Grade 3 Mathematics

Terms 1, 2 and 3 - notes for 14 topics

IN EVERY TOPIC

- What you will learn and the key words.
- Short, clear notes with worked examples.
- Questions to try and a topic test, with the answers at the back.

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Strand 1.0 Numbers | Term 1

1.1 Number Activities

WHAT YOU WILL LEARN

By the end of this topic you should be able to:

- order objects according to size
- identify the position of objects from 1st to 20th
- write the position of objects in number symbols and words
- recognise the use of positions of items in real-life situations

KEY WORDS

smallest, largest, order, position, first, second, third, twentieth, before, after.

1. Ordering objects from the smallest to the largest

From small to big

Each group collects five stones of different sizes from the school compound.

Put the smallest stone on the left. Find the next smallest and put it next to it. Go on until the largest stone is on the right.

Check: every stone is bigger than the one before it.

2. Ordering objects from the largest to the smallest

From big to small

Collect five books of different sizes.

Start with the largest book. Then choose the largest of the books that are left. Go on until the smallest book is last.

Say the order: largest, then smaller, then smaller, then the smallest.

3. Naming positions 1st to 10th

Positions in a line

Ten learners stand in a line facing the door. The door is the reference point.

The learner nearest the door is 1st (first). The next is 2nd (second), then 3rd (third), 4th (fourth) and so on to 10th (tenth).

Each learner holds a card showing their position: 1st, 2nd, 3rd ... 10th.

4. Naming positions 11th to 20th

A longer line

Twenty learners stand in a line. Starting from the front: 11th is eleventh, 12th twelfth, 13th thirteenth, then fourteenth, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth and 20th twentieth.

Look: 11th, 12th and 13th all end in "th", even though 1st, 2nd and 3rd do not.

5. Race positions in symbols and words

Our class race (outside, on a cleared track)

Groups of up to ten learners race a short distance. The teacher blows the whistle to start; two judges stand at the finish line.

The first to finish is 1st, the next 2nd, and so on. Each runner says their position honestly.

Back in class, each learner writes their position in symbols and in words, for example: 4th, fourth.

6. Positions in real life: birth order and queues

Positions around us

In a family, the first child is the 1st born, the next is the 2nd born, then the 3rd born.
In a queue at the water point, the person at the front is 1st and gets served first.
In the calendar, the 1st day of the month comes before the 2nd day.

7. Before and after: position games

Position game with friends

Twenty position cards are shuffled and each learner picks one.
Without talking, learners line up in the order of their cards: 1st to 20th.
Then the teacher calls a position, for example 9th; the learners holding 8th and 10th step forward.
Where devices are available, learners play a position game in pairs, taking turns.

8. Review: ordering and positions

Putting it together

Each group orders five objects from the smallest to the largest and labels them 1st to 5th.
Then they swap with another group, check the order and read the positions aloud in words.

TRY THESE

1. Arrange three sticks from the shortest to the longest.
2. A pencil, a ruler and a chalk: which is the smallest?
3. Order three containers from the largest to the smallest.
4. A mango, a bean and an orange: which comes first from the largest?
5. Who is 1st in the line?
6. What position comes after 4th?
7. What position comes just before 15th?
8. Write "nineteenth" in symbols.
9. Amina finished after the 2nd runner. What was her position?
10. Write the position of the last runner in a race of eight.
11. Are you the 1st, 2nd or 3rd born in your family?
12. Five people are in a queue. Who is served last?
13. What position comes just before 17th?
14. What position comes just after 13th?
15. Order three stones from the largest to the smallest.
16. Write 2nd and 18th in words.

TOPIC TEST

T1. Order six bottle tops and containers by size and draw them in order.
T2. Order the members of your family from the tallest to the shortest.
T3. Name the positions of five objects on your desk from left to right.
T4. Write all the positions from 11th to 20th in words.
T5. In a race of 15, Wanjiru was 11th. How many runners finished after her?
T6. Draw your family in birth order and label each child 1st born, 2nd born and so on.
T7. Write the missing positions: 3rd, 4th, ..., 6th, ..., 8th.
T8. In a race of 20, Otieno passed 3 runners and is now 7th. What position was he in before?

Strand 1.0 Numbers | Term 1

1.2 Whole Numbers

WHAT YOU WILL LEARN

By the end of this topic you should be able to:

- count numbers forward up to 1000 starting from any point
- count numbers backward in multiples of 100 from 1000
- identify the place value of numbers up to hundreds
- read numbers 1 to 1000 in symbols
- read and write numbers 1 to 100 in words
- identify missing numbers in number patterns up to 1000
- play games involving number patterns up to 1000

KEY WORDS

count forward, count backward, ones, tens, hundreds, place value, digit, number pattern, thousand.

