Name	Date	Period	
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Evolution of Cartoon Fossils

Background: Evolution results from *mutations*, *variations* in populations, isolation of *gene pools*, and *natural selection* by environmental factors. Through time, life has evolved from a few simple forms to the present vast array of organisms on Earth.

When scientists find a fossil, they try to identify where the fossil belongs in the evolutionary sequence. In this activity, you will have the opportunity to determine a probable sequence of evolution of cartoon fossil organisms.

Materials:

- Scissors
- Cartoon diagrams
- Large sheet of paper (to glue/tape cutout cartoon fossils)
- Pen/pencil and colored markers/pencils

Procedure:

- 1. Planning Your Investigation: You have been given a sheet showing ma cartoon fossils. Cut them out carefully. Working in a group of 2 or 3 people, examine the diagrams and prepare a list of shared characteristics that you think are important variables that could be used to demonstrate the change in traits over time. List these in Data Table #1 below. Also include a hypothesis describing the trend in the evolution of each of these traits.
- Conducting Your Investigation: Organize your fossils on the paper according to your hypothesis about the trend in the evolution of traits. Make sure you use arrows to show the sequence in the evolution of this cartoon species.
- 3. Communication Your Results: Summarize your reasoning about the evolution of your cartoon fossils. Describe the environmental factors that could have contributed to the evolutionary process of the species. Write these down on the same sheet of paper next to the cartoon cut-outs as you stick them down. Compare your organization with those of other teams. Explain why there could be differences in the sequences.
- 4. In the space provided on page 4, sketch a present-day organism that you think could have evolved from the fossils. Describe how its adaptations are well suited to its environment.
- 5. Answer questions below when you are completed

Questions:

1. What trait stood out the most when you began to look for evolutionary "links"?

2. How many branches do you have on your "evolutionary" family tree of cartoon fossils?

3.	Does your diagram look like everyone else's? How does it differ?
4.	What environmental factor "shaped" your organism the most? Explain why.
5.	Over what time period do you think it took for this evolution to take place? (number of years for each branch/step)
6.	Describe an environmental "event" that could have led to the extinction of your cartoon fossils.
7.	Describe an actual evolutionary tree that resembles the one that you constructed.

DATA TABLE #1

Shared Characteristics	Hypothesis describing trend in evolution traits

Sketch of Present-day organism
Describe how your modern day organisms adaptations are well suited to its environment.

FIGURE 13-1
CARTOON FOSSILS

