

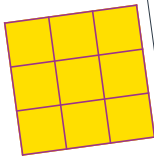
Key Facts to Learn

Learning Exercises 3 to 4

L3. Types of numbers - part 2

Square numbers
 ■ When we multiply a number by itself, we get a **square number**, for example:

$$3 \times 3 = 3^2 = 9$$



- Here are some square numbers to learn:
- | | |
|----------------------|-----------------------|
| $11 \times 11 = 121$ | $30 \times 30 = 900$ |
| $12 \times 12 = 144$ | $40 \times 40 = 1600$ |
| $20 \times 20 = 400$ | $50 \times 50 = 2500$ |

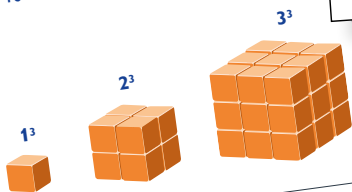
Cube numbers

■ When we multiply a number by itself and then by itself again, we get a **cube number**, for example:

$$3 \times 3 \times 3 = 3^3 = 27$$

- Here are some cube numbers to learn:

$1^3 = 1 \times 1 \times 1 = 1$
$2^3 = 2 \times 2 \times 2 = 8$
$3^3 = 3 \times 3 \times 3 = 27$
$4^3 = 4 \times 4 \times 4 = 64$
$5^3 = 5 \times 5 \times 5 = 125$
$10^3 = 10 \times 10 \times 10 = 1000$



Practice Exercise 13a and 13b

Problems Involving Money

- A 15p
- B 4p
- C 10p
- D 9p
- E 14p
- F 16p
- G 2p
- H 17p
- I 12p
- J 23p
- K 5p
- L 19p
- M 8p
- N 18p
- O 25p
- P 1p
- Q 11p
- R 3p
- S 22p
- T 13p
- U 6p
- V 7p
- W 20p
- X 26p
- Y 21p
- Z 24p

P13a

The table on the left shows how much each letter is worth.

- How much is this book worth? Add up the value of all the letters in:

W O R K A B O O K

+ + + + + + + + =

- How much are you worth? Use the value of your full name and calculate how much you are worth.

- How much change from £20.00 did you get if you purchased your name?

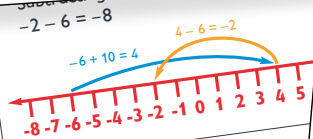
- Which would cost more?
 hexagon rhombus

P13b

■ Answer the questions using the table and these words:

- Which two of these would you buy for less than 50p?
- Which two have the same value between them?
- Write a short sentence about the value of each letter.

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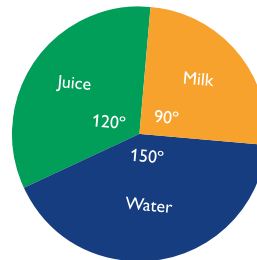
Practice Exercise 20a and 20b

Statistics: Organising Data

P20a



- A teacher made this pie chart to illustrate the findings when she asked her class what they drank at lunch time. There are 24 children in the class.



- Look at the size of the angle and work out how many drank milk.
- How many drank fruit juice?
- What fraction was this?
- How many drank water?

- Make a sandwich a week.

Mon
110

- Suggest a way to make a sandwich.

Going to the cinema	110
Playing in the park	260
Seeing friends	245
Going out with the family	210
Relaxing at home	175

P20b

■ Bar charts are often presented sideways. From the information in the table, complete the bar chart at the top of the next page to show what a group of 1000 children did one weekend.

Choose a suitable title and scale for the numbers.

Thinking Tasks 4 to 6

T4. Breathe in, breathe out

- How many times do you think you breathe in one day? Write down your estimate.
- Look at a clock and count how many times you breathe in one minute. Most people breathe approximately 12 times a minute. Are you faster or slower?
- Now calculate how many breaths you take in one hour and then in a day. How does this compare to your estimate?
- Now calculate how many breaths you have taken since you were born!

T5. Blowing h

■ "When it's hot, the northern hemisphere is hotter than the southern hemisphere."

- Is this statement true or false? Support your answer.
- Here's a start on the internet:

- City 1: north (latitude)
- City 2: south (latitude)
- City 3: close to the equator (within 10 degrees)

- Find out about the climate in your chosen city. Here is a website: <http://www.timglobe.com>

- Plot the information on a bar chart showing time and temperature for different coloured days.

- What conclusions can you draw from your data? Does it support your original statement?

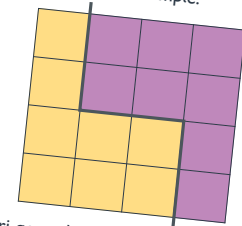
- What factors might affect the data you were to repeat another time of the year?



Can you name this city in the world famous for its bridge and opera house?

T6. Equal shares

- Raj has a large square garden. The garden is divided into 16 smaller squares.
- Raj has to share the garden equally with his brother Hari and each half must contain eight full small squares.
- Investigate the different ways they could divide the garden. Draw some possible arrangements, for example:



- If Hari agreed that some of the squares could be cut in half diagonally, would this make it easier or harder?
- Draw four arrangements using this method.
- Describe how you would choose to do it and say why.