



ASTROLYMPICS TIME

DEFINITION: the accurate measurement of repeating patterns

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.

Units: seconds, years

COSMIC EXAMPLE

**Age of the globular cluster 47 Tucanae:
about 13 billion years or 4×10^{17} 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 (4×10^{17} sec).

OLYMPIC EXAMPLE

**Time for 50 km (31 mi)
race walk: 12,939 sec**



EVERYDAY EXAMPLE

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