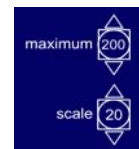# ICT activities – Can I work out the whole, having been given the fraction?

Teaching activity using Measuring cylinder ITP

Set up the ITP without the children seeing.

- Click on the arrow buttons to change the maximum to 200 and the scale to 20.

- Click on the numbers inside the circles to hide them.

- Hide the numbers on the measuring cylinder by clicking on [img] .

Once the ITP is set up, if you want to minimise it, press the Esc key.

Tell the children that you are going to put some liquid into the measuring cylinder. Explain that you want them to work out how much the cylinder holds when it is filled to the top mark.

- Click on the circle on the stopcock.

- This reveals a counter. Click on the arrows so that the counter shows 60.

Q: We are going to put 60 ml into the measuring cylinder. Do we know how much of the cylinder this will fill?

Establish that you cannot know because the cylinder has no numbers on its scale.

- Click on the oval handle of the stopcock.

The liquid will pour into the cylinder. It will automatically stop when 60 units has been poured in.

Remind children that you poured in 60 ml.

Q: We are saying that the cylinder is full when it is filled to the top mark. What fraction of the cylinder is now filled with liquid?
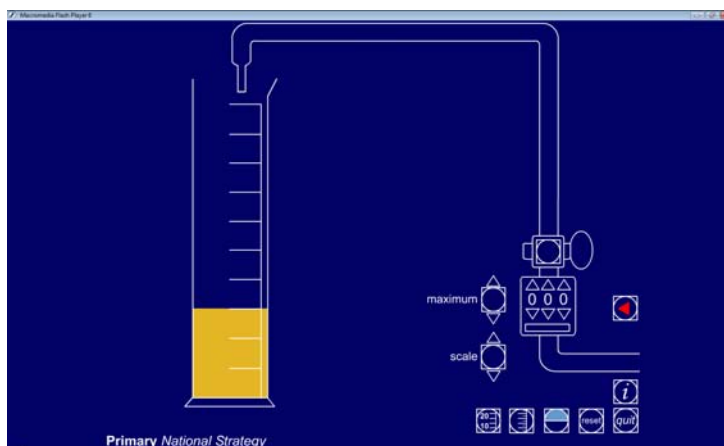
Establish that three out of the ten intervals are filled, therefore $3/_{10}$ of the cylinder is filled. Record: $3/_{10}$ of the cylinder holds 60 ml.

Q: So $3/_{10}$ of the cylinder holds 60 ml. What would $1/_{10}$ of the cylinder contain?

Ask a child to explain their answer and how they reached it. Record: $1/_{10}$ of the cylinder holds 20 ml.

Q: How much will the whole container hold? Talk with a partner and discuss how to find your answer.

Take feedback. Agree that ten tenths make one whole. The whole cylinder will therefore hold 20 ml **×** 10, that is, 200 ml.

- Reveal the numbers on the measuring cylinder to check by clicking on

Q: Who can summarise the steps we took to work out how much the whole measuring cylinder holds?

Repeat using different maximum and scale values and changing the amount of liquid poured into the cylinder.

Teaching and learning activity using Pie chart spreadsheet

This program creates random pie charts which are set to show three or four sectors. The sectors will represent $^1/_8$, $^1/_4$, $^3/_8$, $^1/_2$, $^5/_8$ or $^3/_4$ of the circle. Click on the 'New pie chart' button to create a different chart and reset the worksheet.
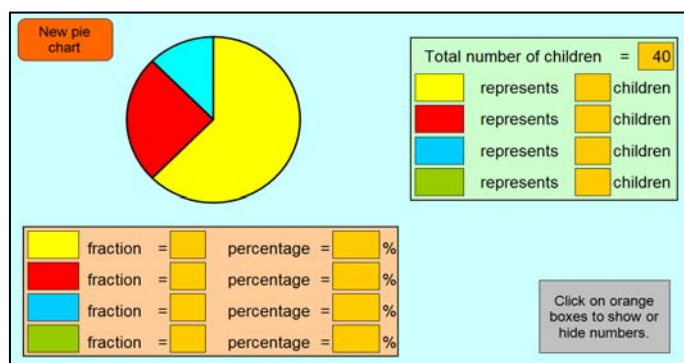
In order for the spreadsheet functions to work properly, you will need to enable Macros to run. This may mean changing your Macro security settings.

- Reveal the Total number of children by clicking on the orange box.

Explain that some children were involved in a survey and this pie chart shows the results. You may wish to discuss possible scenarios for the survey.

Q: How many children responded to the survey?

Q: What fraction of the pie chart is yellow? What fraction of the children does this sector represent? How many children is this?

Ask the children to discuss the above questions in pairs, and ask a pair to explain their reasoning to the class. Click on the orange buttons to check amounts suggested.

Q: What other information do we know from the pie chart? Discuss your ideas with a partner.

Take feedback and collect as much information as possible from the pie chart. Check fractions, percentages and numbers of children by clicking on the appropriate orange boxes.

- Reset the worksheet using the 'New pie chart' button.

- Reveal the number of children represented by the yellow sector.
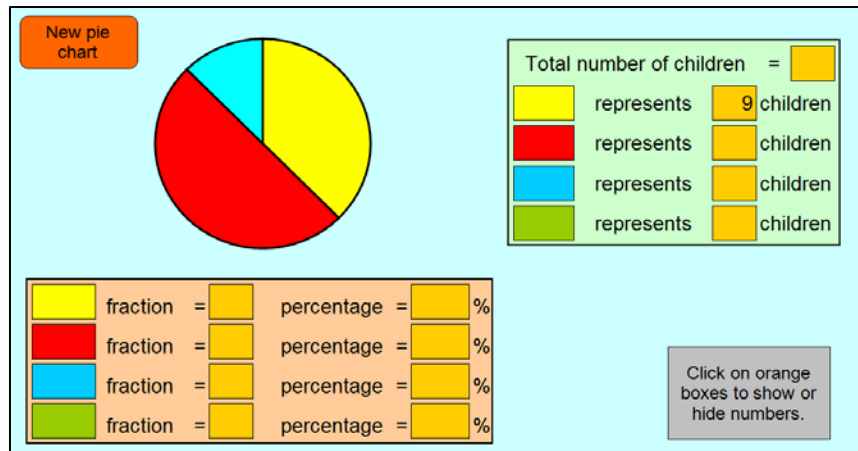
Q: What other information can we work out using this one piece of information? Talk with your partner.

Take examples from different pairs. Ask children to explain how they worked out each piece of information. For example, in the example above, children might say that the fraction of the pie chart that is yellow is $3/8$. Alternatively, they might explain that the yellow sector, which is $3/8$ of the pie chart represents nine children, so the blue sector, which is only $1/8$, must represent $9 \div 3$, that is, three children.

Ask children to listen carefully to one another's reasoning and to ask questions or comment. Together work out all of the pieces of information and check by revealing the numbers in the orange boxes.

Repeat the activity with one or two different charts.

Then, show another new chart that reveals the number of children represented by one colour.

Q: Use this information to find the total number of children involved in the survey. Discuss your method with a partner. Jot down any steps that you take.

Take feedback from several pairs and compare methods.

Children could continue to use the program in pairs.