Examples of different Types of Enquiry recorded in Floorbooks

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What do we mean by type of enquiry?

Over the course of an academic year, children will carry out several investigations which involve different types of enquiry approaches:

- observation over time
- identifying and classifying
- pattern seeking
- research
- comparative and fair testing

Not all scientific questions can be answered using the same scientific methods. For example, children can explore how the population of a particular species changes through the seasons by ‘observing over time’. Alternatively, to find out whether ladybirds are the most common insect in the school grounds, the children would be surveying all insects and ‘identifying and classifying’. Of course, children may wish to find out whether ladybirds are the most common insect all year round and need to carry out their survey several times. In this situation, the children are 'pattern seeking'.

Teachers should be clear about which type of scientific method is most appropriate for answering the question (there might be more than one way to do this) and provide opportunities for children to experience all the different types of enquiry methods in science. However, it is not essential that children can name these types of enquiries.

It is important to consider that some children will be able to explain their science investigations orally but may struggle to present their work in written form. We suggest that all types of science enquiry can be recorded by the teacher in a floorbook.

The following sections show examples of different types of science enquiry carried out by children and recorded by teachers in floorbooks.

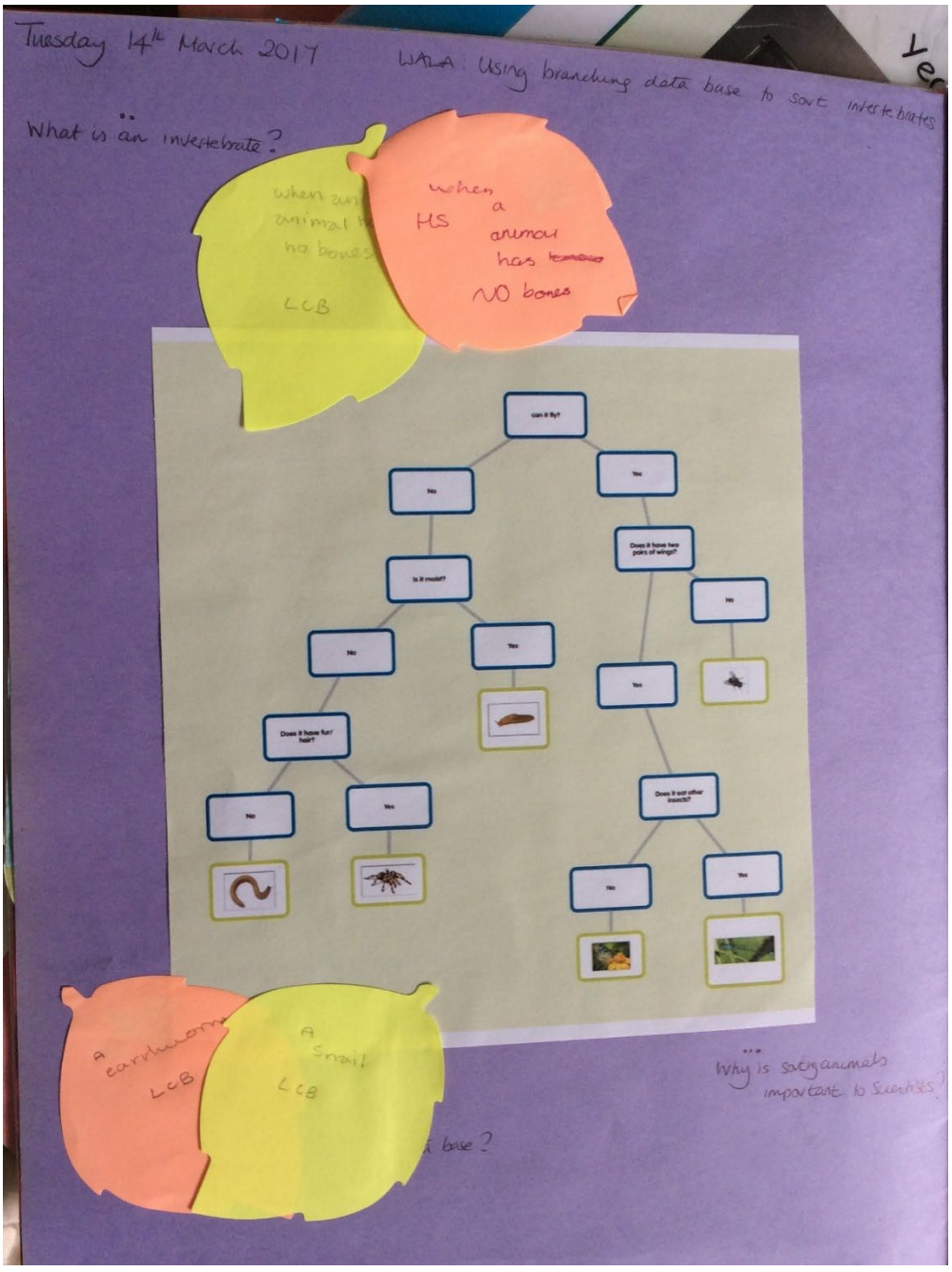
Observing over time

Children observed coloured ice cubes over time. The teacher took photographs at intervals. The children were asked to comment on what they saw and this could be part of a whole-class discussion. Some were asked to write their thoughts on a sticky note. Teachers might consider doing this to capture the thoughts of the 'non-utterers' in their class.

