

## 4 Practical advice for teaching problem solving

<p><b>Allow pupils time to understand and engage with the problem</b></p> <p>Discourage pupils from rushing in too quickly or from asking you to help too soon.</p>	<p><i>Take your time, don't rush.</i></p> <p><i>What do you know?</i></p> <p><i>What are you trying to do?</i></p> <p><i>What is fixed? What can be changed?</i></p> <p><i>Don't ask for help too quickly - try to think it out between you.</i></p>
<p><b>Offer strategic rather than technical hints</b></p> <p>Avoid simplifying problems for pupils by breaking it down into steps.</p>	<p><i>How could you get started on this problem?</i></p> <p><i>What have you tried so far?</i></p> <p><i>Can you try a specific example?</i></p> <p><i>How can you be systematic here?</i></p> <p><i>Can you think of a helpful representation?</i></p>
<p><b>Encourage pupils to consider alternative methods and approaches</b></p> <p>Encourage pupils to compare their own methods.</p>	<p><i>Is there another way of doing this?</i></p> <p><i>Describe your method to the rest of the group</i></p> <p><i>Which of these two methods do you prefer and why?</i></p>
<p><b>Encourage explanation</b></p> <p>Make pupils do the reasoning, and encourage them to explain to one another.</p>	<p><i>Can you explain your method?</i></p> <p><i>Can you explain that again differently?</i></p> <p><i>Can you put what Sarah just said into your own words?</i></p> <p><i>Can you write that down?</i></p>
<p><b>Model thinking and powerful methods</b></p> <p>When pupils have done all they can, they will learn from being shown a powerful, elegant approach. If this is done at the beginning, however, they will simply imitate the method and not appreciate why it was needed.</p>	<p><i>Now I'm going to try this problem myself, thinking aloud.</i></p> <p><i>I might make some mistakes here - try to spot them for me.</i></p> <p><i>This is one way of improving the solution.</i></p>