Types of enquiry: fair and comparative (KS1 & KS2)

The new science curriculum puts working scientifically at the heart of primary science and there's increased focus on children learning to work as scientists rather than just acquiring scientific knowledge.

Fair and comparative testing are working scientifically skills that need to be developed in primary school. A video summarising the new curriculum is also available.

Ogden primary curriculum resources can be found on the Ogden website: www.ogdentrust.com/resources.

Transcript

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Making Physics Matter
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Fair tests and comparative tests are really similar types of enquiry. They've got lots in

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common but there are some significant differences. Things that they have got in common, is both types of

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enquiry involve one variable being changed, another being measured, and other variables being kept

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the same so they don't affect your findings. But the big difference is that the data you

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generate from a comparative test would lead to a bar chart, whereas the data you get from a fair

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test would always lead towards a scatter or line graph. Examples of big questions for a comparative

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test are: which material is best at blocking UV light; which magnet is the strongest; or which soil

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is best at holding on to water. These all involve children keeping a number of variables the same -

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their control variables. There is one variable that they change, for example the type of magnet or

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the material, and then you're measuring a feature of that material. The kinds of big questions that

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you can answer using a fair test, are: how does the amount of water affect how much salt can dissolve;

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how does increasing the voltage in a circuit affect the brightness of the lamp or a volume

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of the buzzer; or how does the length of a paper rocket affect how far or how high it will travel?

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In each case here, you have one variable that you change - your independent variable - one variable

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that you measure - your dependent variable - and a number of other variables that will

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be controlled and kept the same so they don't affect your results. Comparative and fair tests

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are a great opportunity for children to work on their measuring skills. They'll be looking at how

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to measure accurately and, as they get older, using more and more accurate and complicated

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equipment. As we help support them in becoming better scientists, we'll be teaching children to

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repeat their measurements to check that they're reliable and then their experiment is repeatable.

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When reporting their findings from comparative tests and fair tests, children will be able to get

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experience in doing more formal reporting with subtitles and also to include lots of detail

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in their writing so that somebody reading their method, for example, could follow the instructions and

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repeat their experiment. We've tried to encourage lots of detail going into our conclusions as part

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of the report, where children start by making their point - what is their answer to the big

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question - but then go on to describe what evidence they've got to support that. Children follow the

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PEE model and as they move into Year 5 and 6 we try and develop those into paragraphs. So, for

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P, the children would write a whole paragraph making their point - what is their answer to the

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big question; in their second paragraph - their E paragraph - they'll describe all the evidence that

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they have got to support that conclusion referring to graphs, tables and any calculations that they've

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made; and finally, using scientific ideas to explain what they've found out, demonstrating

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their own understanding and being really clear on what they've discovered through the enquiry.

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