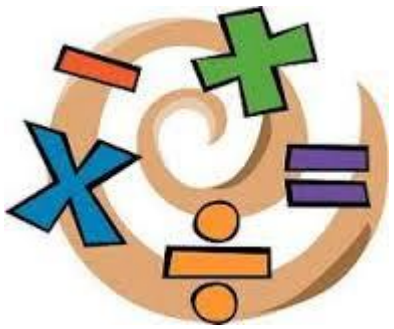


Maths Workshop – 07.03.18
Topic – The Four Operations
Miss Barrett

Aims of today

- To get an insight into what your child is expected to know ahead of the SATs.
- To take away some ideas to support your child at home.
- To work with some other parents and take part in a variety of maths activities.

SATs requirements

Children should know and be able to:

- Apply increasing knowledge of mental and written methods to solve addition and subtraction problems.
- Derive and use related facts up to 100.
- Add and subtract numbers mentally, including: a two-digit number and ten; two two-digit numbers totalling up to 100.
- Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations.
- Solve simple 2 step problems using more than one operation.
- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
- Show that multiplication of two numbers can be done in any order (commutative), but division is not.
- Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in context.
- Solve simple problems involving odd and even numbers
- Multiply by using arrays for x 3,4,5 and 10.
- Solve simple 2 step problems using more than one operation.

Addition and Subtraction

From the list seen on the previous page, these are the necessary parts of the learning that the children need to focus on with just addition and subtraction:

- Apply increasing knowledge of mental and written methods to solve addition and subtraction problems.
- Derive and use related facts up to 100.
- Add and subtract numbers mentally, including: a two-digit number and ten; two two-digit numbers totalling up to 100.
- Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations.
- Solve simple 2 step problems using more than one operation.

Addition and Subtraction

(1) Mental and Written Methods of Addition and Subtraction

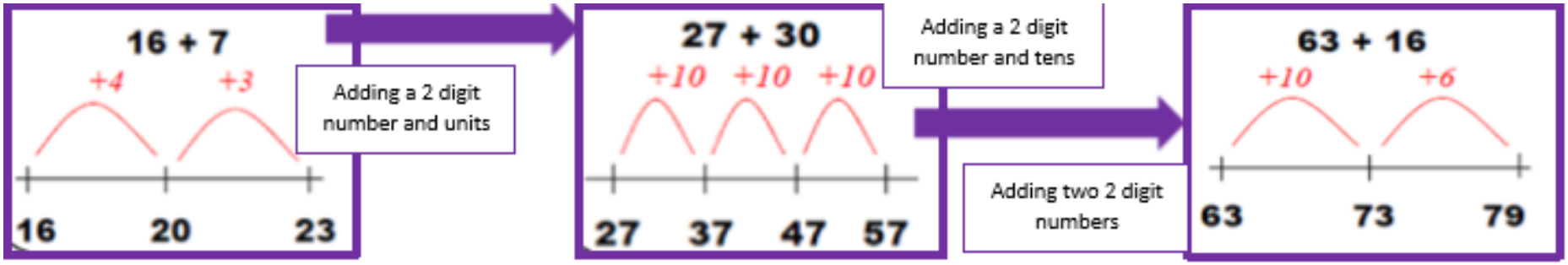
When we talk about mental methods, we are thinking about using quick skills and already taught information to help the children solve questions at speed.

The children could solve the questions mentally with partitioning and number lines. This helps the children build on their place value and number knowledge.

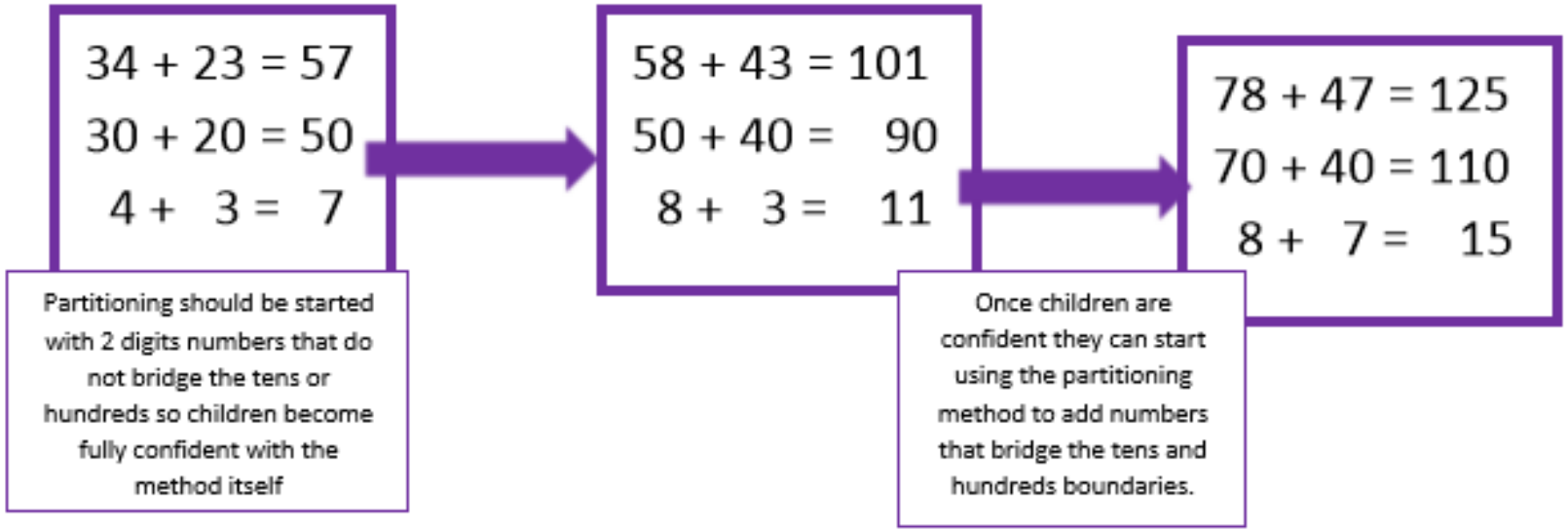
When we talk about written methods, we have taught the children to use the column method. The children need to be able to do this correctly using two 2-digit numbers, crossing over the boundaries into different place value columns.

