

Teq Lesson Plan Activity

Light Mazes

Grade Level: 4

Topic: Energy & Light

Standards:

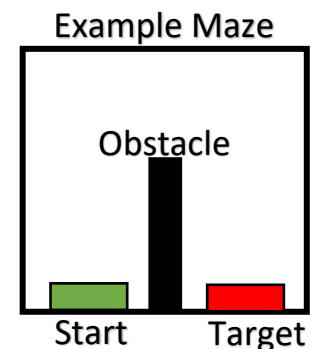
- 4-PS3-2. Make observations to provide evidence that energy is conserved as it is transferred and/or converted from one form to another.
- 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
- 4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.

Materials:

- Small Mirrors
- Laser pointers
- Maze Templates (Teacher should create mazes that only involve one or two obstacles to start and increase difficulty as students solve each maze)
- Obstacles (folders, binders, cardboard, etc)
- Target (a target printed and taped onto a folder or binder works well for this.)
- Protractors
- For extension: Codable Robots (Sphero & Dash work best for this, but Ozobot could also work)

Procedure:

- Teacher hands out maze templates and obstacles to students & walks through the first maze together to ensure that students understand how to build the maze according to the template
- Students will then hold the laser pointer at the start point and shine it. Their goal will be to hit the target with the laser
- Once the maze is set up, students must find where they can place the mirrors in their maze in order to make the laser hit the target
- After they've placed the mirrors correctly, students should measure the angle of reflection using the protractor and record the measurement.



Extension:

- Once students have the proper angle of reflection measurements, they can use those measurements to code their robots to follow the light's path.
- Allow students time to test and readjust to see if they measured correctly
- (This extension can be built in throughout the lesson as well as another step in each maze level instead of only being done after completing all of the levels. This is up to the teacher's discretion.)