



Investigating Shadows - Teacher's Notes

Investigating Shadows

The following activities are best done outside but some can also be done in a classroom if the weather is inclement. Reducing the number of light sources in the room will make shadows more apparent. Students will be investigating their own shadows.

Materials

- Sunny day
- Outdoor area in the sunlight (Remember to be Sun safe!)
- Activity worksheet
- Alternative location - indoor space where students shadows are clearly visible on the floor
- Optional (for discussion): red torch, red balloon

Observations

In Science we observe and (where possible) measure.

Find a partner and find out if:

1. Tall people always have longer shadows than small people? **Only if they stand together at the same spot and the same time. If the tall person stands farther away from the light source their shadow will become smaller.**
2. Your shadows always lie in the one direction? **At the same time in the same place - Yes. Your shadow will swing around your feet progressively during the day.**
3. You can cross your shadow with your partner. **Impossible unless you use different light sources.**
4. You can step away from your shadow. **Not possible without some obstruction (something else could block the lower part of their shadow)**
5. With the Sun or a light at your back, find a way to change the shape





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of your shadow. Change your body's orientation to the light or change the shape of your body.

6. Can you play shadow tag? No, unless you stand in line with the Sun or light source directly behind you.

List the ways your shadow are the same as you and different to you.

Same	Different
More or less the same shape if you stand square on to the light. Your shadow moves when you move and stops when you stop. Your shadow moves in the same direction as you do (unless there is another light source)	Only occur when there is strong light source Multiple light sources give multiple shadows from one person Your shadow is a different length to you. If you turn sideways your shadow changes shape.

Discuss:

Does your shadow remain if the light goes out? No. Light is needed to create a shadow.

Will a red torch cast a red shadow? No

Will a red balloon cast a red shadow? No

Will a red light give a red balloon a red shadow? No

Do the edges of a shadow become crisper or fuzzier with distance from light source? Fuzzier (because some light will bend).

Why can you have multiple shadows in the classroom but only one outside?

Inside a classroom there are many light sources causing many shadows.

Outside the Sun (one light source) casts shadows.

