

The background features a vertical gradient from light purple at the top to light blue at the bottom. Scattered throughout are various-sized, realistic-looking water droplets with highlights and shadows. A large, faint, light-colored circular graphic is centered in the upper half of the page.

MATHS IN KEY STAGE ONE

YEAR 1 AND 2

NATIONAL CURRICULUM

- The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop *confidence* and *mental fluency* with *whole numbers*, *counting* and *place value*. This should involve working with *numerals*, *words* and the *four operations*, including with practical resources.
- At this stage, pupils should develop their ability to *recognise, describe, draw, compare and sort different shapes* and use the related vocabulary. Teaching should also involve using a range of *measures* to describe and compare different quantities such as length, mass, capacity/volume, time and money.
- By the end of year 2, pupils should know the *number bonds to 20* and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.
- Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

TOPICS IN KSI MATHS

- Number and place value
- Addition and Subtraction
- Multiplication and Division
- Fractions
- Measurement
- Shape
- Position and Direction
- Statistics - Only in Year 2

WHITE ROSE MATHS

Teaching for Mastery

These overviews are designed to support a mastery approach to teaching and learning and have been designed to support the aims and objectives of the new National Curriculum.

The overviews:

- have number at their heart. A large proportion of time is spent reinforcing number to build competency
- ensure teachers stay in the required key stage and support the ideal of depth before breadth.
- ensure students have the opportunity to stay together as they work through the schemes as a whole group
- provide plenty of opportunities to build reasoning and problem solving elements into the curriculum.

For more guidance on teaching for mastery, visit the NCETM website

<https://www.ncetm.org.uk/resources/47230>

Concrete – Pictorial – Abstract

As an organisation we believe that all children, when introduced to a new concept, should have the opportunity to build competency by taking this approach.

Concrete – children should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.

Pictorial – alongside this children should use pictorial representations. These representations can then be used to help reason and solve problems.

Abstract – both concrete and pictorial representations should support children's understanding of abstract methods.

We have produced a CPD unit for teachers in schools;

<https://www.tes.com/teaching-resource/the-importance-of-concrete-professional-development-11476476>

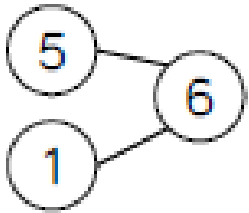
ADDITION AND SUBTRACTION IN KSI

Year 1	Year 2
Fact Families (up to 10)	Fact Families (up to 20)
Number Bonds (up to 10)	Number Bonds (up to 20 & 100)
Adding up to 20	Add and Subtract 10s and 1s
	Add a 2-digit and 1-digit number
	Add two 2-digits
	Add 3 1-digit numbers
Take Away Find The Difference Counting Back	Subtract 1 digits from 2 digits Subtract 2 digits from 2 digits
Compare statements (up to 10)	Compare statements (up to 20)
	Using the inverse

FACT FAMILIES

YEAR 1

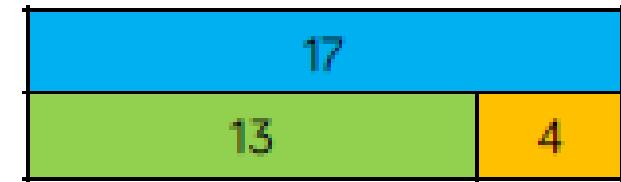
Fill in the missing numbers.



$$\begin{aligned} 1 + \square &= 6 \\ \square + 1 &= 6 \\ \square &= \square + 1 \\ 6 &= \square + \square \end{aligned}$$

YEAR 2

Look at the bar model below. Can you write all of the sentences in the fact family?



The numbers are given to the children. They have to find the relationship between them.

Using the image, how many calculations can you create?



$$\begin{array}{l|l} \square + \square = & \square = \square - \square \\ \square + \square = & \square = \square - \square \\ \square - \square = & \square = \square + \square \\ \square - \square = & \square = \square + \square \end{array}$$

NUMBER BONDS

YEAR 1

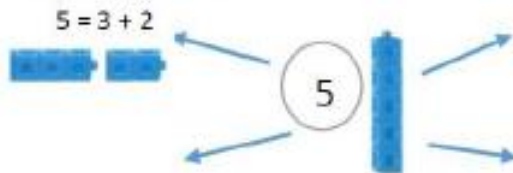
YEAR 2

Here are 5 cubes.