Addition and Subtraction

Number Line Method:

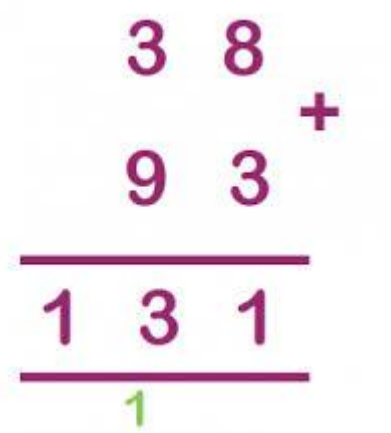


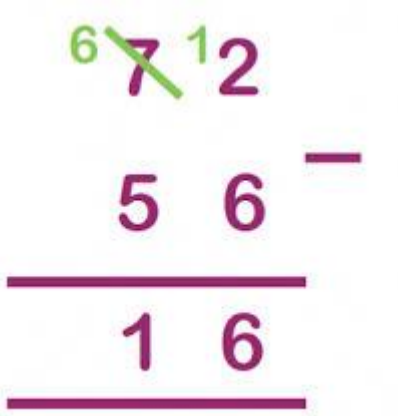
Partitioning:



Addition and Subtraction

Column Method:





Addition and Subtraction – Previous SATS questions

Parent Activity Time!

You have on your tables an activity sheet labelled ‘Activity 1’. With a partner or as a group, work through the questions to see if you are able to solve these addition and subtraction questions using either the number line, partitioning or column methods.

Activity Answers

$43 - 5 =$ 

$84 + 12 =$ 

$97 + 5 =$ 

Activity Answers

85 − 21 =

69 + 11 =

36 + 24 =

Addition and Subtraction

(2) Solve simple 2 step problems using more than one operation.

When children have mastered the different ways of solving addition and subtraction calculations, they will then progress onto solving word problems using these skills.

Before they can even solve the problem, the children must understand the words in the problem to know whether or not they need to add or subtract.

Addition and Subtraction - Synonyms

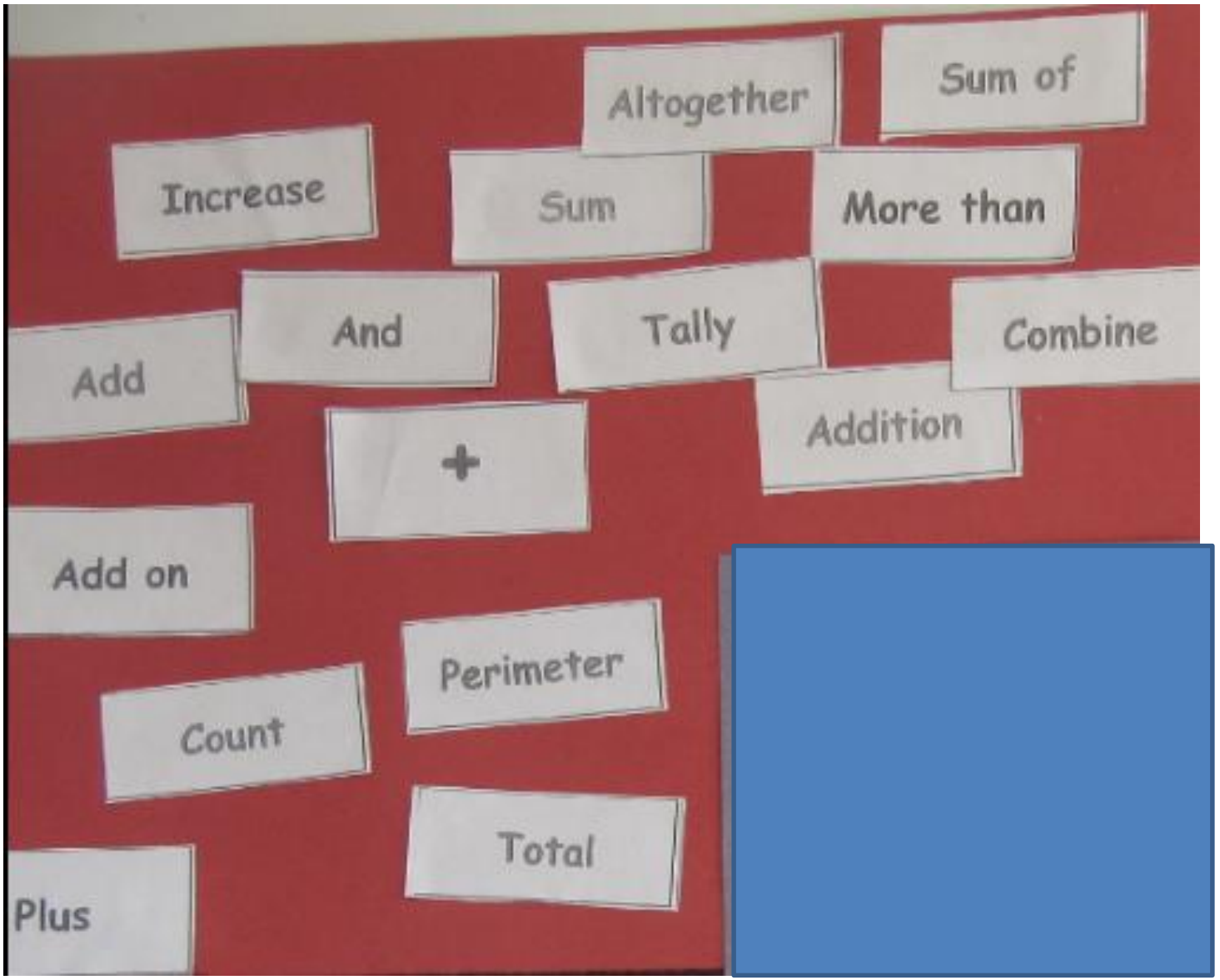
For the children to solve 1- and 2-step problems, they need to be familiar with the synonyms of addition and subtraction, i.e. words or phrases that tell them whether they need to add or subtract.

