

## Can I solve multi-step problems involving percentages and/or fractions?

### Teaching activity

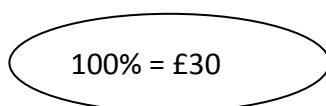
#### Spider diagram to find percentages of amounts

Explain that you are going to practise finding percentages of a given amount.

Tell the children that a pair of trainers normally costs £30 but that there are sales on that are offering percentage reductions in price. You are going to work out different percentages of £30 to find what savings different reductions would give.

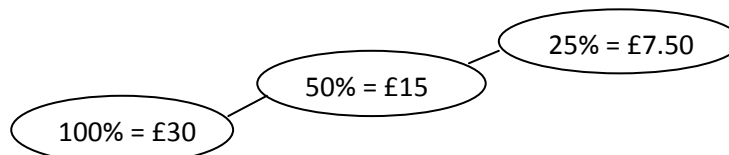
*Q: What percentage is the whole of something?*

Establish that 100% represents the whole of an amount. Record:



*Q: Talk with a partner. What other percentages can you find easily using this piece of information?*

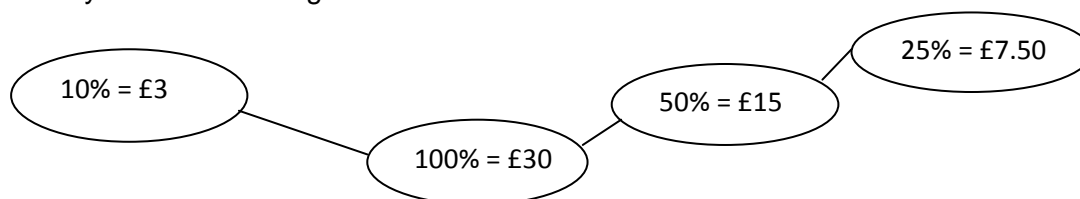
Take suggestions and record these onto the diagram. Ask children to justify their suggestions each time. Make links on the diagram to pieces of information that the children used, for example:



If children do not suggest 10% as a fact, then ask:

*Q: How would we find 10% of the cost?*

Establish that 10% is equal to  $\frac{1}{10}$ . So to find 10% of an amount you need to divide it by ten. Add this key fact into the diagram.



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*Q: If we know 10% of £30, how could you find 20%? What other percentages could you find?*

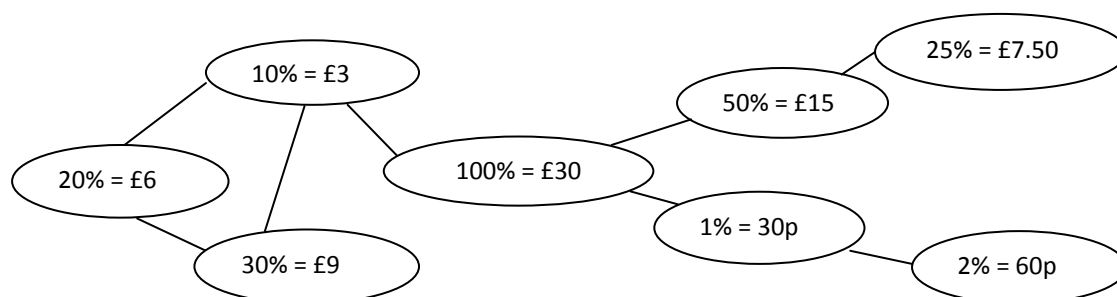
Ask children to talk in pairs and to add some percentages to their spider diagrams. After a minute or two, ask children to share some percentages they have added.

*Q: How would we find 1% of the cost?*

Establish that 1% is equal to  $\frac{1}{100}$ . So to find 1% of an amount you need to divide it by 100. Add this key fact into the diagram.

*Q: If we know 1% of £30, how could you find 2%? What other percentages could you find?*

Ask children to talk in pairs and to add some percentages to their spider diagrams. After a minute or two, ask children to share some percentages they have added.



Bring children back together. Explain that you now have lots of useful percentages on your spider diagrams and that, using these percentages, you could find pretty much any percentage you wanted to.

*Q: Use what you have already found to help you find these percentages. Talk with your partner. You may each have different methods.*

95%

23%

19%

81%

Give children time to work in pairs. They may wish to record straight onto their existing spider diagrams or to record separately. Encourage them to record the steps in their methods.

Once children have had enough time, bring the group back together. Share alternative methods for finding each of these percentages. Look for methods that are particularly efficient, for example finding 95% by taking 5% from 100%.

Finish off the session by asking:

*Q: If you had to find 15% of a particular amount, how would you go about doing this?*

Give children a while to talk in pairs before sharing suggestions.

*Note:* A similar approach can be taken to finding fractions of amounts.