

What are we eating?

Purpose:

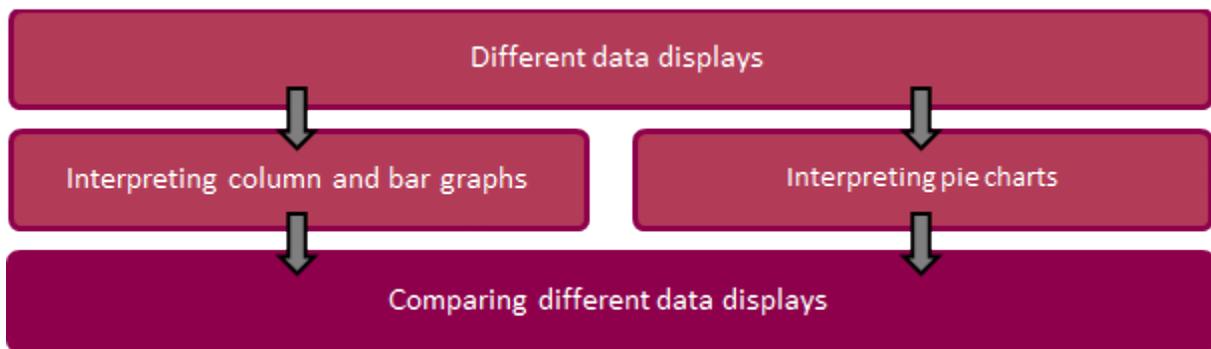
The purpose of this activity is to engage students in discussion, evaluating the effectiveness of different data displays in presenting the findings of a statistical investigation.

Achievement Objectives:

S3-2: Evaluate the effectiveness of different displays in representing the findings of a statistical investigation or probability activity undertaken by others.

Description of mathematics:

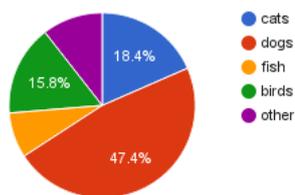
The background knowledge and skills that should be established before and/or during this activity are outlined in the diagram below:



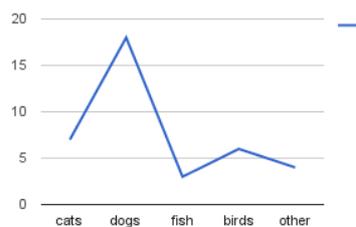
Different data displays

Label each of the following as bar graph or column graph or line graph or pie chart.

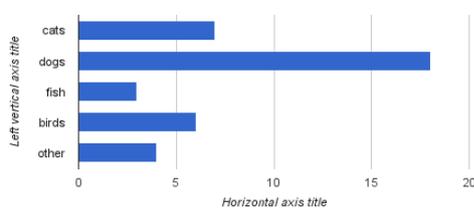
Pets



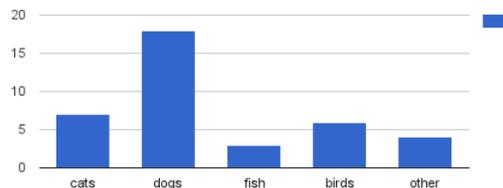
Class Pets



Class Pets

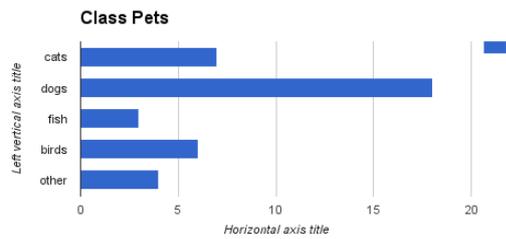


Class Pets



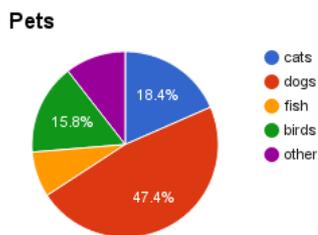
Interpreting column and bar graphs

How many pets are there, within the class, that are neither cats nor dogs?



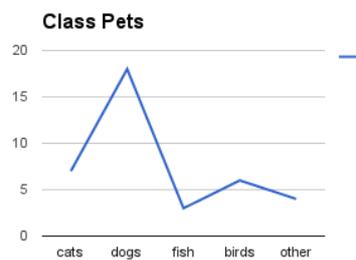
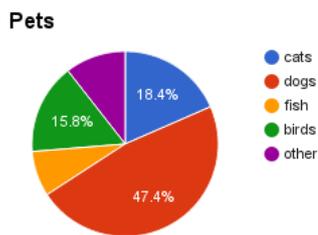
Interpreting Pie Charts

What percentage of the pets within the class are fish or birds?



Comparing different data displays

Which graph best shows that nearly half the pets are dogs?



This activity may be carried out with step by step guidance, or by allowing the student to follow their own method of solution. The approach should be chosen in sympathy with students' skills and depth of understanding.