Parent Activity Time –

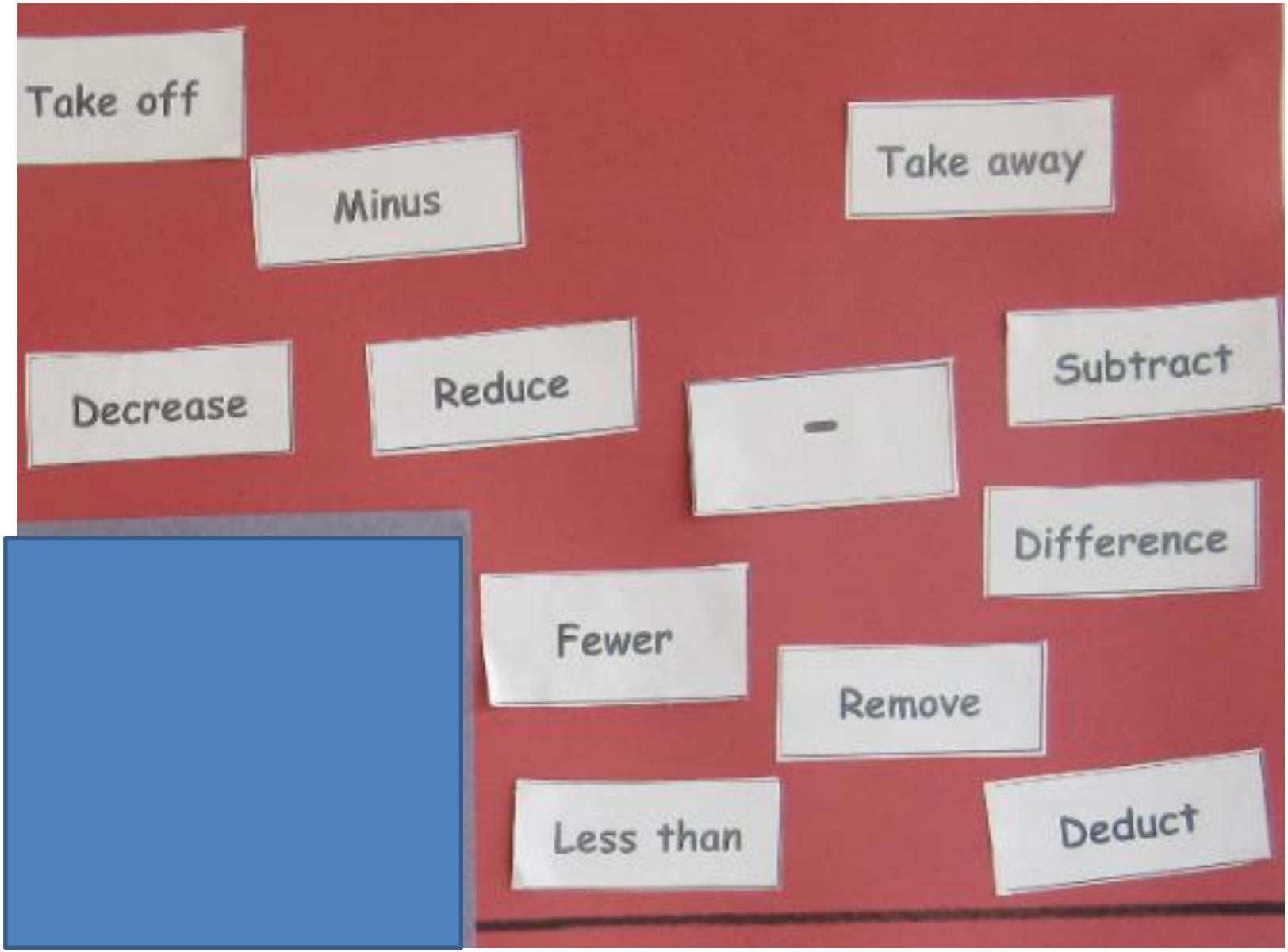
You have been given a bundle of words. Some of the words mean the same as ‘addition’, some will mean the same as ‘subtraction’ and some will be for the other 2 operations of multiplication and division.

Working together, separate the words out into the ‘addition’ and ‘subtraction’ piles. The rest of the words that are unused can be left to the side.

Activity Answers



Activity Answers



Addition and Subtraction – Previous SATS style word problems

Parent Activity Time!

You have on your tables an activity sheet labelled ‘Activity 2’. With a partner or as a group, work through the questions to see if you are able to solve these addition and subtraction questions using either the number line, partitioning or column methods.

Activity Answers

Ben has £19

A game costs £25

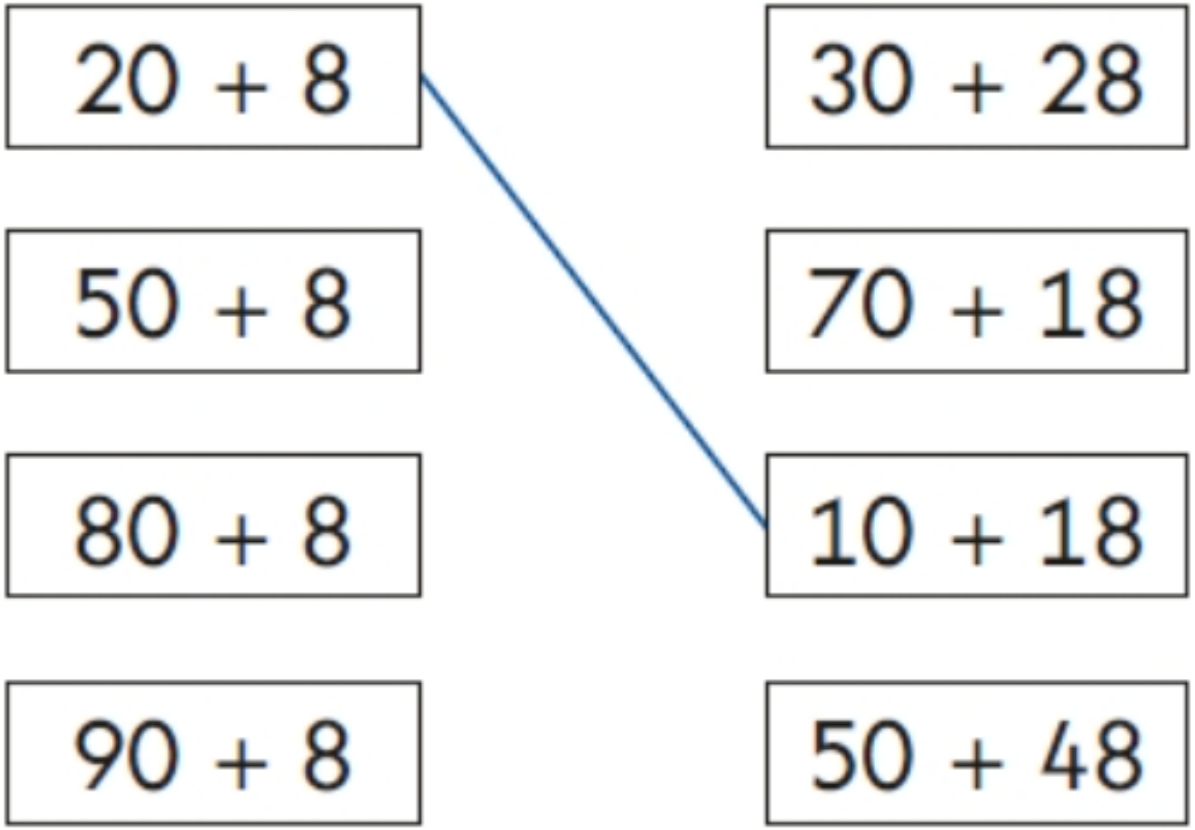
How much **more** money does Ben need to buy the game?

