practice 4: Analyzing and Interpreting Data

Grouping dinosaurs based on similarities and differences reveals patterns and relationships that can be communicated to others. Because raw data as such have little meaning, a major practice of scientists is to organize and interpret the data through tabulating, graphing, or statistical analysis. This analysis can bring out the meaning of the data - and their relevance - so that they may be used as evidence to support explanations.

Communicate About Dinosaurs - Crosscutting Concepts

Patterns

Observed patterns guide organization and classification, and they prompt questions about relationships and the factors that influence them.

Communicate About Dinosaurs - Core Ideas

The life sciences are partially rooted in earth science, as Earth remains the only example of a biologically active planet, and the fossils found in the geological record of rocks are of interest to both life scientists and earth scientists.

Life Science

LS Core Idea 4: Biological Evolution: Unity and Diversity

Biological evolution explains the unity and diversity of species.

LS4.A: Evidence of Common Ancestry and Diversity

What evidence shows that different species are related?

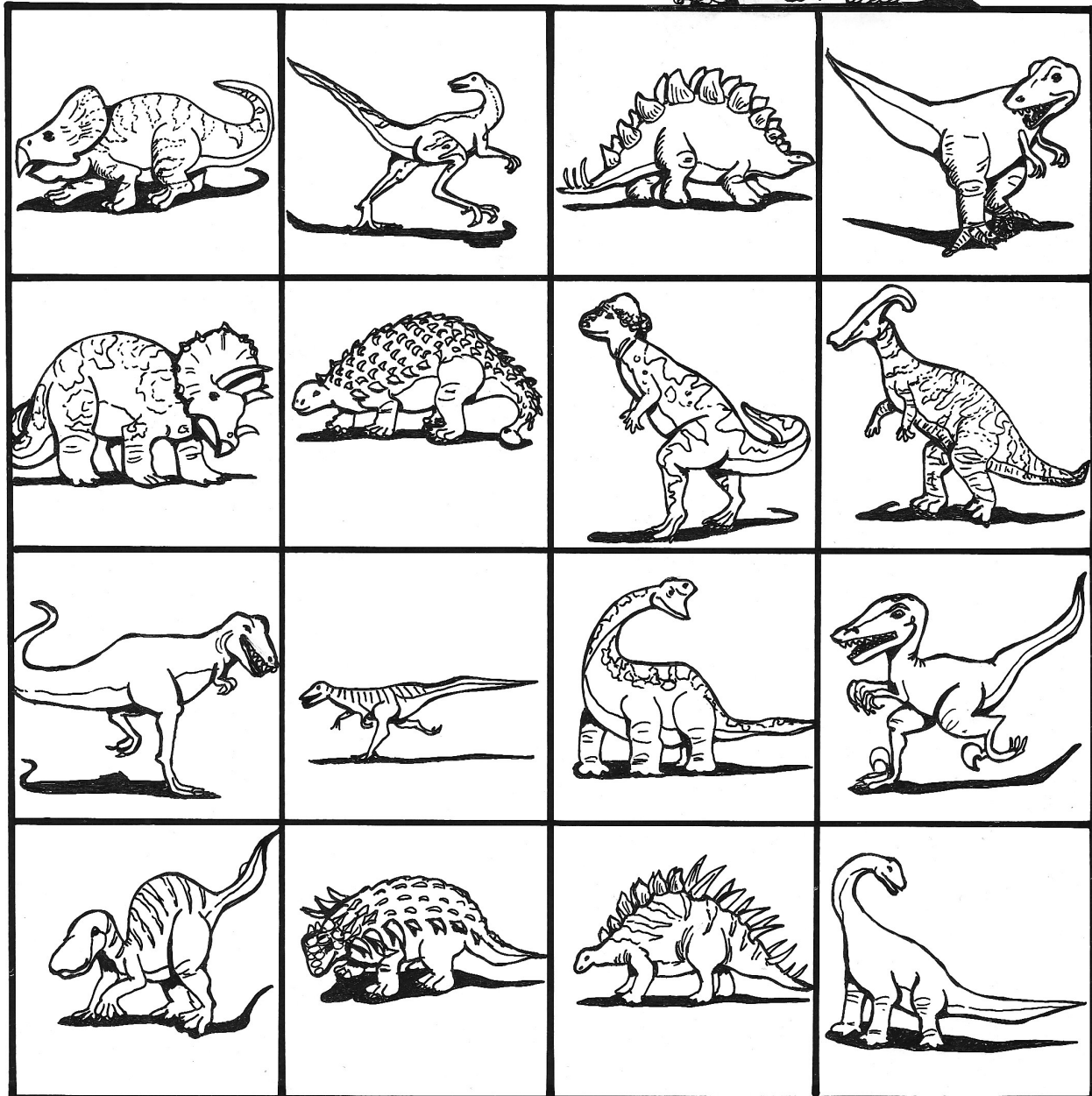
Evidence for common ancestry can be found in the fossil record.

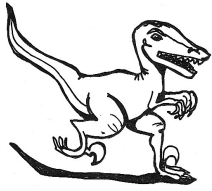
Grades K-2: Some kinds of plants and animals that once lived on Earth (e.g., dinosaurs) are no longer found anywhere, although others now living (e.g., lizards) resemble them in some ways.

Grades 3-5: Fossils provide evidence about the types of organisms (both visible and microscopic) that lived long ago and also about the nature of their environments. Fossils can be compared with one another and to living organisms according to their similarities and differences.

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Write It!



How did you communicate?

How did you make a graph of dinosaurs?

What did your graph tell about the dinosaurs you grouped?

What did the other groups' graphs tell you about dinosaurs?

