Activity sheet 1

Dottie Double

Splitting Swamp

Dottie's taken the scenic route home from the pop awards. Can you help her find a route across the swamp?

Number of players = 2. You need: place value cards, coloured pencils/crayons

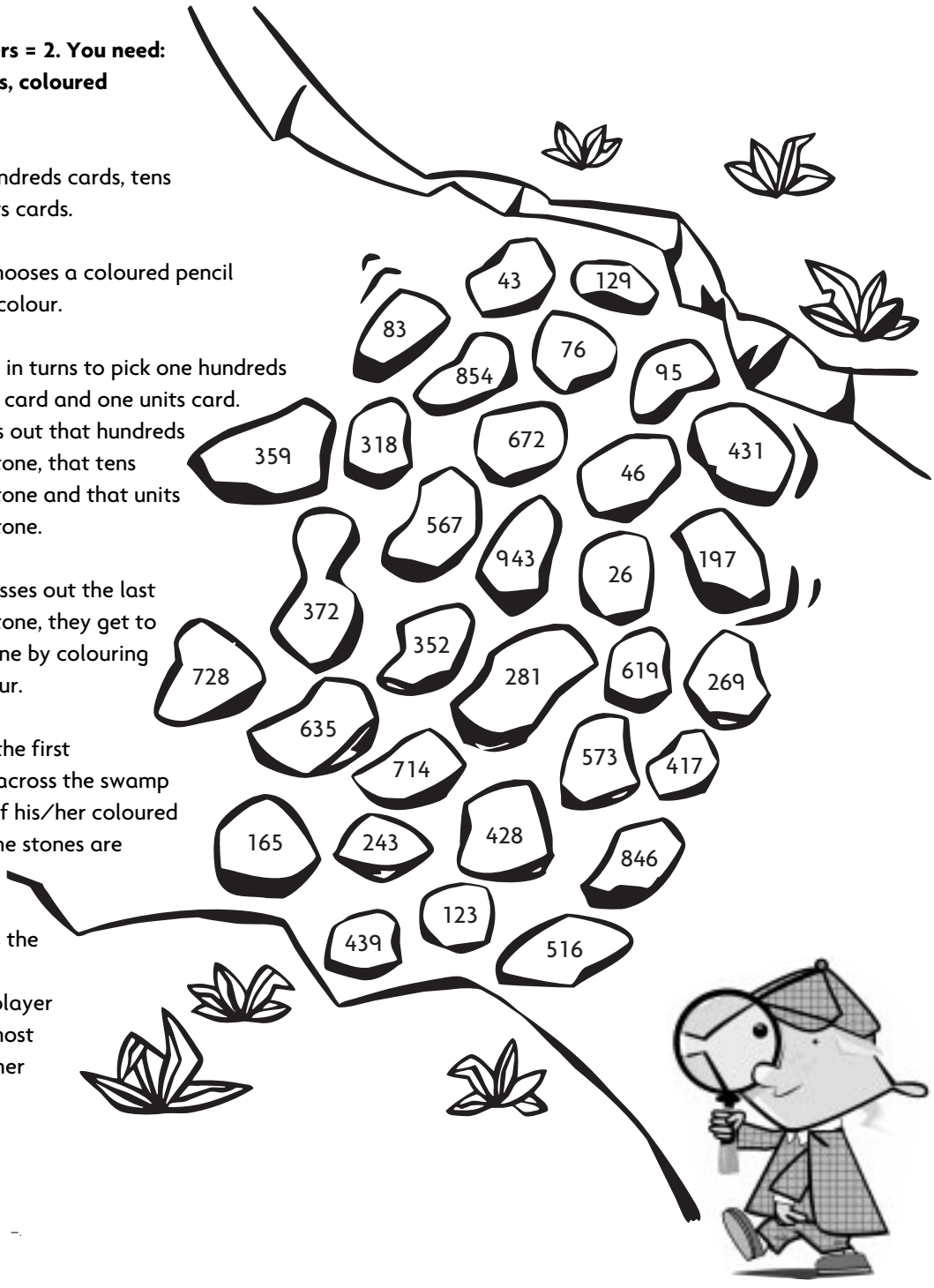
1) Shuffle the hundreds cards, tens cards and units cards.

2) Each player chooses a coloured pencil to be his/her colour.

3) Players take it in turns to pick one hundreds card, one tens card and one units card. They can cross out that hundreds digit on any stone, that tens digit on any stone and that units digit on any stone.

