

# Social, Emotional, and Academic Development (SEAD) Lesson Plan for Mathematics

## GRADE LEVEL AND MATH STANDARD(S)

### Grade 5

**5.MD** Convert like measurement units within a given measurement system.

## INTRODUCTION

This task was adapted from [Illustrative Mathematics](#) and utilizes the lesson planning template from [Stride 3: A Pathway to Equitable Math Instruction: Creating Conditions to Thrive \(pages 13-14\)](#).

The lesson is intended to:

- Connect to the social, emotional, and academic development (SEAD) theme of discourse in mathematics in order to promote equitable instruction.
- Deepen student understanding of time and the connected measurement conversions by providing amplified opportunities to engage in discourse with a rich task.
- Honor students' current knowledge as they enter into the task and allow multiple pathways to problem solving.
- Strengthen student disposition by providing a chance to continually practice with division of whole numbers leading to fractions in a real-world context.
- Provide strategies to support students learning English.

## SEAD THEME

- |                                     |                  |
|-------------------------------------|------------------|
| <input type="checkbox"/>            | Identity         |
| <input checked="" type="checkbox"/> | <b>Discourse</b> |
| <input type="checkbox"/>            | Agency           |
| <input type="checkbox"/>            | Belonging        |

## SMP(S) TO SUPPORT THE SEAD THEME

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | SMP 1: Make sense of problems and persevere in solving them.                   |
| <input type="checkbox"/>            | SMP 2: Reason abstractly and quantitatively.                                   |
| <input checked="" type="checkbox"/> | <b>SMP 3: Construct viable arguments and critique the reasoning of others.</b> |
| <input type="checkbox"/>            | SMP 4: Model with mathematics.   |
| <input type="checkbox"/>            | SMP 5: Use appropriate tools strategically.                                    |
| <input type="checkbox"/>            | SMP 6: Attend to precision.  |
| <input type="checkbox"/>            | SMP 7: Look for and make use of structure.                                     |
| <input type="checkbox"/>            | SMP 8: Look for and express regularity in repeated reasoning.                  |

## LESSON OBJECTIVE/GOAL

Objective of lesson: Students will construct mathematical arguments and engage in the reasoning of others.

## STEPS

### Rich Task:

Five brothers are going to take turns watching their family's new puppy.



Five brothers are going to take turns watching their family's new puppy. Each brother will watch the puppy for part of the day.



Five brothers are going to take turns watching their family's new puppy. Each brother will watch the puppy for a part of the day.

If they all watch him for an equal length of time, how much time will each brother spend watching the puppy?



Task adopted from [Illustrative Math](#)

- a. Five brothers are going to take turns watching their family's new puppy. How much time will each brother spend watching the puppy in a single day if they all watch him for an equal length of time? Write your answer
- Using only hours,
  - Using a whole number of hours and a whole number of minutes, and
  - Using only minutes.

### Launch:

- Share SMP 3 in student-friendly language: *"Today we will each be making a plan called a strategy. We will use this plan to solve the math task. Your plan may be different from your partner's, or it may be similar. We will be making connections between our strategies throughout our math time."* Read and/or write lesson objective: "I can discuss my strategy and the strategy of other students."
- Use step-by-step prompting with students to choral read and reflect on questions. Support students by drawing attention to key language and quantities in the problem, and provide sentence frames to students to support partner talk.

Questions to pose to students:

- What is our important quantity?
  - What information would you like to know?
  - What new information did you learn?
  - What mathematical questions could you ask?
- Engage students in discussion protocols to support engagement, understanding, and making sense of the problem.

**Student Exploration:**

4. Students solve the problem showing their thinking with words, pictures, and/or equations. This can be done individually, in pairs, or in small groups based on student need.
5. Move around the groups to monitor student work, ask clarifying questions, support students as needed, and select students with different strategies/representations to share with the whole class (for example, a student who used fractions and another student who used hours and minutes).
6. Encourage students to compare and connect strategies among their table groups. Allow for peer-to-peer conversation and questioning about approaches and solution methods.

**Lesson Summary:**

7. Ask the 2–3 previously selected students with different strategies/representations to share their work with the whole class. Support this share-out time with sentence frames. Pause at times to involve other classmates to reflect on their work and the presented work (i.e., rephrasing, building on thinking, restating).

Questions to involve classmates:

- Did anyone else start their work in the same way?
  - Who can repeat what \_\_\_\_\_ said?
  - Take a look at your own work. What is something that is the same or different from this strategy?
8. Once selected students share their strategies, invite the class to find qualities that are the same and different from the strategies shared. Build on student understanding of quantities and conversion by visually reinforcing the computation that moves hours to minutes, for example.

**SUMMARY/REFLECTION OF LESSON**

It was evident that students were engaged in discussing their strategies as well as the strategies of others throughout this lesson. The task resulted in different representations, making it possible to compare and connect strategies. Student agency was present as students took ownership of their work and compared their strategies with their table groups.

Many students noticed that their approaches began by dividing the whole hours by each brother in the problem. The difference came in how each student approached the remaining hours. Based on the differing approaches my students showed, I chose to have two students demonstrate their strategies for the whole class. These students' mathematical claims were different. One student claimed that each brother would watch the puppy for  $4\%$  of an hour, while the second student claimed that each brother would watch the puppy for 4 hours and 48 minutes. This resulted in students working together in table groups to determine if both answers presented were in fact the same or different.

Student discourse was high as they talked in table groups to compare the strategies shared.

Using the SEAD lesson plan template forced me to be purposeful in planning these opportunities for students to interact with each other throughout the lesson. I wanted to ensure that every student felt success with their strategy to solve the problem, which is why I adapted the task from Illustrative Math. Although I loved the math task as is, I thought student discourse could be more amplified if it resulted in students having their own approaches to solving the problem. As it turned out, we had some students naturally use only hours for their answer where others used hours and minutes.

Charted strategies of selected student work shared to whole class

The image shows a student's handwritten work on a math problem. At the top, it says "each brother" and "started the same". There are five circles representing brothers, with the first one labeled "1 hour". Below this, there are four circles with an 'X' inside, labeled "extra hours split in fifths for each brother".

In the center, there is a table with the heading "whole = 24 hours". The table has five columns labeled 1 through 5. The first column has "4 hours", "30 min", "10 min", and "8 min" listed vertically. The other columns have "4 hrs", "30 min", "10 min", and "8 min" listed vertically.

Below the table, there are two statements: "Each brother will watch the puppy for  $4 \frac{4}{5}$  hours." and "Each brother will watch the puppy for 4 hours and 48 minutes." An arrow points from the first statement to the text "different response BUT maybe the same".

At the bottom, there is a circular diagram divided into six sectors. Three sectors are labeled "12 min" and three are labeled "24 min". To the right of the diagram is a long division calculation: 
$$\begin{array}{r} 12 \\ 5 \overline{) 60} \\ \underline{- 50} \phantom{0} \\ 10 \\ \underline{- 10} \\ 0 \end{array}$$
 with notes "(5x10)" and "(5x2)".