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

GRADE LEVEL/COURSE AND MATH STANDARD(S)

This lesson was taught in a high school math class, and it can easily be tailored for elementary and middle school students. While there is no direct content standard alignment, the teacher should be aware that students may specifically name content from the current or previous grade/course in their examples.

INTRODUCTION

This task is teacher created 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 provide support for students to:

- Realize they aren't the only one who might not like math or feel that they are not good at it.
- Identify potentially unhealthy mindsets that may impede their learning.
- Create strategies, plans, and processes to overcome or work around their feelings towards mathematics.

SEAD THEME

X	**Identity**
	Discourse
	Agency
X	**Belonging**

SMP(S) TO SUPPORT THE SEAD THEME

X	**SMP 1: Make sense of problems and persevere in solving them.**
	SMP 2: Reason abstractly and quantitatively.
	SMP 3: Construct viable arguments and critique the reasoning of others.
	SMP 4: Model with mathematics.
	SMP 5: Use appropriate tools strategically.
	SMP 6: Attend to precision.
	SMP 7: Look for and make use of structure.
	SMP 8: Look for and express regularity in repeated reasoning.

Note: This lesson does not meet any of the Standards for Mathematical Practice as far as applying them to mathematical content. The lesson does, however, allow students to look at a problem they have (e.g., feeling uncomfortable with math, disliking math, lack of confidence in math) and find a way to overcome or address that problem. It encourages students to realize

that they are not the only ones who struggle to be successful in mathematics and that their peers may have ways of learning mathematics that they could look for and then try for themselves.

LESSON OBJECTIVE/GOAL

Objective of lesson: Students will understand that math anxiety affects everyone to some degree and there are ways to work through those feelings. Students will consider the idea of whether their brain can go, what stress looks like for them, and discuss ways to help manage their stress.

STEPS

I teach this lesson the first three days of school. I have 44 minute periods, so the activities could be adapted to fit block periods.

Lesson Plan for Day #1

1. Arrange desks in a circle around the outside of the classroom with the middle completely empty.
2. Pass out the Math Mindset Reflection Page (from Math Geek Mama) to the students face down on their desk. Share that 1) they should please give their honest and genuine opinions and, 2) once they are done, I will read some of their answers out loud but would not use their name.
3. Ask students to fold the corner of the paper down about 1 inch from the top to hide their name.
4. Once students are done responding to prompts, have them crumple their papers and throw them into a bin placed in the middle of the circle.
5. Select uncrumpled student papers from the bin and read their answers to the following questions:
    a. Would you describe yourself as a "math person"? Why or why not?
    b. On a scale of 1 to 10, how good do you think you are at math? (1= horrible, I can't do it; 10= I'm amazing, perfect scores all year)
6. Ask students if they would give the same or lower rating for English? Science? Social Studies? Make connections to their answers across other content areas.
7. Ask students why they think it is common to say and/or hear people say they were not good at math or couldn't learn math. Typical student responses: "It is harder"; "We have not been taught as well"; "It seems like a foreign language"; "There are so many rules that have to be followed."
8. Ask students if they walked into sports practice and told the coach "I am not good at basketball" or "I can't hit the baseball" or "I can't catch the football"— would the coach accept that attitude? They immediately said no. What are the differences between the coach and the math teacher?

Lesson Plan for Day #2 (Slides)

1. Arrange desks in rows with 2 to 3 desks sitting right next to each other so students can turn and talk to each other at different times during the lesson.
2. Display slides or write the prompt in a visible place:
    a. "Think about whether your brain can grow or not and come up with two reasons why."

    b. Share thoughts with their neighbor.
    c. Ask a few people to share their thoughts with the whole class.
        i. I've had quite a few students ask if the prompt means to physically increase the brain size, or if it means to increase the amount of information it has stored. I have asked them to interpret the question however they want, in order to allow for different thoughts to be shared and not restrict the students to one meaning.
3. Remind students of the conversation from the previous lesson about how they and their classmates said they felt about math. Then I pointed them to the fact that most of them just said their brains can and do grow, yet they don't believe that about math for one reason or another.
4. Explain to students that we are going to watch a TedX Talk by Jo Boaler, who wrote *Limitless Mind*, which provides teachers with six learning keys to help create a Growth Mindset classroom environment.
5. Watch two sections of the YouTube video, How You Can Be Good at Math, and Other Surprising Facts About Learning (stop at 2:58, start again at 3:50, and end at 6:12).
6. Work on a few problems together that bring in ideas from previous content students should be familiar with:
    a. I teach Geometry and explain how it is already a very multidimensional class. Students use previously learned Algebra skills to examine the shape groups in tasks on slides 8–13.
7. As students work through the problems, have them practice verbalizing their thoughts. Reiterate to students that connecting a picture to their thinking and words will help them learn in multiple different ways. The discussion also gets them to share with and listen to their classmates to create discussion.

Lesson Plan for Day #3

1. Students work on Stress Bell Work page.Once everyone completes the front side, have them flip their papers over and finish the following two sentences:
    a. When I am unsuccessful, I feel …
    b. When I take a test, I feel …
2. Ask for volunteers to share some of their answers if they are comfortable.
3. Discuss ways to overcome/cope with/manage their stress, fear of tests, and/or feelings of failure. Record responses if appropriate for your classroom community.
4. Distribute the Working with Math Anxiety Page for the students to complete.
5. Ask students to write down 2–3 ideas or ways (either that the class named or ideas they had that were not shared with the whole class) they could use themselves to reduce the feelings of stress, fear of tests and/or unsuccess, in order to help them be calm, positive, and successful.
6. Have students glue the worksheet into their notebooks so they have a reminder all year long of ways to properly handle some of the negative feelings they may experience in school.

SUMMARY/REFLECTION OF LESSON

While you and your students may not have the same conversation or results that my students and I had, I found these activities to be an excellent way to start off the school year. I made my

classroom a room where students knew they were not alone in their feelings about math, while knowing that a negative attitude towards mathematics would hinder their learning in math. I opened class conversation by asking for student input and thoughts. It was successful to guide the lessons and put the students in charge of their learning rather than me teaching from a pre-written script.

One thing I have learned from these lessons is that open conversations need to take place all school-year-long, so I am working on adding more of these types of lessons to my curriculum. The more I've talked to students about how they feel about math, the more I see them as confident in their ability to learn mathematics.

Additionally, I read Jo Boaler's *Limitless Mind* over the summer, and that was what really inspired these first few lessons. I would encourage every teacher to read her book. On Day 2, steps 4–7 can be replaced with your own grade and content-appropriate task or problem. My goals were to get students thinking about shapes and talking to each other to encourage discourse, and to create a classroom environment where students felt like they belonged and their thoughts were heard.