

# A STEM Lesson: Cultivating Persistence & Problem Solving Skills

Students will continue to practice persistence and problem solving skills by creating a boat that will float on water. Although this lesson is specifically tailored for Grade 2, it can easily be adapted to suit any grade level K-6. Complete the lesson by following the instructions found in each section.

 <b>Teacher Led</b>	 <b>Requires Computer OR Mobile Device</b>	 <b>Requires <a href="#">Spaces</a></b>
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## Learning Goals

1. Students will learn what Problem Solving and Persistence means and practice it throughout the lesson.
2. Students will learn the importance of Problem Solving and Persistence.
3. Students will reflect on both their successes and failures that occurred during the lesson.

## Materials

 <b>Student Handouts</b>	Handout [A]- Floating Boat Instructions Handout [B]- Posting on Spaces Instructions
 <b>Technology Requirements</b>	<ul style="list-style-type: none"> <li>• Internet</li> <li>• Mobile device, tablet, or laptop</li> </ul>

 <b>Video/Audio Clips</b>	<a href="#">“I Choose to Try Again” By: Elizabeth Estrada</a>		
 <b>Additional Materials</b>	Tin Foil Wax Paper Foam Plastic Wrap Bucket of Water	Cups Straws Twigs Pipe Cleaners	Paper Velcro Small Tupperware Container-to hold pennies Pennies (10 per group)

## Introduction

Explain to students that today they are going to be practicing persistence and problem solving skills. Ask students to close their eyes and think about a time they were faced with a problem.

Ask for volunteers to answer the following questions:

1. When you were faced with a problem, what was the first thing you did?
2. Was the solution to your problem easy?
3. When you are faced with another problem in the future, will you do anything differently?

## Read Aloud

Gather students together in the reading area of your classroom. Explain to students that you will be reading them a book today about persistence. Before you begin reading/listening to this book, ask the students what they think the word persistence means. Take some volunteers and write their answers on the board. Tell them you aren't going to tell them what it means until after the book is read.

1. Read “I Choose to Try Again” or [show the book being read](#).
2. Following the story, ask students the following questions:
  - a. Now, after reading that story, what do you think persistence means?
  - b. How would you feel if you had a friend like Whitney?
  - c. What are some things Kiara learned in the book?

## Persistence & Problem Solving Discussion

Ask students the following questions:

- Why do you think it's important to have persistence?
- What are good things to persist in?- You may want to write a list on the board.
- Do you think there are some times where it might not be a good idea to be persistent?
  - Give examples
- Why do you think it's important to have good problem solving skills?

Explain to students that today they are going to practice persistence and problem skills by completing a STEM Activity. If your students are unfamiliar with the meaning of STEM, you may want to go over this beforehand.

### What is STEM?

STEM is an acronym that stands for Science, Technology, Engineering, Math. STEM activities are based around these topics. Sometimes you will even complete STEAM activities- Science, Technology, Engineering, Art, Math. These activities allow students to practice their problem solving skills alongside these creative topics. One of the main keys to STEM (or STEAM) lessons/activities is that there is not "one right answer", but many different solutions to a problem. Students are able to use their imagination and come to a solution for a given task.

**See activity instructions on the next page.**

## Handout [A]- Floating Boat Instructions

### Purpose

Your goal is to build a boat that will hold 10 pennies without sinking. You may use any of the materials listed below to meet this goal. You will practice both persistence and problem solving skills as you test your boat, re-evaluate, alter, and try again.

### Materials

<input type="checkbox"/> Tin Foil	<input type="checkbox"/> Twigs
<input type="checkbox"/> Wax Paper	<input type="checkbox"/> Pipe Cleaners
<input type="checkbox"/> Foam	<input type="checkbox"/> Paper
<input type="checkbox"/> Plastic Wrap	<input type="checkbox"/> Velcro
<input type="checkbox"/> Cups	<input type="checkbox"/> Small Tupperware Container-to hold pennies
<input type="checkbox"/> Straws	<input type="checkbox"/> 10 Pennies (per partnership)
<input type="checkbox"/> Bucket of Water	

### Procedure

1. Choose your partner. Make sure you choose someone you can get along and work well with.
2. Look at the materials list and make a plan with your partner. Check off the materials you would like to use. HINT: You are not allowed to use them all, but you MUST choose pennies and a bucket of water.
3. Send one student to get your materials.
4. Begin the construction of your boat. Remember: Your boat needs to be able to successfully carry 10 pennies without sinking.
5. Make sure to try many different things. If it's not working, try something else!
6. Once you are satisfied with your boat, please post a picture of your boat on Spaces and answer the reflection questions.

## Handout [B] - Documenting in Spaces

**Teacher Tip!** The instructions for this lesson involve adding to the Class or Individual Space in Spaces. You can adapt the instructions if you'd prefer to make this an Activity.

1. Students will document their learning in Spaces by following these guidelines:
  - a. Click + Create > Choose Camera > Take a photo of your floating boat > Post Photo
  - b. Add a Title > Write a description of your boat explaining what materials you and your partner used to create it.
  - c. Post a Description > Have students answer one or more of the following prompts:
    - i. Did you like this activity? Why or why not?
    - ii. Were you and your partner able to successfully problem solve and create a boat that held 10 pennies?
    - iii. Why was problem solving and persistence important in this activity?
  - d. Click ✓ Next
  - e. Choose the Class Space or Individual Space
  - f. Click ✓ Post