£

Activity Answers

Match the sums that have the same answer.

One is done for you.



Activity Answers

Sam is collecting cards.

He wants to collect **100** cards altogether.

Last week he collected **50** cards.

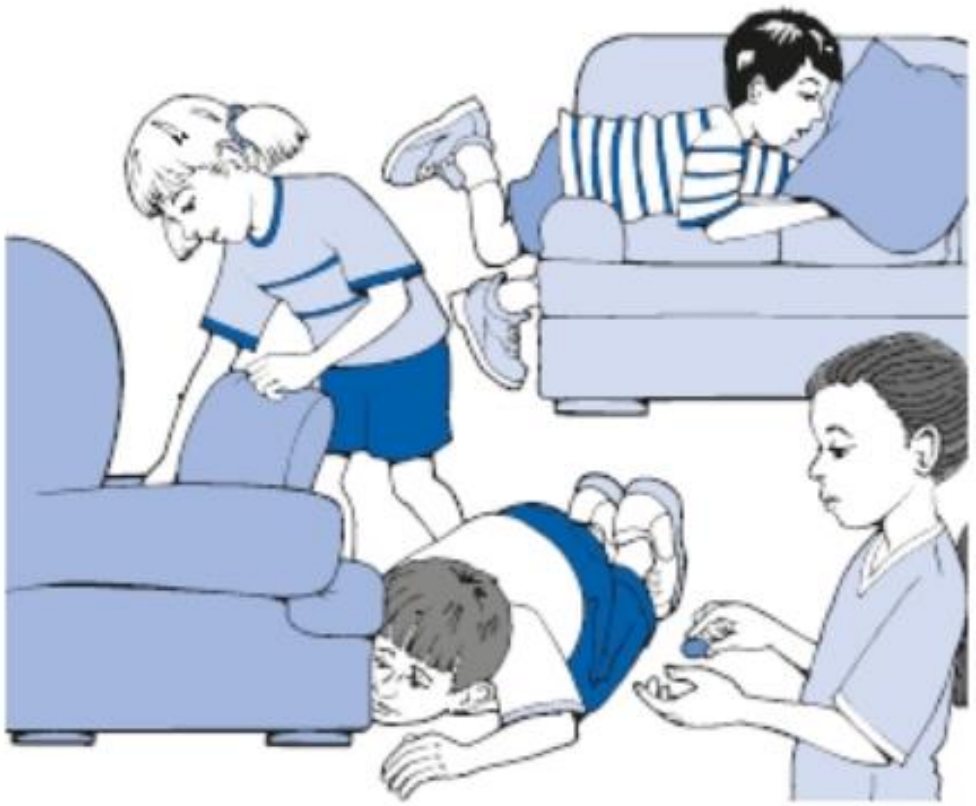
This week he collects **30** cards.

How many **more** cards does he need?

Activity Answers

Anna's mum hides some chocolate eggs.

Sara finds	10	eggs
Carl finds	13	eggs
Lee finds	11	eggs
Anna finds	12	eggs



How many eggs do they find altogether?

Addition and Subtraction

(3) Recognise and use the inverse relationship between addition and subtraction and use this to check calculations.

When the children are comfortable and confident with using a written or mental method of addition and subtraction, they can then use these skills to show that they understand how to use these to find missing numbers to questions.

This challenges the children to make sure they understand that addition and subtraction are closely linked.

Addition and Subtraction – Inverse Questions

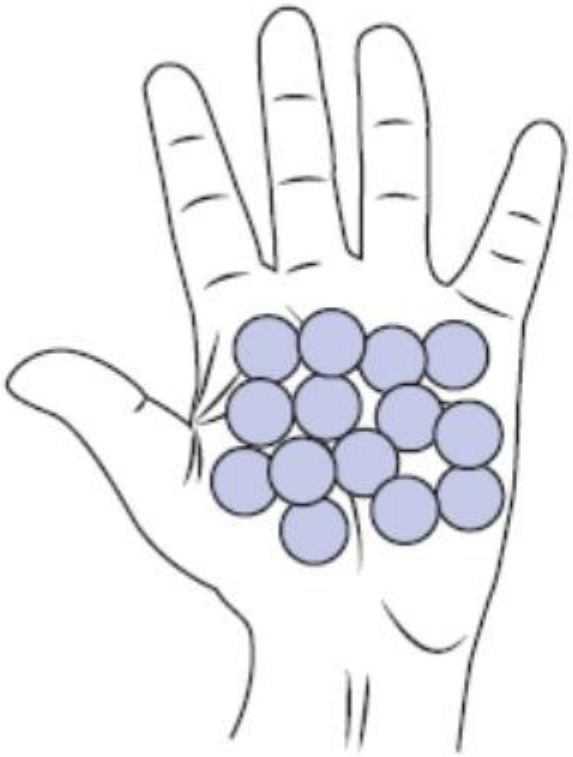
Parent Activity Time!

You have on your tables an activity sheet labelled ‘Activity 3’. With a partner or as a group, work through the questions to see if you are able to solve missing number questions that use addition and subtraction.

Activity Answers

Amy has **21** counters altogether.

She has **14** counters in one hand.



How many counters does she have in the other hand?

