

Hallway Time



An exercise to demonstrate changes in the Earth through time, and the length of time it took for those changes to happen. In this case, using a hallway in your school.

Materials

- A long hallway (One where you can hang pictures on the wall or from the ceiling works the best)
- Tape measure (Or count floor or ceiling tiles)
- Paper, colored pencils or crayons, or other materials to draw or make costumes or posters of ancient animals and plants (can be done at home or in class prior to the activity)

Activity

Constructing time lines is a common method for demonstrating changes in Earth history. You can use the adding machine paper method and unroll it down the hallway or you can just use the hallway, without the adding machine paper. Rather than drawing objects or moments of time on a narrow piece of paper, the students can draw larger images on paper that you can hang in the hallway or they can make posters or costumes (and be active members of the time lines themselves).

Pick the events you want your class to use from the list of [Important dates in Earth history](#), or have the students pick a creature or event. The teacher or student will have to make a calculation of time and distance relative to the hallway (shown below). The teacher can calculate the distance for each key event, or have the students calculate the distance in class, or as part of a homework assignment prior to the activity. As with the time lines on paper, you have to decide how much time you want to demonstrate in the hallway before calculating positions. There are two ways to do this depending on what you want the students to understand: (1) all of geologic time, or (2) that part of geologic time in which there has been abundant life. The advantage of showing all of geologic time is that most of the students will be clustered toward one end of the court, and they can see how far away the student representing the beginning of the Earth is standing. This is an excellent way to show how long it took these life forms to develop. If you would rather stress how long it took the more familiar life forms to develop, or to better show species change through time, use only the last 542 million years of Earth history, since the beginning of the Paleozoic Era. If you want to demonstrate how the change in scale influences perception of time or ability to see changes try both; first with the hallway representing all of geologic time, and then second with the hallway representing just the Paleozoic era to the present (or use both sides of the hallway; one with a long scale, one with a short scale).

To make hallway time more exciting for the students, assign each a key date in Earth history before the activity. Decide if you want to have the students (1) make a page-scale picture of their creature or event that you will tape to the walls or hang from the ceiling in the hallway, or (2) have a living time line where the students hold a poster they made or a make a mask, poster, or write a short limerick about their key event. For example, if a student was assigned blue-green algae, they might say "I'm blue-green algae, not much more than slime, but I ruled the Earth for a very long time!" For a mask they might make a headdress that looked like sea weed, or drape themselves in green streamers. This will let each student use their own creativity to illustrate the concept of changes in time. If

Prior to Activity:

Measure the hallway you want to use, or count the number of ceiling tiles or floor tiles in the hallway. In some cases, it may be easier to use tiles for measurement than a tape measure. To determine the distance between time periods or key events in the hallway (or to have the students make the calculation) determine if you want to

show all of geologic time, or just the time of abundant life (Paleozoic Era to present) and divide by the length of the hallway

Calculations:

(1) For a hallway X ft in length, where the beginning of the hallway is the beginning of the earth and the end of the hallway is now, the distance of geologic time would be calculated as:

$$4,600,000,000 \text{ years} / X \text{ ft} = Y \text{ years/ft}$$

For example, for a 100 foot-long hallway,

$$4,600,000,000 \text{ years} / 100 \text{ ft} = 46 \text{ million yrs/ft}$$

At this scale, the Paleozoic era begins approximately 12 feet from one end of the hallway, and most of the ancient creatures that students are aware of will be within the first space. To calculate the position of a creature or event in the hallway at this scale (or to have student calculate the position), get its age from [Important dates in Earth history](#) then use the following calculation:

(1a) To calculate in feet: Date you wish to show in million years / Y years/foot = distance from end of hallway (representing today) in **decimal feet**.

For example, for a 100 foot-long hallway, to position Tyrannosaurus rex in the hallway, you look up that Tyrannosaurus rex lived 75 million years ago, so: 75 my/ 46 my/ft = would be 1.63 feet from the end of the hallway.

(1b) To calculate in inches: (Date you wish to show in million years / Y years/foot * 12 inches/ft= distance from the end of the hallway **in inches**.

For example, for a 100 foot-long hallway, to position Tyrannosaurus rex in the hallway in inches: (75 my/ 46 my/ft) 12 in/ft = would be 19.56 inches from the end of the hallway*

(2) For a hallway that is X feet in length, where you only wanted to show changes in major life forms, the beginning of the hallway is the beginning of the Paleozoic Era (Phanerozoic Eon) and the end of the hallway is today, the distance of geologic time would be calculated as:

$$542,000,000 \text{ years} / X \text{ ft} = Y \text{ million years/ft}$$

For example in a 100 foot-long hallway:

$$542,000,000 \text{ years} / 100 \text{ ft} = 5.42 \text{ million years/ft or } 5.42 \text{ my/ft}$$

At this scale, you have a hundred feet to better demonstrate the change of creatures from the beginning of the Paleozoic Era to the present. To calculate the position of a creature or event on the court at this scale, get its age from [Important dates in Earth history](#) then use the following calculation:

(2a) To calculate in feet: Date you wish to show in million years / Y million years/ft = distance from the end of the hallway (representing today) in **decimal feet**.

For example, in a 100-foot long hallway to position Tyrannosaurus rex, when T-rex lived 75 million years ago: 75 my/ 5.42 my/ft = would be 13.84 ft from the end of the hallway

(2b) To calculate in inches: (Date you wish to show in million years / Y million years/ft) * 12 inches/ft = distance from the end of the hallway (representing today) **in inches.**

*For example, in a 100 foot-long hallway where Tyrannosaurus rex lived 75 million years ago: (75 my/ 5.42 my/ft) * 12 in/ft = would be 166.05 inches from the end of the hallway.*

In the Hallway:

If the students made some type of artwork, find the position of their creature or event using the calculations above and a tape measure, or by counting tiles. You can speed up the activity by using tape to mark off time or geologic periods the night before and having the students go to a relative position rather than measuring with a tape measure. Then tape the picture to the wall or hang from the ceiling. If you use the “all of geologic time” scale, the students art work will get very bunched up toward the end of the hallway (representing today) so make sure you choose the end of the hallway with the most space to represent today and geologically recent past. In fact much of the significant events in the end of the Tertiary and Quaternary Period may be in the last inch of wall (depending on scale).

If you choose to do the live version, position the students in the hallway and tell them to stay at their position so that everyone can see the relative changes in time. It's very important that the students don't move around. You might point out that the lengths of their shoes are several million years (depending on shoe size and scale used). Let all of the students see each other's creature or event. Relate to the students the positions in the lot so they can see the distance between creatures or events and better relate to the expanse of time and earth history.