4) If a player crosses out the last digit on any stone, they get to claim that stone by colouring it in their colour.

5) The winner is the first player to get across the swamp with a chain of his/her coloured stones. If all the stones are coloured and no player has a chain across the swamp, the winner is the player who has the most stones in his/her colour.



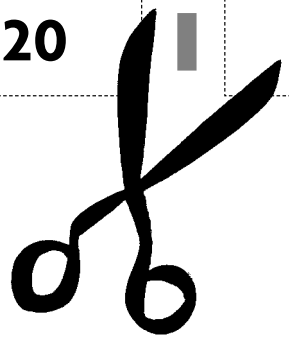
Activity sheet 2

Dottie Double

Double Demon

Practise your doubling skills with Dottie's game for pairs.

Player 1		Player 2	
180	48	96	360
47	230	460	94
124	190	380	62
150	50	100	75
52	219	438	104
550	500	1000	275
49	23	46	98
40	25	50	80
207	120	240	414



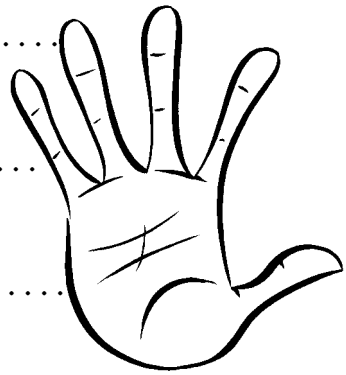
Activity sheet 3

Dottie Double

Database Record

Name: .....

Age: .....



Date of birth: .....

Handspan: .....

Foot length: .....

Waist: .....

Height: .....

Distance round the head: .....

Colour of eyes: .....

Colour of hair: .....

Favourite colour: .....

Favourite shape: .....

Activity sheet 4

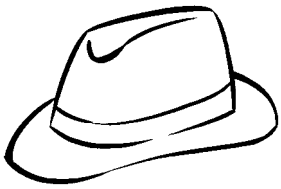
Dottie Double

Star Performer

Choose one of your group to be the Chart Idol star.

Their stage name is: .....

Make your star an oufit.

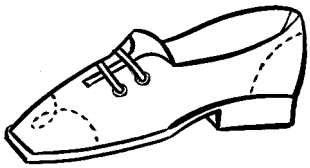


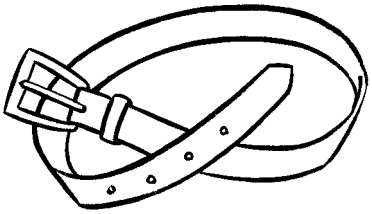
1) A glove – It must fit over the star's hand

2) A hat – It must fit your star's head

3) Shoes – They must be the same length as your star's feet

4) A belt – It must go around your star's waist.





In my group were: .....

.....

.....

.....

.....

.....

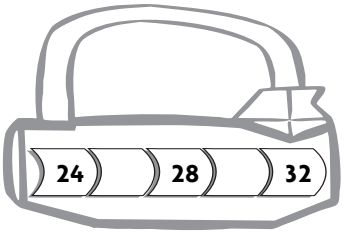
Activity sheet 5

Sam Lava

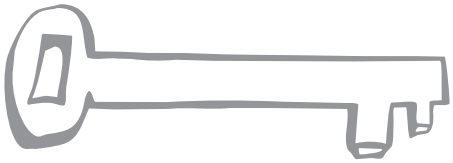
Lucky Locks

Help Sam to release the captured animals by solving the number sequences on the locks.

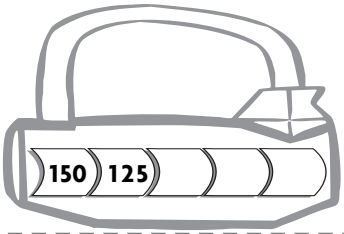
1) Fill in the missing numbers:



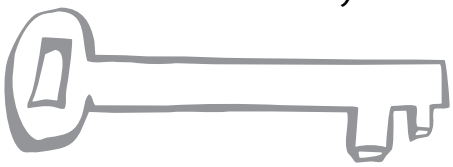
Write the rule on the key



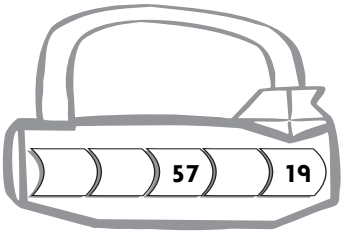
2) Fill in the missing numbers:



