Student Name _____ *Date* _____

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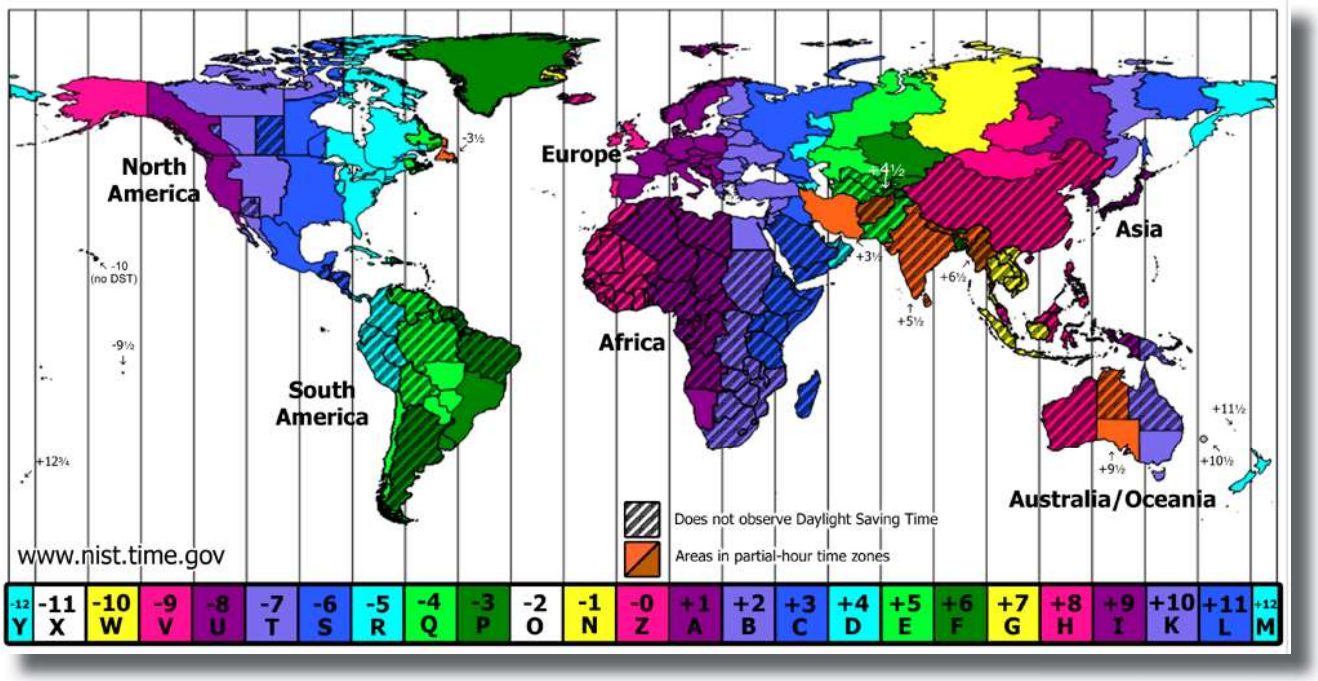
Universal Time



The above diagram shows the 24 time zones around the world. If you live in New York and want to call someone in San Francisco, you have to remember that the local time in San Francisco (Pacific Standard Time) is three hours BEHIND New York Time (Eastern Standard Time). By counting the time zones between the locations and keeping track of "ahead" or "behind" you, you can figure out the correct local times anywhere on the planet. Suppose an astronomer in Texas is viewing the Sun—with a special solar filter to protect her eyes—and notices a bright flash coming from a spot on the Sun (a solar flare) at 6:00 AM Central Standard Time near sunrise. Meanwhile, an astronomer in India spots the same solar flare at 17:00 India Time near sunset. Answer the following questions:

1) How can exactly the same event be seen at two different times on Earth?

2) What time would an astronomer with a solar telescope in West Africa (in the "z" time zone) have seen the same solar flare according to his local time?

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3) What time in Universal Time (UT) did the solar flare occur?

4) Would an astronomer with a solar telescope in Central Australia have seen the flare? How about an astronomer in Alaska?

5) Suppose a solar flare happened at 10:31 UT. What time would the event have happened in California according to Pacific Standard Time?

6) A satellite registers a major solar explosion that lasts from 15:15 to 16:26 UT. A solar scientist monitoring the satellite data decided to go grab a cup of coffee between 7:00 AM and 7:45 AM Pacific Standard Time.
   a) How long did the explosion last?
   b) Did the scientist know about the flare before he left for coffee?
   c) How much of the flare event did the scientist get to see in the satellite data as it happened?
   d) Should the scientist have gone for coffee?