

# Growth Mindset Mathematics

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## What is a Growth Mindset?

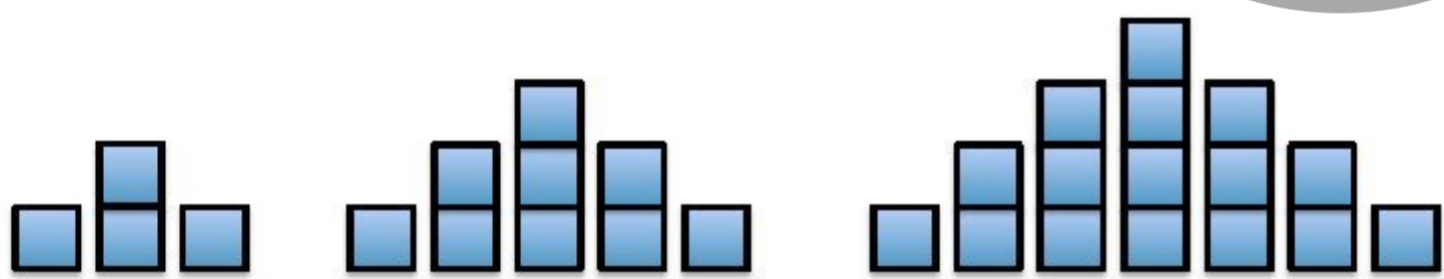
- The belief that one's talents and abilities can be **developed**
- Thriving on **challenges and setbacks** that come with the journey of learning

## What are some common misconceptions about Growth Mindset?

- **Praising sheer effort** without any actual learning taking place
- **Confusing** growth mindset with being flexible, open-minded, or having a positive outlook
- **Dismissing** all fixed-mindset thoughts; Instead, **accept those thoughts**, work with them and work through them

Try this activity with your students!

How do you see the pattern growing?



- Help students recognize that we all see the pattern changing in different ways, and all are valid (focusing on the process over the final answer)
- This activity is open so that students can access it with whatever background knowledge they already have, fostering confidence in the task
- Fast-finishers can be encouraged to create their own growing patterns and describe their process

## How can I modify math questions to make them more accessible?

- **Open tasks** so students are encouraged to think about multiple pathways, representations, and methods
- **Adapt** common questions to be more process-focused rather than answer-focused
- **Encourage** students who are finished the problem to create their own question

## What does the research say about Growth Mindset in Math?

- Students with a growth mindset students are more likely to use **positive problem-solving** strategies and employ mastery-oriented reactions when faced with setbacks
- Tasks that have a “**low floor and high ceiling**” are more accessible to a wide range of students and allow all students to find their own mathematical meanings
- Students who embody a growth mindset are **less susceptible** to mathematical stereotypes and more resilient in the face of adversity

## What language should I use to help foster a Growth Mindset?

### HOW TO ENCOURAGE STUDENTS

#### Growth Mindset

What to say:

"When you learn how to do a new kind of problem, it grows your math brain!"

"If you catch yourself saying, 'I'm not a math person,' just add the word 'yet' to the end of the sentence."

"That feeling of math being hard is the feeling of your brain growing."

"The point isn't to get it all right away. The point is to grow your understanding step by step. What can you try next?"



SOURCE: Carol Dweck

#### Fixed Mindset

What not to say:

"Not everybody is good at math. Just do your best."

"That's OK, maybe math is not one of your strengths."

"Don't worry, you'll get it if you keep trying."\*

\*If students are using the wrong strategies, their efforts might not work. Plus they may feel particularly inept if their efforts are fruitless.

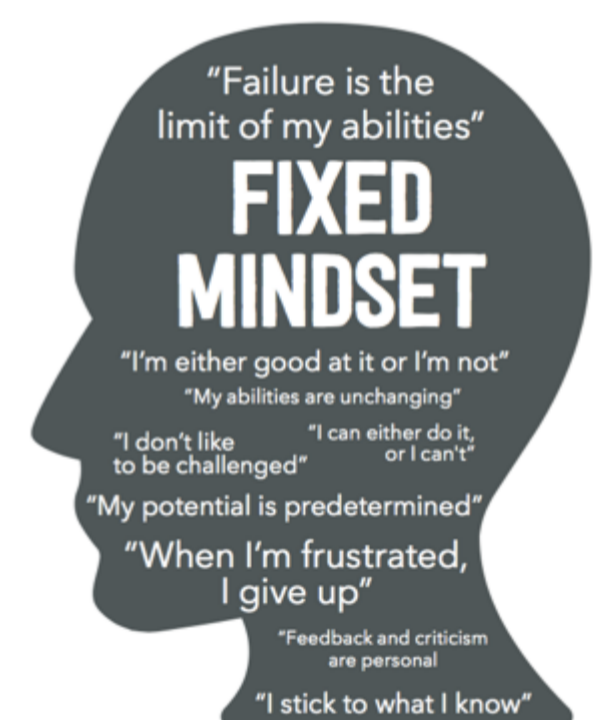
"Great effort! You tried your best!"\*

\*Don't accept less than optimal performance from your students.



## How does this relate to the curriculum and OME Guidelines?

- The curriculum stresses the importance of developing **mathematical thinking skills** and understandings, and acquiring a positive attitude towards mathematics
- Growth mindset for mathematics relates to creating a **Universal Design for Learning** as discussed in the Learning for All document



## Want to learn more?

# TEDx

**Jo Boaler:** How you can be good at math, and other surprising facts about learning.

<https://www.youtube.com/watch?v=3icoSeGqQtY>

# youcubed

**Youcubed:** Research-based strategies for motivational and effective math instruction. Many descriptive growth mindset lessons are available!

[youcubed.org](http://youcubed.org)