Pages of Time

Classroom Activities
Kentucky Geological Survey

Materials

1. Rolls of adding machine paper in 5, 10, 20, 50, or 100 foot lengths
2. Ruler
3. Colored pencils or crayons
4. Illustrations from books of prehistoric creatures

Activity

One of the most popular classroom exercises for demonstrating the changing Earth through time is the construction of time lines. Typically rolls of adding machine paper are used to make the time lines. The scale you use will depend on the length of paper and the amount of time you want to show. Scales for different lengths of paper are provided below. To help you fill in the time line, a list of important dates in earth history follows. Examples of important dates in Kentucky Earth history are shown with an asterisk. Assign the children in your class the task of drawing a picture of these important dates at the appropriate place on the time line. Pictures of the animals and fossils on the time lines can be found in your school library, The Progression of Life poster and publication, and the fossils page at this web site.

To show the total age of the Earth, the length of paper you choose should show 4.6 billion (4,600 million) years:

Time Line		
Total length of paper	then 1 foot =	and 1 inch =
5 feet	920 my	76 my
10 feet	460 my	38 my
20 feet	230 my	19 my
50 feet	92 my	8 my
100 feet	46 my	4 my

my=milllion years

Pick important dates from the Earth history list below and calculate the number of inches to be measured from the end of the paper roll to show that date. For example, on a 10- foot roll of paper, the beginning of the Paleozoic Era (570 my) would be calculated as

570 /38 = 15 inches. Then have the student draw a picture of a representative animal or plant for the beginning of the Paleozoic from the list. Since most animal and plant life has evolved since the Paleozoic Era, much of the paper will remain unused or covered with drawings of blue-green algae (not the most exciting picture a child can draw!). For example, dinosaurs, which existed from 228 to 65 mya, only appear in the last 6 to 2 inches of a 10-foot time scale. The length of time it took life to develop and change on the planet is an important concept, but if you only want to stress the changes that have occurred since the advent of abundant life on the planet you can construct a time line of the Paleozoic, Mesozoic, and Cenozoic eras, in which you will need to show only 570 million years of time.

To show only the time of from the beginning of the Paleozoic, the length of paper you choose needs to show 570 million years:

Paleozoic to Present Time Line		
Total length of paper	then 1 foot=	and 1 inch=
5 feet	114.0 my	10 my
10 feet	57.0 my	5 my
20 feet	28.5 my	2.5 my
50 feet	11.4 my	1 my

Once you know the length of paper you will use, and the scale you will use, you and your class can decide which events you want to show on the time line. The following list will help. For time and space purposes, your class could construct one time line and share tasks, rather than each child doing an individual time line. Each child could be assigned a time period, and given a length of paper for that time. For example, student 1, is assigned the Pennsylvanian Period. The Pennsylvanian Period lasted from 320 to 286 million years before the present, for a duration of 320-286 = 34 my. On a 10-foot piece of paper, using the scale for representing only the last 570 million years, 1 inch = 5 my, so 34/5 =6.8 inches. Have the student cut out a 6.8 length of the paper roll. They should draw a line across the paper to mark the time line as below. Then in class, or as a homework assignment, the child should draw appropriate animals or plants for that time period. The periods can then be taped together in the proper order to show the entire time scale.