Teaching for Mastery

Questions, tasks and activities to support assessment

Year 2

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Mastery Check

Please note that the following columns provide indicative examples of the sorts of tasks and questions that provide evidence for mastery and mastery with greater depth of the selected programme of study statements. Pupils may be able to carry out certain procedures and answer questions like the ones outlined, but the teacher will need to check that pupils really understand the idea by asking questions such as 'Why?', 'What happens if …?', and checking that pupils can use the procedures or skills to solve a variety of problems.

Assessment Booklet.

Name:

Class:

D.O.B

Please note, the assessments contained within can all be found on the www.ncetm.com website.

Number and Place Value

Mastery

Put a circle around the larger number.

1) 50 48 2) 77 81 3) 78 87

Use coins to make the amount.

196p

100s	10s	1s

Write the missing numbers in the boxes.

1) In the number 47, there are ☐ groups of 10 and ☐ ones.
2) The number that is ten groups of 10 is ☐.
3) The number 75 shows ☐ in the tens place, and ☐ in the ones place.

Here is part of a number square.
What is the largest number on the whole square?

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16		
19	20	21			
25	26				
31	32				

Notes:

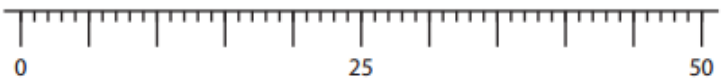
Mastery

Think of an even number that is more than 30 and less than 50. And another.
Can you find them all? How many are there?

Explain your reasoning.

Steve says, 'My number has two tens and five ones.'
What is Steve's number?
Amy has two more tens than Steve. What is her number?
Sam says, 'My number has five tens.'
What numbers **can** it be?
What numbers **can't** it be?

Place these numbers on the number line:
10, 48, 30



Use < > and = signs to make these number sentences correct.

3 tens ☐ 30 ones

2 tens ☐ 9 ones

4 tens ☐ 33 ones

Notes:

Mastery with Greater Depth

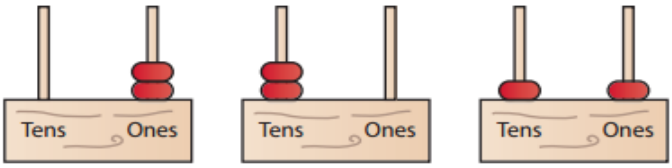
Write all the 2-digit numbers greater than 40 using these digits.

2	4	6	6

How do you know you have them all? Prove it.

Jo has £2·29.
She only has £1 coins, 10p coins and 1p coins.
How many of each coin does she have?
Can you suggest a different answer?

If you put 2 beads onto a tens/ones abacus you can make the numbers 2, 20 and 11.



Do the same with 3 beads. How many different numbers can you make?

How many different numbers can you make using 4 beads?

Here is part of a number square.
What is the largest number on the whole square?

3	6	9	12	15
18	21	24	27	
33	36	39		
48	51	5		
63	66			

Notes:

Mastery with Greater Depth

Amy thinks of a number. Her number:

- is an even number
- is between 20 and 25
- has two different digits.

What is her number?

Explain your reasoning.

Captain Conjecture says, 'When I count in tens from any number the units digit stays the same.'

Do you agree?

Explain your reasoning.

Place 47 on each of these empty number lines.

0 ——— 100

40 ——— 60

33 ——— 50

Use < > and = signs to make these number sentences correct.

3 tens and 2 ones ☐ 2 tens 12 ones

4 tens and 3 ones ☐ 3 tens 14 ones

5 tens and 4 ones ☐ 4 tens 11 ones

Notes:

Addition and Subtraction

Mastery

Fill in the missing numbers and explain what you notice.

$23 + \square = 30$ $33 - \square = 30$

$43 + \square = 50$ $53 - 3 = \square$

If each peg on the coat hanger has a value of 10, find three ways to partition the pegs to make the number sentences complete.

$\square + \square = \square$

$\square + \square = \square$

$\square + \square = \square$

What is the total of each addition sentence?

Will the total always be the same?

Explain your reasoning.

Captain Conjecture says,
'An odd number + an odd number = an even number'.

Is this sometimes, always or never true?

Explain your reasoning.

Concrete resources might help pupils to explain their reasoning.

Notes:

Mastery

What do you notice about each set of calculations?

What's the same and what's different about the three sets of calculations?

