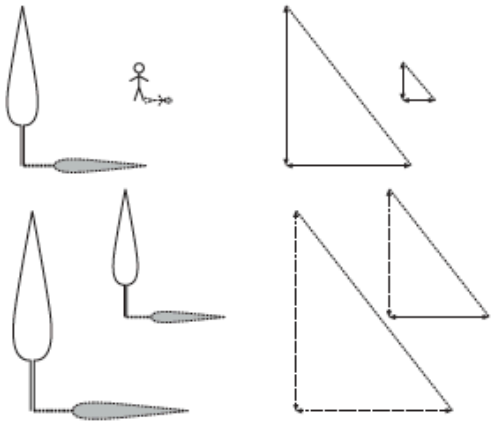
Shadows

This is suggested as an extended plenary to conclude phase 2 of the unit.

Resources: The four resource sheets 'Shadows' will need to be copied on to acetate. You will find these sheets in the school file.

Show 'Shadows 1' which is a sketch of a child, some trees and their shadows. Ask pupils what they notice about the figures and their shadows and how they can tell that the shadows are all cast at the same time of day. Discuss the general question of using the height of the child and length of the child's shadow to establish something about the relationship between the height of each tree and the length of its shadow.

Use 'Shadows 1 overlay' to illustrate the measurements which are known (lengths of the shadows and height of the child) and those which need to be calculated (heights of the trees). For simplicity 'Shadows 1' can be removed and the overlay left in place to minimise distractions in the display.



Use the task as an opportunity to reinforce the strategies which have been developed throughout the unit, namely:

- Write the three known values and the one unknown as a 2-by-2 array and decide which scaling will help find the unknown (using ideas from phase 1).
- Use the multiplier to decide whether the calculation will result in a higher or lower result and also establish about how big the result will be (using ideas from the oral and mental starters).
- Confirm this by reference to the context of the question.
- Use calculators to quickly find the height of each tree and reinforce efficient calculator use (ideas from oral and mental starters).

Show 'Shadows 2', a sketch of the same trees and the same child, and ask what is noticeable about the shadows now. Are any of the relationships from the first situation transferable to this new context? Ask how much information is needed here to calculate the lengths of the shadows.

Use 'Shadows 2 overlay' and the key points described above to calculate the length of the shadow of each tree. Note that part of the picture has deliberately 'fallen off' the sheet. At this stage, relationships are well enough established that it is still possible to find a solution by visualising the complete triangle.