#EachChildOurFuture

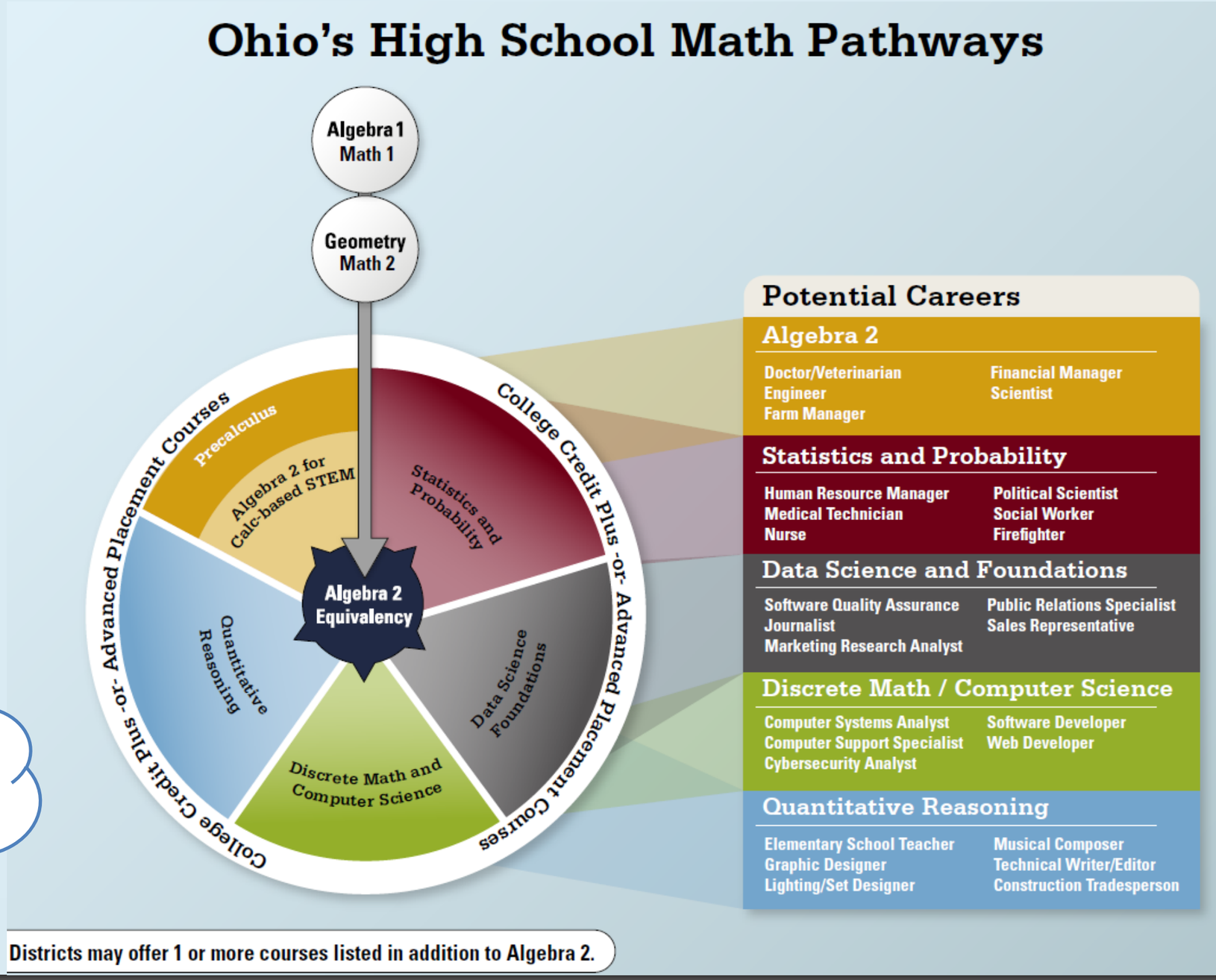
Math Pathways and Middle School

November 10, 2021

Ohio | Department of Education

Math Pathways

ALL Pathways are college preparatory

