

How do you help your pupils connect ideas in mathematics?

Research taster

When teachers connect different areas of mathematics and make links between different ideas in the same area of mathematics, pupils usually become more skilful in making their own connections in the subject. Teaching pupils how to classify problems using schema can help them do this. (Schema are categories people use to organise and interpret information. These could include, for example, putting things in order according to height, length etc, or classifying things in relation to specific criteria, such as colour, shape etc.)

Your evidence

You might like to explore how you help your pupils recognise similar questions when they appear in different guises. It would be helpful if you either record a suitable lesson, or, by agreement, arrange for a colleague to observe you. Plan your lesson so that you ask a set of similar questions, such as additions or subtractions or both, in different forms. Some of these could be oral and some written.

How did you draw pupils' attention to similarities in the questions you were asking? How well did pupils identify questions that required similar solution strategies? What are the implications for your teaching on what you have discovered? It may be helpful to share your analysis with colleagues.

(Adapted from Reflective Activity 13-1b)

Moving forward

Could you make planning to teach your pupils what to look for when they meet a mathematics problem an explicit element of your approach? Would it be useful to introduce them to categories of problems or schema? For example, in the case of numerical questions you might like to use these categories to explain to pupils how questions requiring similar solution strategies can look different:

- Change of cover story, for example, same format, similar numbers but different narrative
- Different look, for example, giving questions in multiple choice form
- Different words, for example, using the word dozen instead of 12
- Different question structure, for example, instead of asking how much a person has spent asking them how much change they were given
- Different scope, for example, including a greater range of items to include in the calculation

Find out more

Askew, M., Brown, M., Rhodes, V., Johnson, D. and Wiliam, D. (1997) *Effective teachers of numeracy*. London: School of Education, King's College London