PART 3

UNIT

7

UNDERSTANDING MULTIPLICATION

Unit 7
• SESSION 1 •

TOTAL TIME

30 MINUTES

OBJECTIVES

- Understand the operation of multiplication as describing an array
- Know by heart the facts of the two- and ten-times tables

VOCABULARY

multiplication, multiply, times table, array

RESOURCES

10p coins; 1–10 spinner (resource sheet 9, unit 4)

HOMEWORK

Play the *Three in a Row* game using the 1–10 paperclip spinner (resource sheet 9, unit 4)

STARTER

5 MINUTES

Double numbers up to 20 and halve even numbers up to 20. Revise counting on in tens from zero then back again.

KEY QUESTIONS

> ☐ **What is double 3? double 6? double 12?**
> ☐ **What is half of 12? of 6?**
> ☐ **What are five tens? Count: 10, 20, 30, 40, 50.**

MAIN ACTIVITY

20 MINUTES

Put the children in pairs. Give one child in each pair a supply of 10p coins. *As we count slowly in tens, the partner with the coins gives them to the other partner.* Stop at 40. *How many coins do you have?* Continue counting in tens and passing over a 10p coin each time. Stop at 80. *How many coins now?* Continue counting to 100.

Make sure everyone understands that they have been counting in ten or adding 10 each time.

Draw 2 buns in a line on the board:

◯ ◯　'One set of two is two'. Ask the children to repeat this.

Draw 2 more buns below the first:

◯ ◯
◯ ◯　'Two sets of two equal four'. Encourage the children to join in.

Draw another two buns.

◯ ◯
◯ ◯
◯ ◯　'Three sets of two equal six'.

≫→

Continue drawing the buns in line to illustrate as far as:
'Ten sets of two equal twenty'.

Now draw this array on the board:
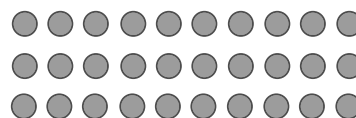
⚪ ⚪ ⚪ ⚪
⚪ ⚪ ⚪ ⚪

Ask children what it represents. Stress that it shows both 2 lots of 4 and 4 lots of 2. Write on the board: $2 \times 4 = 4 \times 2$. The answer is the same: 8.

Do the same with the following array.

⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪
⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪

Write on the board: $10 \times 2 = 2 \times 10 = 20$, and say 'Two tens are 20'.

Now extend the array as follows.

⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪
⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪
⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪ ⚪

Write on the board: $10 \times 3 = 3 \times 10 = 30$. Say: 'Three tens are 30'.

Go through the rest of the ten-times table to 'Ten tens are 100'. Encourage the children to join in.

Go through the rules of the *Three in a Row* game the children will play at home. Explain activity sheet 7.1, which the children should complete before the next session.

KEY QUESTIONS

☐ **How do we write three lots of 10 as a number sentence?**
☐ **If five lots of 2 make 10, what do two lots of 5 make?**

PLENARY

5
MINUTES

Recite the two-times table as a group. Discuss the best way for working out the answer to any fact that they have forgotten. Methods might include counting on or back in twos. Stress the importance of knowing the key facts from which others can be worked out, namely 2×1, 2×2, 2×5 and 2×10.

Ask the children to shut their eyes and remember this fact: nine twos are 18. Chant it aloud as a class three times. Do the same with seven twos are 14. Tell them that you will check next time if they can remember these facts.

UNIT

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Unit 7
SESSION 2

TOTAL TIME

30 MINUTES

OBJECTIVES

- Understand the operation of multiplication as describing an array
- Know by heart facts for the two-, five- and ten-times tables

VOCABULARY

multiply,
times table,
how many ☐
in ☐?,
division fact

RESOURCES

1–100 demonstration number line;
2p, 5p and 10p coins;
a set of 1–10 cards
for each pair of children

STARTER

5 MINUTES

Check whether the children have remembered the two facts from the previous session: nine twos are 18, seven twos are 14. Now recite the two-times table.

Practise counting in tens and then in twos. Stop during the count to ask 'How many tens?' or 'How many twos?'

Write on the board a few questions such as $10 \times \square = 60$ and $2 \times \square = 14$ for the children to complete orally. *How many twos make 60? How many twos make 14?*

KEY QUESTIONS

> ☐ **How many tens are there in 30?...40?...70?...80?**
> ☐ **How many twos are there in 14?...16?...18?**

MAIN ACTIVITY

20 MINUTES

Count in fives, starting at zero, pointing to the appropriate numbers on a number line. Put children in pairs and supply one child in each pair with at least ten 5p coins. Tell the children that, as the class counts slowly in fives, the partner with the coins has to give them one at a time to the other partner. Stop at 20. *How many coins do you have?* Continue counting in fives and passing over a 5p coin each time. Stop at 40. *How many coins now?* Continue counting to 50.