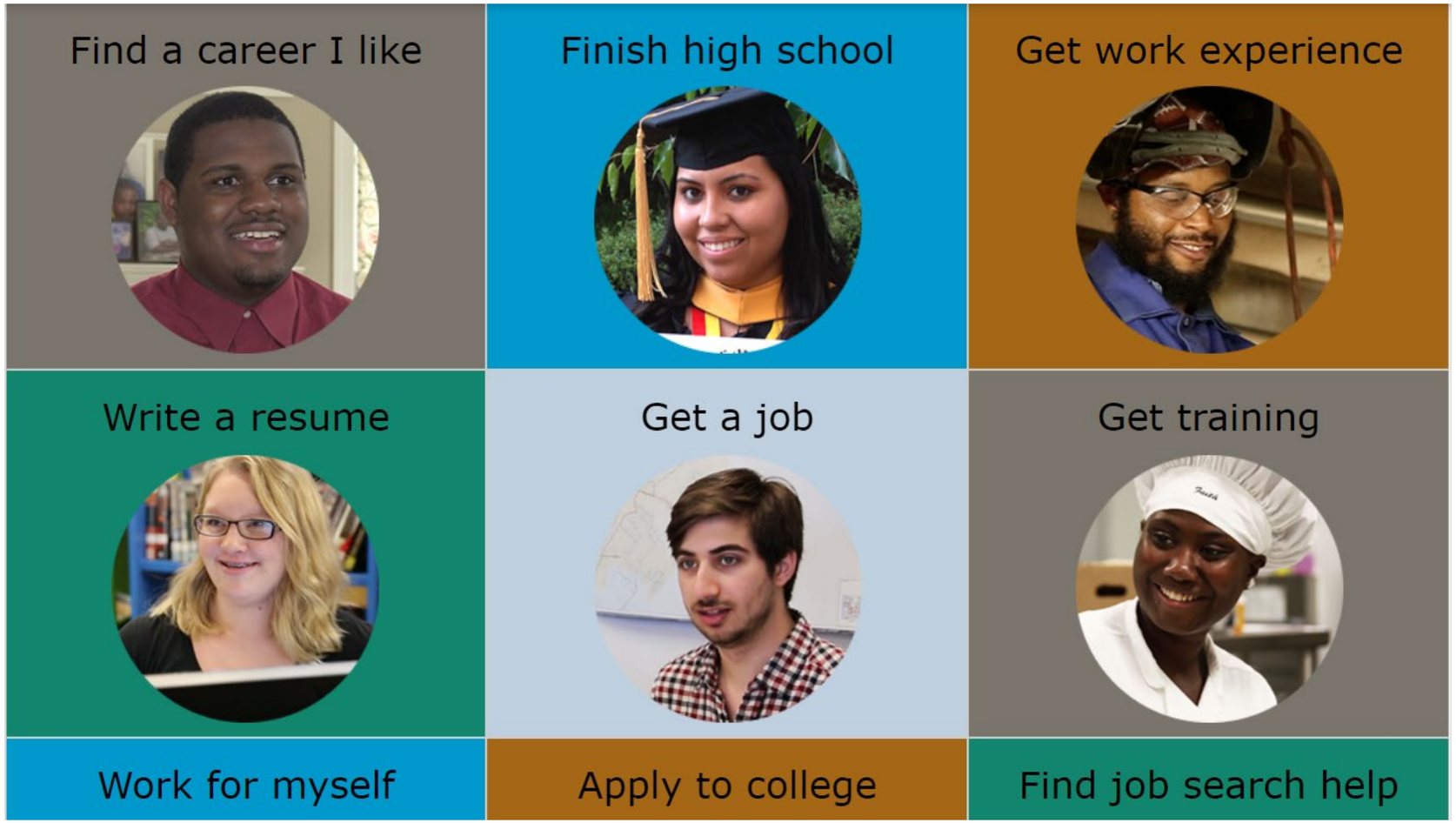


Purpose

What can we do already in Middle School to prepare and support our students so they can make “educated” choices for their future?