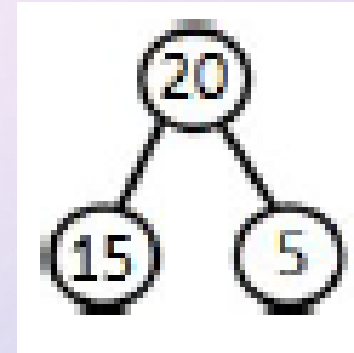
Break them apart in different ways to find all the number bonds to 5.

One is done for you.



Year 1 - within and to 10

Year 2 - within and to 20 & related number bond facts



Use the ten frames to complete the number bonds to 10.



$$4 + \square = 10$$



$$5 + \square = 10$$

Fill in the missing numbers

$$2 + 6 = 8$$

$$20 + 60 = \square\square$$

$$2\square + \square 0 = 80$$

$$80 = \square 0 + 6\square$$

Compare using $<$, $>$ or $=$

$$5 + 5 \quad \bigcirc \quad 10$$

$$5 + 5 \quad \bigcirc \quad 8$$

$$2 + 5 \quad \bigcirc \quad 5 + 3$$

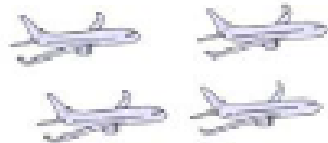
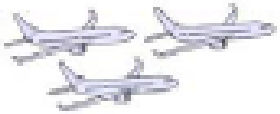
Use a 100 square.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- 40 squares are shaded, how many are not shaded?
- 45 squares are shaded, how many are not shaded?
- 54 squares are shaded, how many are not shaded?

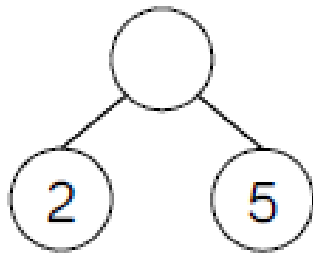
ADDING UP TO 20

How many aeroplanes are there altogether?



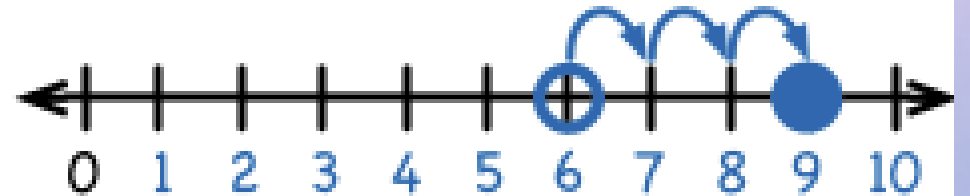
$$\square + \square = \square$$

If 2 is a part and 5 is a part, what is the whole?



$$\square + \square = \square$$

$$6 + 3 = 9$$



There are four pennies in a bag and I add two more. How many do I have now?



$$\square + \square = \square$$

There are pennies.

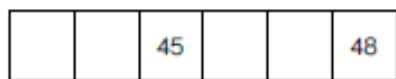
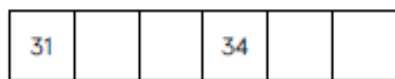
ADD & SUBTRACT ONES AND TENS

Continue the pattern

$$22 = 29 - 7$$

$$22 = 28 - 6$$

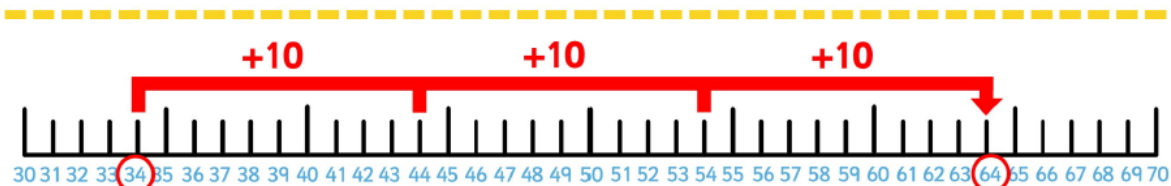
Continue the number tracks below.



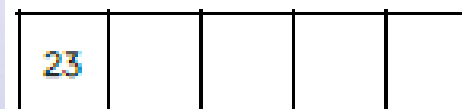
		1	3
+			5

		2	8
-			4

34 + 30 = 64



Continue the number track by adding 20 each time..



