

Summary of learning goals

- Students apply Pythagoras' theorem to explore practical technology that is reliant on mathematical concepts.

Australian Curriculum: Mathematics (Year 9)

ACMMG221: Solve problems using ratio and scale factors in similar figures.

ACMMG222: Investigate Pythagoras' theorem and its application to solving simple problems using right-angled triangles.

Summary of lessons

Who is this sequence for?

- This sequence is for students who have been introduced to Pythagoras' theorem and are able to complete routine calculations to find the length of the hypotenuse or of one of the short sides.

Lesson 1: Phone Finding

Students apply Pythagoras' theorem to locate a lost mobile phone, using information about mobile phone towers in their local region. This task develops understandings of the functionality of Pythagoras' theorem in three dimensions. Students also see the importance of precision when working in real-world contexts.

Reflection on this sequence

Rationale

The concepts behind Pythagoras' theorem and its proofs are taught well in classrooms, and there are ample high-quality resources to assist teachers. This lesson is not intended to prove or teach the theorem for this reason. However, traditional applications are often shallow and uninteresting, and so the focus here is on providing explorative and atypical applications.

This task provides an exploration of practical real-world technology that relies on the theorem. In particular, it can serve as a useful assessment task due to its self-contained focus and emphasis on fluency exercises.



reSolve mathematics is purposeful

- This sequence provides an interesting application of Pythagoras' theorem that is aimed at building students' fluency with calculations in unorthodox contexts.



reSolve tasks are inclusive and challenging

- The task builds on foundational understanding of the theorem but pushes knowledge in new directions and relates to other mathematical principles.



reSolve classrooms have a knowledge-building culture

- The lesson relies on comparing and contrasting findings in order to reinforce the importance of justifying reasoning.