

DEFINITION: the accurate measurement of repeating patterns

UNITS: seconds, years

We experience time every day, but it's not always easy to pin down a precise way to describe it. In science, we define time by our ability to measure it according to some regularly repeating event: the spinning of the Earth on its axis, a pendulum swinging back and forth, or the vibration of atoms under certain conditions. Time and our ability to measure it accurately is key for many frontiers of science.

## **COSMIC EXAMPLE**

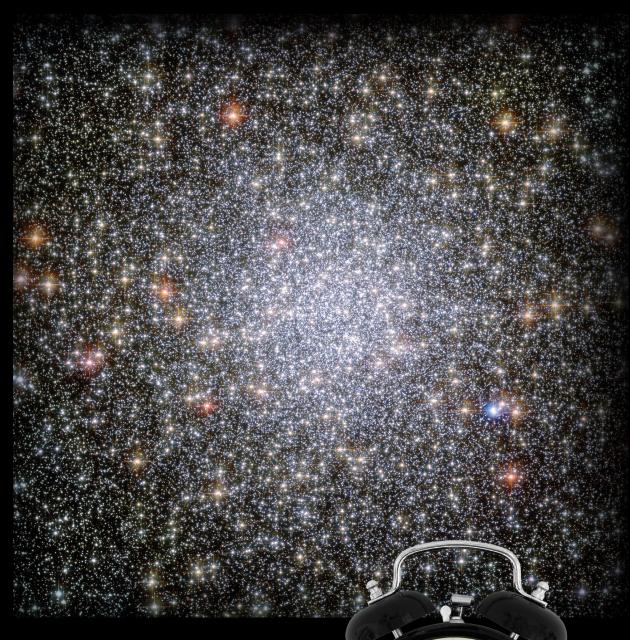
**Age of the globular cluster 47 Tucanae:** about 13 billion years or 4 x 10<sup>17</sup> sec

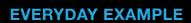
Globular clusters like 47 Tucanae are the oldest star systems in our Milky Way galaxy. Astronomers think they formed about 13 billion years ago (4x10<sup>17</sup> sec).

## **OLYMPIC EXAMPLE**

Cross Country Skiing:
The longest cross-country
skiing event in the Olympic
Games is now 50km for both
men and women.

The current Olympic record at this distance is 1 hour 46 minutes 55.2 seconds.





One minute: 60 seconds
One hour: 3,600 seconds
One year: 31,536,000 seconds



