

ORIGO

STEPPING STONES

SAMPLE PAGES

CORE MATHEMATICS



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ORIGO
EDUCATION

STUDENT JOURNAL

Step In

Counting in Steps of Two, Five and Ten

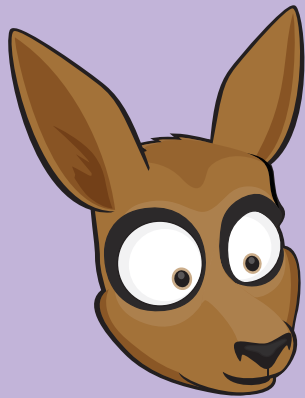
Colour green the numbers you say when you start at 10 and count in steps of ten.

What do you notice?

Colour blue the numbers you say when you start at 5 and count in steps of five.

What patterns do you see?

Colour red the numbers you say when you start at 2 and count in steps of two.



What do you notice?

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

Look at the numbers that show all three colours.

What do you know about these numbers?

Step Up

Use this number chart to answer Questions 1 and 2 on page 57.

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160

1.
 - a. Start at 110 and count in steps of ten. Colour yellow the numbers you say.
 - b. Start at 105 and count in steps of five. Colour green the numbers you say.
 - c. Write in order the numbers you said when you counted in steps of both ten and five.

2.
 - a. Start at 102 and count in steps of two. Colour red the numbers you say.
 - b. What do you notice about these numbers?

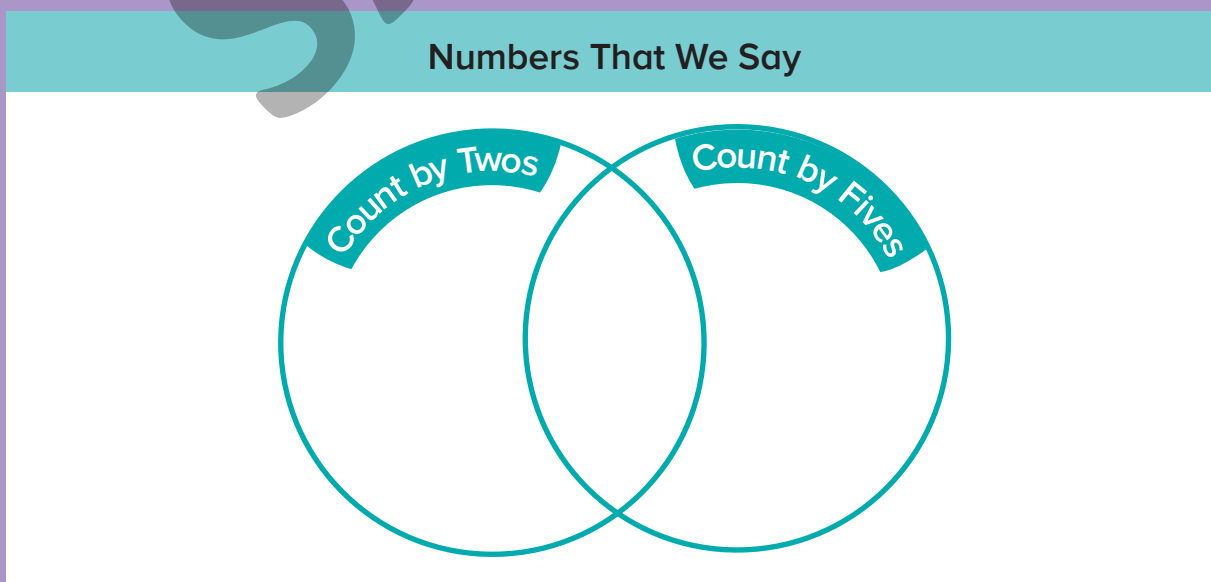
3. Look at the numbers below.

172	185	474	190	225	360	162	285	400
-----	-----	-----	-----	-----	-----	-----	-----	-----

- a. Colour blue the numbers you say when you start at 5 and count in steps of five.
- b. Colour red the numbers you say when you start at 2 and count in steps of two.
- c. Colour green the numbers you say when you start at 10 and count in steps of ten.

Step Ahead

There are four parts in this Venn diagram.
Write two numbers in each part.

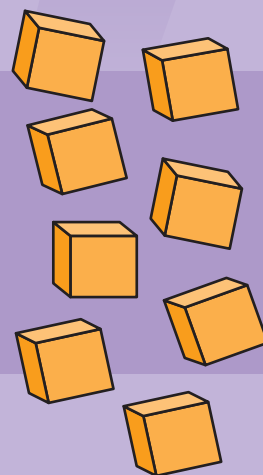


Step In

Revising Multiplication Concepts



I packed 3 stacks of boxes.
There were 8 boxes in each stack.
How many boxes did I pack?



Use cubes to help work out the answer.

Write an addition sentence to match your cubes.

How does your addition sentence relate to the story problem?

Write a multiplication sentence to match your cubes.

The symbol for multiplication is \times .

How does your multiplication sentence relate to the story problem?

Step Up

- I. Draw a picture to help solve each problem.
Then write the matching multiplication sentence.

a. Each container holds 3 tennis balls.
How many tennis balls will fill
4 containers?

$$\underline{\quad} \times \underline{\quad} = \underline{\quad} \text{ balls}$$

b. Each car needs 5 tyres.
How many tyres are needed
for 4 cars?

$$\underline{\quad} \times \underline{\quad} = \underline{\quad} \text{ tyres}$$

2. Complete these. Show your thinking.

a. Balloons cost 5 cents. How much would you pay for 9 balloons?

