

**NUMBER – MULTIPLICATION AND DIVISION**

Week 22

**Objectives for this week**

- Understand that division is the inverse of multiplication and vice versa; use this to derive and record related multiplication and division number sentences.
- Use practical and informal written methods to multiply and divide two-digit numbers, e.g.  $13 \times 3$ ,  $88 \div 4$ ,  $51 \div 3$ ; round remainders up or down, depending on the context.
- Solve problems involving division with remainders.
- Begin to use practical and informal methods for multiplying two-digit numbers by a single-digit number with numbers to 100.

**Teacher exposition and guided practice**

Consolidate understanding of division involving remainders

C

Solve problems involving remainders

C

Begin to develop methods for multiplying two-digit by one-digit numbers

N

Begin to develop methods to divide two-digit by one-digit numbers

N

Choose suitable methods (decomposition) for multiplication and division with numbers to 100

N

**Notes on the teaching**

The first lesson this week focuses on division involving remainders. Work from Week 18 is consolidated and extended to include word problems with remainders. The other lessons this week focus on extending multiplication and division by 1, 2, 3, 4, 5, 6 or 10 to numbers beyond the tables' range. First, children are introduced to multiplication and division of tens ( $T \times U$ ;  $T \div U$ ) by analogy with the tables' facts already known.

The next stage is to multiply numbers with tens and units outside the tables range by 1, 2, 3, 4, 5, 6 and 10 ( $TU \times U$ ). This is taught through **partitioning**, e.g.

$13 \times 3$  becomes  $10 \times 3$  and  $3 \times 3$  which gives  $30 + 9$  so the answer is 39.

Brackets are introduced to make notation easier, e.g.

$13 \times 3 = (10 \times 3) + (3 \times 3) = 30 + 9 = 39$ .

A similar approach is used in division ( $TU \div U$ ). If both digits are multiples of the divisor, partitioning is very simple, e.g.

$88 \div 4 = (80 \div 4) + (8 \div 4) = 20 + 2 = 22$ .

Partitioning other numbers for division requires an awareness of how best to apply tables knowledge, e.g.

$51 \div 3 = (30 \div 3) + (21 \div 3) = 10 + 7 = 17$ .

**Language and vocabulary**

multiplied by

What is the nearest multiple of ... before this number?

multiple

divided by

Think of a multiple of ... that is less than this number.

divisible

remainder

How many left? How does this affect our answer to the problem?

**Starters for the week** – choose from

Calculating Y3 4.18

Calculating Y3 4.19

Calculating Y3 4.20

Calculating Y3 4.21

Calculating Y3 4.22

Calculating Y3 4.23

Also: practise recognising the multiple of 3, 4, 5, 6 that comes before a given number; counting in threes, fours, fives, sixes, identifying multiples and ordering them.

(Note: There is a space left in each lesson plan to write in the starter you plan to use).

## WEEK 22 LESSON 1

### Resources

#### Starter

#### Part 1: Consolidate understanding of division involving remainders

C

Teacher exposition and guided practice

- Remind children that it is not always possible to share objects equally.
- Say: *Can I share 10 sweets equally between three children?*  
*If two girls share 11 biscuits how many will they each get?*
- Demonstrate with sweets, biscuits or cubes.
- Remind the children that we call the amount left over the **remainder** which is written as **r**.
- Write:  $10 \div 3 = 3 \text{ r } 1$                        $11 \div 2 = 5 \text{ r } 1$
- Say: *If I have 14 cubes, can I put them exactly into groups of four?*
- Use 14 cubes. Group them in fours. Point out that two are left over.
- Draw an empty number line and draw jumps of four to reach 12.
- Say: *Three jumps of four make 16.... And two more make 14.*
- Write:  $14 \div 4 = \square$ .
- Invite a child to the front to complete the calculation.
- Point and say: *14 divided by four equals three remainder two.*
- Write:  $14 \div 4 = 3 \text{ r } 2$ .
- Repeat the process, putting the division calculation in a context, demonstrating with cubes and by drawing jumps on an empty number line for, e.g.  
 $13 \div 3$                        $11 \div 4$                        $23 \div 4$

Sweets, biscuits or cubes

#### Practice and consolidation

Children work in pairs with number cards 10 to 30 which should be shuffled and placed face down in a pack.

They should take turns to roll the die, turn over the top card and then divide the number shown by the number they have rolled.

Tell the children to record the division calculations including remainders as appropriate.

10 to 30 number cards  
1 to 6 die per pair

**Part 2:**

Teacher exposition and guided practice

- Display the first problem on Visual resource sheet 22:1.
- Read the problem to the class and discuss the calculation that must be done to find the answer.
- Write the calculation and discuss which method to use to find the answer.
- When the answer to the calculation has been found, write the answer to the problem.
- Discuss another problem which involves rounding up the answer (e.g. question 3). Emphasise the need to think about the problem and what it is asking, and ensure that you have found the answer to the problem.
- Select another problem and read it out. Ask the children to work in pairs to find the answer.

Y3 VR 22:1

Practice and consolidation

Children work in pairs to solve the problem. After a few minutes, stop the class and allow the children to compare their answers and methods. Repeat with other problems, clarifying any misconceptions.

Y3 VR 22:1

**Conclusion**

- Select a problem and compare the methods the children used to find the answer.
- Ensure they understand that the remainder affects the answer to the problem.

**Extension / differentiation**

- Ask the children to find the missing number in each calculation:

$$\square \div 6 = 2 \text{ r } 4$$

$$18 \div \square = 2 \text{ r } 2$$

$$\square \div 6 = 4 \text{ r } 3$$

1. I have 20 eggs. Egg boxes hold six eggs. How many boxes can I fill? How many eggs will be left over?
2. I have 24 sweets to share among 5 children. How many will each child have? How many are left over?
3. 27 children go camping. Each tent sleeps six. How many tents do they need?
4. Pizzas cost £3 each. How many can I buy with a £20 note? How much change will I have?
5. Tom and Anna share 17 apples. How many apples will they each get? How many will be left over?
6. 27 people need a lift to the station. A taxi takes 5 people. How many taxis will be needed?
7. Pens are in packets with 5 pens in each. There are 28 children in Class 2. How many packets of pens are needed?
8. I have £15. How many children can I pay for at the cinema if tickets are £2 each? How much will I have left over?
9. How many DVDs at £4 each can I buy with £25? How much is left over?
10. The baker makes 26 cakes. 4 cakes need 1 bag of flour. How many bags of flour does he need?