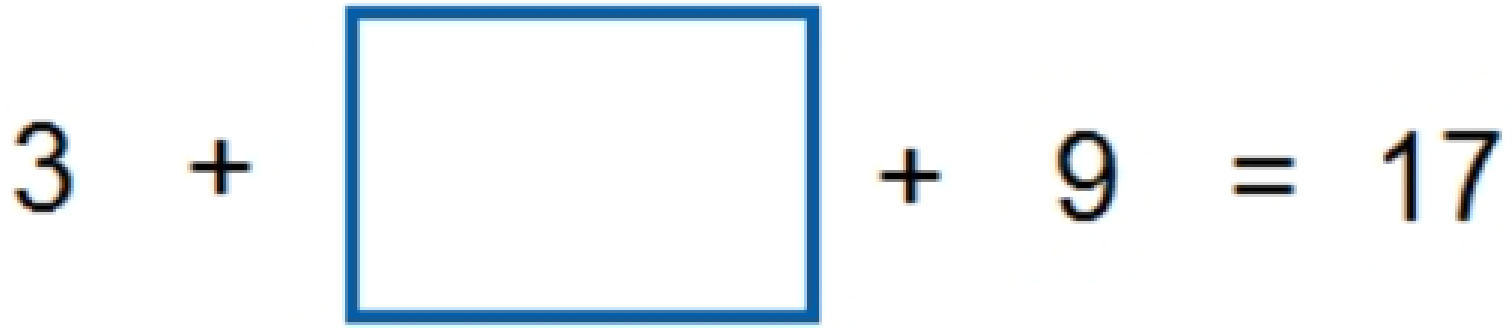
Activity Answers

Write a number in the box to make this correct.

$$2 + 8 = 6 + \square$$

Activity Answers

Put a number in the box to make this correct.



Multiplication and Division

From the list seen on the previous page, these are the necessary parts of the learning that the children need to focus on with just multiplication and division:

- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
- Show that multiplication of two numbers can be done in any order (commutative), but division is not.
- Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in context.
- Solve simple problems involving odd and even numbers
- Multiply by using arrays for x 3,4,5 and 10.
- Solve simple 2 step problems using more than one operation.

Multiplication and Division

(1) Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.

In Year 2, it is incredibly important that the children are fluent in their 2, 5 and 10 times tables. They should be able to recall these times tables not only in order, e.g. 1 x2 = 2, 2 x 2 = 4, 3 x 2 = 6, etc., but also out of order and at speed.

The children should begin by knowing these times tables by rote, i.e. saying them out aloud in order, as this will help to lay the foundations for them to say their times tables out of order.

Multiplication and Division

Game/activity ideas to help with multiplying with the 2, 5 and 10 times tables:

- times table bingo
- snap
- 3 in a row
- rolling a 12 sided die and multiplying the number
- times table races

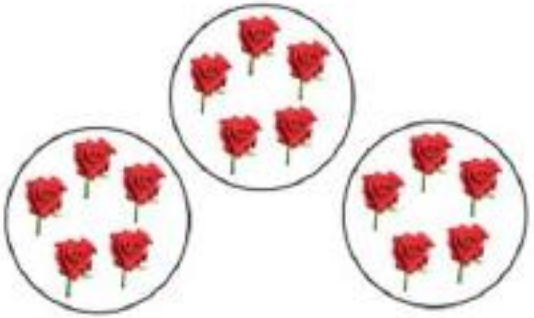
Multiplication and Division

(2) Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in context.

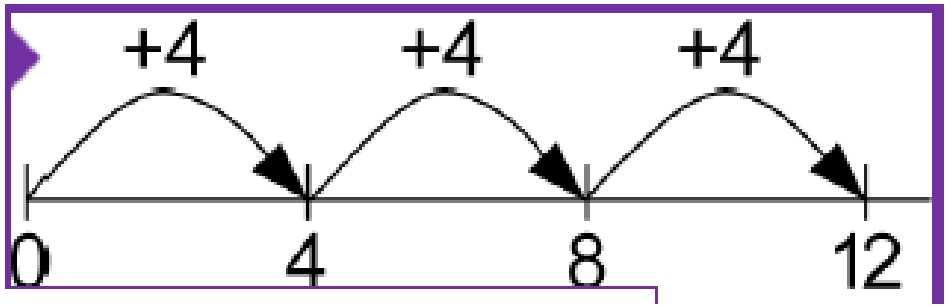
Unlike addition and subtraction, there are lots of different methods that the children need to know or be familiar with for them to achieve success when multiplying and dividing. Although children naturally prefer certain methods over others, e.g. they may like arrays rather than repeated addition, the children have to be aware that sometimes a method is less favourable than others. For example, when multiplying 10 by 12, they may prefer to draw this as an array but this will be too time consuming during the tests themselves.

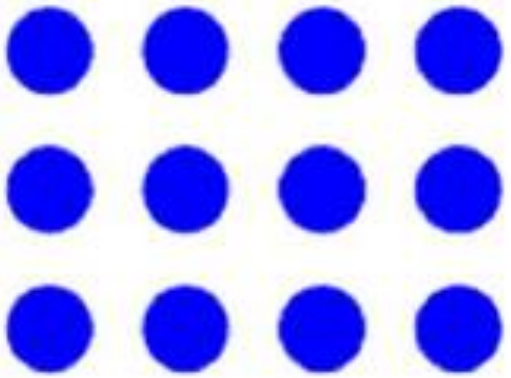
Multiplication - Methods

There are 5 roses in each garden. How many roses in 3 gardens?