_____ × _____ = _____ cents

b. How many stamps are on a sheet that has 5 rows of 6 stamps?

_____ × _____ = _____ stamps

c. Chloe had 4 bags. She placed 8 oranges in each. How many oranges did she have in total?

_____ × _____ = _____ oranges

d. William cut 5 lengths of rope. Each piece was 4 metres long. What was the total length of rope?

_____ × _____ = _____ metres

Step Ahead

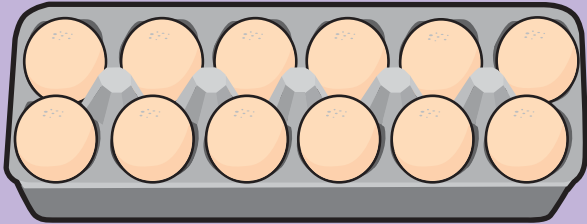
a. Complete this table.

Number of feet	2	3	4	5	8	9	10
Number of toes	10						

b. How did you work out the number of toes on 8 feet?

Step In → Introducing the Twos Multiplication Facts

What do you see in this picture?



I see double 6.



What multiplication number sentences could you write for the picture of eggs?

What do you see in this picture?

Write two related number sentences to match.


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

How did you work out the total?

What are some other problems you could solve by doubling?

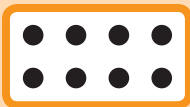
I can use doubles to solve any problem that involves two.



Step Up →

I. Write a twos number fact and its turnaround for each picture.

a.



$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

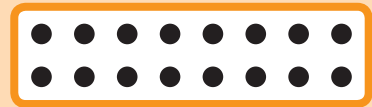
b.



$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$




c.



$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

2. Write the two facts that matches each array. Then write the turnaround fact.

<p>a.</p> 	<p>b.</p> 	<p>c.</p> 
$\underline{\quad} \times \underline{\quad} = \underline{\quad}$ $\underline{\quad} \times \underline{\quad} = \underline{\quad}$	$\underline{\quad} \times \underline{\quad} = \underline{\quad}$ $\underline{\quad} \times \underline{\quad} = \underline{\quad}$	$\underline{\quad} \times \underline{\quad} = \underline{\quad}$ $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

3. Draw a line to match each multiplication sentence with its turnaround below. Then write the answers.

$2 \times 9 = \underline{\quad}$	$12 \times 2 = \underline{\quad}$	$11 \times 2 = \underline{\quad}$	$2 \times 14 = \underline{\quad}$
$2 \times 12 = \underline{\quad}$	$2 \times 11 = \underline{\quad}$	$9 \times 2 = \underline{\quad}$	$14 \times 2 = \underline{\quad}$

Step Ahead

Write the missing numbers.

<p>a.</p> <table border="1"> <tr> <th>IN</th> <th>OUT</th> </tr> <tr> <td>7</td> <td><input type="text"/></td> </tr> <tr> <td>4</td> <td><input type="text"/></td> </tr> <tr> <td>10</td> <td><input type="text"/></td> </tr> <tr> <td><input type="text"/></td> <td>22</td> </tr> </table> <p>double</p>	IN	OUT	7	<input type="text"/>	4	<input type="text"/>	10	<input type="text"/>	<input type="text"/>	22	<p>b.</p> <table border="1"> <tr> <th>IN</th> <th>OUT</th> </tr> <tr> <td>5</td> <td><input type="text"/></td> </tr> <tr> <td>9</td> <td><input type="text"/></td> </tr> <tr> <td><input type="text"/></td> <td>24</td> </tr> <tr> <td>6</td> <td><input type="text"/></td> </tr> </table> <p>$\times 2$</p>	IN	OUT	5	<input type="text"/>	9	<input type="text"/>	<input type="text"/>	24	6	<input type="text"/>
IN	OUT																				
7	<input type="text"/>																				
4	<input type="text"/>																				
10	<input type="text"/>																				
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IN	OUT																				
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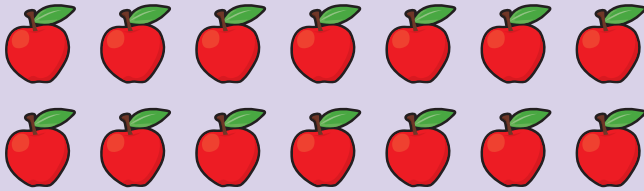
Step In

Reinforcing the Twos Multiplication Facts

What pictures could you draw to match this fact?

$$2 \times 7 = 14$$

Anton drew rows of apples.
How does his picture match the fact?



2 rows of 7 apples,
that's 14 in total.



Lyrra drew bags of marbles.
How does her picture match the fact?



How could you represent the same fact on a number line?

You could draw 2 jumps of 7 on a number line.



Step Up

I. Draw a picture to match each word story.
Then complete the number sentence.

a. 5 oranges in each bag
2 bags of oranges

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

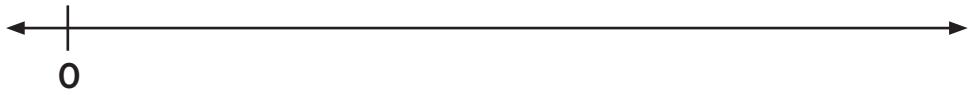
b. 3 rows of strawberries
2 strawberries in each row

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

2. Complete the number sentence.
Draw jumps on the number line to show your thinking.

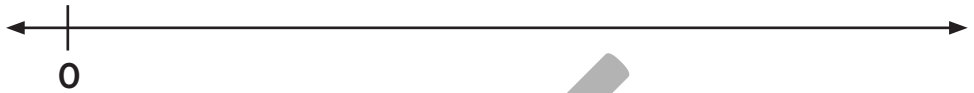
a.

