

Light & Shadows – Casting Shadows

Does the size of a shadow change throughout the day?

Materials:

- Multiple colours of sidewalk chalk
- Sunny day
- Partner
- Camera (optional)
- Metre stick (optional)

Procedure: (Remember to have your parent's permission and have them watch and help you.)

- On an early morning sunny day, go to a large paved sunny area in a school yard.
- Check to make sure this area will remain sunny most of the day.
- Strike a pose that you can hold for a while and have a partner trace the outline of your shadow using the sidewalk chalk.
- Also trace around your feet.
- Record the date, time and initials beside the outline.
- If you have a camera lay the metre stick beside your shadow outline and take a picture of your shadow in case it gets erased by foot traffic.
- Repeat the process for your partner but leave space between shadows to provide room for change.
- Do this again later in the morning but place your feet within your earlier recorded outline, strike the pose and have your partner outline your shadow with a different colour of chalk. Switch places and repeat the process with your partner.
- Using different coloured chalk to record the outline along with the date and time is called a legend and is a very useful technique to make things easier to understand.
- Repeat three times using a different colour of chalk each time: noon, midafternoon and early evening if the area is still in bright sunlight.



What's Happening:

How did the shadows change? Why did the shadow change? Did you notice the path of the sun across the sky? What is the relationship between your shadow's length, time of day and position of the Sun in the sky? Remember never stare at the Sun as it can damage your eyes. Predict what your shadow would look like at sunset.

Extension:

Have fun creating pictures with your shadow outlines by doing some interesting shadow poses. Try posing so that two shadow outlines form a story or picture. Use lawn or beach as your shadow art background. Add objects to your shadow pictures. Put clothes on your shadow or add a bat or ball. If you are at the beach put smiley faces on your shadow head. Use a camera to record your creations.

This activity is based on our Light & Shadows kit. The source for this lab was located by EDEL330 students Ms. S. Beattie and Ms. K. Biech in [Light and Shadows Grade 4 Edmonton Public Schools](#). Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering as a classroom guest speaker or offer your business as a field trip location.

Lorne Cooper, Regional Executive Director

PRAXIS, "Making Science Fun". Contact Praxis at praxis@praxismh.ca, www.praxismh.ca, Tweet or follow us @PraxisMedHat, or friend us on Facebook. Address: c/o 200 7th Street S.W., Medicine Hat, AB, T1A 4K1 Phone: 403-527-5365, Fax: 403-527-6570.