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Introduction

This booklet is about interpreting data. It contains eight sample activities. The emphasis of these activities is on:

- interpreting data;
- drawing conclusions;
- explaining results.

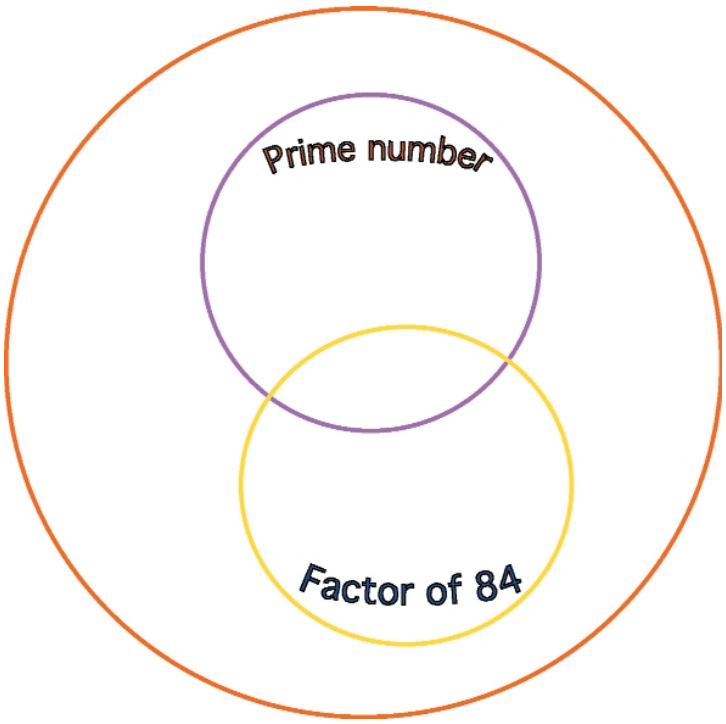
The eight activities are:

- Using a Venn diagram to sort numbers;
- Sorting shapes with a Carroll diagram;
- Presenting data using a pictogram;
- Using a branching database to sort numbers;
- Calculating the mode, median and mean of sets of data;
- Understanding line graphs;
- Using pie charts to display data;
- Presenting data appropriately.

During the training, you should select one or two of the tasks to try out. It would be advantageous to revisit and work through the other examples in the booklet at another time.

The examples in the booklet reflect the types of activities and the progression outlined in the Framework for teaching mathematics but have been adapted for teachers' use. There are questions relating to the data on each activity sheet and others which require you to use your professional judgement about how to adapt these activities for the age group you teach.

Activity 1: Using a Venn diagram to sort numbers



Where will these numbers sit in the Venn diagram?

31 77 67 86 32

47 93 42 3 21

Describe what properties numbers would have if they were to sit in the place where the two circles overlap.

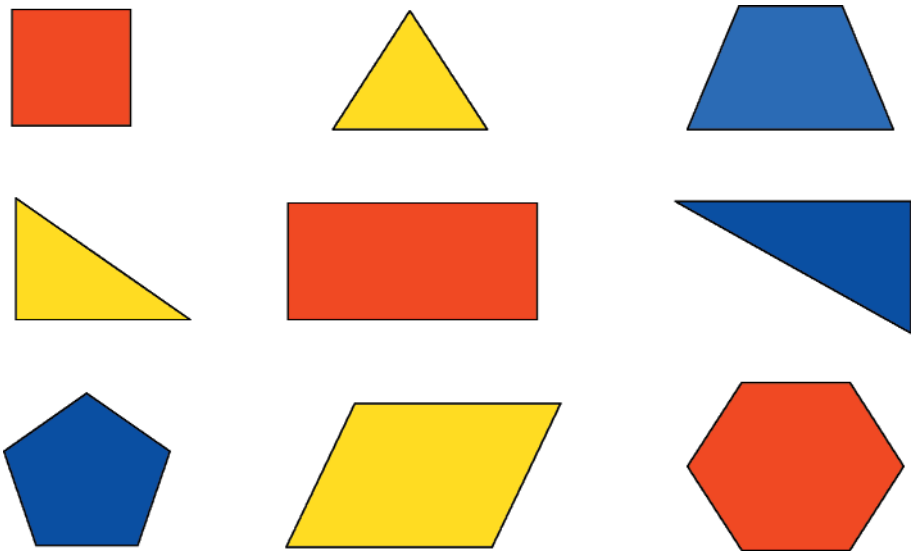
Which numbers would you put in this section? Why?

