

## June - Week 1

## Sunshine and Shadows

**Have you ever noticed how much our shadow's** length changes throughout the day? How much it changes throughout the year? What is happening between the sun and the Earth to cause this? In the morning and evening, of course, the sun is low on the horizon, so our shadows are long. Where is the sun in our sky at midday? Is it straight overhead? Is the sun's midday position the same in June as it is in December?

A great way to think further about this is to head outside at midday on a sunny day this week. Notice the length of your midday shadow compared to the true length of your body. Ask a friend to draw your shadow on a sidewalk or driveway with chalk. Next, lie down and have the friend trace the length of your true body. Which is longer? Where is the sun in the sky when you are doing this? You are investigating the sun's declination. Document your measurements (or shadow data) in your journal with pictures and numbers.

How do you think these June midday shadows compare to December midday shadows? Model the sun rise and sunset with a flashlight and a small play dough snowman. Start at the horizon (ground level) and move the flashlight in a path going over and past the snowman similar to how the sun travels in the sky. How does the snowman's shadow change?

In your journal, sketch a diagram, showing the sun's place in the sky at midday in summer. Show the shadows caused by the midday sun. Then draw another diagram with the sun's place in the sky in winter, showing the shadows caused by the sun. Add labels explaining what you sketched.

Early afternoon shadows get even longer as the year progresses.