Write the rule on the key



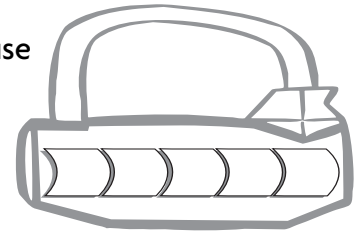
3) Fill in the missing numbers:



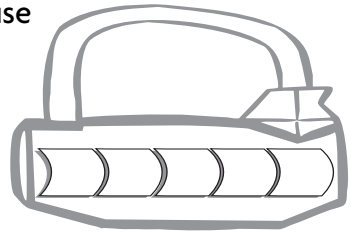
Write the rule on the key

4) Make your own sequences...

a) You must use 9 and 16

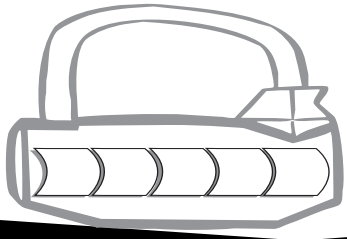


b) You must use 44 and 38

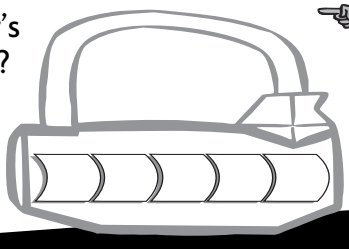


5) Make up two sequences for a friend to solve...

a) What's the rule?



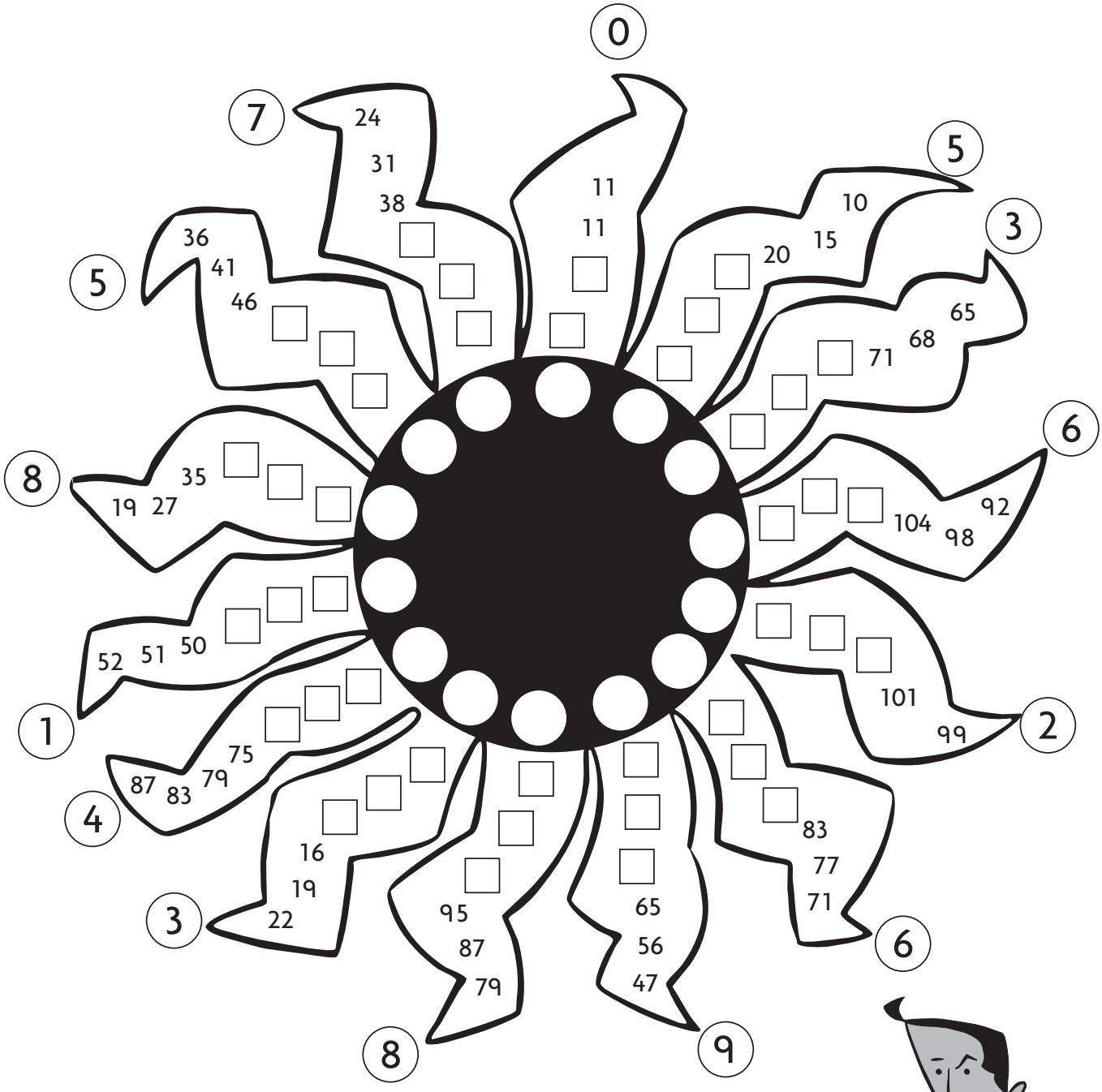
b) What's the rule?

