



VAI EDUCATION SPOTLIGHT

5 Math Resources to Boost Inquiry and Conceptual Understanding

When students are truly engaged in inquiry, they can construct deep knowledge and understanding rather than just passively receiving the information. It also gives them the opportunity to encounter different perspectives that build upon their prior learning, which they can then return to for guidance as they continue to grow.

This is particularly true when it comes to the study of mathematics. With math, educators often find themselves jumping between two worlds: the conceptual knowledge and the procedural knowledge. Procedural knowledge is what's learned through standard memorization (like math facts), but conceptual knowledge is where students can grasp deeper learning through thoughtful, reflective activities.

Math resources can play an important role in allowing teachers to model or demonstrate representations of mathematical ideas, and in supporting children's developing mathematical understanding and thinking. But finding resources that are both valuable and appropriate can be both time-consuming and challenging. What is the ideal resource? What criteria should teachers use to gauge whether a resource is worthy? And, where can teachers find these resources?

To build inquiry and conceptual understanding, focusing on the following criteria is a great place to start: Resources that get students utilizing creative and critical thinking, require students to use both logic and reasoning, spark mathematical conversations, offer multiple solutions when solving, and are accessible to all learners. All of these are important considerations because the work, the rhetorical heavy lifting, should be put into the hands of our students. And one more consideration when on a quest to find these resources-- it certainly would be helpful if these were free to access and utilize. Sounds like a unicorn, right? Believe it or not, these do exist. To follow is a list of five math resources that check off all these requirements. Please share these resources with your teachers and encourage them to boost inquiry and conceptual understanding with their students!



5 Math Resources to Boost Inquiry and Conceptual Understanding

5 Math Resources

1. [Would You Rather...? Math](#)

If you're looking for ways to engage students in math conversations and how to have students use math to justify their ideas, this is a great resource to use! A great place to start is to check out the [User's Guide](#), which gives teachers a pathway to begin using this resource.

2. [Youcubed Math Tasks](#)

This resource is full of inquiry-driven math inspiration. While this link takes you to the math tasks (low-floor, high-ceiling activities that are accessible yet challenging for ALL learners), there are so many other ideas and activities to explore.

3. [TED ED Math Riddle Videos](#)

When I stumbled upon these a few years ago, I couldn't stop talking about them. To this day, I still share them with as many teachers as I can. The engagement level, the creative problem-solving, and the higher-level thinking skills utilized all help to build a love for math learning.

Bonus: [check out this list](#) we created of 13 of our favorites, separated by grade level to make the search for the right task a bit easier!

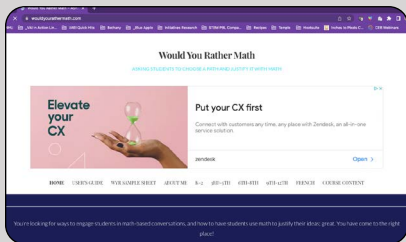
4. [Act Math](#)

I love the simplicity of these tasks and the problem-solving skills that each requires. I also love how students will go about solving these tasks in a variety of ways, while still being able to arrive at a common solution.

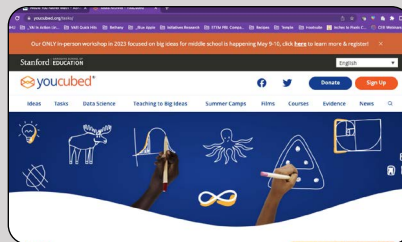
5. [Esti-Mysteries](#)

If you are looking for a thought leader in the math education world, Steve Wybourne is your person. He happens to be the creator of these estimation tasks and a ton of other helpful classroom resources. I recommend also checking out his math Splats, subitizing tasks to help build students' ability to recognize a set of objects without counting.

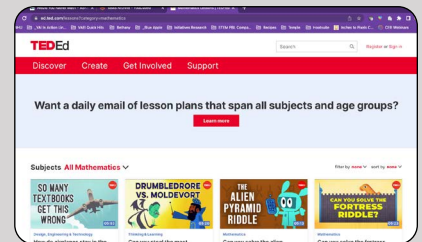
Inquiry builds on children's inherent sense of curiosity and wonder, drawing on their diverse backgrounds, interests, and experiences. Simply by taking advantage of this fact, we can help students connect with math in new and exciting ways while also laying the foundations for future learning. So, encourage your teachers to make room for student inquiry and watch as their students revel in their newfound sense of discovery.



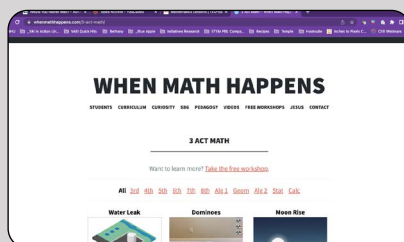
www.wouldyourathermath.com



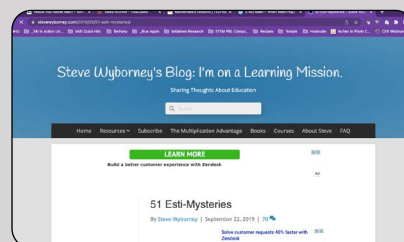
www.youcubed.org/tasks



www.ed.ted.com



www.whenmathhappens.com



www.stevewybourne.com

Project-Based Learning (PBL) and Math

If you'd like your teachers to try a PBL unit that is cross curricular (math, ELA, science, social studies, and SEL), and gets teachers and students thinking in creatively different ways, take a look at the Blue Apple project, [The Dirty Truth](#).

The project gets students thinking critically and creatively as they ponder the question, "Can Earth be saved, or is Mars our only hope?" Through research and science, students determine whether they are Team Earth or Team Mars and craft a convincing PSA to raise money for an organization that supports their cause.



If you think your teachers would like to try this project, check out these resources:

- This [Project Overview](#) provides a lesson by lesson summary of this project.
- Check out [K-8 content standard connections](#) for this project.
- Check out the rich and diverse [Recommended Book List](#).
- To see this project in action, check out the [project video](#).

**[Click here](#) if you would like to see a FREE 30-minute webinar of this content:
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HAVE YOUR TEACHERS START PBL TODAY WITH BLUE APPLE PROJECTS!

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- Engaging lessons designed to make learning memorable, meaningful, and fun
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