

Books vs Bean Bags? Part iii

Purpose:

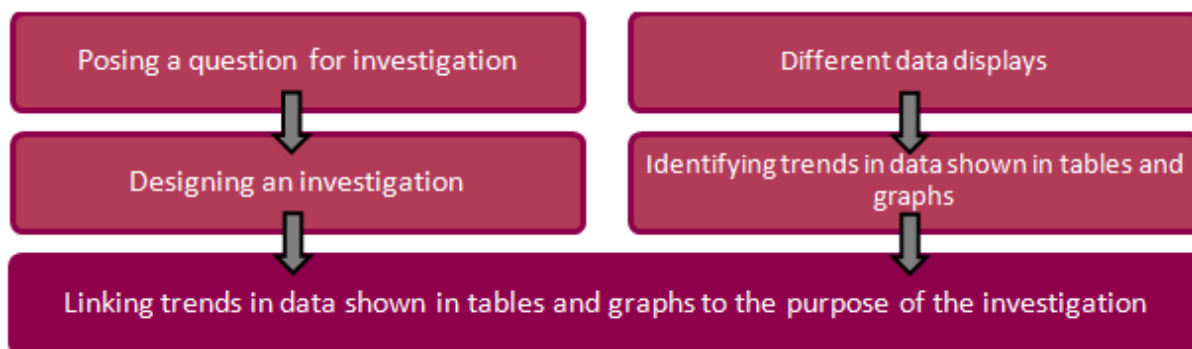
The purpose of this activity is for students to examine data displays, identifying and expressing features and/or trends in context.

Achievement Objectives:

S3-1: Conduct investigations using the statistical enquiry cycle: gathering, sorting, and displaying multivariate category and whole-number data and simple time-series data to answer questions; identifying patterns and trends in context, within and between data sets; communicating findings, using data displays.

Description of mathematics:

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



Posing a question for investigation

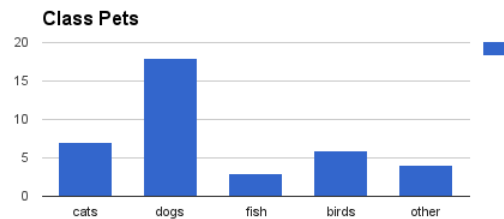
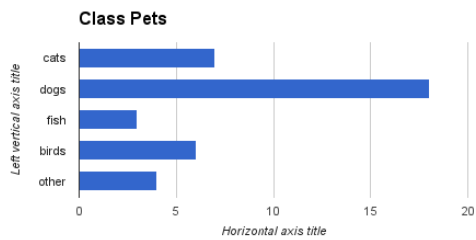
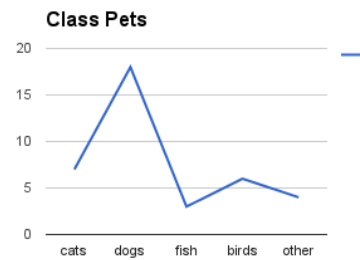
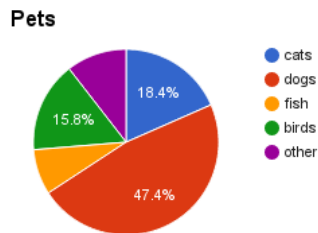
A student wants to find out how many people in her class drink at least one glass of milk per day. Write this as a question for investigation.

Designing an investigation

A student wants to find out what people in her school drink in a typical day. Plan a suitable investigation for the student, including the sample to be surveyed, the questions to pose and how this will be carried out.

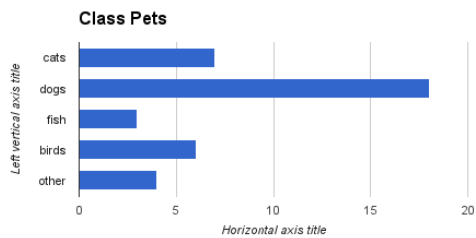
Different data displays

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



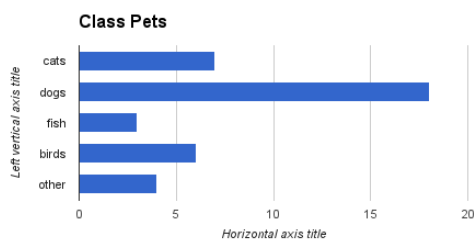
Identifying trends in data shown in tables and graphs.

What are the most popular pets, within the sample surveyed?



Linking trends in data shown in tables and graphs to the purpose of the investigation.

A student wanted to find out whether there were more cats than dogs as pets? They surveyed the class and showed the data collected on a bar graph. Use this to suggest findings for the investigation.