$2 \times 6 = \underline{\quad}$



b.

$4 \times 2 = \underline{\quad}$



c.

$2 \times 5 = \underline{\quad}$



d.

$9 \times 2 = \underline{\quad}$



3. Write the missing number in each number sentence.

a. $8 \times 2 = \underline{\quad}$

b. $\underline{\quad} \times 2 = 10$

c. $10 \times \underline{\quad} = 20$

d. $\underline{\quad} \times 3 = 6$

e. $2 \times \underline{\quad} = 20$

f. $14 = \underline{\quad} \times 2$

g. $2 \times \underline{\quad} = 8$

h. $12 = 6 \times \underline{\quad}$

Step Ahead

Write a multiplication sentence you could use to solve each problem.

a. There are 9 boxes of shoes. Each box holds 2 shoes. How many shoes in total?

$\underline{\quad} \times \underline{\quad} = \underline{\quad}$

b. Koki cuts a piece of rope into 2-m lengths. The rope is 14 metres long. How many lengths can he cut?

$\underline{\quad} \times \underline{\quad} = \underline{\quad}$

Step In → Doubling and Halving Multiples of 10 and 5

What do you know about doubling and halving that involves the number 20?

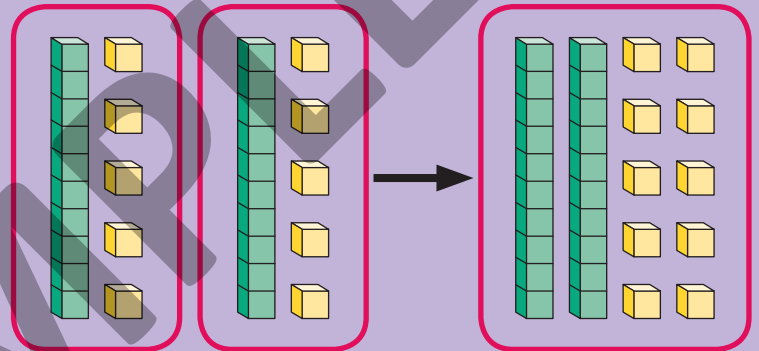


I know that two 20c coins is equal to 40c, so half of 40 must be 20.



How could you work out double 15?

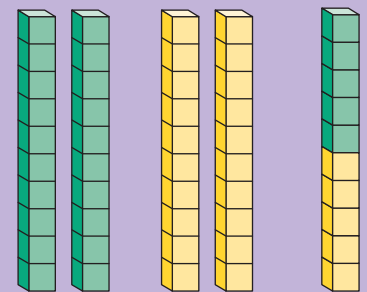
15 is the same as 1 ten and 5 ones.
Double 10 is 20, double 5 is 10.



How could you work out half of 50?



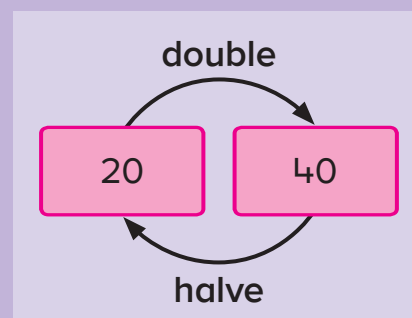
I think of sharing 5 tens blocks.
I can put 2 tens in each group
but I'd need to split the last
block to share it equally.



Jasmine drew this picture to show what she knew about doubling and halving.

What does it tell you?

What other numbers could you use in the picture? How do you know?



Step Up

I. Complete these sentences.

a.

Double is 4

so

Double is 40

b.

Half of 6 is

so

Half of 60 is

c.

Half of 8 is

so

Half of 80 is

d.

Double is 10

so

Double is 100

2. Complete the sentence and write the answer.

a.

Double 15

is the same as

double 10 plus double 5.

Double 15 is _____.

b.

Double 45

is the same as

double _____ plus double _____.

Double 45 is _____.

c.

Double 35

is the same as

double _____ plus double _____.

Double 35 is _____.

d.

Double 25

is the same as

double _____ plus double _____.

Double 25 is _____.

Step Ahead

Draw lines to connect the cards that have the same value.
Some cards have more than one match. Some cards have no match.

Double 25

Double 40

Halve 70

20

35

50

Halve 100

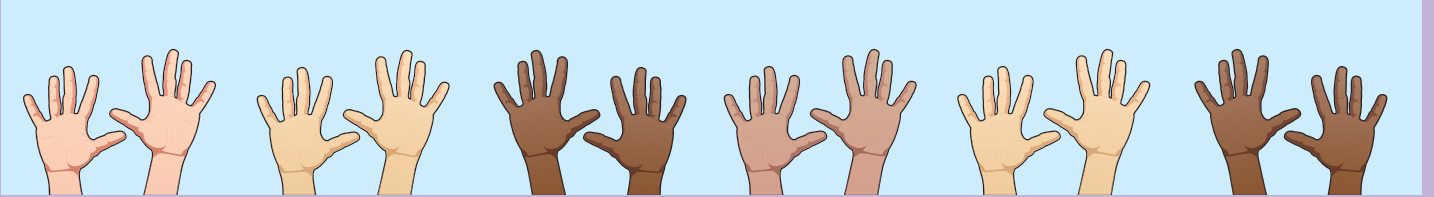
Halve 40

Double 10

Step In

Introducing the Tens Multiplication Facts

Six students held up their hands in front of the class.



