Use Whole Numbers in the Surrounding

Lesson plan and teacher's notes · Grade 1 Mathematics · 2 periods of 40 minutes

School	(write school name)	**Teacher**	(write name)
Date	(date)	**Class**	Grade 1
Subject	Mathematics	**Enrolment**	Boys ___ Girls ___ Total ___
Time	80 minutes	**Topic**	Use Whole Numbers in the Surrounding

Learners count objects from 1 to 20, read and write the numbers, find friends of 10, say the number before and after, and show numbers 11 to 19 as one ten and some ones using bundles of sticks. The lesson uses real objects from the school yard and may be taught over two periods.

Specific outcomes

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

1. Count objects around them from 1 to 20 and say the total
2. Read and write the numbers 1 to 20
3. Find pairs of numbers that are friends of 10
4. Say the number that comes before and after a given number from 1 to 20
5. Show a number from 11 to 19 as one ten and some ones using a bundle and sticks

Prior knowledge

- Learners can count aloud from 1 to 10
- Learners can match one object to one number when counting
- Learners can hold a pencil and write simple numbers

Teaching and learning materials

- Chalk and board
- 20 sticks, stones or leaves for each group
- String or rubber bands for tying bundles
- Number cards 1 to 20 and a number strip from 1 to 20
- Counters or bottle tops, and a ten frame drawn on cardboard or the floor

References

Ministry of Education (CDC) Grade 1 Mathematics syllabus and module; 25Schools learners' note: Use Whole Numbers in the Surrounding.

Lesson development

Stage and time	Teacher activities	Learner activities
Introduction: counting song 8 min	Sing or recite a counting rhyme that stops at 10, such as Ten Green Bottles. Ask learners to put aside 10 leaves, stones or sticks and count them one by one. Ask for the total.	Sing, count their 10 objects and say the total.
Friends of 10 15 min	Show 5 sticks and 5 sticks make 10. Let learners count in twos: 2, 4, 6, 8, 10. Give each group 10 counters to split into two groups in different ways. On the board show 7 and 3 make 10 and say that 7 and 3 are friends of 10. Let groups find more friends on a ten frame.	Split 10 counters in different ways and write the pairs that make 10.
Counting and reading to 20 17 min	Count aloud from 1 to 20. Show number cards 11 to 20 one at a time for learners to read. Point to numbers on the number strip at random. Let groups count objects from the yard in the range 1 to 20. Play the before and after game: a group shows a card and the other group picks the card that comes before and the one that comes after.	Count to 20, read the cards, count objects in groups and play the game.
Ten as a unit: bundle and sticks 30 min	Pick up a handful of 14 sticks. Ask learners to guess how many and write the guesses. Let one learner count. Ask which guess was closest. Tie 10 sticks into a bundle. Ask: How many bundles. How many sticks are left. Can we make another bundle. Draw a frame with a tens column and a ones column on the floor and place the bundle and the sticks. Say 14 is 1 ten and 4 ones. Repeat with 12, 17 and 19.	Make bundles, place them in the frame and say each number as tens and ones.
Practice: house numbers and patterns 7 min	Draw a street with numbered and unnumbered houses on the board. Ask learners to study the pattern and write the missing numbers. Walk around and check their writing of 11 to 20.	Complete the house numbers and write numbers 11 to 20.
Conclusion 3 min	Summarise: we count to 20, friends of 10 make 10, and 14 is 1 ten and 4 ones. Give the homework.	Repeat the summary and listen to the homework.

Teacher's content notes

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

Counting and cardinality

The last number said when counting is the total of the set. Learners must count each object once. They count in the range 1 to 10, then 1 to 20.

Friends of 10

Two numbers that make 10 are friends of 10, such as 7 and 3, 5 and 5, 6 and 4, 8 and 2. Number bonds and the ten frame show them.

Before, after and order

Every number has one that comes immediately before it and one that comes immediately after. Learners also put numbers in order from the smallest to the biggest and complete patterns where each number is one more than the one before.

Ten as a unit

10 sticks tied together make one bundle, one ten. A number from 11 to 19 is one ten and some ones. The goal is that learners see ten as a unit and not as ten single ones.

Questions to ask during the lesson

Question	Expected answer
A boy is selling oranges at the market. He has 12 oranges. He puts 10 in a basket and 2 are left on the table. (a) How many baskets of ten does he have. (b) How many oranges are left on the table. (c) Say 12 as tens and ones.	(a) 1. (b) 2. (c) 1 ten and 2 ones.
Two sisters collect 10 sticks for the fire. Natasha carries 7 sticks. Her sister carries the rest. (a) How many sticks does her sister carry. (b) Say what 7 and 3 are called. (c) Name another pair of friends of 10.	(a) 3. (b) Friends of 10. (c) 5 and 5, 6 and 4 or 8 and 2.
The houses on a street at Feira are numbered 11, 12, 13, then one house has no number, then 15. (a) What number goes on the empty house. (b) What number comes after 15. (c) What number comes before 11.	(a) 14. (b) 16. (c) 10.

