



Trace Your Path to Becoming a Mathematician

Facilitator's Guide

Table of Contents

[Activity Background](#)

[Materials](#)

[Instructions](#)

Activity Background

Some instructional leaders, and even some math teachers, do not see themselves as “math people”. This may come from a view of math as a skill. These “undeclared mathematicians” may not know math through patterns, meaning, play, and productive struggle. By giving them the opportunity to experience math through the lens of these mathematical virtues, they will grow to see themselves as mathematicians.

During this activity, participants will complete math tasks and discuss various solution approaches.

Materials

1. Participants will need a pencil.
2. Participants will need printed copies of *Trace Your Path to Becoming a Mathematician-Task*
3. The facilitator will need access to the slides that support this activity.

Trace Your Path to Becoming a Mathematician - Slides

Instructions

Step 1 (Launch):

1. Note that facilitator instructions are also included in the presenter's notes of the slides.
2. Start by asking participants: How many of you would describe yourself as “math people”? Call on a few participants to explain why they feel this way.
3. Explain, as “undeclared mathematicians” you may view math as a set of skills. However, math is built on virtues including persevering, exploring, and playing. We will complete tasks today that will grow your view of yourself as a mathematician.
4. Project the first graph tracing task and ensure that participants understand the directions and rules.
5. Instruct participants to attempt to complete the task using their handout.
6. Briefly discuss, selecting from the following questions prompts:
 - a. How did you complete this task? (Have participants demonstrate for teammates or pair and share.)
 - b. Did you do something similar?

- c. Did you complete it without hesitation?
- d. Did you think through your plan before you put pencil to paper?

Step 2 (Explore):

1. Move on to the next task. Allow time for completing each task in the activity, stopping to discuss each one before moving on to the next task.
2. Use these questions to encourage discussion after each task:
 - a. Did you feel more pleasure in completing this task when compared to the first one?
 - b. How did you feel when you were trying different methods?
 - c. Did you have any Ah-ha moments?
 - d. How did you feel when you were successful?
 - e. How did you complete this task? (Can have them demonstrate for teammates or pair and share.)
 - f. Did you do something similar?
 - g. Did you make multiple attempts?
 - h. Did you think through your plan before you put pencil to paper?
3. *Note that solutions may vary, but potential solutions are given on the slide following each graph.*

Step 3 (Summary):

1. Discuss: How did these tasks allow you to explore, play, and struggle?
2. Consider sharing other open-ended tasks from [Fermi Problems for Students](#), [7 Fun Math Discussion Questions For Middle School](#), [Estimation 180](#), or [Math For Love](#) for participants to use with instructional leaders, teachers and/or students in order to develop mathematical thinking.
3. Ask participants to be prepared to share instructional leader/teacher/student reactions to and impact on growing mathematical mindset (through exploration, play, and struggle) with your group at your next meeting.