

## PERCENTAGES

Week 26

### Objectives for this week

- Understand percentage as the number of parts in every hundred and express tenths and hundredths as percentages
- Find percentages of numbers and quantities, e.g. 10%, 5% and 15% of £80

### Teacher exposition and guided practice

Find percentages of amounts, e.g. 15% of 40, 45% of 200

N

Compare percentages, fractions and decimals

N

Find percentages of shapes

N

Solve word problems involving percentages

N

### Notes on the teaching

This week starts by showing pupils how to use familiar skills such as halving or doubling, dividing by ten and then multiplying, to find percentages of amounts. Later they are taught to break up a percentage, i.e. 15% into 10% and 5%, and use what they know to rebuild the percentage. Finding other percentages, including calculator use, e.g. 43% of 180, is left until Year 6.

### Language and vocabulary

percentage(s)

decimal

fraction

equivalence

### Starters for the week - choose from

Problem solving Y5 5.6

Calculating Y5 4.21

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

## WEEK 26 LESSON 1

### Resources

#### Starter

#### **Part 1: Find a percentage of a quantity by halving, quartering and using multiples of 10%**

**N**

##### Teacher exposition and guided practice

- Remind pupils that 50% is equivalent to one half.
- Start by asking some quick-fire questions, e.g. *Show me fifty percent of 24, 16, 500, 1000, 84, 50, and so on.*
- Pupils respond to each question by writing the amount on their whiteboards, and holding them up for you to check understanding. Extend to other amounts, e.g. 50% of 72, 38 and 1, if appropriate.
- Ask: *If we know fifty percent of something, how can we find twenty-five percent?*
- Take feedback to show that pupils recognise 25% as half of 50% and that the amount can be found by halving 50%, e.g. 50% of 24 is 12, so 25% of 24 is 6.
- Remind pupils that 25% is equal to one quarter.
- Ask pupils to show you 25% of 40, 12, 1000, 160, and so on.
- Discuss how pupils worked out the answers, leading them to understand the process as finding half and then halving again.
- Ask: *What is twenty-five percent of ten pounds?*
- Show how to find this by finding half then halving again.
- Say: *Twenty-five percent of ten pounds is two pounds fifty.*
- Ask pupils to write a multiple of ten on their boards. Tell them it must be less than 1000, e.g. 60, 120, 360, 720.
- Say that you will find 10% of their number very quickly. Select five pupils to come out and show their numbers. You quickly say 10% of each amount.
- Ask: *How am I able to find ten percent so quickly?*
- Take feedback to establish that 10% is the same as one tenth, so the answer is found by dividing by 10.
- Ask another five pupils to come out and hold up their numbers. Invite the class to say 10% of each number. Check understanding.
- Choose one of the numbers, e.g. 60. Say: *I am going to find thirty percent of sixty. I need to do this in two stages. First I am going to find ten percent and then I can find thirty percent by multiplying that number by three.*

Whiteboards and pens

- Show that 10% of 60 is 6; three times six is 18, so 30% of 60 is 18.
- Say: *Thirty percent of sixty is eighteen.*
- Repeat with another example, asking a pupil to come out and work through the two stages.
- Finally, ask children to work in pairs to practise finding 30% of a number. One partner writes a multiple of 10 for the other to find 30% of it.

### Practice and consolidation

Give out Core worksheet 26:1a and complete a few questions as a class. Model how to record the two stages of finding 10% then multiplying by the appropriate number. Pupils either complete the answers on the worksheet, or copy the questions into their exercise books and find the answers.

Y5 CW 26:1a

### **Part 2: Find 5% of a quantity by halving 10%**

**N**

#### Teacher exposition and guided practice

- Discuss and agree the answers to Core worksheet 26:1a. Clarify any misconceptions.
- Ask: *If I know how to find ten percent, how can I work out five percent?*
- Discuss how it is possible to halve 10% to get 5%.
- Demonstrate how to record the calculation, e.g. to find 5% of 40.
- Write:  $10\% \text{ of } 40 = 40 \div 10 = 4$ .  
 $5\% \text{ of } 40 = 4 \div 2 = 2$ .
- Say: *Five percent of twenty is two.*
- Repeat, finding 5% of other amounts, e.g. 90, 480, 320, and so on.
- Ask pupils to come out and record the calculations in the same way while explaining their thinking.

Y5 CW 26:1a

### Practice and consolidation

Give out Core worksheet 26:1b and complete a few questions as a class. Remind pupils how to record the two stages of finding 10% then 5%. Pupils either complete the answers on the worksheet, or copy the questions into their exercise books and find the answers.

Y5 CW 26:1b

### Conclusion

- Discuss and agree the answers to Core worksheet 26:1b. Clarify any misconceptions.
- Say that in the following lesson pupils will be finding other percentages of amounts.

Y5 CW 26:1b

**Extension / differentiation**

- Part 1: Challenge pairs to find other ways to answer the questions on Core worksheet 20:1a. For example, find 60% by halving to find 50% and then adding 10%.
- Part 2: Ask pairs to quickly use mental methods to find 5% of the amounts on Core worksheet 26:1a.

Y5 CW 26:1a

Y5 CW 26:1a

Name .....

# Percentages

1. 10% of 20 =

2. 20% of 50 =

3. 30% of 30 =

4. 80% of 80 =

5. 60% of 10 =

6. 20% of 200 =

7. 30% of 40 =

8. 70% of 120 =

9. 20% of 360 =

10. 30% of 240 =

11. 40% of 60 =

12. 90% of 40 =

13. 60% of 90 =

14. 40% of 140 =

Name .....

### Finding 5%

1. 5% of 20 =

2. 5% of 50 =

3. 5% of 30 =

4. 5% of 80 =

5. 5% of 10 =

6. 5% of 200 =

7. 5% of 40 =

8. 5% of 120 =

9. 5% of 360 =

10. 5% of 240 =

11. 5% of 260 =

12. 5% of 140 =

13. 5% of 90 =

14. 5% of 160 =