

LESSON LAUNCH

A. Warm Up

The warm up is intended to be structured as teacher-facilitated, whole-group student discussion activities.

1. Begin by darkening the room lights and then lighting a candle in front of students. Ask them to observe the light that emanates from the candle.
2. Ask them to draw a diagram of how the candle lights the room and they are able to see the light themselves.
3. Now, ask them to consider what would happen if you put a magnifying glass in front of the candle while it burns. Have them draw a diagram to illustrate their prediction.
4. Then hold the magnifying glass in between the candle and the wall. Ask students to discuss with a partner what they observed.
5. Ask for volunteers to share what changed about the candle light with the magnifying glass in place.
6. Call their attention to the fact that the candle was still the same candle, burning just as much as before, but the way the light was focused by the magnifying glass lens made more of the light reach a certain area.
7. Give them the terms luminosity, to describe the amount of light emitted, and intensity, to describe the amount of light reaching a certain point.
8. Explain to them that today we will be learning about how light travels and how lighthouses light the way for ships.

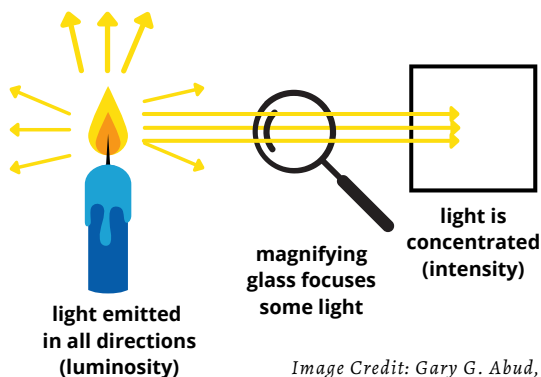


Image Credit: Gary G. Abud, Jr.

B. Bridge to Learning

After the warm-up activity has concluded, help students prepare for the learning that is about to come.

1. Ask them to discuss with a partner what happens when water comes out of a shower head and how it differs whether you are close or far away from the water spraying out of the shower head.
2. Ask them to draw a progression diagram in their notebooks to make their thinking visible to each other.
3. Have a few student pairs share out.
4. Draw a summary diagram on for all to see that captures the group consensus of what's happening.
5. Make sure that everyone understands the water spreads out as you get farther away from the sprayer and so you might feel less water pressure even though the shower head is spraying just as much. Connect this to luminosity and intensity of light and the light from the candle.

C. Close Reading a Video

Inform students that they are about to observe a lighthouse in action in a short video clip. Their task is to pay close attention to what's going on with the light beam emanating from the lighthouse. Show them the [Lighthouse Beams video clip](#) from *PBS LearningMedia* and have them discuss with a partner and write out 4 sticky notes of observations about what they notice with the lighthouse beam and how it travels. Then, collect and display the stickies for all to see and discuss as a class. Last, ask students to make connections between the video, shower head, and candle demonstration.

D. Background Information Notes

Explain that this video shows something very important about lighthouses—how they project light—and continue on to provide students notes about from the Teacher Background Information.