

**Grade 1 Advanced/Gifted and Talented Mathematics**  
**Oh, the Places You'll Go: A Problem-based Unit in Operations and Algebraic Thinking**  
**Lesson Seed One: Introducing the Problem-Based Learning (PBL) Scenario**

**CCSS Math Practice.MP1. Make sense of problems and persevere in solving them.**  
**CCSS Math Practice.MP4. Model with Mathematics.**

**Purpose/Big Idea:**

**Problem-based learning (PBL)** organizes curriculum and instruction around interdisciplinary “ill-structured” problems that professionals might actually face, and in which the students see themselves as active stakeholders. While the problem becomes the purpose for learning, this unit carefully structures the problem-solving process so that students achieve the required understandings. The PBL investigation results in student-created products presented to an authentic audience which can evaluate the effectiveness of the solutions.

Lesson Seed One introduces students to the PBL scenario for the unit. The problem is presented in a realistic format called a “scenario.” This unit includes a model problem scenario in the form of a **letter from another teacher in the school or from another school which asks students to create board games to help students practice their mathematics skills.**

**NOTE:** Introductory Lesson Seed One should be completed after Lesson Plan One so that students will have read the Dr. Seuss book. The task in this unit aligns with the Maryland State Curriculum for Social Studies Standard 3.0 Geography and Standard 6.0 Social Studies Skills and Processes.

**Materials:**

Handout for students:

*Letter*

Chart for *Know, Need to Know, Need to Do*

*Rubric for Board Game*

**Activity 1:**

**Prepare students for the PBL Scenario** by establishing a realistic context for the task of creating the “Our Community” board games. For example, since students have just completed Lesson Plan One, revisit the story line in the Dr. Seuss book *Oh the Places You'll Go* by having compare and contrast the places and the methods of transportation in the story with those in their own community.

**Have students revisit *Activity 2. Ace of Numbers Game*** from Lesson Plan One, and discuss how creating a game was fun but also helped them to learn and to think in new ways.

Ask, “What if we could create games that would help us learn mathematics by “taking us places” in our own community?” Tell students that such an opportunity has occurred.

**Activity 2:**

**Introduce the PBL Scenario.** Read the letter to students and ask them how they would like to respond. Do they want to create the “*Our Community: The Places You'll Go*” board games?

Explain to students that if they are going to take the challenge of creating the games, they will need to learn important knowledge and skills. Not just any game will do; the letter contains specific guidelines (criteria).

Using the information in the letter, work with students to complete the **Know/Need to Know/Need to Do** chart. This chart will be revisited throughout the unit.

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**Activity 3:**

Formulate a **Summary Statement** which frames the task and specifies the criteria for success. Use this frame:

How can we as **(who are we?)** create a **(what is the task/product?)** for **(audience)** in such a way that **(the criteria for the product as listed in the PBL scenario)**

**For Example:**

How can we as proficient mathematics students **(role of students)** create an “*Our Community*” board game **(task/product)** for students so that they can practice their math skills **(purpose/audience)**. We must create the game in such a way that it **(the conditions/criteria for the product)**

- Requires players to solve a variety of addition and subtraction story problems to move to the finish line;
- Includes a map of our community;
- Uses different types of transportation;
- Shows places in the community where people work, live, and play; and
- Allows players to use student-invented strategies and flexible thinking to apply their understanding of the operations of addition and subtraction.

**Return once again to the Know/Need to Know/Need chart** and focus students’ attention on the mathematical knowledge and skills that are needed in order to accomplish the criteria for the game. This is an opportunity to add more items to the “Need to Know” section of the chart.

**As you work through the Lesson Seeds in this unit, continue to revisit this chart and add to it and to highlight those items that have been addressed. Revisit the chart as the class is studying Social Studies or other related topics. Remind students, “This is what you will need to know/do when you create your “Our Community” board game.**



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[Insert School Letterhead here]

Dear First Graders,

Your teacher told me that you are learning about addition and subtraction. My class is also learning about addition and subtraction. We wish we could get more practice and have fun at the same time.

We are also learning about our community. We would like to learn about your community! Can you make board games so that my students can solve addition and subtraction problems as they travel through places in your community?

We would like to play board games that:

- Have variety of addition and subtraction story problems to solve as we move to the finish line.
- Include a map of the community.
- Use different types of transportation.
- Show places in the community where people work, live, and play.
- Allow players to choose different ways to solve addition and subtraction problems.



Your teacher told me that you read the Dr. Seuss book, *Oh, the Places You'll Go*. Boys and girls, as Dr. Seuss said, "There is fun to be done and games to be won! Today is your day, so get on your way!"

Sincerely,

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## Rubric for Board Game

### Scoring with a Four-Point Rubric

#### GOT IT

Evidence shows that the students essentially have the target concept or idea.

#### NOT THERE YET

Student shows evidence of major misunderstanding, incorrect concept or procedure, or failure to engage in the task.

<p><b>4</b></p> <p><b>Excellent: Full Accomplishment</b>          Students create a game board that uses an appropriate and accurate map of the community, contains labels of places where people in the community live, work and play, has players move through the community using different types of transportation, and has both addition and subtraction story problems. Work is completed independently, with little assistance required.</p>	<p><b>3</b></p> <p><b>Proficient: Substantial Accomplishment</b>          Students could work to full accomplishment with minimal feedback. Errors are minor, so the teacher is confident that understanding is adequate to accomplish the objective.</p>	<p><b>2</b></p> <p><b>Marginal: Partial Accomplishment</b>          Part of the task is accomplished, but there is lack of evidence of understanding of either map skills or mathematical skills. Direct input or further teaching is required.</p>	<p><b>1</b></p> <p><b>Unsatisfactory: Little Accomplishment</b>          The task is attempted and some effort is made, using map skills and/or mathematical skills. There may be fragments of accomplishment but little or no success.</p>
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