

How Long is Your Shadow on the Shortest Day?

Many people think of the first day of spring or the first day of school as a new beginning. But the winter solstice is a new beginning, too! Longer days will return, and it won't be long before your child can play outdoors in the evening again. Try this quick and easy science experiment that explores the peak of wintertime! Explore the concept of a "solstice," explaining that it occurs just twice per year when the sun is at the greatest distance from the celestial equator. You can also explain the occurrence that happens in autumn and spring, of an "equinox," when the sun crosses the plane of the earth's equator—causing day and night to be of equal length.

What You Need:

- A friend
- A sunny day
- Tape measure
- Notebook
- Pen

What You Do:

1. On Solstice Day (December 21) at noon, have your child choose a sunny spot to stand.
2. You or one of her friends can measure your child's whole shadow, from head to toe.
3. Write down the day, time, location, and shadow length.
4. Ask your child to observe the sky. Where is the sun in the sky? Directly overhead? Below some buildings?
5. Encourage your child to measure the shadows of another fixed object, such as a fire hydrant, and record her observations.
6. To extend this experiment, ask your child to record the same information on the Vernal Equinox (3rd week in March), Summer Solstice (3rd week in June) and the Autumnal Equinox (3rd week in September).
7. What conclusions did your child draw? Is her shadow longer in the summer or winter?



This makes a quick and easy project to keep her mind working while she is off school during winter vacation!