

Name: _____

Light & Shadows

Date: _____

How Do Objects Create Shadows?



Explore: Shadow Maker

Question

What kinds of objects cast shadows?

Hypothesis

Select the words that predict what you think will happen.

- Shadows are cast by _____ and _____ objects.
transparent, translucent, opaque transparent, translucent, opaque
- Shadows are made BIGGER by moving an object _____ from the light source.
closer, farther away
- Shadows are made SMALLER by moving an object _____ from the light source.
closer, farther away

Resources

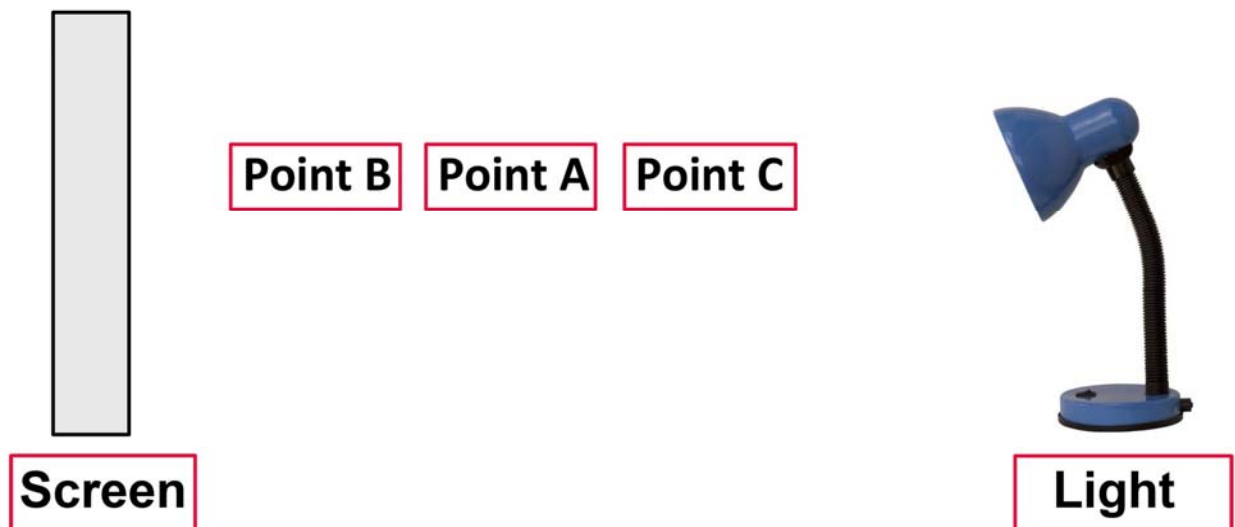
- flashlight or lamp
- blank paper
- blank wall or sheet of paper or cardboard to use as a screen
- one transparent object (glass, clear plastic container, Ziploc bag, etc.)
- one translucent object (tissue paper, coloured or frosted glass or plastic, etc.)
- one opaque object (mug, scissors, hand, etc.)
- Shadow Maker Observation Worksheet*

Procedure - Part A

- 1 Set-up your flashlight or lamp so that the light shines directly on the wall you are using for your screen. (Refer to the diagram.)
- 2 Place your transparent object between your light and the screen.
- 3 Did the object make a shadow? Record your results on the **Shadow Maker Observation Worksheet**.
- 4 Repeat Steps 2 and 3 for your translucent object and your opaque object.

Procedure - Part B

- 1 Tape a blank sheet of paper on your screen.
- 2 Place an object that you know will cast a shadow halfway between your screen and your light source (Point A).
- 3 Trace the shadow that was made on the paper. Label this shadow "Point A".
- 4 Move your object closer to the screen. Trace the new shadow that is made on the same piece of paper. Label this shadow "Point B".
- 5 Move your object closer to the light source (about halfway between Point A and your light), and trace the new shadow that is made on the same piece of paper. Label this shadow "Point C".
- 6 Answer the questions on your **Shadow Maker Observation Worksheet** based on what you noticed about the various shadows.



Shadow Maker Observation Worksheet	
Questions	Answers
Part A Which object(s) made a shadow?	
Part B When you moved the object from Point A to Point B, what happened to the shadow? Need a Hint? Did it change size or shape?	
When you moved the object from Point B to Point C, what happened to the shadow? Need a Hint? Did it change size or shape?	

Conclusion

- Re-consider the statements you made in your hypothesis, and select your answers based on what you observed.
- Shadows are cast by _____ and _____ objects.
transparent, translucent, opaque transparent, translucent, opaque
- Shadows are made BIGGER by moving an object _____ from the light source.
closer, farther away
- Shadows are made SMALLER by moving an object _____ from the light source.
closer, farther away
- Review your hypotheses. Are they the same or different from your conclusion?

Check your answers using the **Check Your Answers** on the following webpage in the course content.