How many fingers are there in total? How can you work it out quickly?

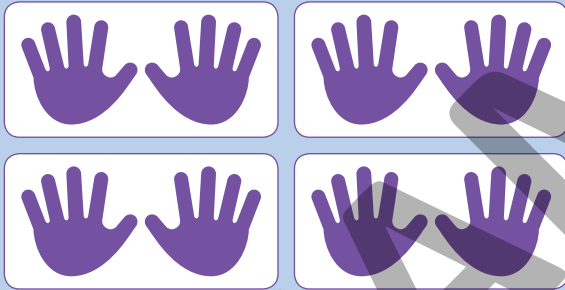
What multiplication sentence could you write to describe the number of fingers?

× =

Step Up

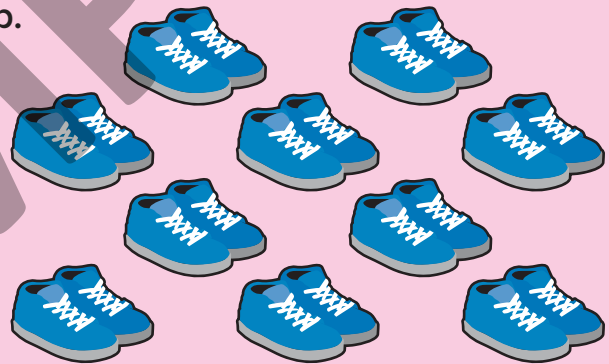
I. Work out the total. Write the matching number sentence.

a.



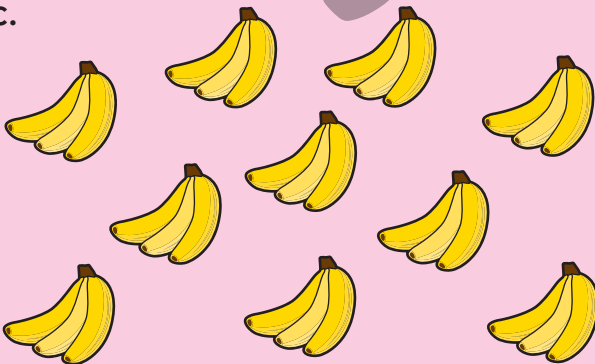
× = fingers

b.



× = shoes

c.



× = bananas

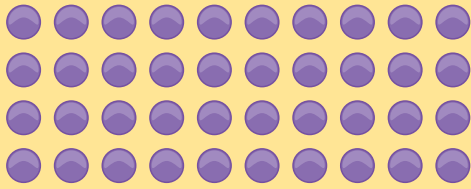
d.



× = C

2. Write two facts to match each array.

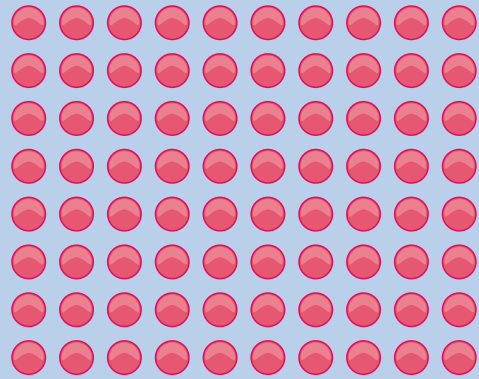
a.



$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

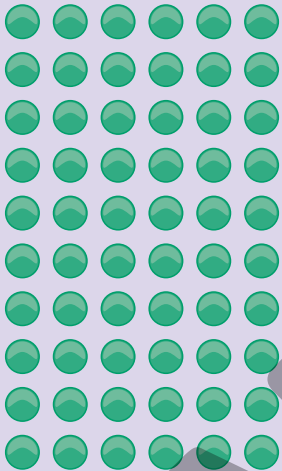
b.



$$\underline{\quad} = \underline{\quad} \times \underline{\quad}$$

$$\underline{\quad} = \underline{\quad} \times \underline{\quad}$$

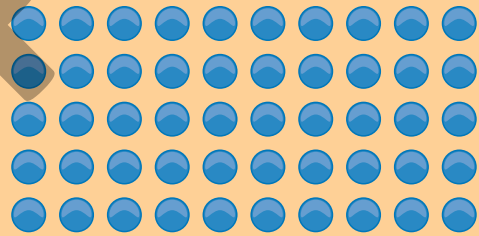
c.



$$\underline{\quad} = \underline{\quad} \times \underline{\quad}$$

$$\underline{\quad} = \underline{\quad} \times \underline{\quad}$$

d.



$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

Step Ahead

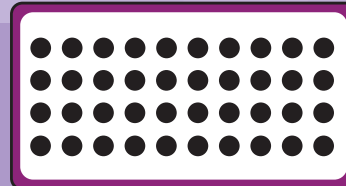
Heena has five 10-cent coins. Noah has ten 5-cent coins. Does Noah have more money than Heena? Explain your answer.

Step In

Introducing the Fives Multiplication Facts

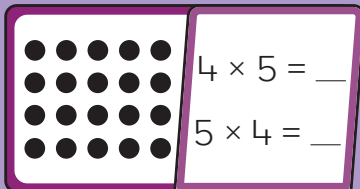
Look at this array and the number sentences.

How could you work out the products?



