

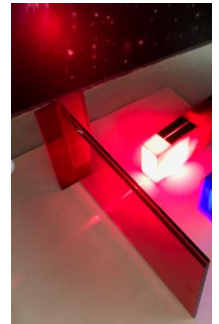
Lesson: Light Science – Shadows and Transmission
Student Page (answer key)

Materials needed:

- 1 Reflect View
- Light Blox – red and blue
- Pencil and mirror stand

Let's use what we know about selective transmission to create shadows using selectively transparent objects.

1. Remove the line cap from the front of the Light Blox.
2. Place the Reflect View about 5-10 cm from the wall/screen.
3. Start out by shining the red Light Blox at the Reflect View. What happens?



You should see that the red light passes through the Reflect View, and shines on the wall behind it.

4. Stand your pencil vertically next to the Reflect View.
(you can use a mirror stand)
5. Shine the red light at the pencil on its own. What do you see?
Is this what you expected?



6. Move the pencil so that it stands between you and the Reflect View.
7. Shine the red Light Blox at the pencil and the Reflect View together. What do you see on the wall?

You should see that the red light passes through the Reflect View, and shines on the wall behind it, as the pencil casts a shadow.



8. Now shine the blue light at the Reflect View and pencil together. What do you see?

This time, the entire Reflect View casts a shadow! None of the blue light makes it to the other side of the Reflect View, since the Reflect View absorbed all the blue light, and would only allow red light to pass.

9. Put the Reflect View away. Keep the pencil in the mirror stand.
10. Turn on one Light Blox. Shine the Light Blox at the pencil and observe the shadow. How can you make a shadow shine to your left?

Move your light to the right.

How can you make the shadow bigger?

Move your light farther away.

How do you make the shadow smaller?

Move your light closer.

How can you make the shadow disappear while still shining the light on the pencil?

Shine the light straight down on the pencil from above.

Turn on two light boxes. Experiment with shadows made from two light sources coming from different directions. What do you notice?

Discuss, as a class, what results the students observed as they moved the lights to different positions.

Discuss how what we just did may simulate the angles of the sun as it moves through the day.

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