10 – 9 =	20 – 19 =	100 – 90 =
10 – 8 =	20 – 18 =	100 – 80 =
10 – 7 =	20 – 17 =	100 – 70 =
10 – 6 =	20 – 16 =	100 – 60 =
10 – 5 =	20 – 15 =	100 – 50 =
10 – 4 =	20 – 14 =	100 – 40 =
10 – 3 =	20 – 13 =	100 – 30 =
10 – 2 =	20 – 12 =	100 – 20 =

What do I need to add to or subtract from each of these numbers to total 60?

40, 44, 66, 69, 76, 86, 99, 89, 79.

Insert <, > or = to make these number sentences correct.

7 + 8 ◯ 8 + 7

3 + 6 ◯ 2 + 7

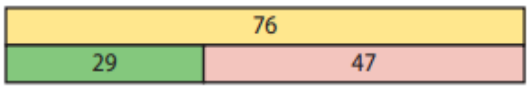
3 + 6 ◯ 4 + 7

4 + 7 ◯ 2 + 6

Notes:

Mastery

Pupils use a bar model to explore addition and subtraction facts and the relationship between them.



Using the bar model complete the four number sentences.

☐ + ☐ =

☐ + ☐ =

☐ − ☐ =

☐ − ☐ =

Dan needs 80 g of sugar for his recipe. There are 45 g left in the bag. How much more does he need to get?

The temperature was 26 degrees in the morning and 11 degrees colder in the evening. What was the temperature in the evening?

A tub contains 24 coins. Saj takes 5 coins. Joss takes 10 coins. How many coins are left in the tub?

Notes:

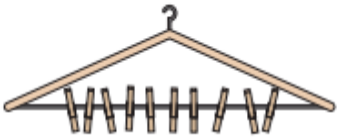
Mastery with Greater Depth

Find different possibilities.

□ + □ = 50

50 – □ = □

If each peg on the coat hanger has a value of 10, find three ways to partition the pegs to make the number sentences complete.



□ + □ + □ = □

□ + □ + □ = □

□ + □ + □ = □

What is the total of each addition sentence?

Will the total always be the same?

Explain your reasoning.

Captain Conjecture says,
'An odd number + an odd number + an odd number = an even number'.

Is this sometimes, always or never true?

Explain your reasoning.

Concrete resources might help pupils to explain their reasoning.

Notes:

Mastery with Greater Depth

Complete the calculations.

30 + 40 + ☐ = 100

40 + ☐ + 20 = 100

36 + 44 + ☐ = 100

36 + 54 + ☐ = 100

47 + ☐ + 20 = 100

47 + ☐ + 30 = 100

I think of a number and I add 2. The answer is 17. What was my number?

I think of a number and I subtract 5. The answer is 24. What was my number?

Insert numbers to make these number sentences correct.

13 – ___	<	6

13 – ___ < 6 13 – ___ < 6 13 – ___ < 6

13 – ___ < 6 13 – ___ < 6 13 – ___ < 6

Notes:

Mastery with Greater Depth

Fill in the missing numbers. What do you notice?

27	
15	?

12	15
?	

37	
15	?

23	14
?	

13	14
?	

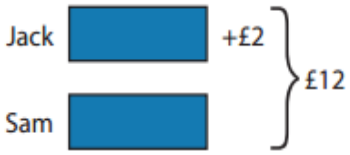
57	
15	?

Together Jack and Sam have £12.

Jack has £2 more than Sam.

How much money does Sam have?

A bar model can be very helpful in solving these types of problems.



£12 – £2 = £10

£10 ÷ 2 = £5

Sam has £5

Notes:

Multiplication and Division.

Mastery
What is 5×4? (5 times table) What is 10×6? (10 times table) *Being able to answer such questions is, of course, important, but check pupils understand the meaning of them. For example, ask them to make 5 x 4 and 10 x 6 using concrete apparatus.*
Write these addition sentences as multiplication sentences. The first one has been completed. $5 + 5 + 5 + 5 + 5 = 5 \times 5$ $2 + 2 + 2 + 2 + 2 =$ $2 + 2 + 2 =$ $10 + 10 + 10 + 10 =$
This array represents $5 \times 3 = 15$.  Write three other multiplication or addition facts that this array shows. Write one division fact that this array shows.

Notes:

Mastery

Complete and compare the 5 and 10 times tables. What do you notice?

$5 \times 1 =$	$10 \times 1 =$
$5 \times 2 =$	$10 \times 2 =$
$5 \times 3 =$	$10 \times 3 =$
$5 \times 4 =$	$10 \times 4 =$

Sally buys 3 cinema tickets costing £5 each. How much does she spend?
Write the multiplication number sentence and calculate the cost.