5 + 5 + 5 = 15





4 x 3 = 12

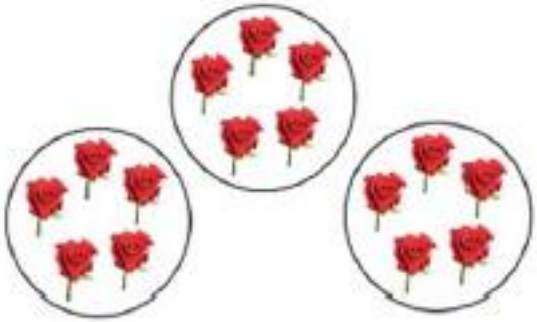
3 x 4 = 12

3 x 4 = 4 + 4 + 4 = 12

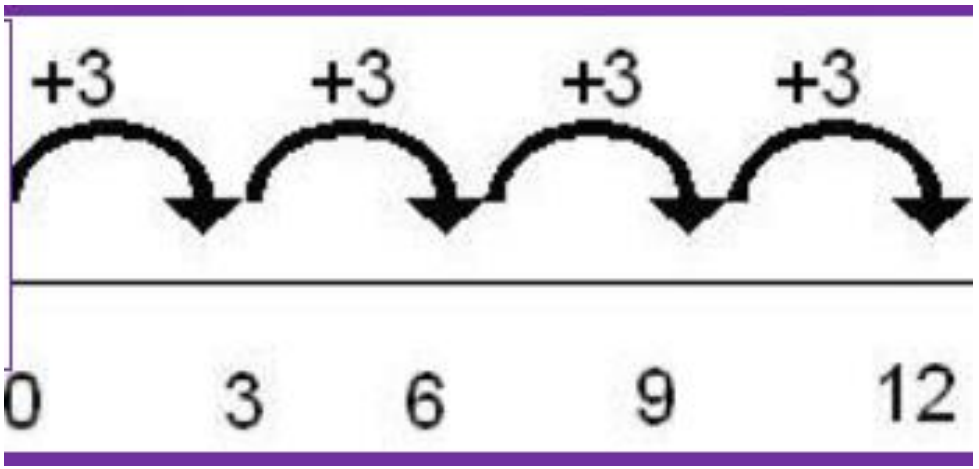
4 x 3 = 3 + 3 + 3 + 3 = 12

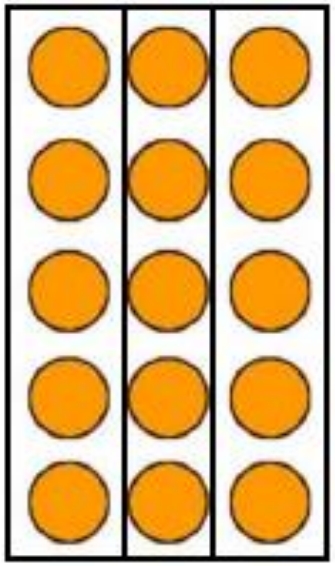
Division - Methods

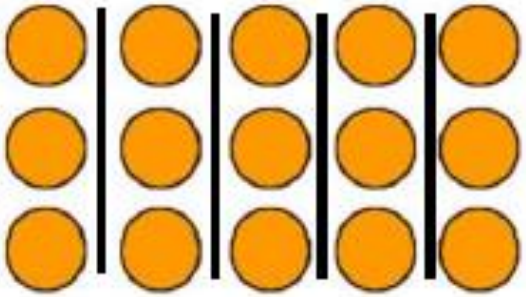
A farmer has 15 roses and shares them between 3 friends.
How many roses do they each get?



15 roses shared between 3 = 5 roses each







Multiplication and Division

(2) Solve simple 2 step problems using more than one operation.

When children have mastered the different ways of solving multiplication and division calculations, they will then progress onto solving word problems using these skills.

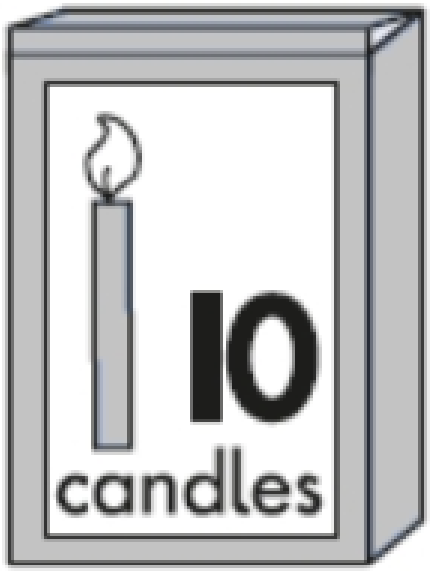
Before they can even solve the problem, the children must understand the words in the problem to know whether or not they need to multiply or divide.

Multiplication and Division – Previous SATS questions

Parent Activity Time!

You have on your tables an activity sheet labelled ‘Activity 4’. With a partner or as a group, work through the questions to see if you are able to solve these multiplication and division questions using one of the methods that you have seen.

Activity Answers



There are **10** candles in a packet.

Abi needs **50** candles.

How many **packets** does Abi need altogether?

Activity Answers

Write the correct numbers in the boxes.