How could you use this activity with your Key Stage 1 children?

What criteria would you give them for sorting numbers?

Activity 2: Sorting shapes with a Carroll diagram

	triangle	not triangle
yellow		
not yellow		



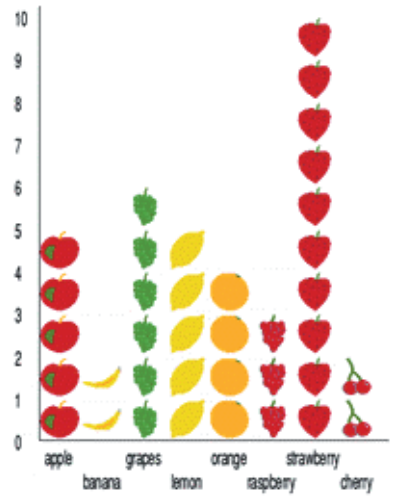
Sort these shapes into the correct sections of the Carroll diagram.

How many shapes will there be in the 'not triangle', 'not yellow' section?

Add three more shapes of your own and add these to the Carroll diagram.

How could you use this activity with your Key Stage 1 children?

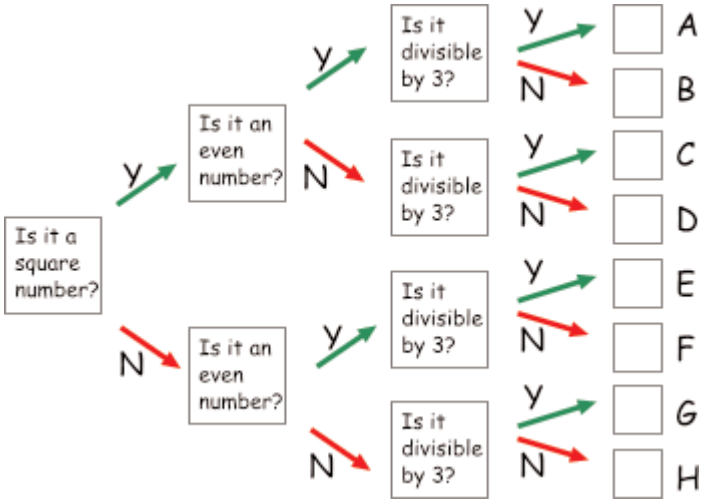
Activity 3: Presenting data using a pictogram



This chart shows the favourite flavours of boiled sweets of a group of children in a school.

- Which flavour is the most popular?
- Which flavours are the least popular?
- Which flavour is twice as popular as raspberry?
- How many children preferred citrus fruit flavours?
- How many children were there in this sample?
- Would these findings be true for a whole class in the school? Explain your answer.
- Would these findings be true for the whole school? Explain your answer.
- What data might you collect and present using a pictogram with your Key Stage 1 children?

Activity 4: Using a branching database to sort numbers



Use this branching database to sort each of these numbers:

38 47 25 80 32 24

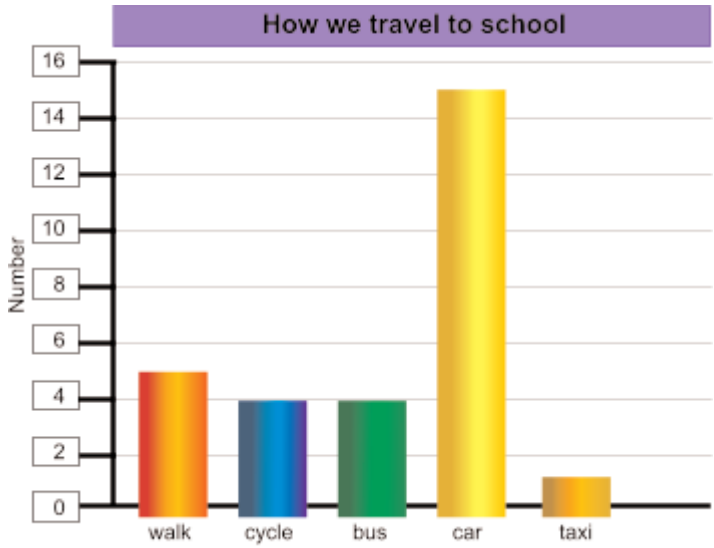
Where will each number finish?