Tens	Ones
	•••

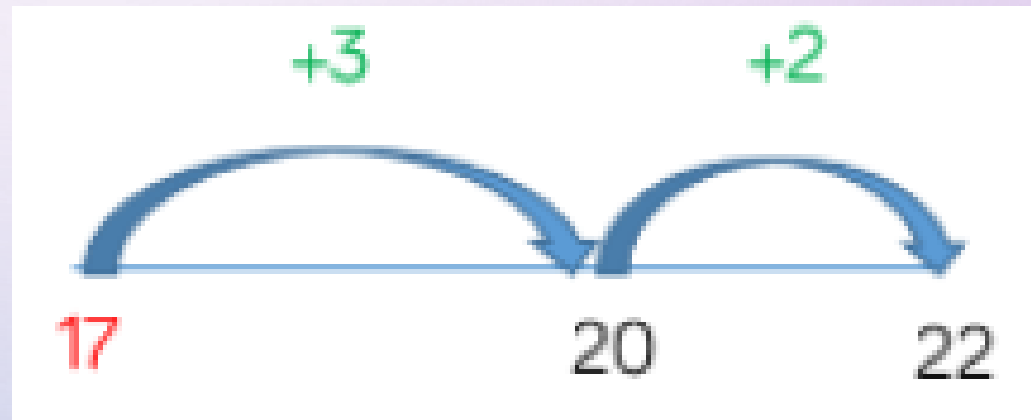
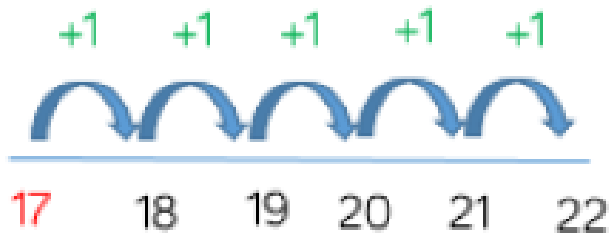
$$\begin{array}{r} 56 \\ -30 \\ \hline \end{array}$$

Tens	Ones
	••

$$\begin{array}{r} 23 \\ +40 \\ \hline \end{array}$$

ADD A 2-DIGIT AND 1-DIGIT

$$17 + 5 =$$

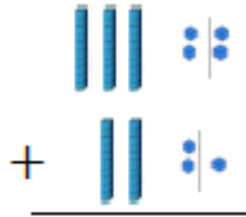


Find the most efficient way.

ADD TWO 2-DIGITS

No Carrying

Find the sum of 34 and 23



$$64 + 12 =$$

$$4 \text{ ones} + 2 \text{ ones} = \square$$

$$6 \text{ tens} + 1 \text{ ten} = \square$$

$$\square \text{ tens} + \square \text{ ones} = \square$$

Carrying

$$64 + 17 =$$

$$4 \text{ ones} + 7 \text{ ones} = \square$$

$$6 \text{ tens} + 1 \text{ ten} = \square$$

$$\square \text{ tens} + \square \text{ ones} = \square$$

$$\begin{array}{r} 64 \\ + 17 \\ \hline 11 \\ + 70 \\ \hline 81 \end{array}$$

		3	6
	+	5	5

ADD THREE 1-DIGIT NUMBERS

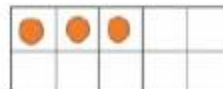
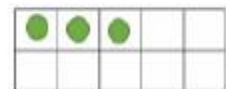
Use ten frames and counters to add the numbers
 $4 + 3 + 6$



Can you add the numbers in a different way to find a number bond to 10?



$$4 + 6 = 10$$

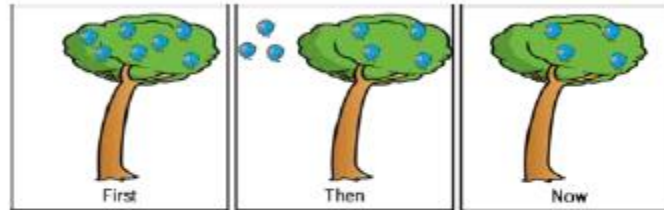


$$10 + 3 = 13$$

Children are encouraged to find doubles and number bonds

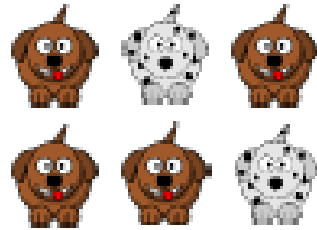
SUBTRACTION – TAKING AWAY

There were 7 birds in a tree and 3 fly away.