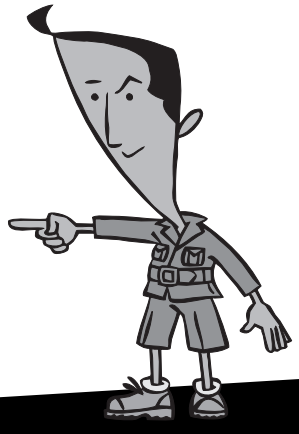


Activity sheet 6

Sam Lava

Fireball Race





Each player needs a copy of this sheet.

Players take it in turns to turn over a digit card and show it to the other players. Everyone races to find the sequence and fill in the spaces. The first player to reach the middle wins that mini fireball. So who's the hottest sequence maker?

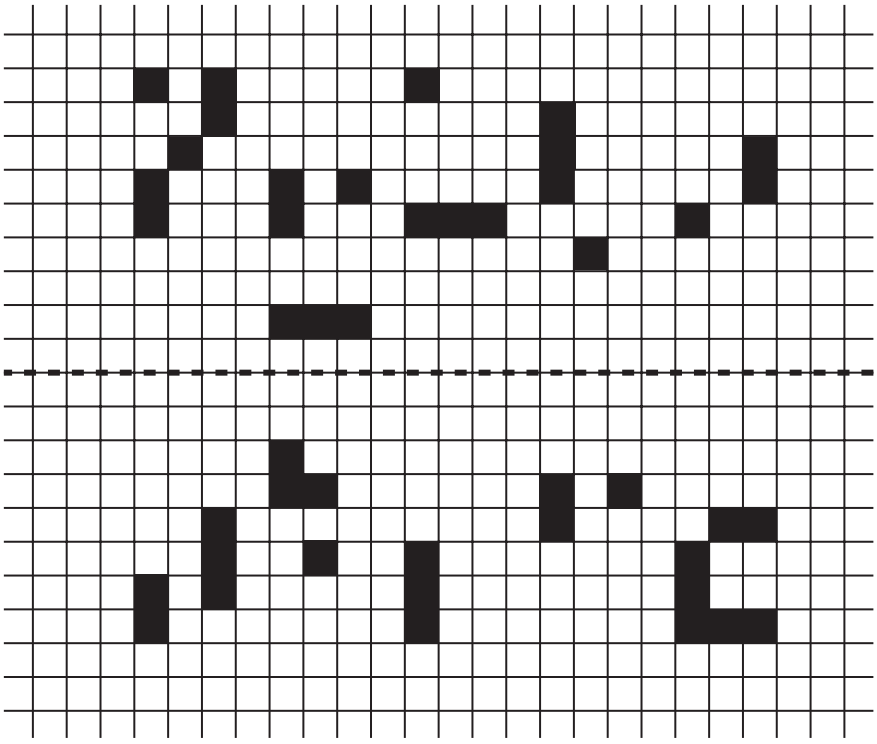
Activity sheet 7

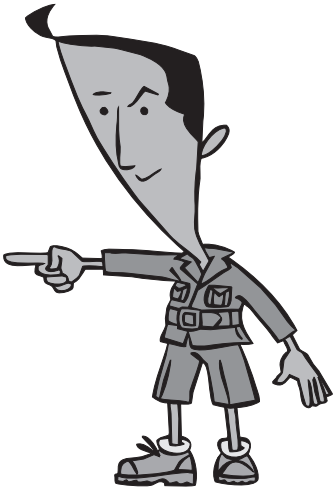
Sam Lava

Symmetry Greetings

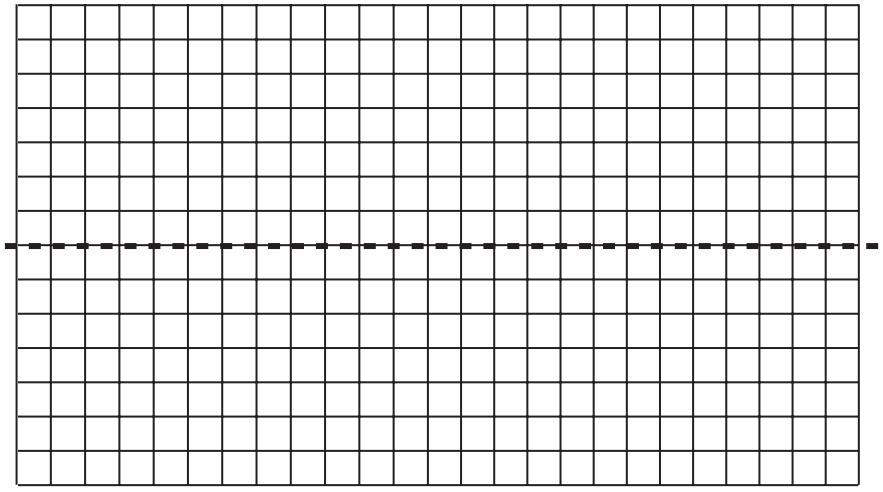
Sam has received a secret symmetry message.

1) Draw the mirror image in the top grid of each square in the bottom grid to find the hidden message





2) Make up your own secret symmetry message...



Activity sheet 8