Worked examples for the board

Showing 14 as tens and ones

Step 1: Count 14 sticks. Step 2: Tie 10 sticks into one bundle. Step 3: Count the bundles: 1. Count the sticks left: 4. Step 4: Say 14 is 1 ten and 4 ones. Step 5: Place the bundle in the tens column and the 4 sticks in the ones column.

Finding friends of 10

Step 1: Take 10 counters. Step 2: Put 7 on one side. Step 3: Count the counters that are left: 3. Step 4: Say 7 and 3 make 10, so 7 and 3 are friends of 10. Step 5: Try 6 and 4 in the same way.

Board plan

Write the title. On the left write 7 and 3 make 10 and a few more friends of 10. In the middle write the number strip 1 to 20. On the right draw the tens and ones frame with a bundle and 4 sticks and write 14 is 1 ten and 4 ones.

Number	Tens	Ones
12	1	2
14	1	4
17	1	7
19	1	9

The finished board: numbers as tens and ones

Mistakes to expect

Learners often think	Put it right
14 is 14 separate ones only.	Tie 10 sticks into a bundle and show that the bundle is one unit called one ten. The Ministry module wants learners to see ten as a unit, not as ten ones.
You can make another bundle from 4 left over sticks.	Ask learners to try. They see that they need 10 sticks for a bundle.
Counting stops when the objects are mixed up.	Teach learners to move each object to one side as they count it, or to loop counted objects with string.

Differentiation

Learners who struggle

Work with small groups and objects up to 10 first. Let them touch each object as they count. Use the ten frame to show friends of 10 before writing them. Move to 11 to 20 only when they are confident.

Learners who finish early

Ask fast learners to find all the pairs of friends of 10 and write them. Let them make bundles for 15, 16, 18 and 20 and say each as tens and ones.

Hearing or visual impairment

For learners with a visual impairment, use real objects they can touch, bundles with a clear difference in size and cards with thick, raised numbers. For learners with a hearing impairment, face them, show the number card as you say it and write the number on the board.

No projector, no printing

Use sticks, stones, leaves and bottle tops from the yard. Tie bundles with grass or string. Draw the ten frame and the tens and ones frame on the ground with a stick. Write number cards on old paper.

If time is short

Keep the bundle and sticks activity and friends of 10. Move the before and after game and the house numbers to the next period.

Evaluation

Question or task	A correct answer shows
Mulenga picks up some sticks to cook. He counts 16 sticks and ties 10 of them into a bundle. (a) How many bundles has he made. (b) How many sticks are left. (c) Say 16 as tens and ones.	(a) 1. (b) 6. (c) 1 ten and 6 ones. Learners see the bundle as one ten.
A girl has 10 bottle tops. She puts 4 in a box and the rest in a bag. Her friend says the bag has 5. (a) How many bottle tops are in the bag. (b) Is her friend right. (c) Which number is the friend of 4 that makes 10.	(a) 6. (b) No. (c) 6. Learners find friends of 10 by counting objects.

Homework

At home you find 13 stones in the yard. (a) Count the stones and tie or loop 10 of them. (b) How many are left over. (c) Say 13 as tens and ones and write the number 13.

Extra practice with answers

Question	Answer
1. A girl has 17 leaves. She loops 10 leaves with a string. (a) How many leaves are in the loop. (b) How many leaves are outside the loop. (c) Say 17 as tens and ones.	(a) 10. (b) 7. (c) 1 ten and 7 ones.
2. Two friends count bottle tops. Zulu has 8 and wants to make 10. (a) How many more does he need. (b) Name the friends of 10 that you used. (c) How many would he have if he got 2 more.	(a) 2. (b) 8 and 2. (c) 10.
3. A boy writes the numbers 16, 17, then forgets the next number and then writes 19. (a) What number did he forget. (b) What number comes before 16. (c) What number comes after 19.	(a) 18. (b) 15. (c) 20.
4. A teacher gives a group 19 sticks. They tie 10 into a bundle. (a) How many bundles can they make. (b) How many sticks are left. (c) Can they make another bundle. Say why.	(a) 1. (b) 9. (c) No, because 9 sticks is not enough, they need 10.

Answers to the learners' check-yourself questions

1. What number comes after 12 and what number comes before 12.
   After 12 comes 13. Before 12 comes 11.

2. What is the friend of 7 that makes 10.
   3.
3. How many sticks make one bundle of ten.
   10 sticks.
4. Say 17 as tens and ones.
   1 ten and 7 ones.
5. Chanda has 14 bottle tops. She ties 10 of them together with a string. (a) How many bundles of ten has she made. (b) How many bottle tops are left over. (c) Say 14 as tens and ones.
   (a) 1. (b) 4. (c) 1 ten and 4 ones.
6. Mwila has 10 stones. He puts 6 stones in one pile and the rest in another pile. (a) How many stones are in the second pile. (b) Which number is the friend of 6 that makes 10. (c) Name another pair of friends of 10.
   (a) 4. (b) 4. (c) Any pair that makes 10, such as 7 and 3 or 5 and 5.

Teacher's reflection

What went well:

What I will change next time:

Learners who need follow-up: