High School

Problem Solving

Materials:

- Worksheet

Brainstorm

Have you ever had a problem with a friend or had a disagreement with a sibling or other family member? What was the issue? How did you solve it?

Discuss

Call on student volunteers to share their responses. Continue the discussion and elicit from students information about the process and steps they went through to try to solve the problem. Ask questions such as: What solutions did you come up with? Were you happy with the outcome?

Dive in!

In this lesson, we are going to be talking about problem solving. **Problem solving** is the process for finding solutions to issues.You have learned about problem solving in some of your other classes, but today we're going to focus on solving interpersonal problems. In previous lessons, we've learned about the SCOPE-IT Strategy. It's a great tool to help you with problem-solving. But sometimes, it takes practice to be able to use the strategy. And, before using any problem solving process, we first have to make sure to identify precisely what the problem is and whether or not it needs to be solved. Once we've taken those important first steps, we can then identify potential solutions to solve the problem. During the solution identification process, we also have to consider any obstacles that we might encounter along the way. Let's try it.

Activity

Provide each student with a copy of the Worksheet and then together complete the first scenario. Next, have students work together in pairs or small groups to complete scenario two. If time permits, call on student volunteers to share their responses. Have students hold onto their worksheets for the next lesson (refusal strategies).

Reflect
To wrap up the lesson, ask students the reflection questions verbally: Has there ever been a time when you've been grateful for a problem? For example, maybe a problem helped you develop a stronger relationship with someone or you came to a new understanding about someone or something as a result? Discuss as time permits.

Optional Home Connection → Encourage students to practice the problem solving strategy at home and report back on how it went.

Professional Development
Are there ways you can authentically incorporate problem solving into your classroom practice?

Interdisciplinary
Engineering design challenges are a great way to provide students with an opportunity to hone their problem solving skills. A crucial part of the design process is building problem solving with team members so their project is successful.

If time allows, students can engage in one of the engineering design challenges listed below. These challenges are flexible in both timeline and materials. Teachers can set specific limits for the challenges based on their schedule and the needs of their students, and they can use materials that are readily available.

Using a specific set of materials as identified by the teacher, students will:

- Build race cars using upcycled household materials such as food boxes, soda bottle caps, etc.
- Construct a boat that holds the greatest number of pennies without sinking.
- Design a device to protect an egg from breaking when dropped from a predetermined height.
- Construct the tallest tower possible using pasta (or toothpicks or popsicle sticks) and marshmallows.
- Use a website simulation tool to simulate the spread of a disease.

For additional ideas, visit: www.teachengineering.org.