

Calendar Time



Activity:

In this activity a calendar is used to demonstrate the length of geologic time. This activity works best in the fall semester because most of the exciting (familiar to students) events in Earth history occur toward the end of the calendar year (from late November to New Year's Eve).

There are several ways to use the geologic time calendar.

- Make a classroom calendar, where students illustrate important dates on the calendar, or provide a monthly or daily picture (most months will be rock or blue-green algae). Students can find out the age of an ancient animal or event and make the calculations to show that time on the calendar. Methods for calculating dates are provided in the following sections. If you want to skip the calculations, you can use the calculated dates in the following sections.
- Use the calendar as a guide. You can use either a calendar of your own making or the calendar graphics/images provided in the following sections. Each day in class (or summarize in a weekly class) point out the events of the day or week (depending on how often the class meets)
- Have students make and illustrate their own calendars

Demonstrating Geologic Time on a Calendar: To demonstrate geologic time (4.6 billion years) on a calendar (365 days) the following calculations may be useful:

(1) $4,600,000 \text{ years} / 365 \text{ days} = 12,602,739.73 \text{ years/day}$ or 12.603 million yrs/day

(2) $12,602,739.73 \text{ years/day} / 24 \text{ hours/day} = 525,114 \text{ years/hour}$

(3) $525,114 \text{ years/hour} / 60 \text{ minutes/hour} = 8,751.9 \text{ years/minute}$

(4) $8751.9 \text{ years/minute} / 60 \text{ seconds/minute} = 145.865 \text{ years/sec}$

The calculations and the following results (Calendar dates and Calendar images) are calculated for an entire year, but you could recalculate to the end of the school year if you wished to finish geologic time within the school year rather than Christmas/Winter break. Many of the creatures and events students will care most about happen toward the end of December. For example, in a full calendar year, the Cretaceous Period begins on Dec. 20th. To recalculate so that the present day is on the last day of school (rather than the end of the year), determine the last day of school in the fall semester. How many days is the last day until the end of the year? Subtract that number from 365 days and recalculate equations (1) through (4) above. For that matter, you can also recalculate for 1 school month (28 to 31 days) or 1 school week (5 days), depending on the class's needs.

(5) If you want to show fossils, ancient creatures, or events on the calendar, you need to find out the geologic ages of those creatures or events in millions of years before the present. The teacher can supply these, or students may research an ancient creature to determine its age. Many ages are supplied in Important dates in Earth history.