

Washing machines

BRIEF

'Washing machines' involves the children in looking at the relationship between the number of programmes available with different washing machine models and the number of features they have. The children need to decide on a way of organizing and presenting their findings so that they can recognize any patterns in their results. This can then lead on to predicting the number of programmes from different combinations and generalizing for any number of options.

Key maths links

- ▶ Reasoning and generalizing about numbers
- ▶ Number sequences
- ▶ Solve mathematical problems and explain patterns and relationships

Thinking skills

- ▶ Generating and extending ideas
- ▶ Applying imagination
- ▶ Exploring alternative outcomes

Language

investigate, pattern, calculate, predict, rule, formula, relationship, factors

Resources

PCM 13 (one per pair and/or enlarged)

PCM 14 (one per pair)

1 Setting the scene

Explain that you saw an advert for a new washing machine that boasted 1000 different programmes - more than enough for most types of washing! Spend some time brainstorming or mind-mapping the possible features that a washing machine might have. Give out or display PCM 13 and look at Model A. Explain that this is the basic model in a range of washing machines. Ask the children how many different possible programmes there are altogether. Discuss ways of tackling this problem. Ask them how they could show this in a diagram or chart. Repeat this for Model B. Review the different approaches and discuss which would be easy to extend if there were more options (for features or washing machines).

2 Getting started

Ask the children to work in pairs and to look at Models C and D. You want them to investigate the number of possible programmes for each model, and to record this so that the results are clearly displayed. Ask them to think about other models. What if ...

- ▶ there were 4 temperatures and 3 spin speeds?
- ▶ there were 5 temperatures, 2 spin speeds and 2 rinses?

Can they find a quick way of calculating the answer for any model?

The children then need PCM 14 to design their own machines with an advanced range of features. They need to label their machines, listing the features. Ask them to work out the number of possible programmes for their machines.

Simplify

Give the children a different range of washing machines so that there are always 2 spin settings and an increasing number of temperature choices. The approach to solving the problem of the number of programmes is then much more systematic and more organized for the children.

Challenge

Ask the children to make one of their washing machine designs have 1000 possible programmes, like the advert. *What range and number of features can give exactly 1000 combinations?*