$4 \times 10 = \underline{\quad}$

$10 \times 4 = \underline{\quad}$



$4 \times 5 = \underline{\quad}$

$5 \times 4 = \underline{\quad}$

How is this array different from the one above?

How could you work out the products of these number sentences?



I halved the product in the tens fact. 10 fours is 40 so 5 fours is half of that.



I counted in steps of 5.

Use a halving strategy to work out 6×5 . You can draw an array to help.

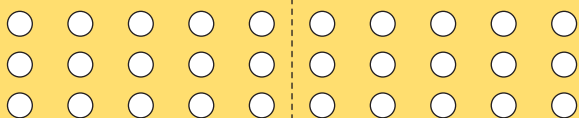
Blank area for drawing an array to help work out 6×5 .

Step Up

1. Complete the tens fact. Colour half the array and then complete the two fives facts to match.

a.

$3 \times 10 = \underline{\quad}$

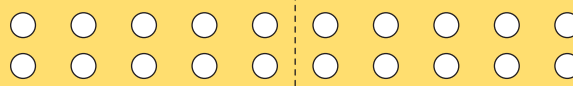


$3 \times 5 = \underline{\quad}$

$5 \times 3 = \underline{\quad}$

b.

$2 \times 10 = \underline{\quad}$



$2 \times 5 = \underline{\quad}$

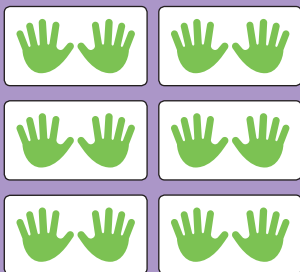
$5 \times 2 = \underline{\quad}$

2. Write the product for the tens fact.

Colour half the array and then write the two fives facts to match.

<p>a.</p> <p>$7 \times 10 =$ <input type="text"/></p>		<p><input type="text"/> \times <input type="text"/> $=$ <input type="text"/></p> <p><input type="text"/> \times <input type="text"/> $=$ <input type="text"/></p>
<p>b.</p> <p>$6 \times 10 =$ <input type="text"/></p>		<p><input type="text"/> \times <input type="text"/> $=$ <input type="text"/></p> <p><input type="text"/> \times <input type="text"/> $=$ <input type="text"/></p>
<p>c.</p> <p>$9 \times 10 =$ <input type="text"/></p>		<p><input type="text"/> \times <input type="text"/> $=$ <input type="text"/></p> <p><input type="text"/> \times <input type="text"/> $=$ <input type="text"/></p>
<p>d.</p> <p>$8 \times 10 =$ <input type="text"/></p>		<p><input type="text"/> \times <input type="text"/> $=$ <input type="text"/></p> <p><input type="text"/> \times <input type="text"/> $=$ <input type="text"/></p>

Step Ahead



a. Write two tens facts to match this picture.

\times $=$ \times $=$

b. Cross out one hand on each card.

Write two multiplication facts to match the new picture.

\times $=$ \times $=$

c. How did you work out what facts to write?

Step In

Reinforcing the Tens and Fives Multiplication Facts

CLOSED

$6 \times 5 = \underline{\quad}$
 $5 \times 6 = \underline{\quad}$

OPENED

$6 \times 10 = \underline{\quad}$
 $10 \times 6 = \underline{\quad}$

How can you use the tens fact on the opened card to help work out the number of dots showing on the closed card?

What other methods could you use to work out the product of 6×5 ?

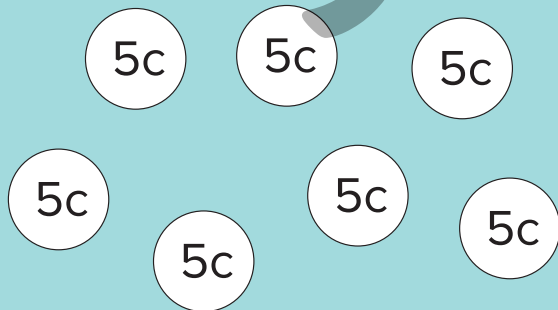


I would skip count by fives: 5, 10, 15, 20, 25, 30.

Step Up

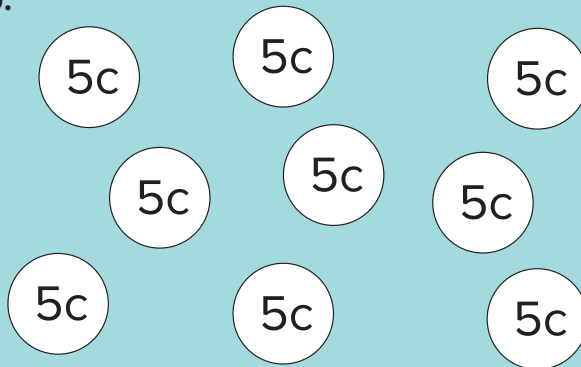
I. Work out the total and write the matching number sentence.

a.



$\underline{\quad} \times \underline{\quad} = \underline{\quad} \text{c}$

b.



$\underline{\quad} \times \underline{\quad} = \underline{\quad} \text{c}$

2. Draw 5c coins to match the price tag. Then write a matching number sentence.

a. 

_____ × _____ = _____ c

b. 

_____ × _____ = _____ c

3. Write the missing number in each number sentence.

a. $6 \times 10 = \underline{\quad}$ b. $4 \times \underline{\quad} = 20$ c. $\underline{\quad} \times 5 = 35$ d. $10 \times \underline{\quad} = 40$

e. $80 = \underline{\quad} \times 8$ f. $\underline{\quad} \times 5 = 15$ g. $5 \times \underline{\quad} = 45$ h. $30 = \underline{\quad} \times 6$

4. Write a number sentence to match each story.

a. Jacob has a set of 10 toy cars. The total length of all the cars laid end to end is 70 cm. Each car is 7 cm long.

