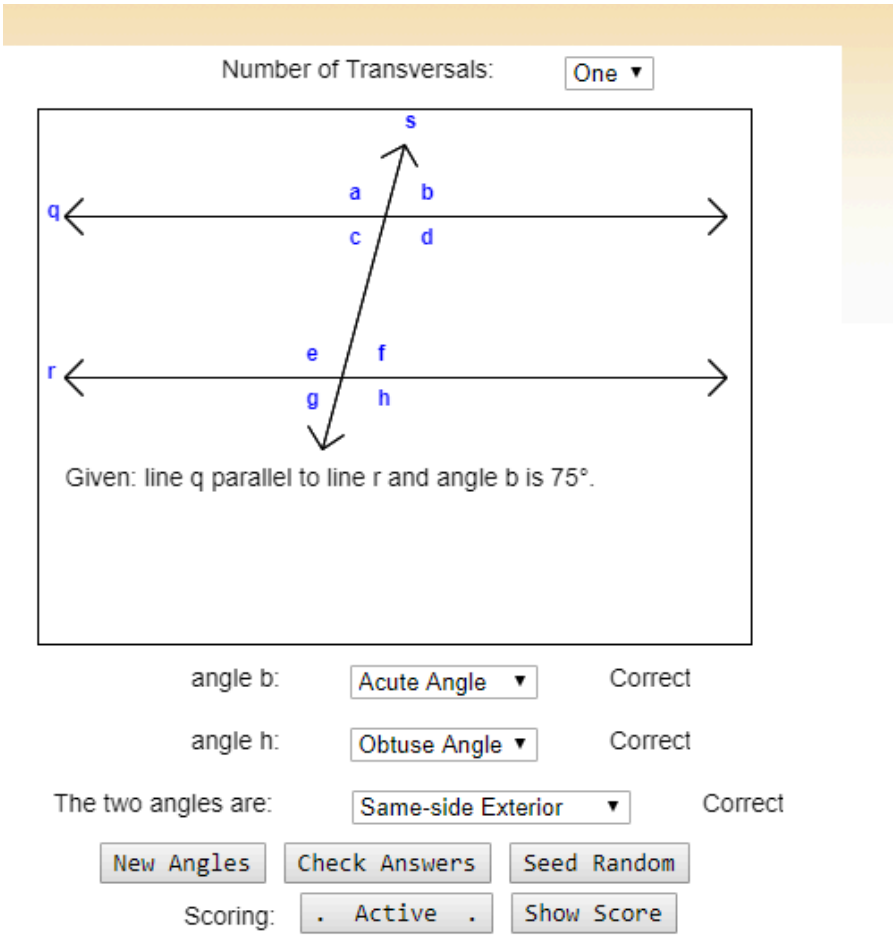
Interactive - Angles



Overview

Students are given different transversals and are asked to label different angles as acute, obtuse, or right and then are to define the relationship between two angles (same-side exterior, alternate interior, etc.) Students can also do problems with two transversals.

Curator: Alyssa Hogan

Name & Link to Tech Tool or Tool homepage: Interactive - Angles

Brief Description of Tech Tool:
Students are given different transversals and are asked to label different angles as acute, obtuse, or right and then are to define the relationship between two angles (same-side exterior, alternate interior, etc.) Students can also do problems with two transversals. Students can then have their answers immediately checked and have the opportunity to fix any incorrect answers before moving on. There is also an option for students to score their work and keep track of their progress.

Technical & Cost considerations: This is a free applet that just requires internet access.

Evaluation

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1. What mathematics is being learned?

Common Core Standards

Fourth Grade

- Geometry: Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
- Measurement and Data: Geometric measurement: understand concepts of angle and measure angles.

Geometry

- Congruence: Prove geometric theorems

Seventh Grade

- Geometry: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Proficiency Strands

We've also looked at the strands of mathematical proficiency laid out in *Adding It Up*. Show which strands are supported by this tech tool and activity by deleting the others (leaving those that apply). Provide a few words of justification.

- **Procedural Fluency:** Students are practicing identifying types of angles and identifying relationships between angles.
- **Strategic Competence:** Students need to use their knowledge of angles to answer questions dealing with two transversals and be able to use the theorems of angle measures strategically.
- **Adaptive Reasoning:** As students progress to problems with multiple transversals, they need to use multiple theorems about angle measure simultaneously to identify the types of angles and the relationships between angles.

Students are practicing using different theorems in the context of different problems to identify types and relationships of angles.

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2. How is the mathematics represented?

Mathematics is being represented symbolically and via mathematical diagrams. Students are given a diagram of one or two transversals with different angles labeled. They then use drop down menus to label types of angles and types of relationships between the indicated angles. The technology represents the math in a way that makes it easy for students to practice recognizing and utilizing multiple theorems in a quick fashion. Students can get immediate feedback on their answers and have the opportunity to correct their mistakes and attempt to answer again.

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3. What role does technology play?

What advantages or disadvantages does the technology hold for this role? What unique contribution does the technology make in facilitating learning?

One disadvantage of this technology is that once students start to become proficient in identifying types of angles and relationships between angles, the problems will become repetitive and do not do much to help students expand on their knowledge. One advantage of this technology is that it does give students the opportunity to do a lot of practice quickly and they have a lot of problems to work through to enhance their procedural fluency.

Affordances of Technology for Supporting Learning

- **Computing & Automating -** Students input their answers via dropdown menus and then the computer will quickly check their answers and label them as correct or incorrect. If a student gets a question incorrect, they have the opportunity to fix their answer and try again.
- **Representing Ideas & Thinking -** The tool does not specifically require ideas and thinking to be represented, however in order to answer the questions correctly, students will have to be able to take the ideas of the different theorems and relationships they have learned and apply them to the different represented situations

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4. How does the technology fit or interact with the social context of learning?

This tech tool would be most effective on an individual basis, so there would need to be a one to one ratio devices. This applet would work on any electronic device so they could even use their phones. This tech tool is set up for students to really work at their own pace, so pairing students up could be possible if they were both at the same level so they could move together through the practice and have mathematical conversations as they progress.

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5. Additional Comments

This is a really good tool for students to get some great practice with procedural fluency of classifying angles (acute, right, or obtuse) and identifying relationships between different angles of a transversal.