

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# Shadows

Earlier in our unit we talked a little bit about shadows. We know that they are there because light travels in a straight line, so it cannot bend behind an object and we have also seen that shadows can change depending on the light source. But, just how much can a shadow change? That is what we will aim to find out on this homework assignment.

To complete this assignment, follow the steps below as closely as possible. You may need to adapt the experiment slightly to suit your personal agenda.

## *Equipment:*

- Sidewalk Chalk (or substitute – needed to label spots on the ground)

## *Procedure:*

1. As early as possible, with adult permission, go outside and find an open space that gets lots of sun throughout the day (a driveway may work well).
2. Stand in the middle of this space facing the sun.
3. Use chalk to mark your spot and to mark an arrow showing the direction you are facing.
4. Have someone use the chalk to indicate where the top of your shadow is (you could also trace your body for fun).
5. Measure the distance from the spot you were standing to the top of your shadow (the length of your shadow).
6. Indicate whether the shadow was in front of you, or behind you.
7. An hour later, stand in the same spot, facing the same direction, and repeat steps 4, 5 and 6.
8. Continue this process throughout your day.
9. Record all of your data in the observations table.
10. Graph your results.

Note: If you can not make a measurement you may simply skip it, or take it the next day at the same time.



*Observations:*

Record your data in the chart below (do not worry if you do not have data for all of the time slots).

Time of Day	Shadow Length (cm)	In Front / Behind	Time of Day	Shadow Length (cm)	In Front / Behind
5:00 AM			2:00 PM		
6:00 AM			3:00 PM		
7:00 AM			4:00 PM		
8:00 AM			5:00 PM		
9:00 AM			6:00 PM		
10:00 AM			7:00 PM		
11:00 AM			8:00 PM		
12:00 PM			9:00 PM		
1:00 PM			10:00 PM		

*Discussion:*

Make a bar graph to show the length of your shadow throughout the day. Don't forget about direction!

## My Shadow

