

THREE ACT MATH TASKS

Three-part math lessons to get your students thinking, collaborating and excited.

Today's Three Acts

1

Act 1

- Complete a Three Act Task

2

Act 2

- What is a Three Act Math Task
- Why do three act tasks work
- How do three act tasks support positive math cultures
- Explore some Three Act Tasks

3

Act 3

- Create our own Three Act Tasks

What is a Three Act Math Task?

- Fun
- Highly engaging
- Student centered
- Students do most of the thinking
- Multiple approaches are possible
- One problem takes most of the block
- Rich learning opportunities
- Low threshold high ceiling
- Problem based
- Open ended
- Rooted in number and operational sense
- Linked to curricular competencies
- Support core competencies

OUR THREE ACT TASK

- What do you notice?
- What do you wonder?
- From: Tap Into Teen Minds

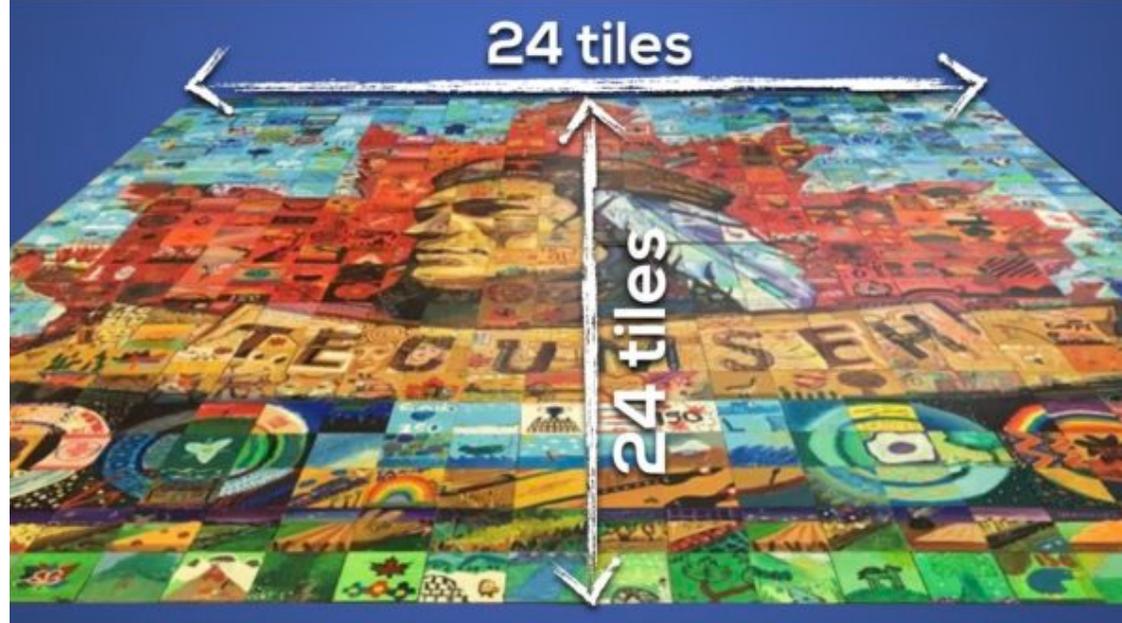


How many **tiles** are there in this **mosaic**?

Make a **PREDICTION**



many **tiles** are there in this **mosaic**
Update Your **PREDICTION**



ACT 2

Act Three – The Big Reveal

How many **tiles** are there in this **mosaic**?

Update Your **PREDICTION**



How many **tiles** are there in this **mosaic**?
Update Your **PREDICTION**



Check it out

- <https://tapintoteenminds.com/3act-math/massive-mosaic/>

Where do these come from?

Why would I use this strategy?

- Provide a meaningful connection to the real world
- Build a sense of wonder and curiosity
- Increase engagement
- Reduce the literacy demand.
- Low threshold high ceiling task
- Build number sense and estimation skills
- Open up math conversations and opportunities to reflect on and share mathematical thinking
- Use a variety of strategies to solve problems including manipulatives, drawings and equations
- Connect to prior knowledge and previously learned math skills and concepts
- Creates opportunities for all students to participate meaningfully

How do I use this strategy?

- **Act 1**
 - Invite wonder and curiosity
 - Ask a question
 - Take your best guess
- **Act 2**
 - Encourage students to try multiple approaches to the problem
 - Students explore many options
 - Encourage rich mathematical discussions
- **Act 3**
 - Reveal the answer
 - Solve the math together
 - Teach the new strategy

Act I

- In Act I, the teacher sharing with students an image, video, or other situation that is engaging and perplexing.
 - Students discuss what they notice and wonder. They generate question to ask about the situation.
 - Students decide on a question to answer and make estimates about the likely solution.
- Get them curious
- Make the barriers to entry as low as possible
- Use images, videos and objects to create something they can all interact with
- <https://www.sfusdmath.org/3-act-tasks.html>

Act 2

- In Act 2, students work on finding solutions to their problems.
 - They use information they have and ask for more information as needed.
 - The teacher supplies more information as requested by students.
 - They may adjust their question as they work.
- Open up paths for patient problem solving
- Encourage trying multiple strategies
- All students get a voice and a chance to solve it
- All student input is needed and valued
- <https://www.sfusdmath.org/3-act-tasks.html>

Act 3

- In Act 3, students share their work, their thinking, and their solutions.
 - There is a reveal by the teacher of a solution, and the discussion that ensues may take many directions:
 - Students might compare their solutions to each others and to the reveal.
 - Students might compare their solutions to their estimates and discuss the comparison.
 - Students might discuss the assumptions that were made in the work.
 - Students might think of other questions they could pursue next
 - The teacher helps students connect their work to the core math of the task.
- Solidify the math and work through sample problems together
- The ta-da moment
- <https://www.sfusdmath.org/3-act-tasks.html>

The Sequel

- Some problems or students need sequels
- Sequels are
 - Interesting
 - Challenging
 - Give extensions
 - Can be done by flipping the knowns and unknowns
 - Make students think deeper or about the problem a different way
 - Encourage flexible thinking
- Sequels are not
 - Extra work
 - A punishment for being fast

Student Questions During Three Act Tasks

- *proximity questions* — the questions students ask because you happen to be close by
 - Usually off task
- *stop-thinking questions* — the questions students ask so they can reduce their effort.
 - the most common of which is
 - “Is this right?”
 - What’s the next step
 - How do I start
 - We don’t answer these!
- *keep-thinking questions* — the questions students ask so they can keep working, keep trying, and keep thinking.
 - Open up mathematical discussion
 - We encourage these and answer these
- <https://buildingthinkingclassrooms.com/14-practices/> - practice 5

Assessing Three Act Math

- Student reflections in math journals
- Students solve similar problems in pairs and on own
- Students create their own problem and solutions

Explore some three act tasks

- What can you find for your favorite math topic?
 - What interests you about the tasks?
 - How would you use it with your grade level?
 - Your class?
 - How did you feel doing this?
- <https://www.sfusdmath.org/3-act-tasks.htm>
 - <https://gfletchy.com/3-act-lessons/>
 - <https://tapintoteenminds.com/3act-math/>
 - <https://mikewiernicki.com/3-act-tasks/>
 - https://docs.google.com/spreadsheets/d/1jXSt_CoDzyDFejimZxnhgwOVsWkTQEsfqouLWNnc6Z4/edit#gid=0
 - <https://www.youtube.com/watch?v=YvQNDbbTQNg&list=PLETxamNbzNHAuSASUZkoFobAafK0tefRc>
 - <https://blog.mrmeyer.com/2013/teaching-with-three-act-tasks-act-one/>