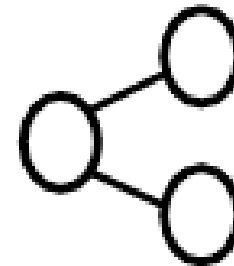


At first there were ___ birds in the tree. Then ___ flew away. Now there are ___ birds in the tree.

How many dogs do not have spots?



$$\boxed{6} - \boxed{2} = \boxed{}$$



There are ___ dogs that do not have spots.

FIND THE DIFFERENCE

How many more cakes does Beth have than Stephen?

Beth 

Stephen 

Beth has _____ more cakes than Stephen.

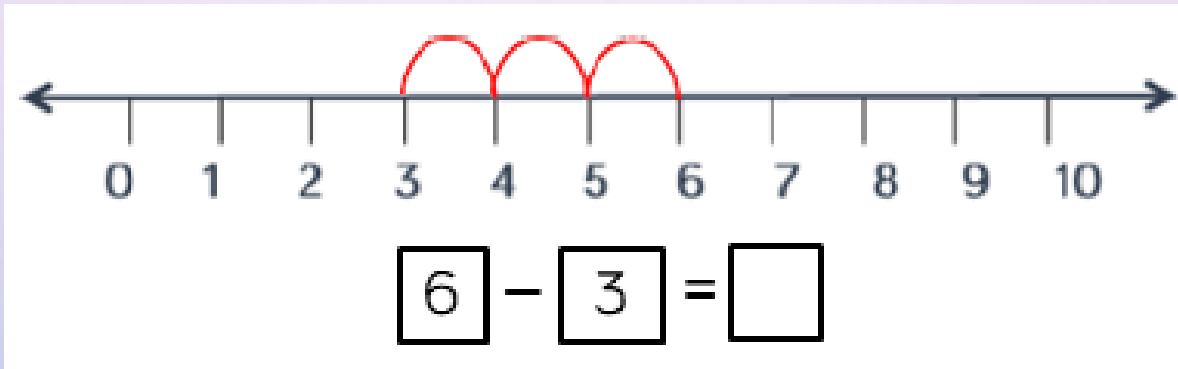
What's the difference between 10 and 6?



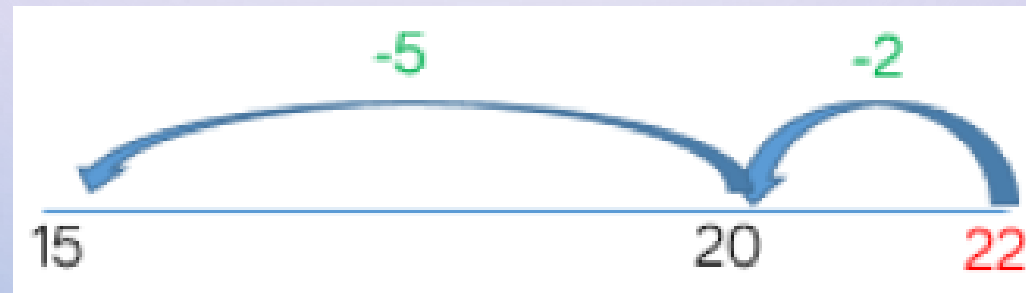
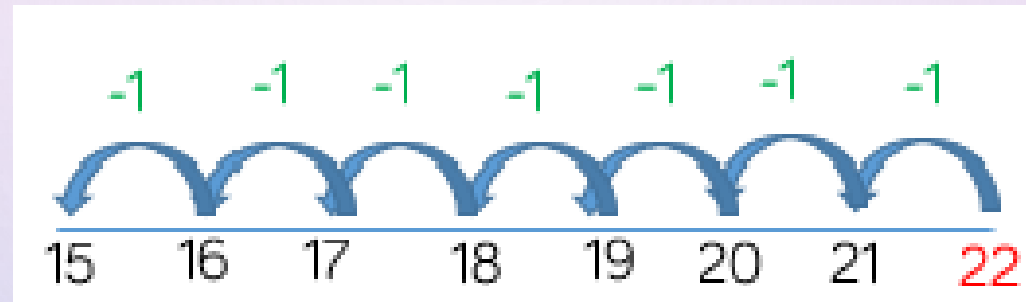
The difference between 10 and 6 is ____