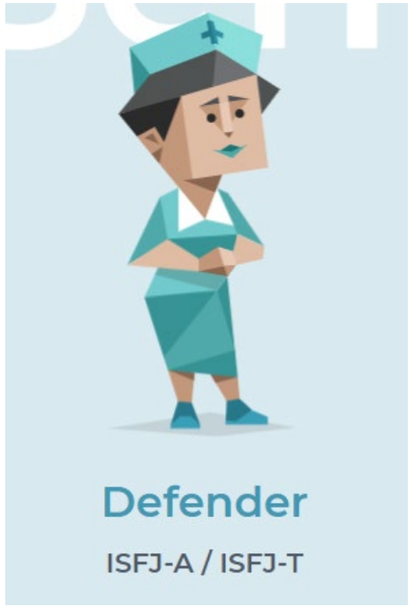
Counselors and Teachers are Important

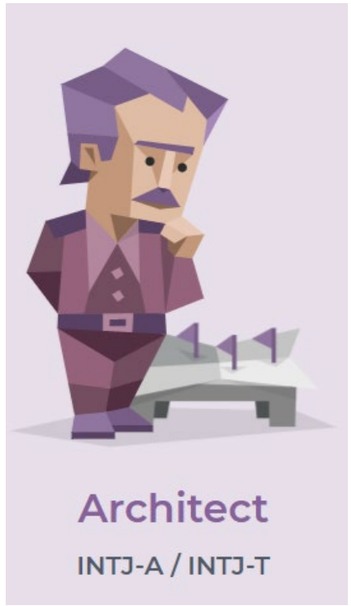
Interest Assessment and Career Explorations

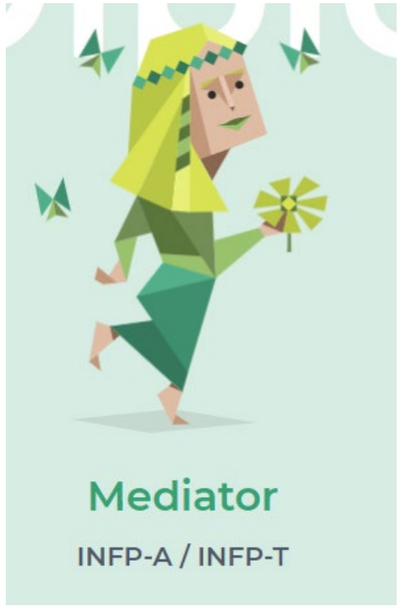


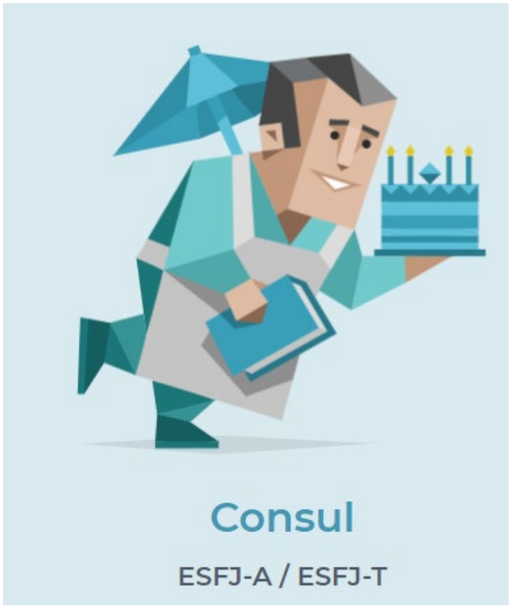
Personality Type Test

16 Personalities









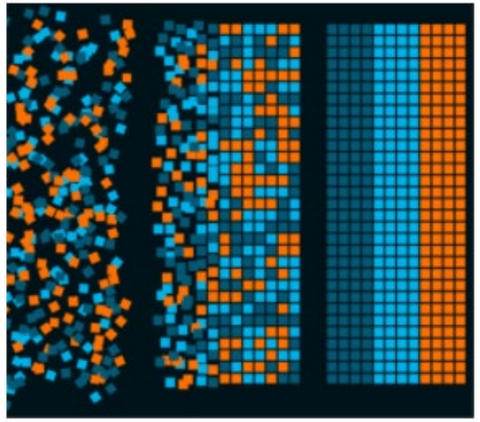
Lifestyle Calculator

Exposure to Data Science

youcubed®

Data Talks

21st Century Teaching and Learning: Data Science



Data Science Online Course Lessons

A Picture Book Introduction to Data Science

Exposure to Computer Science

HOUR OF CODE

All grades | Pre-reader | Grades 2-5 | Grades 6-8 | Grades 9+ | Beginner | Comfortable