If Sally paid with a £20 note, how much change would she get?

Two friends share 12 sweets equally between them. How many do they each get?
Write this as a division number sentence.

Make up two more sharing stories like this one.

Chocolate biscuits come in packs (groups) of 5. Sally wants to buy 20 biscuits in total. How many packs will she need to buy?
Write this as a division number sentence.

Make up two more grouping stories like this one.

Notes:

Mastery with Greater Depth

Which has the most biscuits:
4 packets of biscuits with 5 in each packet, or
3 packets of biscuits with 10 in each packet?

Explain your reasoning.

Write these addition sentences as multiplication sentences.

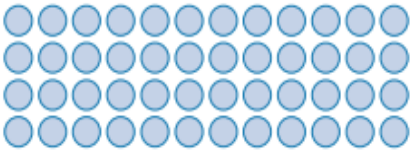
$10 + 10 + 10 + 5 + 5 =$

$2 + 2 + 2 + 4 =$

$2 + 2 + 4 + 4 =$

$5 + 5 + 5 + 2 + 3 =$

Find different ways to find the answer to 12×4.



Children are expected to use their 2, 5 and 10 times tables to answer this question.

Notes:

Mastery with Greater Depth

True or false?

$5 \times 4 = 4 \times 5$

$5 \times 4 = 10 \times 2$

$5 \times 4 = 2 \times 10$

Explain your reasoning.

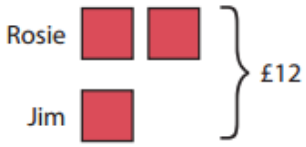
What do you notice?

Together Rosie and Jim have £12.

Rosie has twice as much as Jim.

How much does Jim have?

The bar model can be helpful in solving these types of problems.



$12 \div 3 = 4$

Jim has £4

Two friends want to buy some marbles and then share them out equally between them.

They could buy a bag of 13 marbles, a bag of 14 marbles or a bag of 19 marbles.

What size bag should they buy so that they can share them equally?

What other numbers of marbles could be shared equally?

Explain your reasoning.

Notes:

Fractions.

Mastery

Complete:

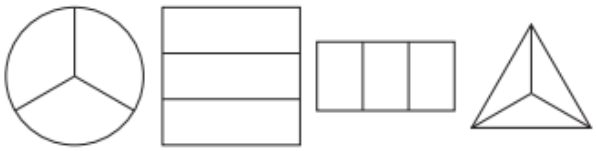
Half of 12 is ☐

$\frac{2}{4}$ of 12 is ☐

$\frac{1}{4}$ of 20 =

$\frac{3}{4}$ of 20 =

Shade $\frac{1}{3}$ of each shape.



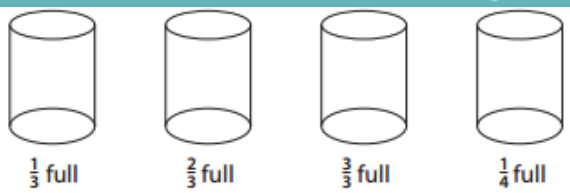
Jo bought a bag of 12 cherries.
Jo ate half the number of cherries in the bag.
How many cherries did Jo eat?

Sam bought a bag of 18 cherries.
Sam ate 6 cherries.
What fraction of the bag of cherries did Sam eat?

If you count in steps of $\frac{1}{2}$ starting from 0, how many steps will it take to reach:
2, 4 or 6
What do you notice?

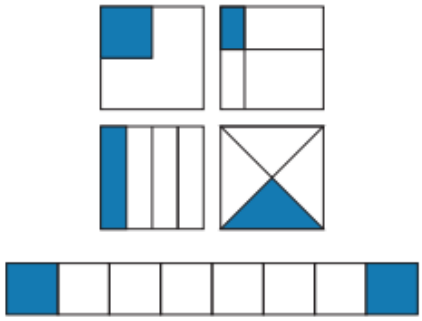
Notes:

Mastery



This may first be carried out as a practical activity.

Which of these diagrams have $\frac{1}{4}$ of the whole shaded?



Explain your reasoning.

Jayne says that the shaded part of the whole square below does not show a half because there are three pieces, not two.

Do you agree?

Explain your reasoning.

