Displaying and Understanding Data

Below please find a lesson plan by Paul Sutton of Ingham State High School, Queensland Australia. This lesson is an adaptation and summary of a lesson called "This goes with this." Published in the 'Mathematics Curriculum & Teaching Program' (MCTP), Curriculum Corporation, Melbourne, 1988 available at http://www.curriculum.edu.au . It is one of the best introductions on how to interpret simple statistics that I have seen. Easy to put into practice in the classroom and targeting the year 6 key objective of *'Solve a problem by extracting and interpreting information presented in tables, graphs and charts.'* It involves the pupils in doing simple surveys and underlines the key concept of using a variety of representations of the data. A number of the questions from CensusAtSchool could be used for the pupils' surveys and this would enable you to go on and compare their results with others across the UK and Queensland.

An Introduction to Statistics

Lesson Plan:

Write a few mystery fractions on the board (8/27, 7/27, 5/27, 4/27, 3/27) and ask students what they are and what they might mean. The discussion (with clues) goes rapidly from "fractions" to "information" to "survey results" to "food", "ice cream", "favourite ice cream flavours" YES! You can now debate which flavours and get this list.

Chocolate 8/27, Vanilla 7/27, Strawberry 5/27, Caramel 4/27, Other 3/27

Help students represent the data on strip of cardboard about a metre long. Using 3cm of cardboard for 1 person in the survey, it will look something like this:

Vanilla 21cm
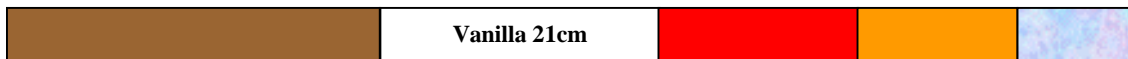
Bend the cardboard strip into a circle so that the end of "Other" aligns with the start of "Chocolate". Fasten the overlap. Place it on a large sheet of paper and trace around the circle. Mark in the lines between segments of the line graph. Join these segments to the approximate centre of the circle to make a circle (pie) graph from the data.

Now comes the good bit. You need a string of 100 beads (1cm diameter wooden beads are good - I would not recommend Granny's antique pearl necklace as the kids love to play with the beads). Place the ring of beads around the circle graph from above. You might have to extend the rays from the centre to intersect with the beads. Count the number of beads that fall in each segment. This is the percent of people liking "Chocolate" etc.

Having done this many times, I am always surprised at how accurate these percentages turn out to be given the roughness of the technique.
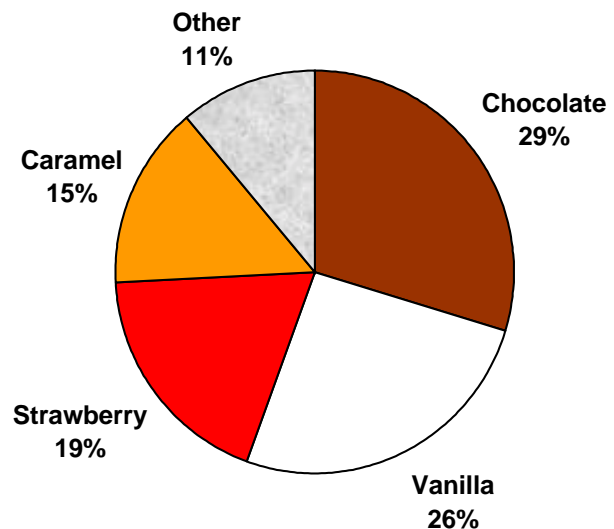
The above is teacher led, now for the children!

Each group of about 4 students then develops their own little survey question with 5 or 6 responses. Keep it simple and put multiple copies across a strip of paper like this:

How I came to school today Car Bus Walk Bicycle other	How I came to school today Car Bus Walk Bicycle other	How I came to school today Car Bus Walk Bicycle other	How I came to school today Car Bus Walk Bicycle other
My favourite fast food is Burgers Fish & chips Indian Chinese other	My favourite fast food is Burgers Fish & chips Indian Chinese other	My favourite fast food is Burgers Fish & chips Indian Chinese other	My favourite fast food is Burgers Fish & chips Indian Chinese other

Etc.

Several surveys can be added down the page so that when it is photocopied, it can be cut into vertical strips containing one copy of every survey for each student.

Students respond by circling their answer on each survey and cutting the strip up into individual surveys. At the front of the room is a set of cups labeled with the name of each survey "Travel", "Fast Food" etc. Students drop their completed survey into the appropriate cup. This is an efficient easy way to do several surveys.

The group who created the survey collects their cup and analyses the data as fractions, line graph, circle graph and percentages following the teacher model as described above.

Students can present their work as a poster containing the various representations of the data and give a verbal report of what they found.

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