Search

Sort by

Recommended

Created by

All

Classroom technology

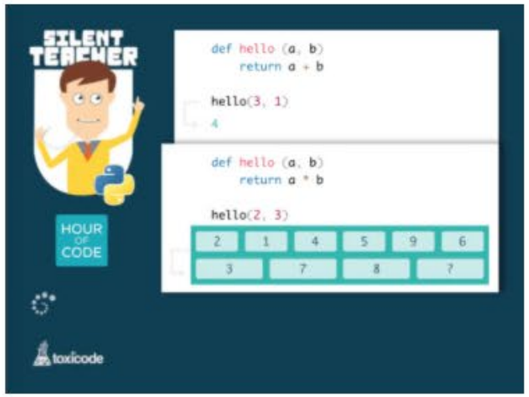
- Computers
- Android
- iPad/iPhone
- Screen reader
- Poor or no internet
- No computers or devices

Topics

- Science
- Math
- Social Studies
- Language Arts
- Art, Media, Music

Play, Design & Code Retro Arcade Ga...
Grades 2+ | Blocks

CS First Unplugged
Grades 2-8 | Blocks, Unplugged, Scratch



Discover Python with Silent Teacher
Grades 6+ | Python

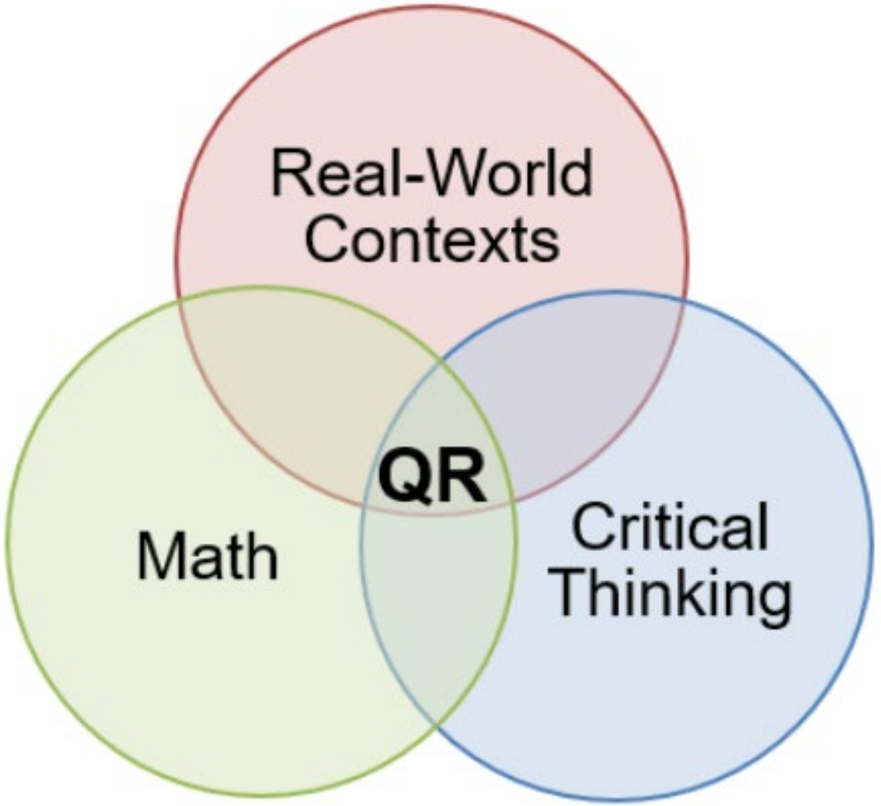
codeSpark Academy with The Foos: ...
Pre-reader - Grade 5 | Blocks

Dance Party
Grades 2+ | Blocks

Ozaria: Your Journey Begins
Grades 6+ | JavaScript, Python

Quantitative Reasoning

Provide rich tasks where problem solving is required.



