re(Solve) MATHS BY INQUIRY Right Angles

Y6

Summary of learning goals

- This sequence builds students' ability to create and identify right angles. They are challenged to reason mathematically and form generalisations.

Australian Curriculum: Mathematics (Year 6)

ACMMG141: Investigate, with and without technologies, angles on a straight line, angles at a point and vertically opposite angles. Use results to find unknown angles.

Summary of lessons

Who is this sequence for?

- Students who have been introduced to right angles and can identify and name polygons with up to eight sides. Students should be familiar with identifying and describing patterns in data that result from multiplication.

Lesson 1: How Many Right Angles?

Students create right angles using two ice-cream sticks. They discover they can make one, two or four right angles, but they cannot make three. They explore the number of right angles that can be made with any number of sticks.

Lesson 2: Six Internal Right Angles

Students are asked to construct a polygon with exactly six internal right angles. They see that it is possible to make an octagon with six right angles and two angles of 270°. Students sort the octagons based on the number of right angles that separate the 270° angles.

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Australian Academy of Science

Reflection on this sequence

Rationale

Although simply identifying and constructing right angles might not pose a significant challenge to some students, there is opportunity to build students' mathematical reasoning using the context of right angles. As such, these lessons concentrate on links to algebraic and geometric thinking and moving students to forming generalisations based on their findings.

reSolve mathematics is purposeful

- Students identify and construct right angles and develop their skills in forming generalisations.

reSolve tasks are inclusive and challenging

- While the activities in the lessons are accessible, challenge is provided through the reasoning and forming of generalisations.

reSolve classrooms have a knowledge-building culture

- The tasks require the students to look for patterns as they create right angles and shapes. The collective findings of the class are used to form generalisations.
- Students are encouraged to explain why patterns occur, creating the opportunity for rich mathematical discussions.

Acknowledgements

Lesson 2: Six Internal Right Angles has been used and adapted with permission from the *EPMC project: Encouraging Persistence, Maintaining Challenge*.