



## DIY ACTIVITY

### MAKE A SUNDIAL GRADES 3-5

#### OBJECTIVES

- Build a device that uses Earth's orbit & rotation to tell time.

#### PROCEDURE

1. Print out the sundial face document and cut it out.
2. Glue the sundial face on the paper plate with the dot in the center.
3. Poke a hole through the center of the plate using the pencil.
4. Push the straw through the hole in the center of the plate.
5. Tape the short end to the underside of the plate to hold it in place.
6. Take your sundial outside on a sunny day at noon and place it in a flat, sunny area.
7. Use a compass to determine which direction is North.
8. Make the line labeled 12 (for noon) point north and also tilt the straw slightly in this direction.
9. Observe the sundial over the course of the day and you can see the shadow of the straw tell you the time!

\*If you are in the Southern Hemisphere, anywhere the above instructions say North, you should use South.

#### WHAT IS GOING ON HERE?

The sun shining down on the gnomon (straw) creates a shadow on the sundial. The gnomon's shadow moves around the sundial throughout the day. In the Northern Hemisphere, the shadow is long in the morning and points toward the west, around noon when the sun is close to overhead it is short and points north. When the sun is low towards the end of the day the shadow grows long again but this time points East. The same is true for the Southern Hemisphere except that around noon the shadow points South, instead of North. The sundial simply labels each hour that goes by as the earth rotates. Remember that it appears that the sun is moving across the sky but it is really Earth that is rotating!

#### FURTHER EXPLORATION

Check your sundial from time to time—does it match up with your watch? Does your sundial work the same all year long? Check your sundial on the equinoxes and solstices to see if the shadows look the same.

#### MATERIALS NEEDED

- Paper plate
- Glue stick
- A bendable straw
- Tape
- A compass
- Sundial face printout from [www.generationgenius.com](http://www.generationgenius.com)
- Sharpened pencil
- Watch