Standards for Mathematical Practice

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

What is a Goal of the Mathematics Classroom

A goal is to build **engaged students** that are willing to **think about** any task, individually or in collaboration with others.

A goal is to design our lessons such that students have **the opportunity to learn how to think**.

Thinking is a necessary precursor to learning,…

…and if students are not thinking …

…they are not learning!

If We Want Our Students to Think. . .

. . . We Need to Give Them Something to Think About!

What Types of Tasks We Use is Important

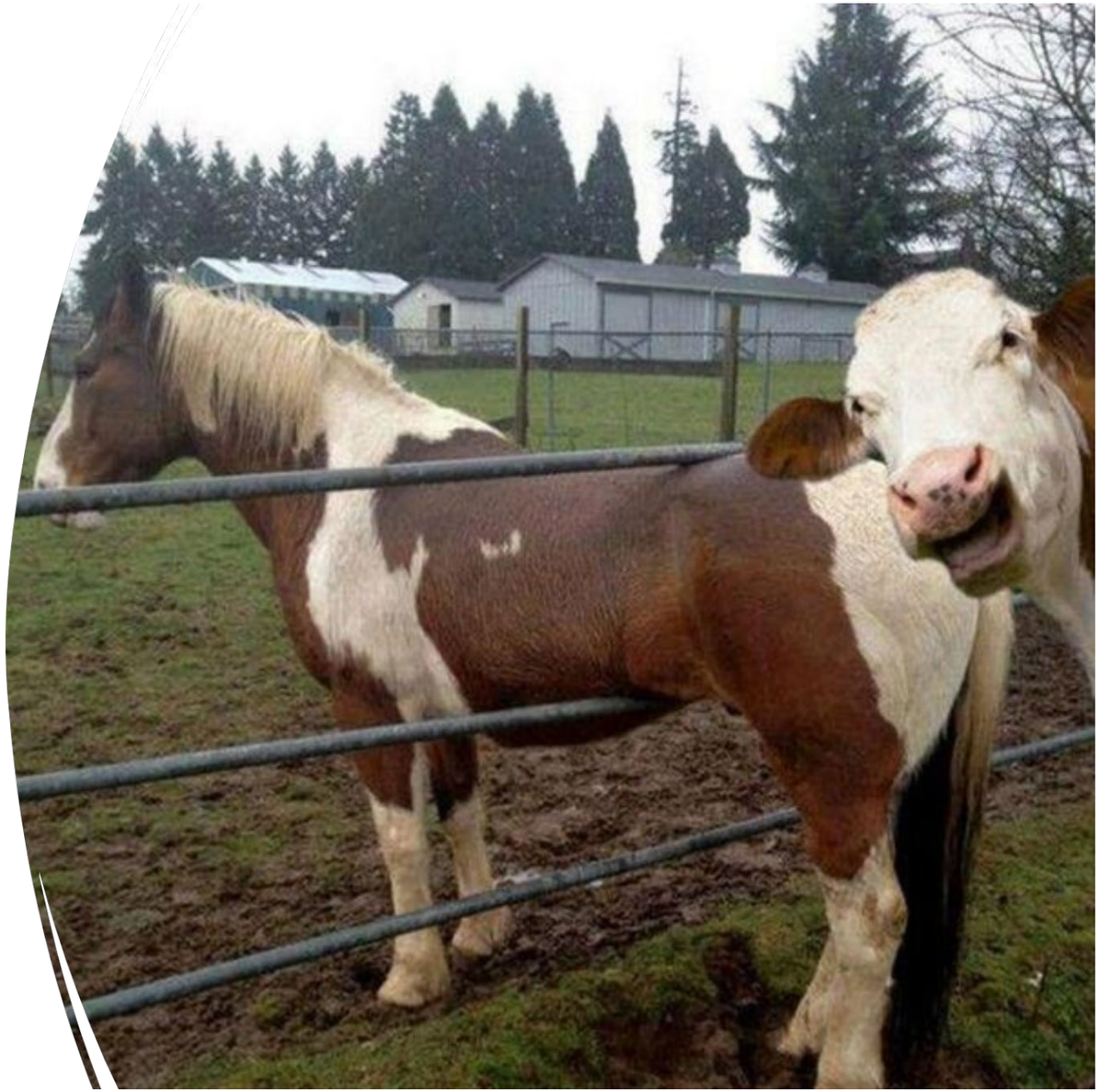
Problem Solving

. . . is what we do when we do **not** know what to do,

. . . is NOT precise application of a known procedure,
. . . is NOT the implementation of a taught algorithm, and
. . . is NOT the smooth execution of a formula.