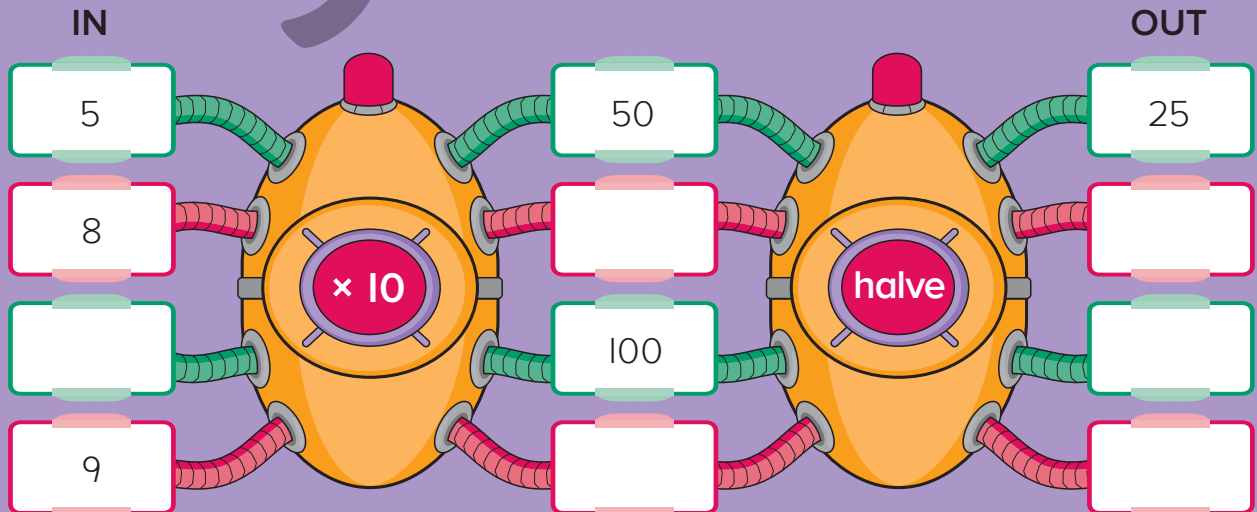
_____ × _____ = _____

b. Ella had 30 stickers to pack into bags. She put 5 stickers in each bag. When she finished she had 6 bags of stickers.

_____ × _____ = _____

Step Ahead

These **IN** numbers are multiplied by 10 and then halved before they come **OUT**. Write the missing numbers.



Step In → Adding Coin Values

How many 10-cent coins can you trade for 20 cents? How do you know?

How many 5-cent coins can you trade for 20 cents?

How many 5-cent coins can you trade for 50 cents?

Look at this coin.

How many 20-cent coins can be traded for one dollar?

How many 20-cent coins make 40 cents?

How many make 80 cents?



Look at this coin. What coin is it?

What is its value in dollars?

How many 10-cent coins could you trade for one dollar?

How do you know?

How many 5-cent coins could you trade for one dollar?



Step Up →

I. Write the missing numbers.

a.



Two 20-cent coins is _____ c

Three 10-cent coins is _____ c

One 5-cent coin is _____ c

The total is _____ c

b.



One 50-cent coin is _____ c

Two 10-cent coins is _____ c

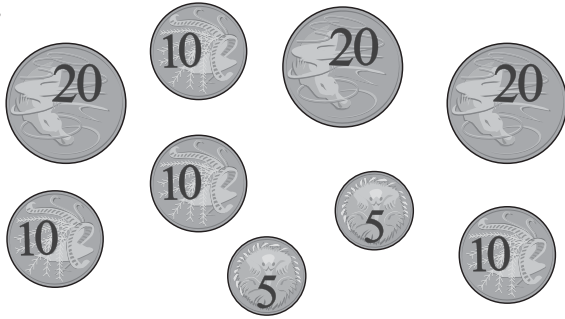
Four 5-cent coins is _____ c

The total is _____ c



2. Loop together the coins that equal one dollar. Then write the total amount.

a.



_____ dollar and _____ cents left over

b.



_____ dollar and _____ cents left over

3. Read the story. Write the missing numbers.

Haroon had two 50-cent coins, two 10-cent coins and three 5-cent coins in his wallet.

He had _____ dollar and _____ cents.

Haroon gave his sister 10 cents. He then found 20 cents on the footpath.

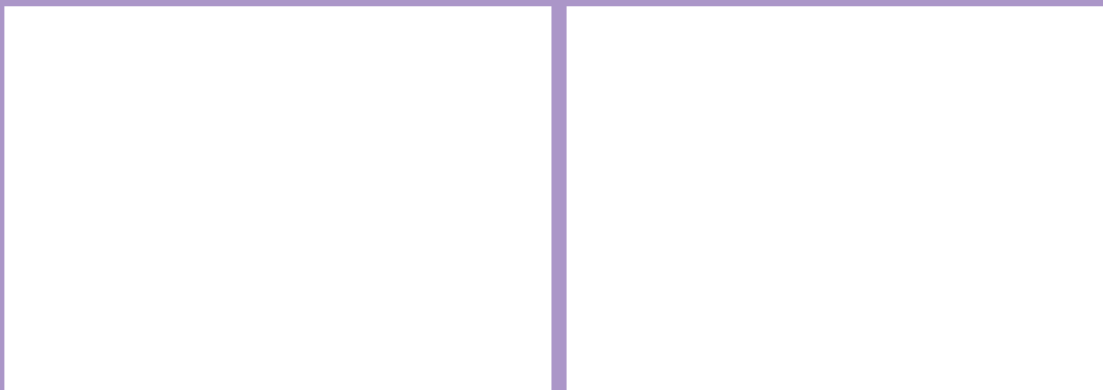
Now he has _____ dollar and _____ cents.

