PART 3

UNIT 4

DOUBLING AND HALVING NUMBERS

UNIT 4

Unit 4

• SESSION 1 •

TOTAL TIME 30 MINUTES

OBJECTIVES	VOCABULARY	RESOURCES	HOMEWORK
• Know by heart doubles of numbers to 10 doubles of multiples of ten up to 50 • Halve even numbers from 20 to 2	half, halve, double, twice as much as, multiply by 2, divide by 2	sets of 1–20 number cards; 1p, 2p, 5p and 10p coins; 10-sided dice; 1–10 paperclip spinner (resource sheet 9)	Play the *Doubling Game* using a paperclip spinner (resource sheet 9)

STARTER 5 MINUTES

Double numbers to 5, encouraging children if necessary to use fingers on both hands; for example, for double 2, hold up 2 fingers on each hand and count. Now do the same for halving even numbers from 10 to 2. Stress that 'multiply by 2' means the same as doubling and that 'divide by 2' means the same as halving. Use this vocabulary to ask more questions.

Write on the board a few questions such as $4 \times 2 = \square$ and half of 10 for children to complete orally.

Talk about $5 \times \square = 10$.

KEY QUESTIONS

- **What is double 5?**
- **What is double 3?**
- **Can you tell me half of 8? Multiply 4 by 2.**
- **What is 3 multiplied by 2?**
- **What is 8 divided by 2? Divide 6 by 2.**

MAIN ACTIVITY 20 MINUTES

Demonstrate doubling and halving even numbers from 6 to 10 by using 5p, 2p and 1p coins. Double 6, for example, by taking one 5p and one 1p and doubling both. Ask the children to predict the answer by holding up the appropriate number card. Make sure they see that two 5p coins and two 1p coins make 12p. Record on the board as 6p + 6p = 12p. Repeat the process for other even numbers.

Demonstrate how to halve 12 using coins. Remind children that double 6 is 12. Point out that halving reverses the doubling. Get children to halve 14, 16, 18 and 20. These are all numbers they made by doubling.

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Divide the class into pairs and ask them to remove the number cards for 1 to 5 from their sets. Ask them to match numbers such as 6 and 12, where the higher is double the lower or the lower half the higher. Encourage the pairs to work quickly.

Tell the children to use this double 3 to help them work out double 30. Demonstrate the answer by taking three 10p coins and establishing that this is 30p. Take another three 10p coins and show that there is 60p altogether.

What is double 40? What is half of 80p? What is double 20? What is half of 20? What is twice as much as 50?

Explain that 'twice as much as' can be used instead of 'double'.

Briefly explain activity sheet 4.1, which the children should complete before the next session. Introduce them to the *Doubling Game* for homework. Each player takes it in turns to throw a ten-sided dice or use the 1–10 spinner. They double the number and write it down. The player with the largest number after five throws is the winner.

KEY QUESTIONS

- **What happens if we halve a number we have just got through doubling?**
- **If you know the double of 4, how can you find the double of 40?**

PLENARY

5 MINUTES

What happens when we double a number? What other ways are there of saying this (multiply by 2, twice the number)? What happens when we halve a number? What other way is there of saying this (divide by 2)? If we know how to double 10 and how to double 5, what is double 15? What is double 12?

Finish by throwing a ten-sided dice (numbers 1–10) or use the spinner several times and ask the children to double the result each time as quickly as possible.

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UNIT 4

Unit 4
SESSION 2

TOTAL TIME 30 MINUTES

OBJECTIVES	VOCABULARY	RESOURCES
• Identify near doubles using doubles already known (for example, 8 + 9, 40 + 41) • Measure and compare lengths using a standard measure	half, halve, double, twice, multiply by 2, divide by 2, measure, centimetres (cm), consecutive	strips of paper prepared in advance (resource sheet 10), rulers

STARTER 5 MINUTES

Revise doubles up to 10 and doubles of multiples of 10, up to 50 + 50 = 100. Try to inject pace and use the full range of terms: double, multiply by 2, twice. Now revise halves of even numbers below 11.

KEY QUESTIONS

- **What is half of 12?**
- **What is double 8?**
- **What is 60 divided by 2?**
- **What is twice 15?**
- **What is 13 multiplied by 2?**
- **What is half of 10?**

MAIN ACTIVITY 20 MINUTES

Demonstrate that if we know double 5, then we can easily work out 5 + 6. Establish that 6 = 5 + 1. Write on the board 5 + 5 + 1. Repeat with 7 + 8 as 7 + 7 + 1 (or 7 × 2 + 1). Ask a child to do the same with 6 + 7 and another with 8 + 9. Tell the group that numbers which are next to each other, like 6 and 7, or 8 and 9, are called consecutive numbers.

Distribute two strips to each pair of children, with one strip in each pair 1 cm longer than the other. The strips can range from 4 cm and 5 cm up to 11 cm and 12 cm. Demonstrate how to measure carefully using a ruler. In pairs, children measure the pair of strips they have been given. They work out how to add the two lengths together by using near doubles, for example, strips measuring 6 cm and 7 cm respectively can be calculated as 6 + 6 + 1 = 13, and the total length is 13 cm. When they have finished, they record the number statement. If there is time, they swap strips with another pair and carry out the same procedure.

Explain activity sheet 4.2, which the children should complete before the next session.

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KEY QUESTION

How do you add 7 and 8?

PLENARY

5 MINUTES

Rehearse the doubles of multiples of ten up to 50 + 50.
Ask the children to add two numbers next to each other (consecutive numbers), one of which is a multiple of ten, for example 40 + 41 = 81.

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UNIT 4

Name .....

Date .....

Dear Parents/Carers,

We have been looking at doubling numbers. Please help your child by playing the game below.

Thank you for your help.

Your child's teacher

Doubling Game

- Take turns to use the paperclip spinner.
- Write down the number you get.
- Double it and write down the answer.
- Take five turns each.
- The person with the biggest number wins; if there is a tie, the person with the smallest number wins.

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Name .....

Date .....

Activity sheet 4.1

1.

Double 5 = ☐ Double 6 = ☐ 7 × 2 = ☐

8 × 2 = ☐ Double 9 = ☐ Double ☐ = 20

20 × ☐ = 40 ☐ × 2 = 50 ☐ × 4 = 8

2. Double each number and write the new number below.

10	8	30	7	20	6	40	4	50
.....	.....	.....	.....	.....	.....	.....	.....	.....

3. Halve each number and write the new number below.

100	10	40	8	80	6	20	2	60	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

4. Mina makes 12 cakes.
Mel makes double the amount.
How many does Mel make?

.....

5. Sarah spent half her 60p pocket money.
How much did she spend?

.....

6. John had 50p. Joe had twice as much as John.
How much did Joe have?

.....

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Name .....

Date .....

Activity sheet 4.2

1. At the fairground, children ride for half the adult price.
   Fill in the price list.

Fairground Rides	Children	Adults
Helter Skelter		70p
Bumper Cars		80p
Ghost Train	50p	
Rocket Ride	25p	

2. This machine doubles numbers fed into it.
   Double the numbers.

3. 8, 20, 9, 31, 6, 30, 21, 4, 5, 7

   Pick four pairs of near doubles from the list.

   For each pair write down number sentences.
   For example:

   4 + 5 = 9

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Unit 4

RESOURCE SHEET 9

Hold the pencil fixed and flick the paperclip around. Read the number that it stops on.

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RESOURCE SHEET 10

4 cm

5 cm

6 cm

7 cm

8 cm

7 cm

8 cm

9 cm

6 cm

10 cm

5 cm

11 cm

4 cm

12 cm

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