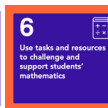
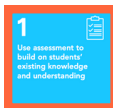


# REACT to misconceptions

Integrating evidence into mathematics teaching



EVIDENCE  
FOR LEARNING

## Understanding the issues

## Planning the learning

### R RESEARCH common misconceptions

- What are the prerequisite concepts that are vital to success in this unit of work?
- How might you check understanding of these concepts and activate prior knowledge?
- What relevant misconceptions could students hold prior to the unit, or potentially develop during the teaching of the unit?
- Are there any published sources of common misconceptions for this unit or its prerequisite ideas?
- Are there any trusted sources of high-quality resources that might help?

### E EXPLORE why these misconceptions persist

- What partial truths might underpin misconceptions in this topic?
- What counter-examples could be used to challenge students' existing misconceptions?

### A ADDRESS the misconceptions head-on

- Is there opportunity to discuss and explore common misconceptions for this topic as part of faculty or learning area meetings?
- How can we support less experienced or non-specialist colleagues who may not be familiar or confident with these misconceptions?
- What opportunities can be taken in class to discuss misconceptions and explore them before they arise?

### C CONSIDER possible future issues

- Are there definitions, 'shortcuts', or problematic language that could be used in this unit that might generate future problems?
- Are there manipulatives and representations which might support teaching, help to embed understanding and minimise future misconceptions?
- Are there future ideas which might seem to contradict ideas in this unit? Are all teachers aware of these and could they be incorporated into teaching?

### T Plan TASKS that could help

- Would any concepts or definitions be supported by using examples and non-examples?
- Could diagnostic multiple-choice questions, with carefully chosen distractors, be used?
- How might tasks support deeper understanding of concepts, with the aim of minimising development of misconceptions in the future?
- How can classroom discussion be used to explore common misconceptions?

This resource supports the Recommendations 1 and 6 in E4L's Guidance Report on [Improving mathematics in upper primary and lower secondary](#).

**Recommendation 1:** Use assessment to build on students' existing knowledge and understanding (including knowing, addressing and understanding common misconceptions).

**Recommendation 6:** Use tasks and resources to challenge and support students' mathematics (including using tasks to address student misconceptions).

- Does anything need revisiting or re-teaching?
- What opportunities will there be to embed these ideas in future?
- When will we next meet the ideas in this unit— can we build in opportunities for further practice?