Notes:

Mastery with Greater Depth

Complete:

Half of ☐ is 6

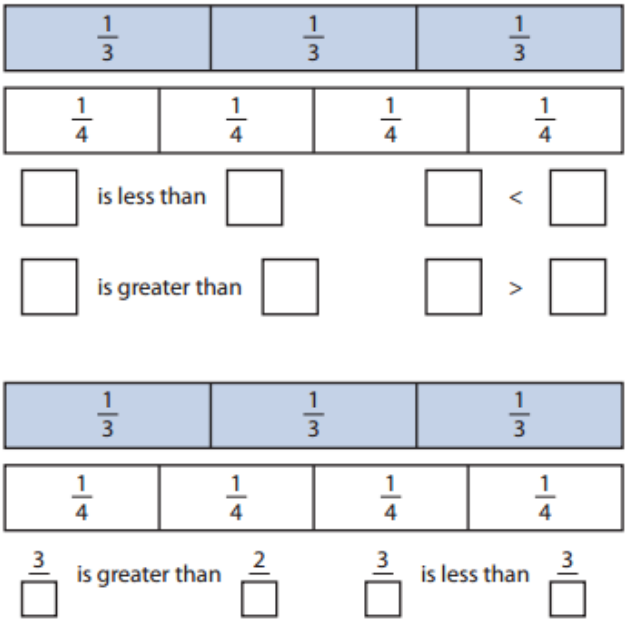
$\frac{2}{4}$ of ☐ is 6

$\frac{1}{4}$ of ☐ = 5

$\frac{3}{4}$ of ☐ = 15

20 children are in a class and $\frac{1}{4}$ are girls. How many are boys?

Use the pictures to complete the number sentences.



Jo bought a bag of cherries.
Jo ate half the number of cherries in the bag.
Jo had 7 cherries left. How many cherries did Jo buy?

Sam bought a bag of cherries.
Sam ate 9 cherries and had 3 left over.
What fraction of the bag of cherries did Sam eat?

Notes:

Mastery with Greater Depth

$\frac{1}{3}$ of 3 = 1

$\frac{1}{3}$ of 6 = 2

$\frac{1}{3}$ of 9 = 3

$\frac{1}{3}$ of 12 =

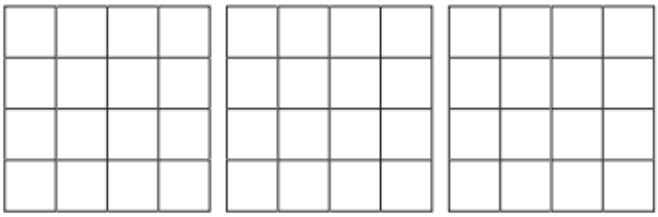
Continue the pattern.

What do you notice?

Mark another fraction on this line.

And another, and another.

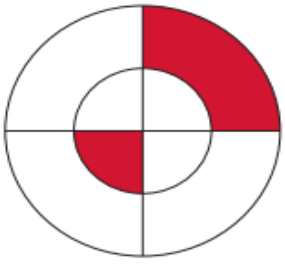
Colour in $\frac{1}{4}$ of each of these grids in a different way. Try to think of an unusual way.



How many squares did you colour each time?

What fraction is the red part of the whole circle?

Explain your reasoning.



Notes:

Measurement.

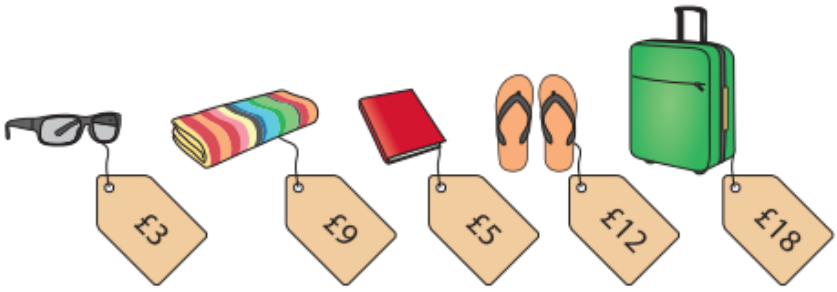
Mastery

Holly uses a £1 coin to buy a pack of stickers. Here is the change she was given.

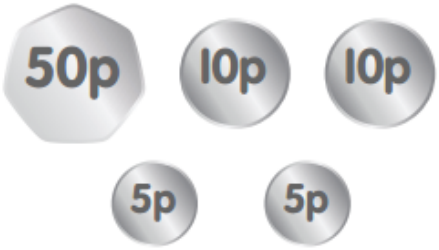
How much did the pack of stickers cost?