Identifying and classifying

These children worked in pairs, using 'Popplet' (an App which helps students think and learn visually). They were learning how to create a branching database / tree diagram to classify invertebrates. On this occasion, the teacher chose one good example to put in the floorbook so the class are able to use the classification key for further work and to refer back to.

After the lesson, the teacher added differentiated questions (one dot/two dot/three dot questions). The sticky notes are the children's responses to these questions.



Pattern seeking

The topic being taught here was keeping healthy, with children aged 7-8 years. This lesson was about muscles. The teacher elicited from the children the question, 'Does doing lots of sport make you fitter?' The class discussed how they could answer this question: compare the number of hours sport completed per week against the number of star-jumps they could carry out without stopping.

The teacher drew the graph directly on to a large piece of paper and the children shared their results. This ensured that all the children are involved in the recording process and were able to access the learning which is looking for a pattern (rather than plotting a graph).

The class then discussed the reliability of the results: the children realised the unlikelihood of someone doing 600 jumps! This prompted further discussion about a possible pattern and how to improve the data. During the discussion the teacher wrote some of the children's ideas on sticky notes and kept these and the graph in the floorbook.

Teacher's Question:

Did the people who did the most sport do the most jumps?

Children's initial comments:

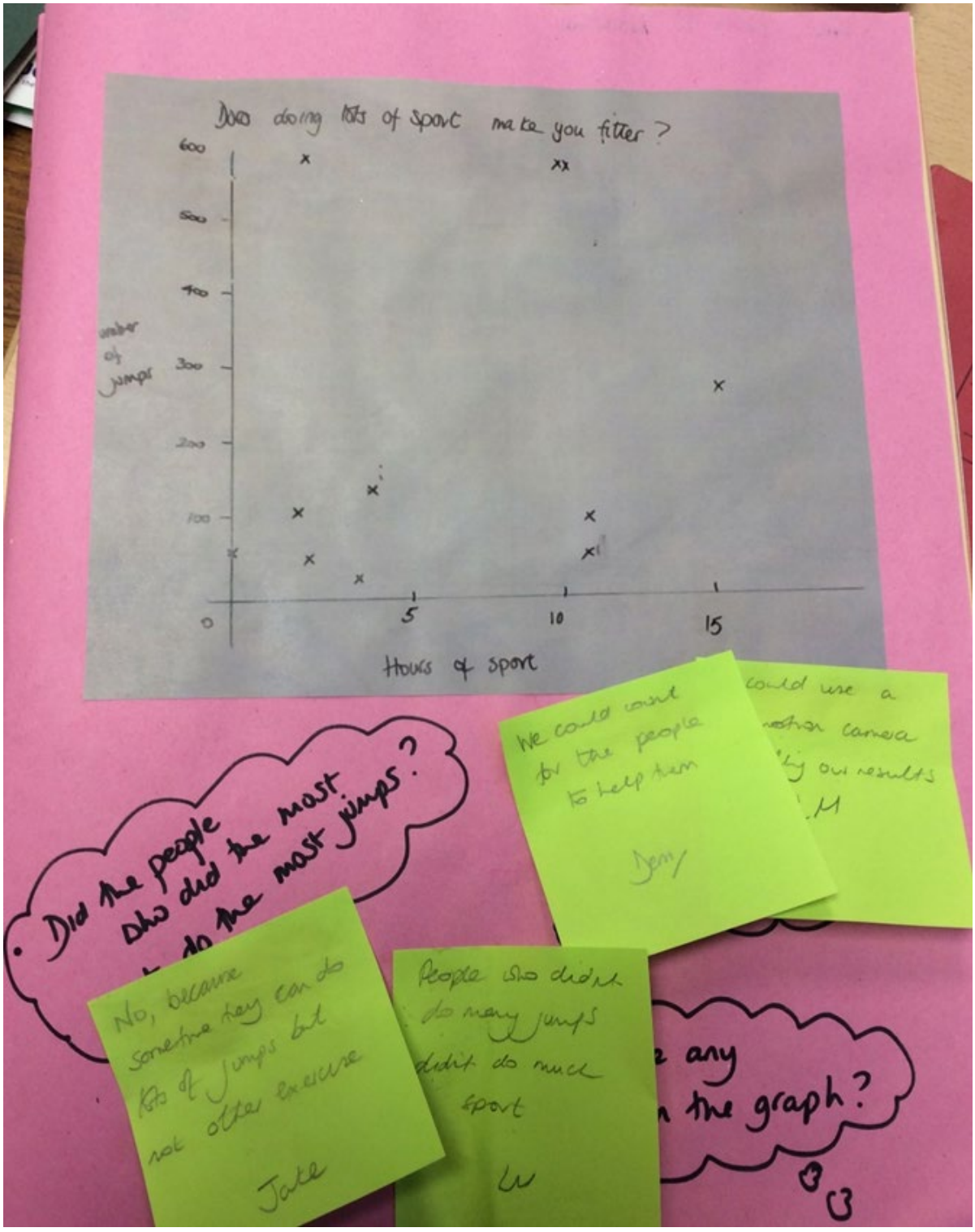
'No, because sometimes they can do lots of jumps but not other exercise.'

