

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

GRADE LEVEL/COURSE AND MATH STANDARD(S)

Grade 4

4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

INTRODUCTION

This task was adapted from Graham Fletcher’s [Three Act Tasks](#) and utilizes the lesson planning template from [Stride 3: A Pathway to Equitable Math Instruction: Creating Conditions to Thrive \(pages 13–14\)](#). Accompanying slide deck for the lesson can be found [here](#).

The lesson is intended to:

- Connect to the SEAD themes of discourse and agency.
- Maximize the time students are engaged in discourse talking to each other about the math content. It includes opportunities for small groups and whole groups where students are doing the bulk of the talking.
- Promote student agency by establishing the teacher as a facilitator, posing the problem and supporting students to pull on background knowledge.
- Provide students with opportunities to come to solution methods of their choosing.
- Engage students in the Standards for Mathematical Practice (SMP) 1, Make sense of problems and persevere in solving them, and SMP 3, Construct viable arguments and critique the reasoning of others.
- Deepen student understanding of whole-number quotients and division scenarios.

SEAD THEME

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

SMP(S) TO SUPPORT THE SEAD THEME

<input checked="" 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"/>	SMP 3: Construct viable arguments and critique the reasoning of others.
<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 work together with classmates to make sense of a problem and persevere in solving it.

STEPS

1. Teacher sets the stage for learning by introducing the learning target and success criteria.

Learning Target

How can I **work together** to find a **solution** to a problem?

Success Criteria

I **worked together** with my classmates to **make sense** of a problem and **persevere** in solving it.

2. Teacher shows the Act 1 video found [here](#) and poses the question:
 - What do you wonder?
 - We are looking for the wondering: *“How long will the fidget spinner spin?”*

3. Allow students to reason with one another around the following question:

How long will the fidget spinner spin?

Let's make an estimate.

What is an estimate you think will be too high?

What is an estimate you think will be too low?

4. Facilitate students sharing their thinking around estimates.
5. Provide students time to reason with one another around the following question:

How long will the fidget spinner spin?

What information will need to figure this out?

6. Facilitate students sharing their thinking around the information still needed to determine how long the spinner will spin.
7. After students have determined what information they still need, share the following:

2160 total number of spins

Averaged 8 spins per second

8. Allow students to reason with one another around the following question:

2160 total number of spins

Averaged 8 spins per second

Discuss with your group:

"How can we use this information to figure out how long the spinner will spin?"

9. Set the expectations for students as they begin to work in their groups.

With your group:

- **Discuss together** how you will go about **solving this problem.**
- **What information do you need to make sense of this problem? Do you have all the information you need?**
- **Be ready to prove your solution to others. How will your group do that?**

10. As groups are working together, walk around and check in on each group. The teacher should be asking guiding questions to spur the conversation in each group as well as questions to check for student understanding.

Some examples of potential questions:

- What strategy did you use to help you solve this problem?
 - What made you choose that strategy?
 - Is this problem similar to another problem you have seen before? How?
 - Do you have all the information you need to be successful in this problem?
11. After groups have worked through their solutions, set the stage for them to share out to the whole group:

As Groups are presenting...

Your job is to:

- Listen
- Ask them questions to extend your own thinking
- Ask them questions if you don't understand something
- Share how their thinking relates to yours

12. Facilitate individual groups as they engage in discourse with the rest of the class around sharing their solutions.

13. Teacher shows the Act 3 video found [here](#), and students compare their final solution to the solution found in the video.

14. Engage in reflection and self-assessment. Display the learning target and success criteria, asking students to rate how successful they were:

- Did we work together?
- What did we find out what we needed to know so the problem made sense?
- Did we persevere to find a solution?

SUMMARY/REFLECTION OF LESSON

All in all, I think the lesson went pretty well when I first implemented it with a group of 4th graders. This group of students had not done much group work that school year, due to COVID protocols, so a lot of elements of the lesson were fairly new. The groups required guiding questions to boost their thinking frequently, but a few groups really took the question posed and ran with it.

The portion of the lesson where groups were presenting their solutions went very well. After some prodding, students in the class were asking questions to presenting groups, and there were moments of great math dialogue. A brief discussion took place around why one group chose a different method of solving. I thought this was a nice opportunity for both discourse and agency to happen within the lesson.

In terms of preparation, using the SEAD model forced me to be very purposeful in planning opportunities for students to interact with one another right in the lesson. This is something that can happen naturally, but it happened more purposefully when I planned and thought it all out beforehand. In planning, I had to think about a way to pique students' curiosity, allow them different paths to finding a solution, and still support them to see connections to math ideas they have been studying. I immediately thought about a three-act math activity when thinking about how to encourage agency and discourse.

The learning target for this problem revolved around the math practices and not specifically the content standards (though they, of course, were still present). This was new for this group of students and at times slowed things down in regards to discussion and making sense of the problem. I think as I continue to do that more and more, it wouldn't be so new to students.