Year Two Maths Knowledge Organiser: *Multiplication and Division*

· National Curriculum Objectives

sticky knowledge · Ready to Progress Criteria: National Curriculum core concepts

1. Sharing

· solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Fluency:

Share the 12 cubes equally into the two boxes.

There are ___ cubes altogether.
There are ___ boxes.
There are ___ cubes in each box.

Can you share the 12 cubes equally into 3 boxes?

24 children are put into 4 equal teams.
How many children are in each team?

Can you use manipulatives to represent the children to show how you found your answer?

Ron draws this bar model to divide 20 into 4 equal groups.
How does his model represent this?
He writes 20 ÷ 4 = 5

What other number sentences could Ron create using his model?

Problem solving:

Alex has 20 sweets and shares them between 5 friends.

Tommy has 20 sweets and shares them between 10 friends.

Whose friends will receive the most sweets?

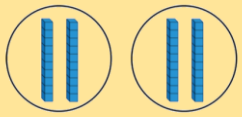
How do you know?

Reasoning:

Jack says,

I can work out 40 ÷ 2 easily because I know that 40 is the same as 4 tens.

This is what he does:



40 ÷ 2 = 20

Is it possible to work out 60 ÷ 3 in the same way?
Prove it.

Is it possible to work out 60 ÷ 4?
What is different about this calculation?

sticky knowledge · Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).

2. Grouping

· solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Fluency:

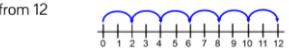
Pencils come in packs of 20
We need to put 5 in each pot.
How many pots will we need?

There are ___ pencils altogether.
There are ___ pencils in each pot.
There are ___ pots.

Mrs Green has 18 sweets.
She puts 3 sweets in each bag.
How many bags can she fill?

18 ÷ 3 = ☐

Mo uses a number line to work out how many equal groups of 2 he can make from 12



Use a number line to work out how many equal groups of 5 you can make from 30

Problem solving:

Amir has some counters.
He makes 5 equal groups.

The amount he started with is greater than 10 but less than 35

How many counters could he have started with?

How many will be in each group?

Reasoning:

You have 30 counters.

How many different ways can you put them into equal groups?

Write down all the possible ways.

sticky knowledge · Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).

3. Dividing by 2

· recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Fluency:

Complete the stem sentences.

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

☐ ÷ ☐ = ☐
☐ × ☐ = ☐

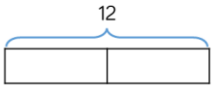
Group the socks into pairs.

Complete the number sentences.

☐ ÷ ☐ = ☐
☐ × ☐ = ☐

Mo and Tommy 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.



Complete the bar model and write a calculation to match.

Problem solving:

I have 24p.
I divide it equally between 2 friends.
How much will they get each?

I have 24p in 2p coins.
How many 2p coins do I have?

Consider the two questions above.
What is the same and what is different?

Reasoning:

Ron has shared some grapes equally between two friends.

Ron's friends

Each friend receives fewer than 50 grapes.

Complete the sentences to describe the number of grapes Ron started with.

He must have started with...

He could have started with...

He can't have started with...

sticky knowledge · recognise repeated addition contexts, representing with multiplication equations, calculating the product (2,x, 5x, 10x tables)

4. Odd and Even Numbers

· recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Fluency:

Use counters to make each number and share them into 2 equal groups. How does this help you decide whether a number is odd or even?
Show this in the table.

odd	even

Which number pieces are odd?
Explain why.
Find or draw other odd and even pieces.
What do you notice.

Spot the mistakes.

Can you make your own odd and even sets?

Can you see any patterns?

Problem solving:

Whitney says,

I have added two one-digit numbers. My answer divides into 2 equal groups.

What could Whitney's numbers be?

Is this the only possible answer?

Which numbers would not be possible?

Explain your answers.

Reasoning:

Tommy says that when he adds two odd numbers together, his total will be even.

Is he correct?
Convince me.

What else can you find out?

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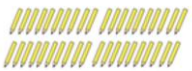
5. Divide by 5

· recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Fluency:

Take 30 cubes.
How many towers of 5 can you make?
You can make ___ towers of 5
___ towers of 5 is the same as 30
30 is the same as ___ towers of 5

40 pencils are shared between 5 children.



How many pencils does each child get?

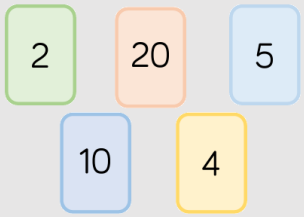
Group the 1p coins into 5s.
How many 5p coins do we need to make the same amount of money?
Draw coins and complete the missing information.

- ___ lots of 5p = 20 one pence coins
- ___ lots of 5p = 20p
- 20p = ___ × 5p
- 20p ÷ 5 = ___

Problem solving:

Use the number cards to make multiplication and division sentences.

How many can you make?



Reasoning:

A party bag contains 5 sweets.
A jar contains 5 party bags.

Ron has 75 sweets.

How many party bags will he need?

How many jars will he need?

sticky knowledge

· recognise repeated addition contexts, representing with multiplication equations, calculating the product (2,x, 5x, 10x tables)

6. Divide by 10

· recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Fluency:

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

When 30 apples are sold in packs of 10, ___ packs of apples can be made.
Can you show this in a bar model?
Label and explain what each part represents.

I have 70p in my pocket made up of 10p coins. How many coins do I have? Draw a picture to prove your answer.

- 70 ÷ 10 = ___
- 6 tens ÷ 1 ten = ___
- 5 = ___ ÷ 10
- There are ___ tens in 40

Problem solving:

Mrs Owen has some sweets.

She shares them equally between 10 tables.

How many sweets could each table have?

Find as many ways as you can.

What do you notice about your answers?

Reasoning:

Cakes are sold in boxes of 10
Jack and Alex are trying to pack these cakes into boxes.

Jack says,

Alex says,

Who is correct? Explain how you know.

sticky knowledge

· recognise repeated addition contexts, representing with multiplication equations, calculating the product (2,x, 5x, 10x tables)

Vocabulary

division	splitting a number into equal parts to find out how many equal parts of a given size can be made
even	numbers which can be divided equally by 2 - ending in 0, 2, 4, 6 or 8
group	dividing by making equal groups
odd	numbers which cannot be divided equally by 2 – ending in 1, 5, 7 or 9
share	dividing by sharing equally into groups