Haroon's aunty gave him three 20-cent coins.

Now he has _____ dollars and _____ cents.

Step Ahead

Scarlett has 4 coins in her pocket. The total is more than 50 cents but less than 70 cents. Draw two different pictures to show the coins she might have in her pocket.



5c

10c

20c

50c

Step In

Reading and Recording Dollars and Cents

How could you work out the value of these coins?

What helps you work out the total quickly?



How could you work out the value of these coins in dollars and cents?



What do you know about this coin?

How many cents is it worth? How do you know?

What coins can be traded for two dollars?



Step Up

I. Loop together coins that show whole dollars.
Then complete the sentences.

a.



_____ dollar and _____ cents left over

b.



_____ dollars and _____ cents left over

c.



_____ dollars and _____ cents left over

d.



_____ dollars and _____ cents left over

2. Loop together coins that show whole dollars and add to whole dollars. Then complete the sentences.



_____ dollars and _____ cents left over



_____ dollars and _____ cents left over



_____ dollars and _____ cents left over

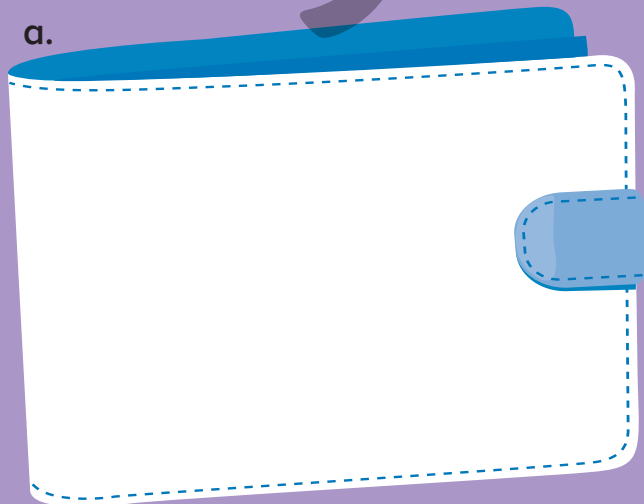


_____ dollars and _____ cents left over

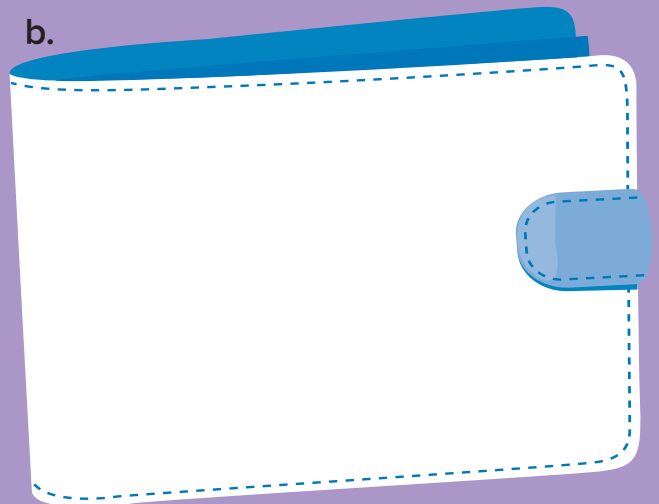
Step Ahead

Callon has five coins in his wallet that total 4 dollars and 20 cents. Draw coins to show two different combinations that he could have.

a.



b.



Step In

Constructing a Vertical Column Graph

Hannah would like to know the seasons in which her classmates were born. She knows some of the months in each season.

Write the missing months and season.



What question should she ask her classmates?

Season	Months		
Summer	December		February
Autumn		April	May
			August
Spring	September	October	

Step Up

1. Write the season in which you were born.

2. Ask each student in your class to name the season in which they were born. Record the results in this tally chart.

Season	Tally	Total

3. a. Most students were born in .

b. The fewest number of students were born in .

c. students in total were born in Summer and Autumn.

d. What is the total of students born in Winter and Spring?

4. Complete this column graph to show your results from Question 2.

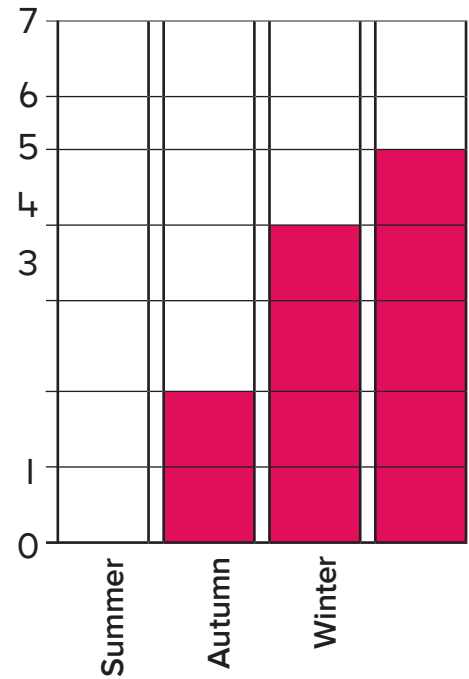
Title: _____



Step Ahead

This column graph has some mistakes. Describe four mistakes you see.