Write the five-times table on the board. Ask the group to chant the table, saying 'One times five is five, Two times five is ten', and so on to 'Ten times five is fifty'. Point to any fact and ask a child to read it out loud. Do this several times. Now rub a fact out and ask the children to say it. Gradually remove lines and get the group to chant the whole table.

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Ask the children to use 2p coins and to write the two-times table, building it up in the same way as for the five-times table. Again, point randomly to lines for the children to read aloud.

Give out one set of 1–10 number cards to each pair and tell the children to lay out the cards with a matching number of 5p coins. They then calculate how much money matches each number of coins, and write a multiplication sentence to go with each card. For example, if there are four 5p coins on the number card for 4, the children write: $4 \times 5 = 20$, and then $5 \times 4 = 20$.

Explain activity sheet 7.2 which the children should complete before the next session. Finish by considering the key questions below.

KEY QUESTIONS

☐ **How many twos are there in twenty?**
☐ **How many fives are there in twenty?**
☐ **How many tens are there in twenty?**

PLENARY

5 MINUTES

Practise the five-times table. Discuss ways in which children can remember it. For example, refer to the 5, 0, 5, 0 pattern of the ones digit. Stress the importance of knowing the key facts from which they can build up the others: one five, two fives, five fives, ten fives. Ask children to shut their eyes and remember these two facts: seven fives are 35, nine fives are 45. Chant each aloud as a class three times.

Ask questions that prompt the related division facts.

What multiplied by five is thirty five? 5 times what number is 40?

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Name ....

Date ....

Dear Parents/Carers,

We have been learning the ten- and two-times tables at school. Please help your child by playing the game *Three in a Row* below.

Thank you for your help.

Your child's teacher

Three in a row

1. You need a paperclip spinner and some counters or buttons.
2. Take turns to spin the spinner. Multiply the number on the spinner by 2 or by 10.
3. Put a counter on that number. For example, if you spin 3, you can make either 6 or 30.
4. The first person to get three counters in a line is the winner. A line can be horizontal ➔, vertical ↓, or diagonal ↘ ↙ .
5. Use the times tables to help if you need.

80	4	20	6	18	100
16	8	40	14	60	40
70	16	12	100	4	90
50	14	90	30	8	50
8	6	10	12	20	2
30	18	80	70	10	60

$1 \times 10 = 10$	$1 \times 2 = 2$
$2 \times 10 = 20$	$2 \times 2 = 4$
$3 \times 10 = 30$	$3 \times 2 = 6$
$4 \times 10 = 40$	$4 \times 2 = 8$
$5 \times 10 = 50$	$5 \times 2 = 10$
$6 \times 10 = 60$	$6 \times 2 = 12$
$7 \times 10 = 70$	$7 \times 2 = 14$
$8 \times 10 = 80$	$8 \times 2 = 16$
$9 \times 10 = 90$	$9 \times 2 = 18$
$10 \times 10 = 100$	$10 \times 2 = 20$

UNIT

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Name ....

Date ....

Activity sheet 7.1

1. Draw lines to join pairs of calculations that have the same answer.

10 × 3	4 × 2	5 × 2	4 × 10	2 × 9
2 × 5	10 × 4	9 × 2	3 × 10	2 × 4

2. Write down as many multiplication sentences as you can using only the numbers in the box.

2   4   5   6   8   10   12   20   50

3. Fill in the missing numbers.

10, 20, ..., ..., 50, ..., ..., 80, ..., ..., 110, ...

2, 4, ..., ..., 10, 12, ..., ..., ..., 20, ...

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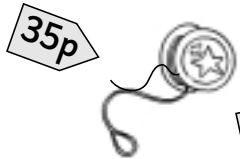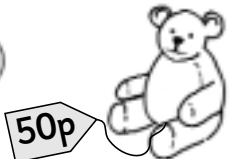
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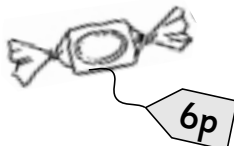
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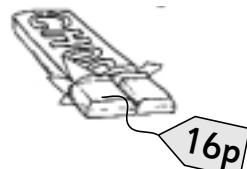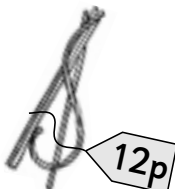
Activity sheet 7.2

1. How many 5p coins will I need to buy each of these toys?

35p

45p

50p

40p

....

2. How many 2p coins will I need to buy each of these sweets?

6p

16p

12p

20p

....

3.

gobstoppers 2p each   lollies 10p each   laces 5p each

How much do three gobstoppers cost? ....

How much do four lollies cost? ....

How much do ten laces cost? ....

How many lollies can you get for 20p? ....

How many laces can you get for 80p? ....

How many gobstoppers can you get for 12p? ....