Sam Lava

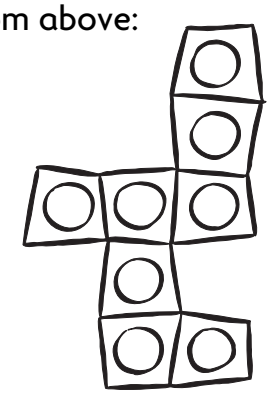
3–D Symmetry Puzzles

Sam needs your help with some more symmetry puzzles: this time they're 3–D!

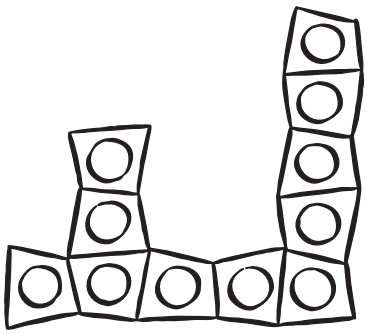
You need: linking cubes

1) Can you make a 3–D shape

that looks like this
from above:



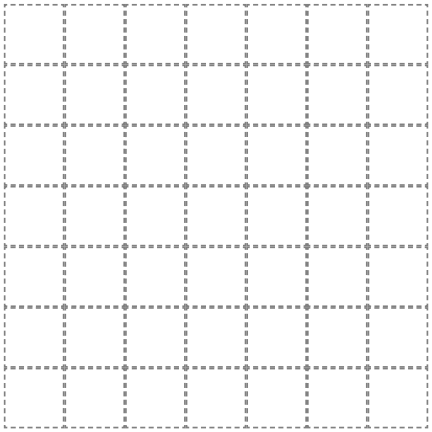
and looks like this
from the front?



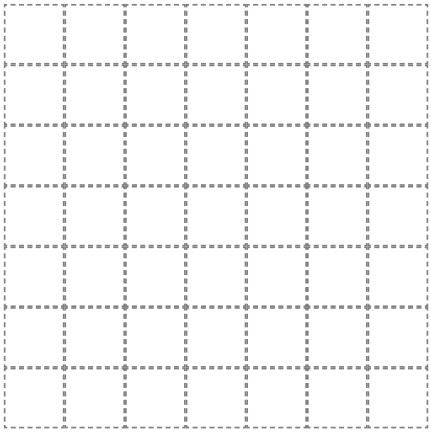
2) Can you use the cubes to make the 3–D shape that is the mirror image of the shape you have just made?

3) Now draw a 3–D puzzle for a friend to try.
Make the models so you can check their answers!

View from above



View from the front



Sam Lava

Symmetrical Numbers

The scientists have asked Sam to investigate symmetrical numbers. Can you help him?