'People who didn't do many jumps didn't do much sport.'

Suggested improvements:

'We could count for the people to help them.'

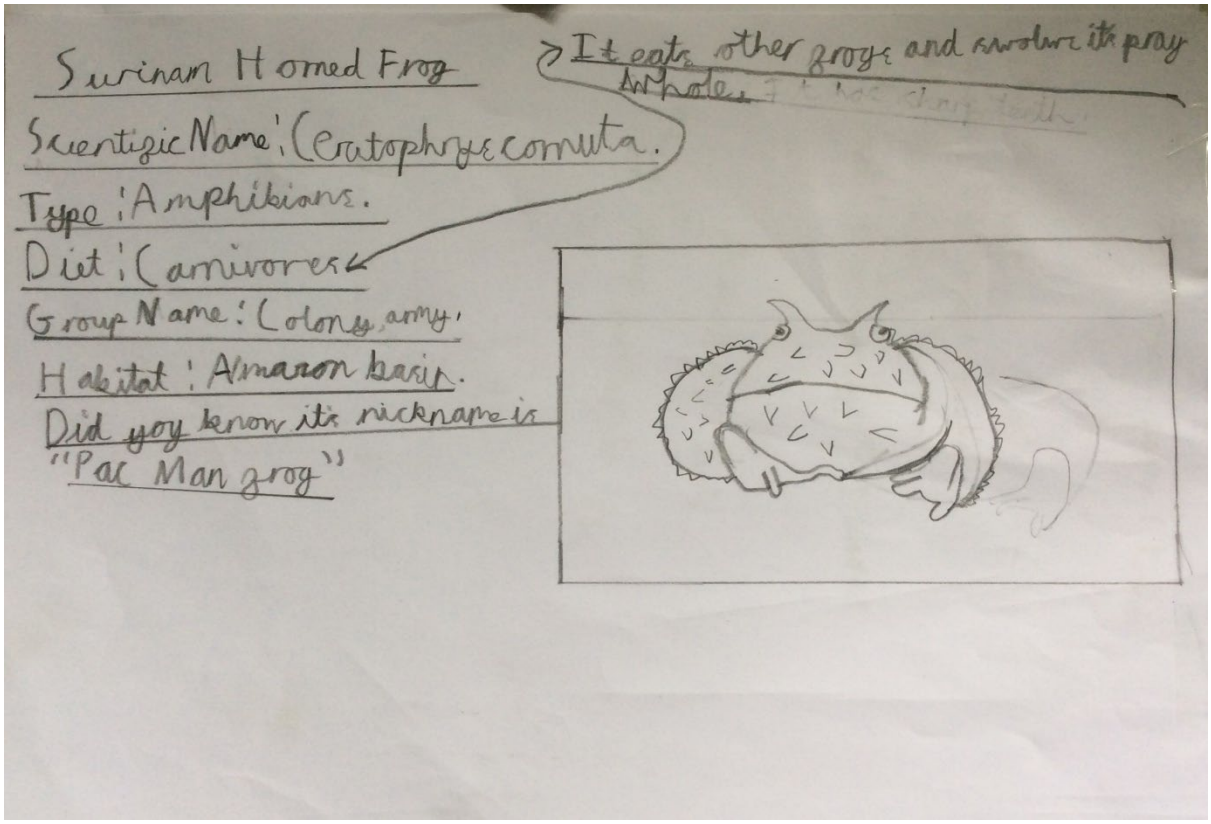
'We could use a slow-motion camera for filming our results.'


Does doing lots of sport make you fitter?
600
500
400
300
200
100
0
number of jumps
5
10
15
Hours of sport
Did the people who did the most ... do the most jumps?
We could count for the people to help them
Jem
could use a ... camera ... our results
No, because some they can do lots of jumps but not other exercise
Jake
People who didn't do many jumps didn't do much sport
... any ... the graph?