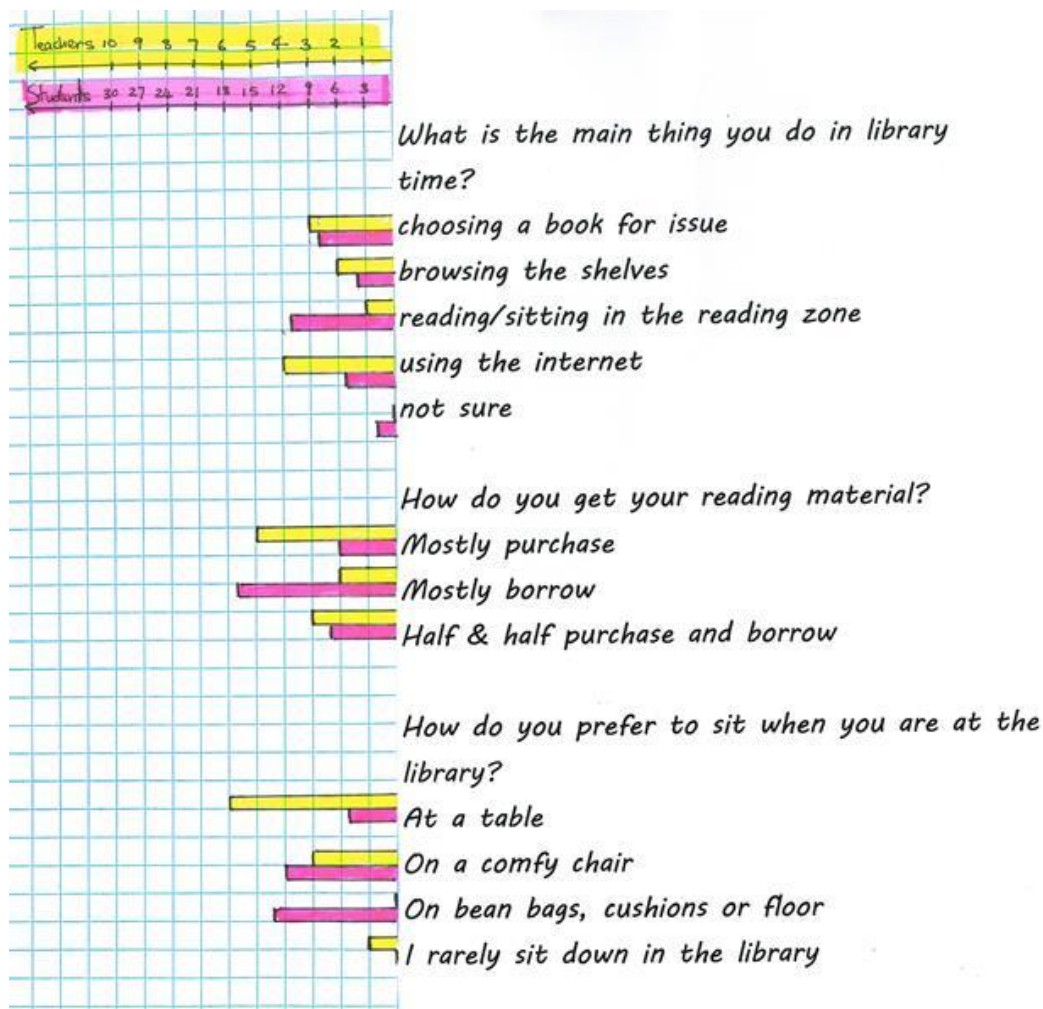


This activity may be carried out with step by step guidance, or by allowing the student to follow their own method of solution. The approach should be chosen in sympathy with students' skills and depth of understanding.

Activity:

A year 5 & 6 class has been told that the school is going to upgrade the school library. The class investigated the question 'How do People Use the Library', surveying students and teachers from their school.

One of the students in the class came up with this set of bar graphs showing the results of the survey.



Use this display of data to highlight the key findings of the investigation, which will give recommendations for the school as to how they should spend their library upgrade budget.

The procedural approach

The student is able to identify patterns and trends shown in the data displayed and use these to summarise the findings of the investigation.

Prompts from the teacher could be:

1. Read the labels and scales of the graphs to familiarise yourself with what the graphs are showing.
2. For each graph, summarise the key features. These may be the peaks in the data.
3. Consider how the key features you have summarised, can help the school to decide what to spend their library budget on.

The image shows a handwritten note on a rectangular background. The note is organized into sections with headings: 'Results', 'Main library activity', 'Type of Book', 'Seating', and 'What doesn't need money'. Each section lists items for 'Students' and 'Teachers' with an 'x' mark next to the teacher's item. To the right of the note is a red speech bubble containing a dialogue between a teacher (T) and a student (S). The dialogue discusses the 'x' marks in the notes, specifically the teacher's internet use and book buying habits.

Results

Main library activity

Students - sitting and reading
Teachers - internet x

Type of Book

Students - borrow
Teachers - buy x

Seating

Students - bean bags
Teachers - tables x

What doesn't need money x

So spend on books the students like
and more bean bags.

T: Tell me about these crosses. Why don't these things need money?

S: Well, the teachers use the internet but they already have the internet. They sit at the tables, which are there now and they buy their books.

T: They all buy their books? Really?

S: Oh no, it's just the most popular but some still borrow. Okay - take that cross off.

The conceptual approach

The student is able to identify key features of the data displayed and use these to summarise the findings of the investigation.

Prompts from the teacher could be:

1. Consider the aim of the investigation.
2. Look at the graphs and think about the data they are displaying.
3. Are there any clear trends shown in the data displays, that contribute to the aim of the investigation?
4. Are there any other aspects of the results displayed that could contribute to the aim of the investigation?

The phrase "tend to mostly" gives validity to the conclusion of the results. The peaks for this group across the three categories are listed.

tend to mostly
School kids ^{tend to mostly} borrow books and read them in the library sitting on comfy chairs and bean bags.

The money raised for the school library is about how the kids use the library so they should spend the money on more comfy seating and bean bags and on new books for borrowing.

If the teachers had just decided what to do with the money they might have spent it on ipads and desks because that's what they tend to use in the library.

The context of the investigation has been used to form the basis for the recommendation.