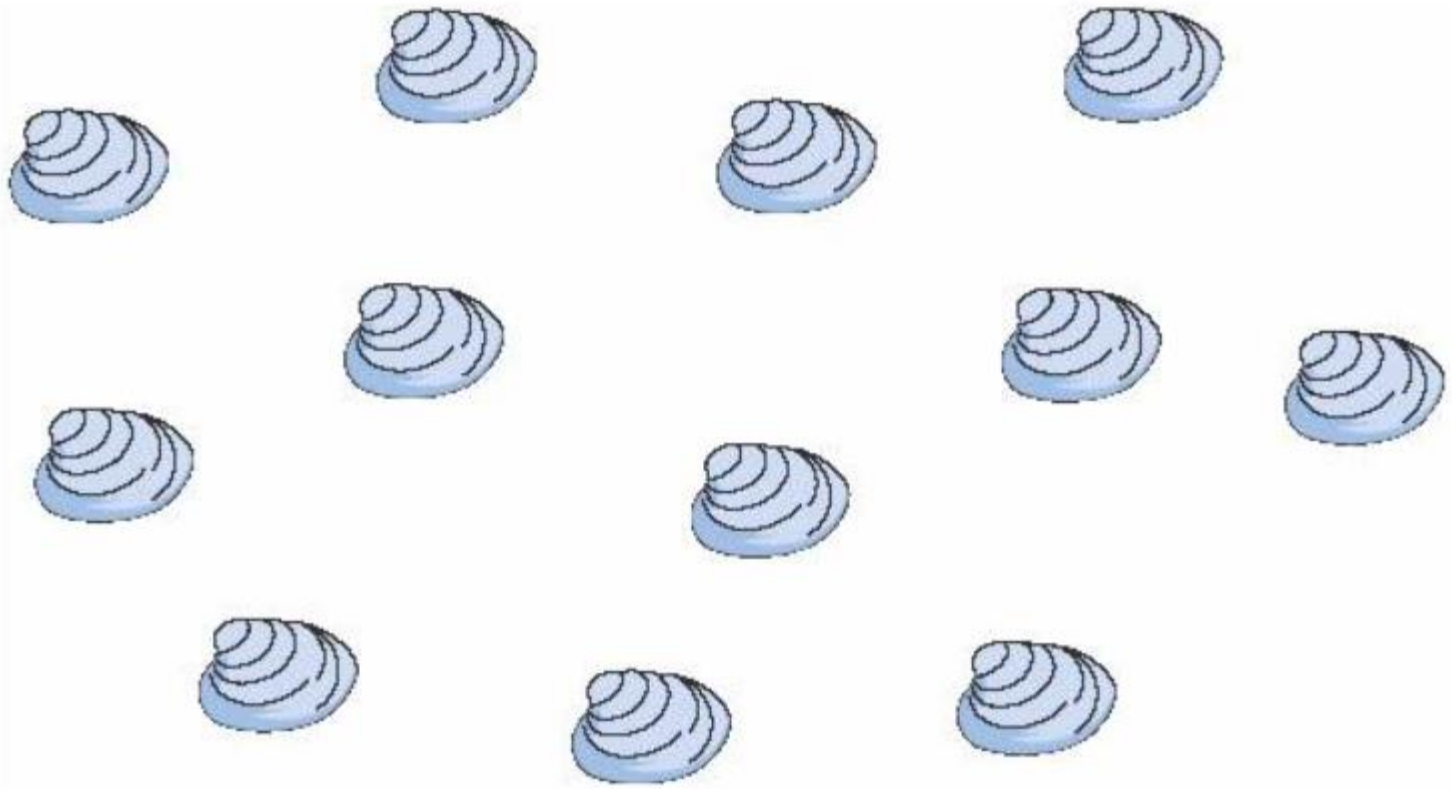
Half of **12** is 

Double 12 is 

Activity Answers

Four children share these shells.

They each get the same number of shells.



How many shells does each child get?

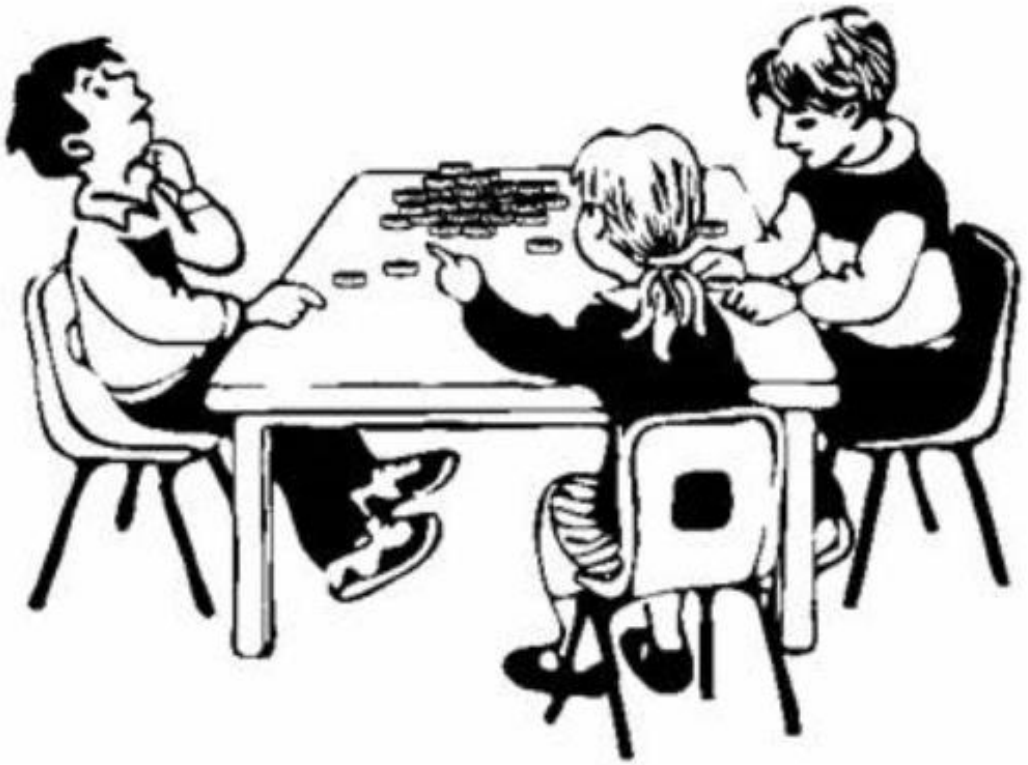
Activity Answers

Desi and Ella share this money equally

How much do they each get?

Activity Answers

3 children need **6** counters each.



How many do they need altogether?

Multiplication and Division - Synonyms

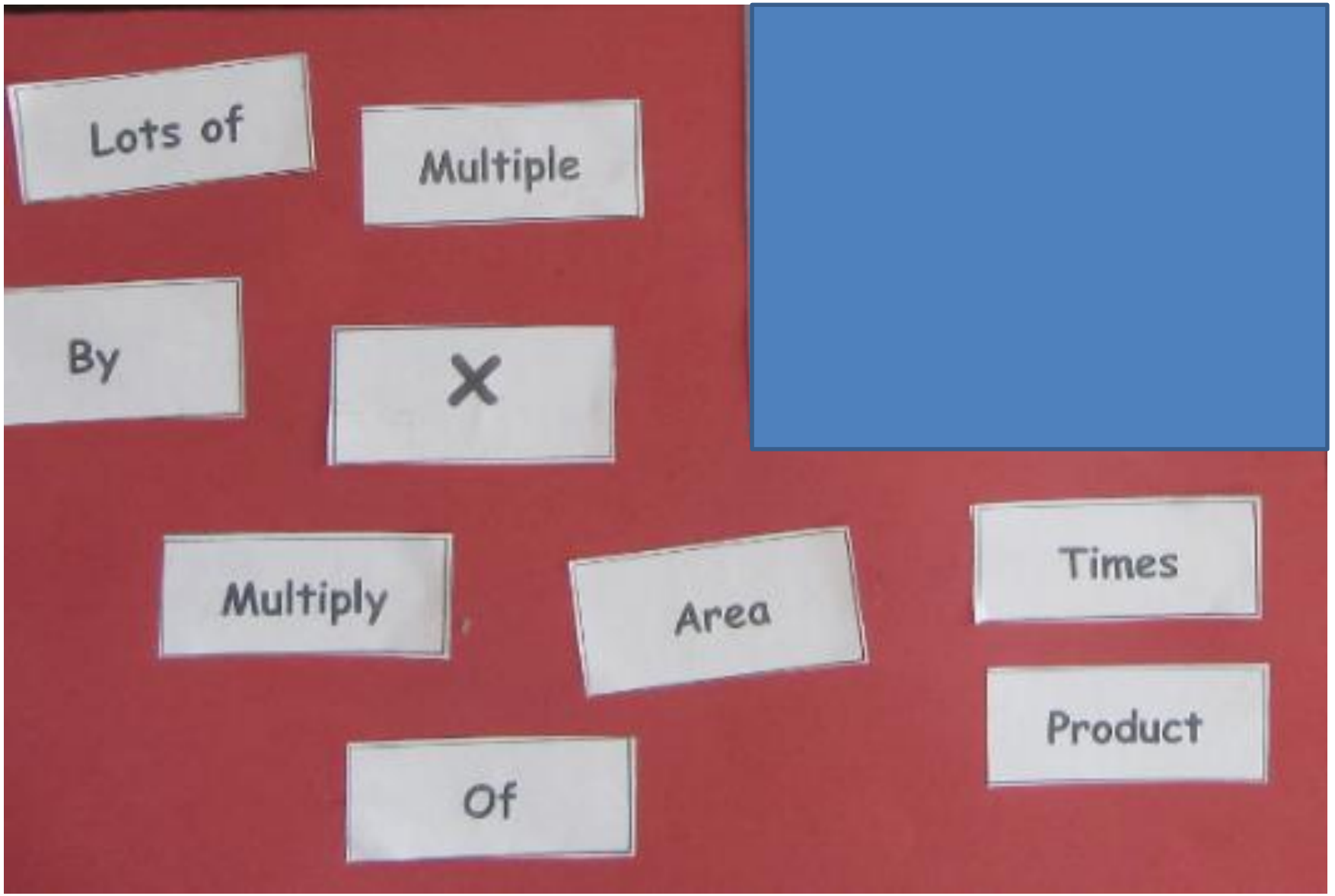
For the children to solve 1- and 2-step problems, they need to be familiar with the synonyms of multiplication and division, i.e. words or phrases that tell them whether they need to multiply or divide.

