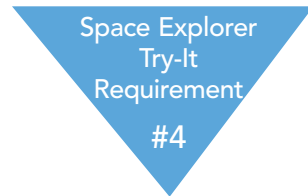


# sunsational sundials



## What to Do

1. Photocopy and give each Brownie Girl Scout a "Sunsational Sundial" page from the Appendix. Next, instruct the girls to:
  - Cut around the semicircle ("A") and the triangle ("B"). The semicircle will be the base.
  - Cut the top of the triangle along the line closest to where you live. For example, if you are near Philadelphia, cut along the line above Philadelphia.
2. Have the girls tape the bottom edge of the triangle along the center of the semicircle base on the center line that starts from "12."
  - Put tape on both sides of the triangle so it won't tip over (and will stand perpendicular to the base).
  - The triangle should stick up in the air with the word "north" and the arrow pointing toward the curved line on the base.
3. Take your materials outside. Place the compass on a flat, level surface and turn it until the blue end of the needle points at "N" for north. This is magnetic north.
4. Have the girls place their sundials beside the compass and align them so that the "N" and the arrow on the sundial, point in the same northerly direction as the needle of the compass. (See "Helpful Hints.")
5. Ask the girls to look for the shadow cast by the triangle and to determine what time it is.

## Materials:

- 16 "Sunsational Sundials" (copy from Appendix)
- scissors
- tape
- compass

## Helpful Hints

As a way to orient themselves without the aid of a compass, girls can find north by standing with both arms up and out to the sides. If it is before noon, have them point toward the Sun (east) with their right hand. If it is afternoon, have them point toward the Sun (west) with their left hand. (Remember that the Sun rises in the east and sets in the west.) They will now be facing north.

## Whys and Hows

Although sundials are very decorative and a fun way of using sunlight to tell time, they are limited by their dependence on the Sun. Although we don't often use them to tell time anymore, they can still be found in gardens and parks. They are often up on a pedestal, and are made of weather-resistant materials such as metal or stone.

When you examine your sundial, you will see that it is really only one half of a clock. The hours that are missing—6 p.m. to 6 a.m.—represent nighttime, or the time when the Earth is turned away from the Sun. The triangle's size varies to allow for differences in the Sun's angle as it crosses the sky.

The cities listed on the Sundial are located at different latitudes. A city's latitude is determined by its distance from the Equator. The approximate latitudes of the cities on the sundial follow:

City	Latitude
Portland, Maine	45° North
Boston	42° North
Philadelphia	40° North
Los Angeles	34° North
Columbia, South Carolina	34° North
Houston	29° North
Jacksonville	30° North
Miami	25° North

## Other Ideas to Explore

1. Have the girls record the movement of the sun and passing of time by performing the "Shadow Time" activity described in *Try-Its for Brownie Girl Scouts*, 2000 edition.
2. Locate your city on a map of the United States. Determine your latitude by using the latitude markings along the edge of the map. What other cities are at the same approximate latitude?