Grace uses a £1 coin to buy a can of drink which costs 80p. She is given three coins in change. What coins could she have been given?

Sid says, 'I have bought 2 items for my holiday.
One item cost £9 more than the other.'
What might Sid have bought?
The _____ and the _____ .



Look at these coins. How could you make up the same total amount using just one type of coin?

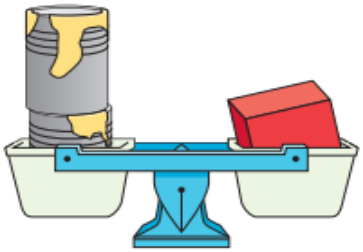


Notes:

Mastery

This box weighs 10 kg.

How much does each tin of paint weigh?

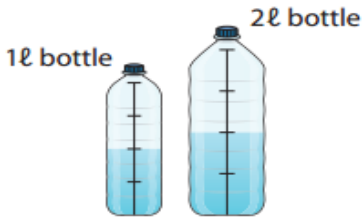


How long is the pencil?

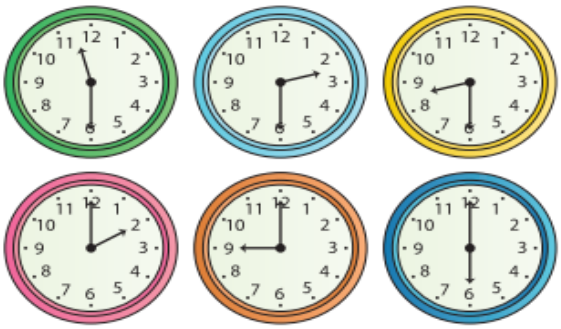
The pencil is _____ cm long.

Here is a picture of a 1 litre bottle and a 2 litre bottle both with some water in them.

What's the same? What's different?



Which of these clock faces shows a time between 5 o'clock and 7 o'clock?



Notes:

Mastery with Greater Depth

I spend £2 on a drink and sandwich. The sandwich costs 80p more than the drink. How much does the sandwich cost?

Grace uses a £2 coin to buy a can of drink which costs 85p. She is given four coins in change.

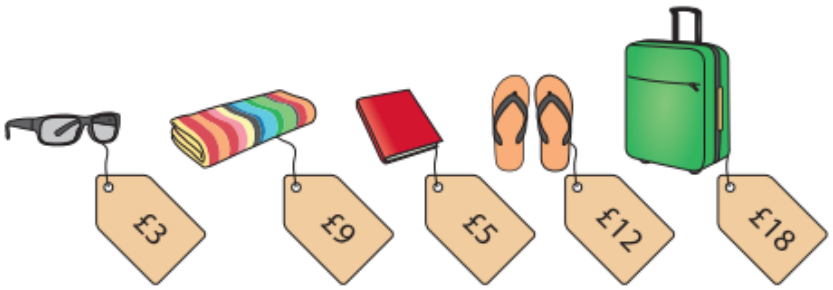
Find all the possible combinations of coins she could have been given.

Sid says, 'I have bought 2 items for my holiday.

One item cost £9 more than the other. I spent over £15.'

What two items did Sid buy?

The _____ and the _____ .



Make up your own problems using the holiday items.

Sam says I can make 97p using just four coins. Is he correct?

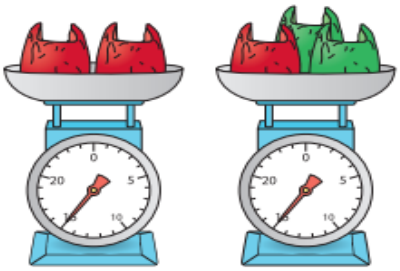
Explain your reasoning.

Notes:

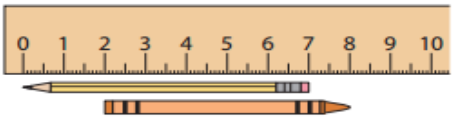
Mastery with Greater Depth

What is the mass of two red bags?
Which is heavier, the red bag or the green bag?

Explain your reasoning.



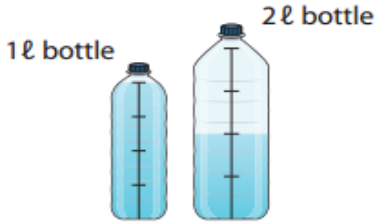
How long is the crayon?