1) 101 is a symmetrical number

a) Can you find any other 3–digit symmetrical numbers? . . . . . .

b) Can you find any 2–digit symmetrical numbers? . . . . . .

c) Can you find any 4–digit symmetrical numbers? . . . . . .

d) Show all of the lines of symmetry

2) 1441 is a palindromic number. This means it reads the same backwards as forwards. You can swap the digits to make 4114

a) Find the difference between 4114 and 1441 . . . . . .

b) What is the difference between 3663 and 6336? . . . . . .

c) What about 5885 and 8558? What you notice? . . . . . .

d) Look at other pairs of 4–digit palindromic numbers. Do the pairs all have the same difference? . . . . . .

e) What do you notice about the digits in numbers that do have the same difference? . . . . . .

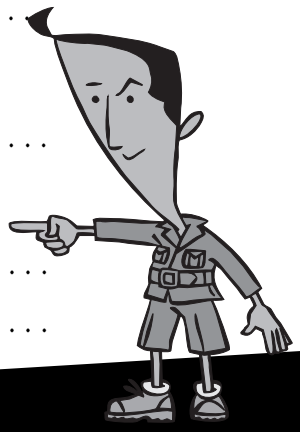
3) Investigate 6–digit palindromic numbers like 347743 . . . . . .

a) How many palindromes can you make with the same digits? . . . . . .

b) What can you find out about the differences?

. . . . . .

. . . . . .



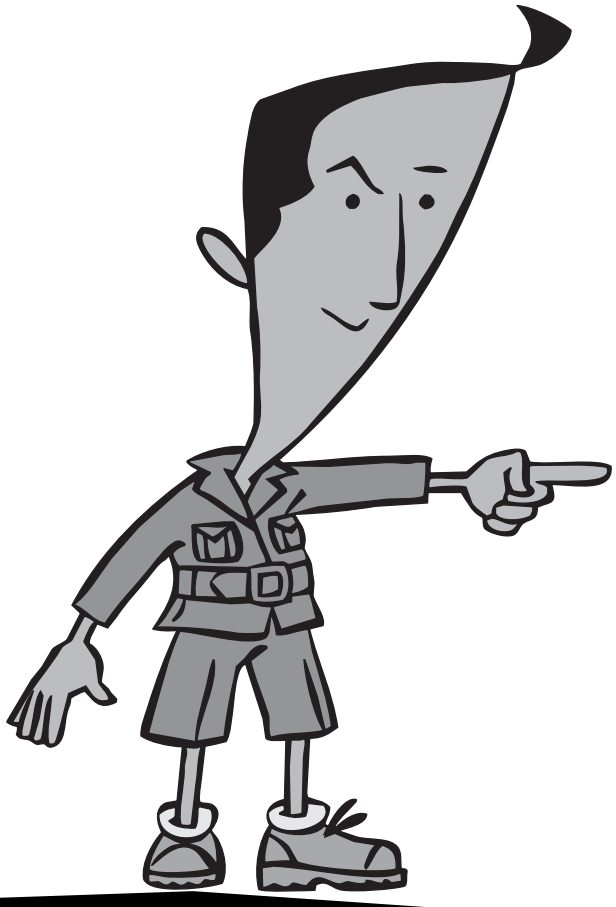
Answers

ACTIVITY SHEET 5
Sam Lava
Lucky Locks

1. 26, 30 Rule: Add 2
2. 100, 75, 5 Rule: Subtract 25
3. 95, 76, 38 Rule: Subtract 19

ACTIVITY SHEET 7
Sam Lava
Symmetry greetings

1. The message is HELLO



ACTIVITY SHEET 9
Sam Lava
Symmetrical Numbers

1a. 808, 888, 818, 181 and 111 are symmetrical on both the horizontal and vertical axes

100, 800, 110, 880, 188 and 881 are symmetrical on the horizontal axis

b. 80, 10, 88, 11, 81 and 18

c. Any numbers made up of the digits 0, 1 and 8 will be symmetrical (at least in the horizontal axis).

2a. 2673

b. The differences are all 2673

c.&d. Pairs of palindromic numbers do not all have the same differences, but they do when the difference between the digits is the same, e.g. the pairs 1441 and 4114, 5885 and 8558, and 3663 and 6336 all have the difference 2673, and all have digits that differ by 3.

3. 347743, 374473, 734437, 437734, 473374 and 743347 (there are 6 palindromes)