Three of the numbers will end at the same letter on this database, what are they?

Think of another two questions to add to the database which will separate these three numbers and allow every number in the list to be individually identified.

How would you use this activity with your Key Stage 2 children?

Activity 5: Calculating the mode, median and mean of sets of data



This chart shows how the children in one class travel to school each day.

How many children are there in this sample?

Look at page 117 in the Framework to help you work out the answers to these questions.

What is the mode of this sample?

Now look at this table of midday temperatures for the week.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
17°C	20°C	22°C	18°C	17°C	20°C	18°C

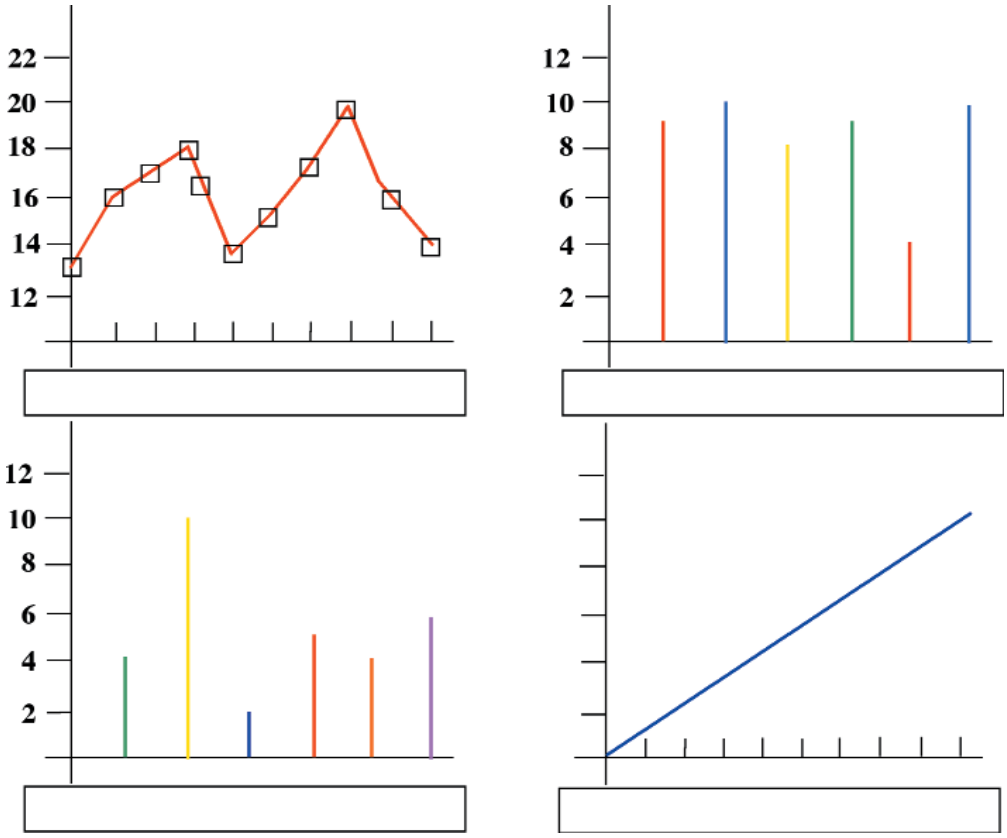
What is the median?

What is the mean?

What other sets of data might you ask your Key Stage 2 children to collect, present and analyse using a bar chart?

Activity 6: Understanding line graphs

Year 5 pupils should know it is not appropriate to join the tops of bars on a bar line chart when the values in between have no meaning.