$$10 - 6 =$$

COUNTING BACK



SUBTRACT 1 DIGIT FROM 2 DIGITS



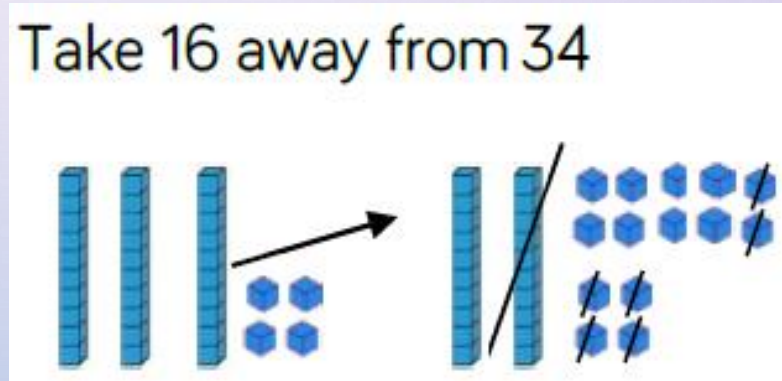
Find the most efficient way.

SUBTRACT 2 DIGITS FROM 2 DIGITS

No Borrowing

	4	8
-	2	4

Borrowing



	² 3	14
-	1	6
<hr/>		
	1	8
<hr/>		

COMPARE STATEMENTS

YEAR 1

One hen lays 3 eggs. Another lays 2 eggs.



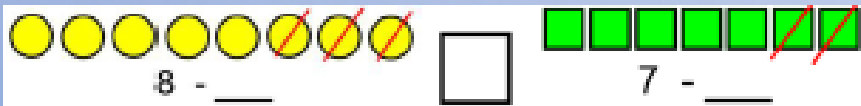
Complete the sentence using greater than, less than or equal to.
2 and 3 is _____ 6

Complete the following using $<$, $>$ or $=$



$$\square + \square$$

$$\square + \square$$



$$8 - \underline{\quad}$$

$$7 - \underline{\quad}$$

YEAR 2

Fill in the missing symbols:

$6 + 4$	<input type="radio"/>	$6 + 5$
$6 + 4$	<input type="radio"/>	$3 + 6$
$11 - 4$	<input type="radio"/>	$12 - 5$
$11 - 4$	<input type="radio"/>	$12 - 4$

Fill in the missing numbers:

$$5 + 3 = 6 + \square$$
$$5 + 3 = \square + 6 = 7 + \square$$
$$\square + 3 = \square + 4 = 5 + 5$$

INVERSE - YEAR 2

Can you use the inverse operation to check $5 + 12 = 17$?



How many possible inverse calculations are there?

Erin writes this calculation: $18 - 5 = 13$

Which of the following could she use to check her work?

$13 + 5$

$13 - 5$

$18 - 13$

$5 + 13$

MULTIPLICATION AND DIVISION IN KSI

Year 1	Year 2
Equal Groups	Equal Groups
Arrays	Arrays
Grouping and Sharing	Grouping and Sharing
	Odd and Even Numbers
	The Multiplication Symbol
	Multiplication with Pictures
	Multiplying by 2, 5 & 10
	Dividing by 2, 5 & 10

EQUAL GROUPS

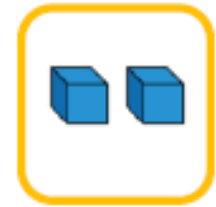
Make Equal Groups

Are the groups equal or unequal? Write a label for each.



Recognise Equal Groups

Complete the stem sentence.



There are ____ equal groups with ____ in each group.

Add Equal Groups

How many wheels altogether?



$$2 + 2 + 2 + 2 + 2 =$$

How many fingers altogether?



$$5 + 5 + 5 =$$

ARRAYS

YEAR 1

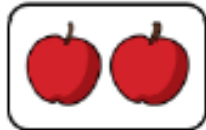
Build the array shown with counters.
Complete the sentences.

There are ___ apples in each row.