Research

These children were asked to choose an animal that they were interested in and research it. They were given some specific criteria to find out. The outcome of the lesson was to recognise the diverse diets of different animals around the world.

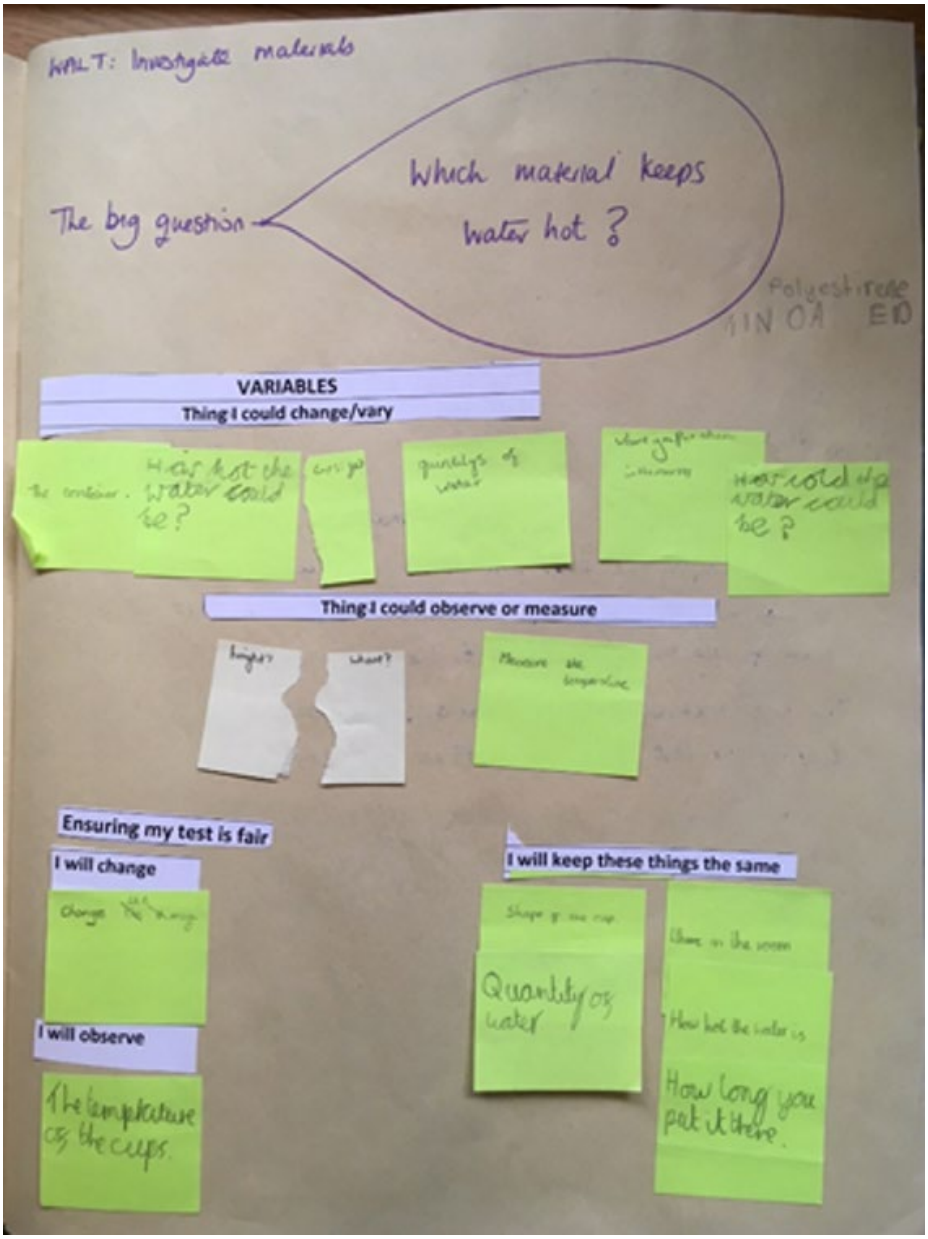
This is one of a selection of children's examples the teacher put in the floorbook.



Comparative and fair testing

This is an example of a fair test investigation with a class of 9-10 year olds. The lesson started with a discussion about how horrible it was to drink cold tea. The children agreed to investigate the question, 'Which material keeps water hot?'

Before the lesson, the teacher had prepared the subheadings which she used with the whole class to scaffold the children's thought processes. For each subheading the children discussed their ideas in pairs, then shared their ideas with the class and some of the children were asked to put their ideas on sticky notes so that the teacher has a record of the class considering which variables they need to control in their investigation.



These children were investigating what plants need to be healthy. The teacher asked, 'What do you think will make our plants grow well?'

The children discussed this in pairs and some wrote down their ideas on sticky notes, providing evidence that they can identify the variables that will affect seed germination in their experiment.