Problem Solving is a Messy, Non-Linear and Idiosyncratic Process

"Good problem-solving tasks require students to **get stuck** and then to **think**, to **experiment**, to **try** and to **fail**, and to **apply their knowledge** in novel ways in order to get **unstuck**."



F.A.I.L.

First

Attempt

In

Learning

Resources

Model Curriculum

Progressions

Coherence Map

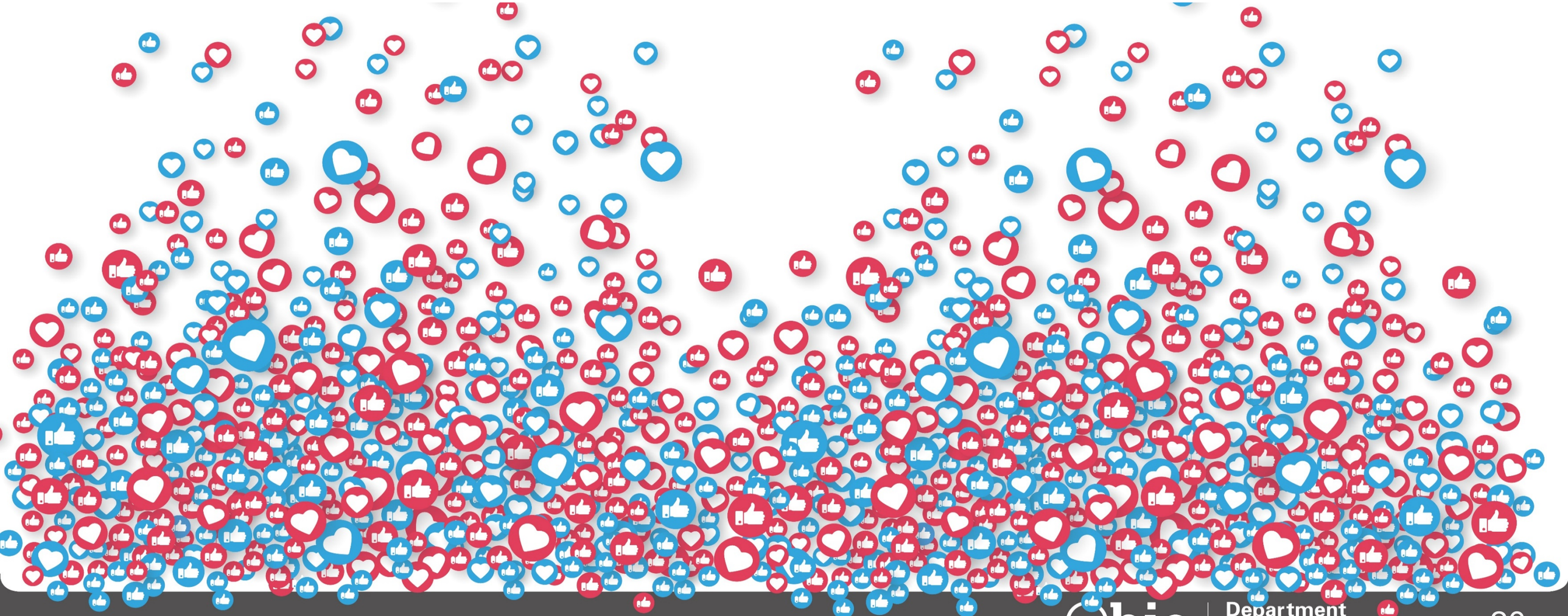
Resources

Math Assessment Project

YouCubed

Peter Liljedahl

@OHEducation



Share your learning community with us!

#MyOhioClassroom

Celebrate educators!

#OhioLovesTeachers