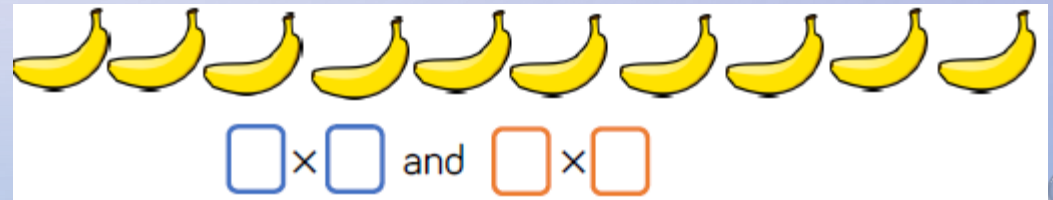
There are ___ rows.

___ + ___ + ___ = ___

There are ___ apples altogether.



YEAR 2



GROUPING & SHARING

Grouping

How many equal groups of 2 can you make with the mittens?



There are ___ groups of 2 mitten
If you had 10 mittens, how many
equal groups of 2 mittens could
you make?

Take 20 cubes. Complete the sentences.

I can make ___ equal groups of 2

I can make ___ equal groups of 5

I can make ___ equal groups of 10

Sharing

Share the muffins equally between the two plates.

Complete the sentence

___ cakes shared equally between 2 is ___



Share 15 beanbags between the 3 hoops.

$$\boxed{15} \div \boxed{3} = \boxed{}$$



ODD AND EVEN NUMBERS

Which of the numbers below can be shared equally between 2?

Are the numbers odd or even? Show this in the table.



Odd	Even

___ numbers can be shared between 2 equally.

___ numbers cannot be shared between 2 equally.

Spot the mistakes.

Odd	Even
<p>7</p> <p>nine</p> <p>6</p> <p>3</p> <p>1</p>	<p>10</p> <p>2</p> <p>12</p> <p>13</p> <p>eight</p>

THE MULTIPLICATION SYMBOL

Complete the sentences to describe the equal groups.



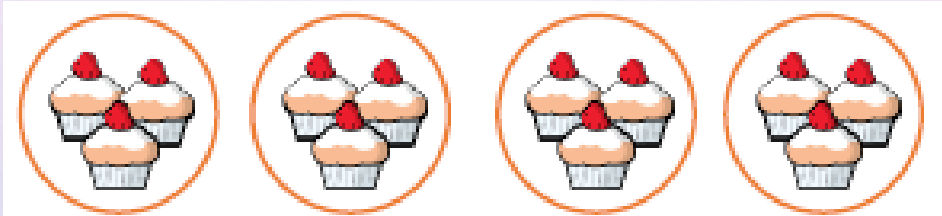
$$\square + \square + \square = 18$$

$$\square \times \square = 18$$

There are ___ equal groups with ___ in each group.

There are three ___.

MULTIPLICATION WITH PICTURES



× =


lots of 3 =

multiplied by = 12


DIVIDING BY 2, 5 & 10

Complete the stem sentences.

$\square \div \square = \square$
 $\square \times \square = \square$


 I have ___ cubes altogether.
There are ___ in each group.
There are ___ groups.

40 pencils are shared between 5 children.

 $\square \div \square = \square$


How many pencils does each child get?

Apples can be sold in packs of 10
How many packs can be made below?


 $\square \div \square = \square$

Sam and Tom have 12 sweets between them. They share them equally. How many sweets does each child get?

There are ___ sweets altogether.
There are ___ groups.
There are ___ in each group.



Group the 1 p coins into 5s.
How many 5 p coins do we need to make 20 p?



Draw coins and complete the missing information.

- ___ lots of 5 p = 20 one pence coins
- ___ lots of 5 p = 20 p
- $20 \text{ p} = \underline{\quad} \times 5 \text{ p}$
- $20 \text{ p} \div 5 \text{ p} = \underline{\quad}$

$70 \div 10 = \square$
 $6 \text{ tens} \div 1 \text{ ten} = \square$
 $5 = \square \div 10$
There are \square tens in 40

TIMES TABLES CHALLENGE

- Every day
- Against the clock
- Aim - fluency
- Times table test in Year 4

6m 37s 11

4m40 12

7m11 12

3m12 12

2m22s 12

6m11 12

4m15 12

2m55 12

2 m28 11

2m54 12

2m49 11

2m13 12

1m25 12

Times Table:	Time:
2	
8	
1	
12	
7	
3	
9	
5	
11	
4	
10	
6	