

Handout 4: Practical advice for teaching problem solving

<p>Allow students time to understand and engage with the problem Discourage students from rushing in too quickly or from asking you to help too soon.</p>	<ul style="list-style-type: none"> • <i>Take your time, don't rush.</i> • <i>What do you know?</i> • <i>What are you trying to do?</i> • <i>What is fixed? What can be changed?</i> • <i>Don't ask for help too quickly - try to think it out between you.</i>
<p>Offer strategic rather than technical hints Avoid simplifying problems for students by breaking it down into steps.</p>	<ul style="list-style-type: none"> • <i>How could you get started on this problem?</i> • <i>What have you tried so far?</i> • <i>Can you try a specific example?</i> • <i>How can you be systematic here?</i> • <i>Can you think of a helpful representation?</i>
<p>Encourage students to consider alternative methods and approaches Encourage students to compare their own methods.</p>	<ul style="list-style-type: none"> • <i>Is there another way of doing this?</i> • <i>Describe your method to the rest of the group.</i> • <i>Which of these two methods do you prefer and why?</i>
<p>Encourage explanation Make students do the reasoning, and encourage them to explain to one another.</p>	<ul style="list-style-type: none"> • <i>Can you explain your method?</i> • <i>Can you explain that again differently?</i> • <i>Can you put what Sarah just said into your own words?</i> • <i>Can you write that down?</i>
<p>Model thinking and powerful methods When students 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>	<ul style="list-style-type: none"> • <i>Now I'm going to try this problem myself, thinking aloud.</i> • <i>I might make some mistakes here - try to spot them for me.</i> • <i>This is one way of improving the solution.</i>