Labels for graphs:

- Favourite colours of children in a class
- Room temperatures taken over a morning
- Conversion graph for kilometres to miles
- Scores on a dice rolled 50 times

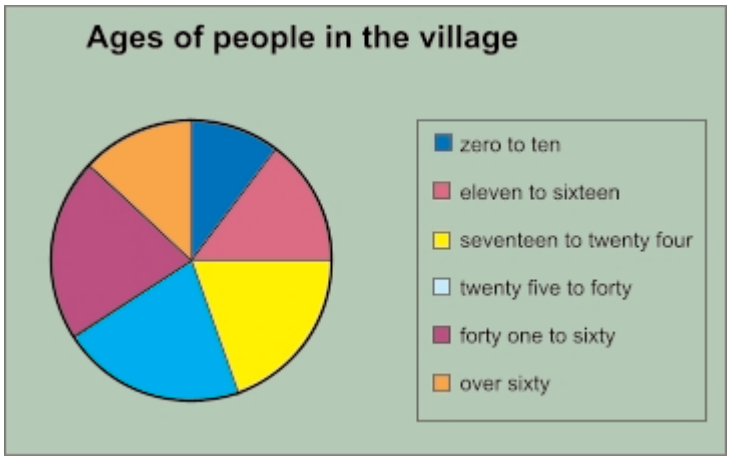
Look at these four graphs and write the appropriate label under each one.

Look at the graph which shows room temperatures taken over a morning.

Explain the changes in temperature that you see.

How would you use this activity with your Key Stage 2 children?

Activity 7: Using pie charts to display data



This pie chart shows the ages of the people living in a village.

Each segment represents the percentage of the whole population of the village that is made up by the particular age group represented in the key.

Approximately what fraction (percentage) of the population is 16 or under?

Approximately what fraction (percentage) is aged twenty-five to sixty?

How would you describe the population of this village?

Is this most likely to be an old-established village or a newly developed village? Why?

What other data might you ask your Key Stage 2 children to collect, represent and interpret using a pie chart?

Activity 8: Presenting data appropriately

Look carefully at these sample sets of data.

Set A

Heads	Tails
42	58

Set B

Mon	Tues	Wed	Thurs	Fri	Mon	Tues	Wed	Thurs	Fri
15°	18°	15°	13°	11°	16°	14°	13°	15°	18°

Set C

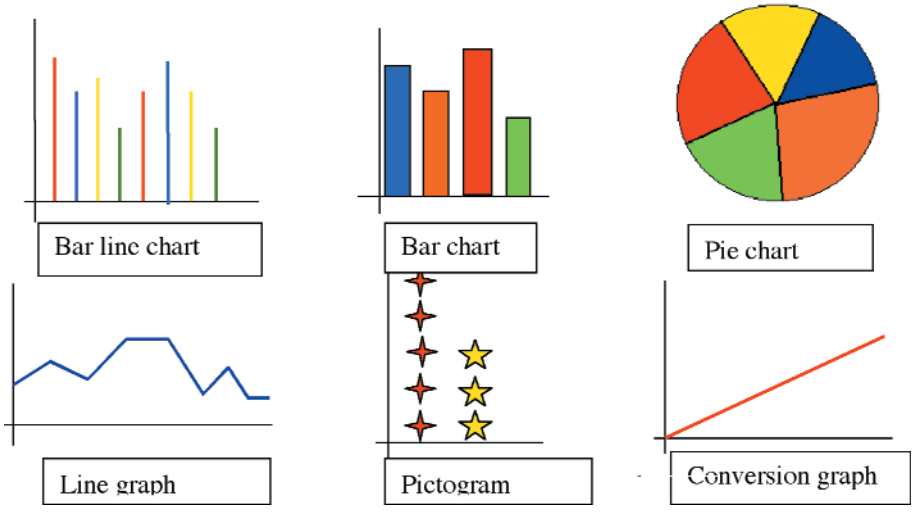
Sweets	Magazines	CDs/games	Clothes	Drinks
45%	15%	4%	12%	24%

Set D

£1	£2	£3	£4	£5	£6	£7	£8	£9	£10
$1.6	$3.2	$4.8	$6.4	$8	$9.6	$11.2	$12.8	$14.4	$16

£10	£20	£30	£40	£50	£60	£70	£80	£90	£100
$16	$32	$48	$64	$80	$96	$112	$128	$144	$160

Which of these graphing options would be appropriate for presenting these data sets? (Some may have more than one answer.)



How would you help your Key Stage 2 children make appropriate choices about presenting data?