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Getting Geographic: Understanding Time Zones

Martha's Study Corner
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Is it really tomorrow in Tokyo? Understanding time zones is an important, but challenging concept for many students.

The need for standard time zones emerged with the spread of high speed transportation systems – first trains and later airplanes. In 1884, delegates from twenty seven countries met in Washington, DC at the Meridian Conference and agreed on a system of time zones that is essentially the one we still use today.

Time zones are based on the fact that Earth moves through 15 degrees of longitude each hour. Therefore, there are 24 standard time zones (24 hours x 15º=360º). Time zones are counted from the Prime Meridian (0º longitude), which runs through Greenwich, England. Each time zone is based on a central meridian, counted at 15º intervals from the Prime Meridian, and extends 7½º to either side of the central meridian. For example, New York City lies in the zone of the 75ºW central meridian, and the time zone includes all locations between 67½ºW and 82½ºW.

Constructing a Time Zone Model

Distribute copies of the **ACTIVITY #10 HANDOUT** to each student and instruct, as follows:

a) Turn the paper sideways so that the "holes" are at the top.
b) Use a colored pencil to trace over the line at the center of the paper and label this line "Prime Meridian.
c) Label the lines to the right (East) at 15º intervals up to 180º. Repeat to the left (West).

Point out that each line represents one hour. Students should count hours plus to the east and minus to the west on their charts.

Clock art courtesy of http://etc.usf.edu/clipart

d) Assume that it is currently 2:00 p.m. on Tuesday in Boston.
e) Use the chart (i.e., count the lines) to determine the time in each location labeled on the chart.

Remind students that the new day begins when they pass midnight.

f) What is the time in Tokyo? (4:00 a.m., Wednesday) So it really is tomorrow in Tokyo!

Extending the Activity

a) Use an atlas to determine the longitude of your town and have students place a dot in the correct time zone on the chart. Note the current time and repeat the activity using your location and time as a reference point.

b) Explain that some countries adjust time zones for political reasons. Have students research actual time zones that vary from the model they have made (e.g., Australia, China, India).

c) Have students research "daylight saving time."

Activity #10-HANDOUT