Parent Activity Time –

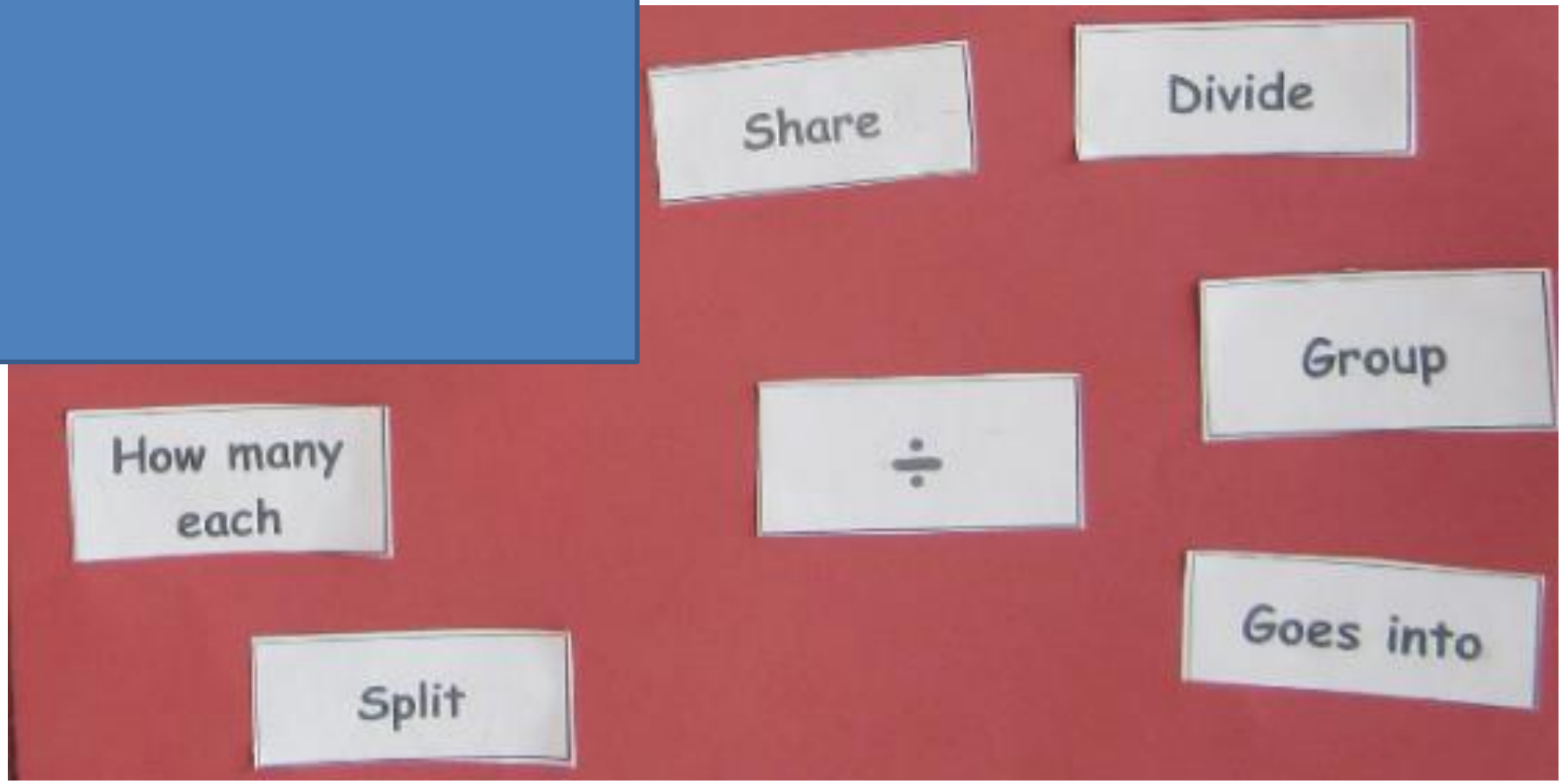
Earlier, you had a pile of words left over from the sorting out the addition and subtraction synonyms.

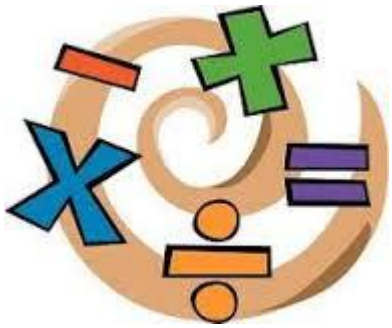
Working together, separate the left over words into ‘multiplication’ and ‘division’ piles.

Activity Answers



Activity Answers





Any questions?