The crayon is _____ cm long.

How much longer is the crayon than the pencil?

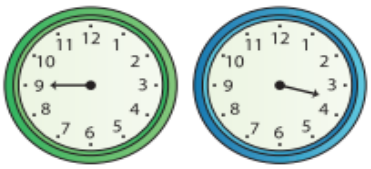
Here is a picture of a 1 litre bottle and a 2 litre bottle with some water in them.
What's the same? What's different?



Jack says, 'There isn't any point in having a minute hand on a clock because I can still tell the time without it.'

Do you agree with him?

Explain your answer.



Notes:

Geometry.

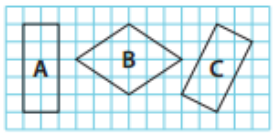
Mastery

Carry out activities that direct pupils' attention to properties and do not just ask them to state the name of shapes in order to allow them to demonstrate mastery.

Asking questions like 'How do you know the shape is a triangle?' can also support pupils to develop mastery of this topic.

Captain Conjecture says, 'All of these shapes are rectangles because they have four sides.'

Do you agree?

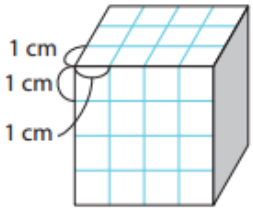


Explain your reasoning.

Notes:

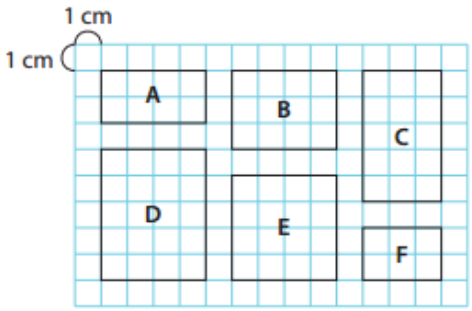
Mastery

We are going to make a box as shown.



Which quadrilaterals shown below do we need?

How many of each do we need?



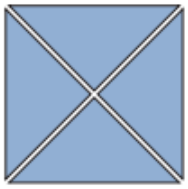
Fill in the missing shape to complete the pattern.

Explain your reasoning.

Notes:

Mastery with Greater Depth

Cut a square piece of paper as shown. Rearrange the pieces to make different shapes. What different shapes can you make?

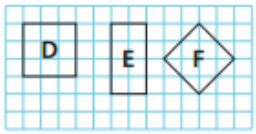


Describe the properties of the shapes you make.

Can you make some shapes which have at least one line of symmetry?

Captain Conjecture says, 'All of these shapes are rectangles because they have four sides.'

Do you agree?



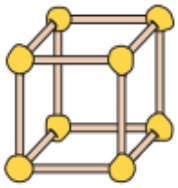
Explain your reasoning.

Children should appreciate that a square is a rectangle because it has 4 right angles and opposite sides are of equal length.

Notes:

Mastery with Greater Depth

Jack has made a cube using 12 sticks and 8 balls of modelling clay.



What shape could he make with:

6 sticks and 4 balls of clay?

4 long sticks, 8 short sticks 8 balls of clay?

Fill in the missing shape to complete the pattern.

If the pattern continued what would the tenth shape be?

Explain your reasoning.

Notes:

Statistics.

Mastery

Generate data with the children on a daily basis. For example, use an IWB to identify who is having school dinner or a packed lunch.

Present data in different ways: pictograms, tally charts, block diagrams and simple tables.

Check whether children can answer questions about the data. For example: which is most popular? Which is least popular?

Children may be able to answer simple retrieval questions, but can they extend to finding the total number or finding a difference?

Ten friends went to the fair.

The picture below shows each friend's favourite activity.

Fill in the number of children under each picture.

Challenge children to compare different ways of representing the same information.

				
Number of children				

Notes:

Mastery with Greater Depth

Four children played racing games at break time. Each time they won a game they took a counter.

Sam	
Tom	
Sally	
Ally	

Present the information in a different way to make it clearer and answer the following questions:

Who won the most races?

How many more races did Ally win than Sally?

Does the information answer the question:

Who is the fastest runner?

What's the same? What's different?

Ice creams sold in one week	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

Cars in the car park on Monday at 10 o'clock	
Red	𝍸 |
Blue	𝍸
Black	𝍸 𝍸 |||
Silver	𝍸 𝍸 ||
White	𝍸 ||
Other	𝍸 ||||

Notes: