Multiplication

Lesson plan and teacher's notes · Grade 2 Mathematics · 2 periods of 40 minutes

School	(write school name)	**Teacher**	(write name)
Date	(date)	**Class**	Grade 2
Subject	Mathematics	**Enrolment**	Boys ___ Girls ___ Total ___
Time	80 minutes	**Topic**	Multiplication

Learners with visual impairment meet multiplication as repeated addition and arrays using beads, beans and blocks, learn the tables, the order rule, the rules of one and zero, multiply two-digit numbers by decomposition, and explore number patterns. Two periods of 40 minutes.

Specific outcomes

By the end of the lesson, learners should be able to:

1. Show multiplication as repeated addition and with arrays
2. Multiply single-digit numbers and complete tables
3. Apply the order rule and the rules of one and zero
4. Multiply a two-digit number by a single-digit number by decomposition
5. Identify number patterns such as multiples of 2

Prior knowledge

- Learners can add equal numbers
- Learners can count in 2s
- Learners know tens and ones

Teaching and learning materials

- Beans, beads, blocks and counters
- Tactile multiplication charts or abacus
- Braille cards with multiplication questions
- Tactile number line
- Chalk and board

References

Ministry of Education (CDC) Grade 2 Mathematics syllabus and module; 25Schools learners' note: Multiplication.

Lesson development

Stage and time	Teacher activities	Learner activities
Meaning and arrays **20 min**	Ask learners to imagine groups of objects. Let them make 3 groups of 4 beads. Show that 4 plus 4 plus 4 is 12, which is 3 times 4. Arrange the beads in rows to make an array and explain rows times columns. Pairs make arrays such as 2 rows of 5 and 4 rows of 3, count the total by repeated addition, then write the multiplication sentence. Each learner makes their own array and says its sentence, for example 3 rows of 5 beads is 3 times 5 is 15.	Make groups and arrays, count totals and say the sentence.
Tables and the rules **20 min**	Introduce tables from 1 to 9 on tactile charts or the abacus and explain how they help with counting money or objects. Learners recite tables and arrange objects for 2 times 3 and 3 times 3. Explain that order does not change the answer, 4 times 3 is 3 times 4, by arranging objects in different ways. Explain that a number times 1 is itself and a number times 0 is 0, using 5 beads in 1 row and 1 bead in 5 rows, and the example of having no pencils.	Recite tables, arrange objects and make own examples of the rules.
Decomposition **25 min**	Revise single-digit multiplication. Introduce 23 times 4: break 23 into 20 and 3 on a tactile number line or with objects, multiply 20 by 4 to get 80 and 3 by 4 to get 12, then add to get 92. Explain this is faster than repeated addition. Give 34 times 5 and 46 times 3 in pairs, one learner handling objects while the other checks verbally. Then learners solve 21 times 3, 35 times 4 and 47 times 2 alone and explain or record in Braille.	Break numbers, multiply each part, add and explain the steps.
Number patterns and close **15 min**	Place 2 counters, then 4, then 6, then 8. Learners feel and count each group and write the pattern in Braille: 2, 4, 6, 8. Ask what they notice and how the numbers change. Explain these are multiples of 2: 2 times 1 is 2, 2 times 2 is 4. Close by asking learners to explain the order rule and the rules of one and zero.	Feel the pattern, say the rule and continue it.

Teacher's content notes

Read these before the lesson. They are what you need to know, not what to copy onto the board.

Meaning

Multiplication is a short way of adding equal groups. An array arranges objects in rows and columns to show the groups.

Rules

The order of numbers does not change the answer. Any number times 1 is itself. Any number times 0 is 0.

Decomposition

Break a two-digit number into tens and ones, multiply each part by the single digit and add the results. For example 23 times 4 is 80 plus 12, which is 92.

Questions to ask during the lesson

Question	Expected answer
The teacher gives a learner 3 groups of 4 beads and asks for the total. (a) How do we add the groups. (b) How do we write it as multiplication. (c) What is the answer.	(a) 4 plus 4 plus 4. (b) 3 times 4. (c) 12.
A learner has 5 beads in 1 row and then 1 bead in 5 rows. The teacher asks what he notices. (a) What is 5 times 1. (b) What is 1 times 5. (c) Which rule is this.	(a) 5. (b) 5. (c) The order rule and the rule of one.
The teacher places 2 counters, then 4, then 6 and asks the group to continue. (a) What comes next. (b) What are these numbers called. (c) What is 2 times 3.	(a) 8. (b) Multiples of 2. (c) 6.

Worked examples for the board

3 rows of 5 beads

Step 1: Make 3 rows with 5 beads in each. Step 2: Add 5 and 5 and 5. Step 3: The total is 15. Step 4: Write 3 times 5 is 15.

23 times 4

Step 1: Break 23 into 20 and 3. Step 2: 20 times 4 is 80. Step 3: 3 times 4 is 12. Step 4: Add 80 and 12 to get 92.

Board plan

Write the title Multiplication. Write 4 plus 4 plus 4 equals 3 times 4 equals 12. Write the three rules. Write 23 times 4 with the parts 20 and 3 and the answer 92.

Idea	Example	Answer
Repeated addition	4 plus 4 plus 4 is 3 times 4	12
Order rule	4 times 3 and 3 times 4	12 both
Decomposition	20 times 4 is 80, 3 times 4 is 12	92

The finished board

Mistakes to expect

Learners often think	Put it right
3 times 4 is different from 4 times 3.	Make an array of 3 rows of 4 and then turn it to 4 rows of 3. Count both.
A number times 0 stays the same.	Let learners hold 5 empty bags with no beads. Ask how many beads altogether.
We only multiply the tens when decomposing.	Show that both tens and ones must be multiplied, then added together.

Differentiation

Learners who struggle

Use only 2 groups and 3 groups of beads first. Let learners count the total by touch before writing the sentence.

Learners who finish early

Ask learners to find 46 times 3 by decomposition and to continue the pattern 3, 6, 9.

Hearing or visual impairment

For learners with a visual impairment, use beads on strings, raised arrays and Braille cards. Let them explain steps aloud and allow extra time.

No projector, no printing

Use stones, seeds and bottle tops arranged in rows on a mat. Mark rows with sticks.

If time is short

Keep arrays, the three rules and decomposition. Move number patterns to the next lesson.

Evaluation

Question or task	A correct answer shows
Chanda has 3 rows of 5 beads on her mat. Her teacher asks her to describe it. (a) What is the multiplication sentence. (b) What is the total. (c) What is 5 times 0.	(a) 3 times 5. (b) 15. (c) 0.

Mulenga is asked to find 23 times 4 using tens and ones with counters. (a) How does he break 23. (b) What is 20 times 4. (c) What is the answer.	(a) 20 and 3. (b) 80. (c) 92.

Homework

Bupe has 4 baskets with 3 oranges in each basket. Her mother asks her how many oranges there are. (a) Write it as repeated addition. (b) Write it as multiplication. (c) What is the answer if she has 3 baskets with 4 oranges each.

Extra practice with answers

Question	Answer
1. Njavwa has 2 rows of 5 beads on her mat and her teacher asks about them. (a) What is the multiplication sentence. (b) What is the total. (c) What is the total if she turns it to 5 rows of 2.	(a) 2 times 5. (b) 10. (c) 10.
2. A teacher asks Mwamba to find 34 times 5 by breaking 34 into tens and ones. (a) How is 34 broken. (b) What are the two products. (c) What is the answer.	(a) 30 and 4. (b) 150 and 20. (c) 170.
3. A girl has no pencils in 5 boxes and her teacher asks how many pencils she has. (a) What is 0 times 5. (b) Which rule is this. (c) What is 7 times 1.	(a) 0. (b) A number times 0 is 0. (c) 7.
4. The teacher asks a learner to solve 46 times 3 with counters. (a) How is 46 broken. (b) What are the products. (c) What is the answer.	(a) 40 and 6. (b) 120 and 18. (c) 138.

Answers to the learners' check-yourself questions

1. What is 3 times 5.
   15.
2. What is any number times 0.
   0.
3. Is 4 times 3 the same as 3 times 4.
   Yes, both are 12.
4. What are 2, 4, 6 and 8 called.
   Multiples of 2.
5. Mulenga puts 4 beads in each of 3 bags. His teacher asks how many beads there are in all. (a) How can we add this. (b) How do we write it as multiplication. (c) What is the total.
   (a) 4 and 4 and 4. (b) 3 times 4. (c) 12.
6. Chanda wants to find 23 times 4 using tens and ones. Her friend watches how she works. (a) How does she break 23. (b) What are the two products. (c) What is the answer.
   (a) 20 and 3. (b) 80 and 12. (c) 92.

Teacher's reflection

What went well:

What I will change next time:

Learners who need follow-up: