

Changing Rooms

Purpose:

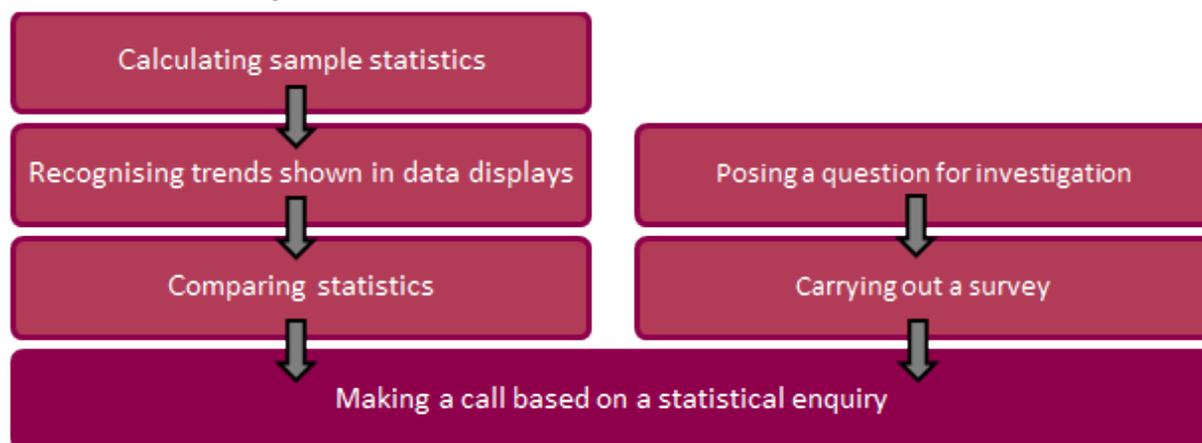
The purpose of this activity is to engage students in carrying out a statistical investigation, from posing a question through to carrying out a survey to using their findings to making a recommendation.

Achievement Objectives:

S4-1: Plan and conduct investigations using the statistical enquiry cycle: determining appropriate variables and data collection methods; gathering, sorting, and displaying multivariate category, measurement, and time-series data to detect patterns, variations, relationships, and trends; comparing distributions visually; communicating findings, using appropriate displays.

Description of mathematics:

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



Calculating sample statistics

Find the mean and the range of the following:

32 33 45 46 48

Recognising trends shown in data displays

Josie earns her pocket money by helping out with housework. Her earnings over the past nine weeks are shown in the table below. Comment on any trends that are shown in the data.

Hours	3.5	2.8	2.9	2.5	2.4	2.0	2.0	2.1	1.5
Pay (\$)	17.50	14.00	14.50	12.50	12.00	10.00	10.00	10.50	7.50

Comparing statistics

In a year 7 class, heights range from 145 cm to 168 cm, with a median of 151 cm. The year 8 class in the next room has a range of heights from 143 cm to 174 cm with a median of 153 cm. Which year group has the greatest range of heights?

Posing a question for investigation

Josie wants to know what is the average allowance (pocket money) that students at her school receive. Pose the question for her to investigate.

Carrying out a survey

Survey your class to find the average shoe size for boys and the average for girls.

Making a call based on a statistical enquiry

In a year 7 class, heights range from 145 cm to 168 cm, with a median of 151 cm. The year 8 class in the next room has a range of heights from 143 cm to 174 cm with a median of 153 cm. Use this information to say if you can make the call as to whether year 8 students in this school tend to be taller than year 7 students? (...and do they tend to be taller?)

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 8 class is moving into the new prefab classroom.

The teacher has been allowed to furnish the room as she wants, so she decided to base her plan on feedback from the class on how students today tend to work best.

Using your own class as a representative sample, carry out a statistical investigation as to what sort of furniture and/or layout suits students best for learning.



The procedural approach

The student is able to pose a question, carry out a statistical investigation and use their findings to make a recommendation.

Prompts from the teacher could be:

1. What does the teacher need to find out?
2. What could you find out from your own class that would help advise this teacher?
3. Pose a question to investigate.
4. Identify the categories of data you will be recording in your survey.
5. Survey your class.
6. Look at your data, you may wish to sort or to graph it, and identify any trends.
7. Give a recommendation to the teacher.

I'm finding out about... what we like best for
classroom furniture for working

My question is..... what is your favourite way to
work at school

What will I record?

types of working styles and
how many choose each one

on the mat		6	
desks in groups		6	
desks in pairs		5	
the reading corner couch		8	
don't know		2	

What does the data tell me? the couch is the
favourite but each of the other
options were popular.

What I found out..... we'd need more couches
and a smaller mat space
and the desks to get mixed
up groups and pairs

The conceptual approach

The student is able to pose a question, carry out a statistical investigation and use their findings to make a recommendation that incorporates the context of the problem.

Prompts from the teacher could be:

1. What does the teacher need to find out?
2. What could you find out from your own class that would help advise this teacher?
3. Pose a question to investigate.
4. Identify the categories of data you will be recording in your survey.
5. Survey your class.
6. Look at your data, you may wish to sort or to graph it, and identify any trends.
7. Give a recommendation to the teacher.

I'm finding out about.... *The furniture arrangements that suit our class best.*

My question is..... *How did you do your homework last night?*

What will I record?
Positions and number of people. Can record more than one choice for a person

<i>sitting at table or desk</i>	<i> </i>	<i>8</i>	
<i>slouching in couch or comfy chair</i>	<i> </i>	<i>8</i>	
<i>slumping (bean bag or cushion)</i>	<i> </i>	<i>6</i>	
<i>lying down (bed/rug/floor)</i>	<i> </i>	<i>14</i>	
<i>standing (kitchen bench?)</i>	<i> </i>	<i>1</i>	
<i>Other (includes didn't do any)</i>	<i> </i>	<i>2</i>	

What does the data tell me?
Tables or desks, floor space where we are allowed to lie down and couches or arm chairs are all good places for work.

What I found out.....
The new prefab should have different spaces we can use like slouching furniture and space to work lying down but we still need desks some of the time and for some people—always!

T: Tell me about your question.
S: Well, I figured that we are most comfortable at home so that's when we do homework.
T: And you specified 'last night'.
S: That's so I got a tidy answer instead of "um... depends..."