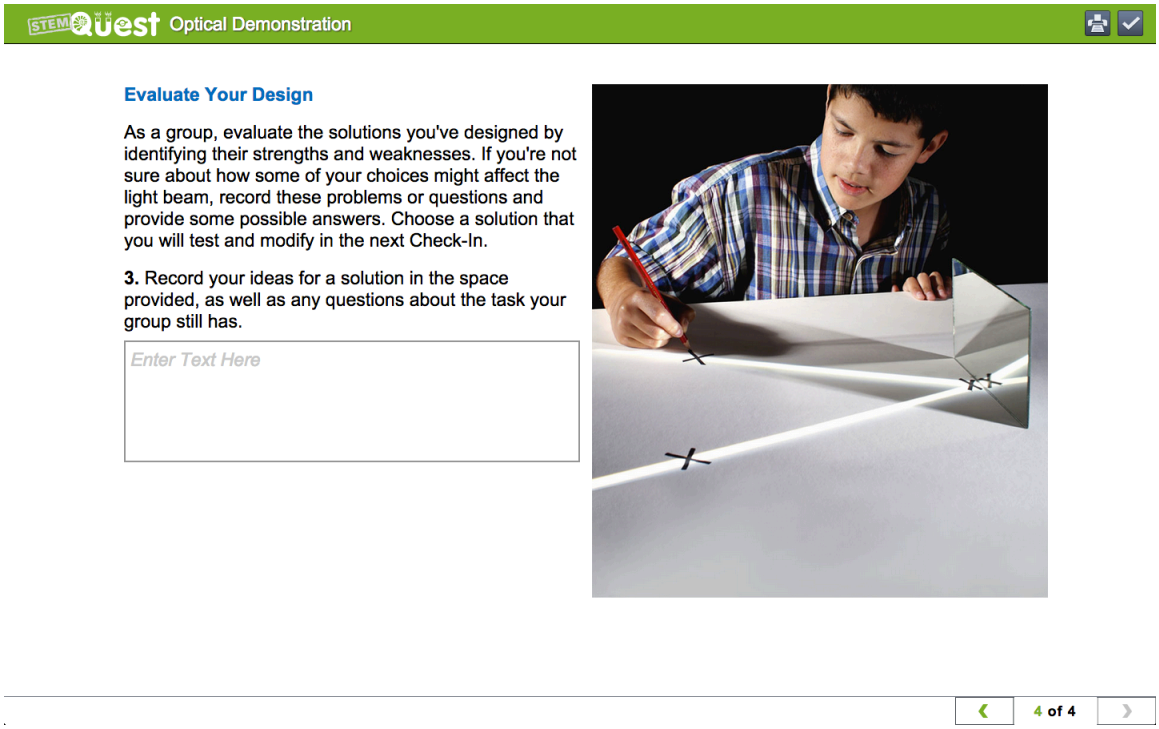
Waves and Electromagnetic Radiation

3. Electromagnetic Waves

Teaching Strategies and Answers—Quest Check-In—*Optical Demonstration* (Digital Activity)



In this activity, students plan their demonstrations by developing their models and evaluating their designs.

Teaching Tips Make sure that students have available or are able to flip back through their answers to the questions in the first two STEMQuest Check-Ins as well as their initial ideas, which they recorded in the STEMQuest Kick-Off.

Career and College Readiness One of the most important tools that an engineer has is a scale drawing that precisely delineates the positions and sizes of different objects. Architects, interior designers, clothing designers, and many other professions rely on these drawings. Hold a class discussion that lists as many professions as possible that rely on scale drawings as models for their finished product.

Community and Collaboration Its important that each member of a group is invested in the process of designing a solution to the problem. For this activity, smaller groups may be appropriate as the design solutions and construction times are not overly complicated. Groups may have to work together to share materials if there is a shortage of lenses, flashlights, or mirrors.

Copyright © Pearson Education, Inc., or its affiliates. All Rights Reserved.

Teaching Strategies and Answers—Quest Check-In— *Optical Demonstration* (Digital Activity)

Integrating Instructional Strategies

Next Gen Science
SEP Developing and Using Models One of the most important tools that an engineer has is a scale drawing that precisely delineates the positions and sizes of different objects. Architects, interior designers, engineers, and many other professions rely on these drawings.

CCC Patterns Make sure that students have graph paper available for use in making their drawings. Encourage students to draw objects to scale, and help students choose an appropriate scale. Depending on the grid size of the paper, an appropriate way to model the 1-m-by-1.5-m area would be using an area 10 by 15 grid squares in size, or perhaps 30 by 45 grid squares in size.

Answers

1. Sample answer: Lenses bend light. Some lenses can bend light rays inward, focusing them and making them more intense. Other lenses bend light outward, causing it to disperse and become less intense.
2. Sample answer: I can use mirrors to change the direction of the light by making it reflect off their surfaces.
3. Accept all reasonable responses. Students should include a comprehensive description of their solution and a list of further information they need.

Copyright © Pearson Education, Inc., or its affiliates. All Rights Reserved.