Activity:

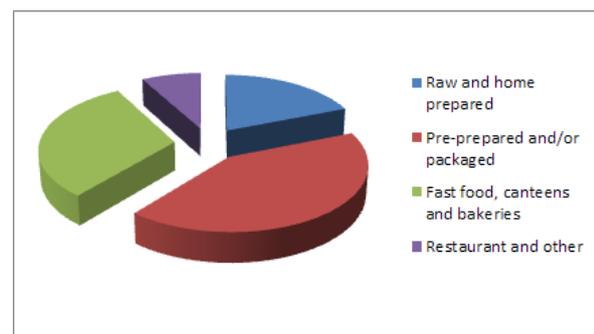
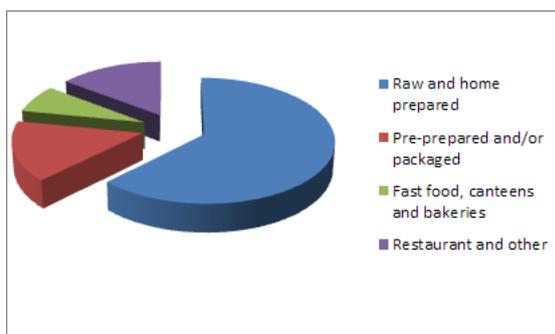
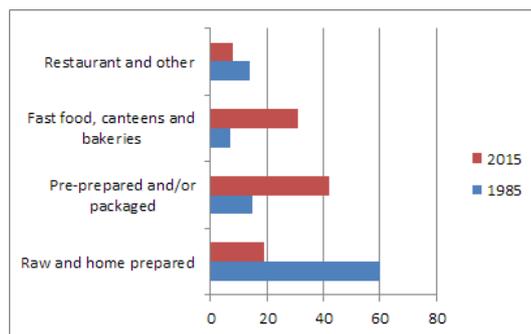
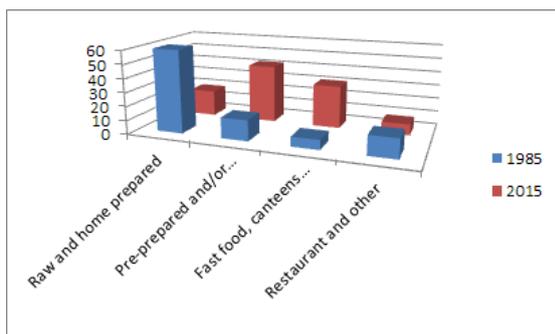
A reporter is writing an article about how our eating habits have changed over the past thirty years.

She looked at what types of food people typically consumed in 1985 and in 2015.

Her results are shown in the table and graphs below. The graphs have not been labelled yet, but will be when the article is complete.

If she arguing that nowadays we are less aware of what we are eating, which type of graph will be the most powerful to support her article? Give reasons for your choice.

Type of Food Consumed (by weight)	1985	2015
Raw and home prepared	60%	19%
Pre-prepared and/or packaged	15%	42%
Fast food, canteens and bakeries	7%	31%
Restaurant and other	14%	8%



The procedural approach

The student is able to identify aspects of different data displays and use these to compare the effectiveness of the displays at conveying a message.

Prompts from the teacher could be:

1. Consider how clearly each of the graphs display the data. Label each graph as good, bad or not sure.
2. Consider how clearly each of the graphs show the most common type of food consumed in 1985. Label each graph as good, bad or not sure.
3. Consider how clearly each of the graphs show the most common type of food consumed in 2015. Label each graph as good, bad or not sure.
4. Consider how clearly each of the graphs show the change in eating habits over the 30 years. Label each graph as good, bad or not sure.
5. Make the call as to which type of graph, the reporter should use to support her article.

	Good	Bad	Not Sure
1.	Bar	3D Column	Pies
2.	Bar, Pies		3D Column
3.	Bar, Pies		3D Column
4.	Bar, 3D Column		Pies
5.	The bar graph is best to support the article (even though the pie charts look better).		

T: This is interesting here, how you say you think the pie charts look better.

S: Yeah, they look like more work has gone into the research. There are two of them to compare and they are more impressive looking.

T: But...?

S: But, the bar graph is the easiest to read.

The conceptual approach

The student is able to evaluate the effectiveness of the displays at conveying a message.

Prompts from the teacher could be:

1. Look at the data and think about what the reporter is going to say about our changed eating habits.
2. What, in your opinion, is the main change?
3. Look at the graphs. Try to decide which graph best shows this main change in our eating habits.
4. Are there any aspects of the graphs that need to be fixed or altered to make the message clearer?

T: The message you have written for the article is very strong. How did you come up with this?

S: Well, raw stuff like an apple or a carrot, we know what we are eating, and also things cooked at home. But everything else could be a mystery.

T: And you've used the word "most".

S: Because that's when there is more than half.

T: And how did you recognise more than half?

S: It's when there is more than 50% because that's the same as half.

Article will say 1985 most of what we ate
we knew what was in it
2015 most of what we ate
we didn't

The pie charts could show ^{best} this if
they get labelled better and if
the red+green+purple are made
into a similar colour.

T: Tell me about the idea of changing the colours of the pie chart.

S: Well, we really just care about the blue bit for the article, so all the others need to be lumped together so we can say in 2015 most of the eating wasn't blue.