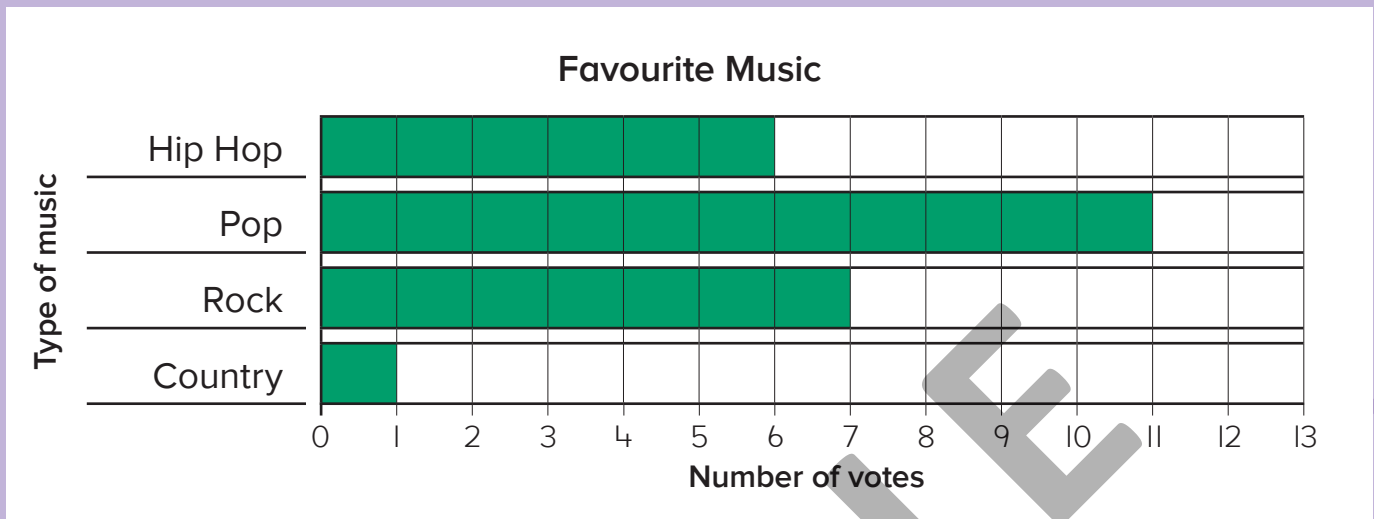
Blank lined area for writing the description of mistakes.



Step In

Interpreting and Constructing a Horizontal Column Graph

Owen asked his classmates to vote for their favourite type of music. This column graph shows the results.



Each student voted once.

How many students voted for each type of music?

Which type of music was most popular?

How many more students voted for Hip Hop than Country? How do you know?

How many students voted altogether? How do you know?

If your classmates voted for their favourite music, what do you think the results would look like?

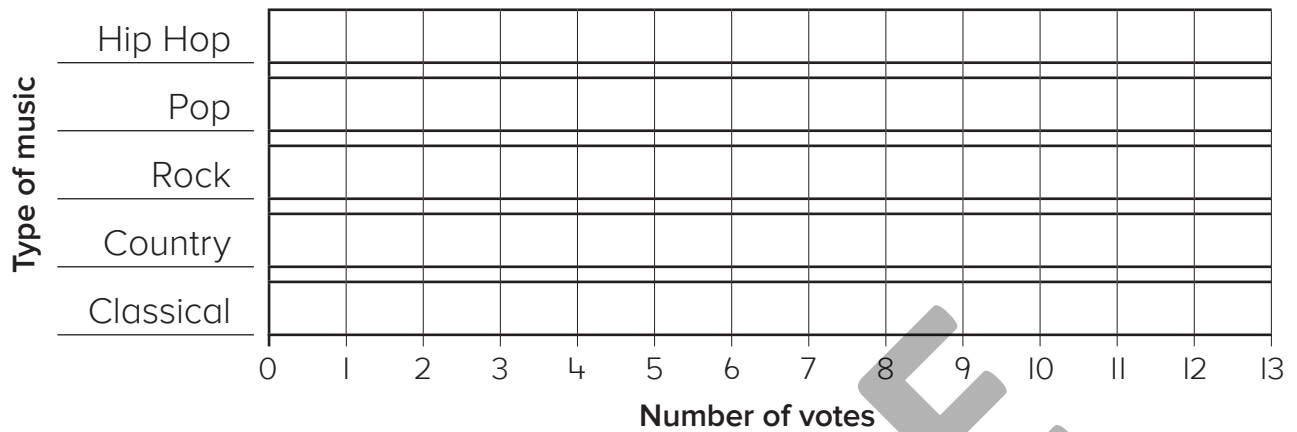
Step Up

1. Ask each student in your class to vote for their favourite type of music. Record the results in this tally chart.

Type of music	Tally	Total
Hip Hop		
Pop		
Rock		
Country		
Classical		

2. Show your results from Question 1 on this column graph.

Title: _____



3. a. What is the most popular type of music? _____

b. What is the least popular type of music? _____

c. _____ students in total voted for Pop and Hip Hop.

d. _____ students in total voted for Classical and Country.

4. a. How many students voted altogether? _____

b. How did you work it out?

Step Ahead

Think about the music that students in Year 1 listen to.

a. What type of music do you think they listen to the most?

b. Is this different from the music that you listen to? _____