ACTIVITY 4: MODELING LIGHT INTENSITY

The purpose of this activity is for students to create a model that will communicate how lighthouses function to light the way for ships and boats.

First, inform students that they will be working with their groups to create a light intensity model on chart paper that explains how light from a lighthouse is seen by sailors.

Elicit student ideas about what makes for a good model (e.g., a visual representation that explains how something works) and what aspects of light intensity or lighthouse design should be included in their models.

Then, provide students with chart paper and markers, or large dry-erase boards and whiteboard markers, to construct their models with their groups.

Monitor group activity as students work to ensure they are considering the following elements in their models:

- light intensity
- inverse-square law
- luminosity
- effect of using a lens

Guide and redirect students as they work to ensure they are considering all the important aspects of a good model to represent this situation.

Use small group monitoring time to check for student understanding, address their questions, and help students to make connections.

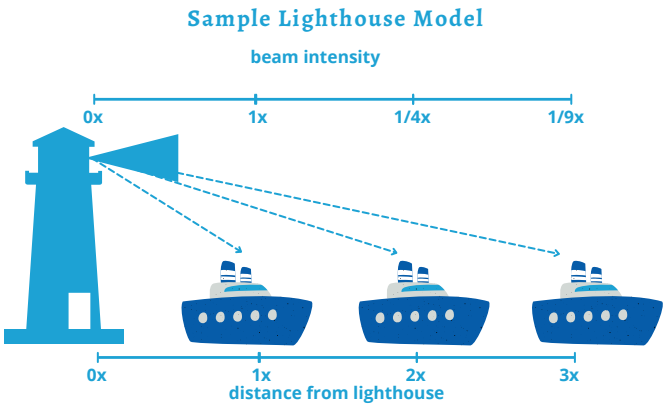

Image Credit: Gary G. Abud, Jr.

Next, have students display all of their models next to each other along a wallspace so that everyone can see all of the models. Provide students time to do a gallery walk and examine each group's model.

Last, engage students in a whole-group discussion about the models, getting them to compare, and make connections between, all of the models.

Try to arrive at what an ideal light intensity model for lighthouses would look like based on the best features of all the boards.

When finished, have students sketch the ideal model in their notebooks or make updates to their existing models to account for new learning following the gallery walk.

Teaching Tip: Guide students to synthesize their learning from the previous activities in this lesson to help them construct their models.