1. Counting forward in ones from any number

Start anywhere and count on

The teacher shows a card: 236. Learners count on in ones: 236, 237, 238, 239, 240, 241.
Only the ones digit changes, until it passes 9; then the tens digit grows by one.
Try other starting numbers: 418, 655, 870.

2. Counting forward across hundreds

Crossing a hundred

Count on from 396: 396, 397, 398, 399, 400, 401, 402.
At 399 the ones and tens are both 9. One more makes a new hundred: 400.
Count from 995 to 1000: 995, 996, 997, 998, 999, 1000 (one thousand).

3. Counting forward in tens from any number

Jumping in tens

Start at 340 and count in tens: 340, 350, 360, 370, 380, 390, 400.
Start at 125: 125, 135, 145, 155, 165. Only the tens digit changes; the ones digit stays 5.

4. Counting forward in hundreds from any number

Jumping in hundreds

Start at 150: 150, 250, 350, 450, 550. Only the hundreds digit changes.
Start at 207: 207, 307, 407, 507, 607, 707, 807, 907.
Use bundles of 100 sticks: add one bundle each time.

5. Skipping-rope counting game

Counting with a rope (outside, on flat ground cleared of stones)

Two learners turn the rope; one skips. The group counts each skip from a starting number the teacher gives, for example 470: 471, 472, 473 ...
Next skipper counts in tens from 600; the next in hundreds from 50.
Others stand well back from the rope and take turns patiently.

6. Counting backward in hundreds from 1000

Counting back in hundreds

Start at 1000 and take away one hundred each time: 1000, 900, 800, 700, 600, 500, 400, 300, 200, 100.
Use ten bundles of 100 sticks: remove one bundle and say the number left.

7. Number cards game: counting back in hundreds

Card line-up

Each group has cards 100, 200, 300 ... 1000, shuffled.
The group lays the cards in a line from 1000 down to 100 and reads them aloud.
Then one learner turns two cards over; the others say the missing numbers.

8. Place value: ones and tens

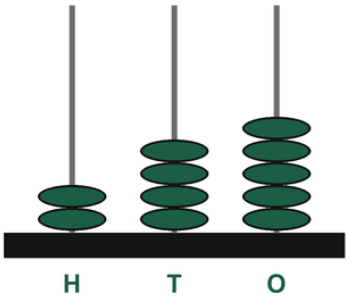
Tens and ones with sticks

34 is 3 bundles of ten and 4 loose sticks: 3 tens and 4 ones.
In 34, the digit 3 is in the tens place (value 30); the digit 4 is in the ones place (value 4).

9. Place value: hundreds

Hundreds, tens and ones

245 is 2 hundreds, 4 tens and 5 ones.
On the abacus: 2 beads on the hundreds rod, 4 on the tens rod, 5 on the ones rod.
On the chart: Hundreds 2 | Tens 4 | Ones 5.



Hundreds	Tens	Ones
2	4	5

245 is 2 hundreds, 4 tens and 5 ones.

245 on the abacus and on the place value chart

10. Telling the place value of a digit

Which place is it in?

In 674: 6 is in the hundreds place (value 600), 7 in the tens place (value 70), 4 in the ones place (value 4).
600 + 70 + 4 = 674.
Read from the right: ones, tens, hundreds.

11. Reading numbers 101 to 500 in symbols

Reading 3-digit numbers

Read the hundreds first, then the rest: 238 is "two hundred and thirty-eight".
405 is "four hundred and five" (no tens). 170 is "one hundred and seventy".
Learners take turns reading number cards the teacher holds up.

12. Reading numbers 501 to 1000 in symbols

Reading big numbers

Read 763: "seven hundred and sixty-three". Read 914: "nine hundred and fourteen".

1000 is read as "one thousand".

Pairs: one learner points to a number on the number line, the other reads it, then they swap.

13. Writing numbers 1 to 20 in words

Number words

one, two, three, four, five, six, seven, eight, nine, ten

eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty

Learners take turns: one holds a number card, the partner holds up the matching word card.

14. Writing tens in words: ten to one hundred

Tens words

ten, twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety, one hundred

Look: "forty" has no "u" (not "fourty").

15. Writing numbers 21 to 100 in words

Tens word + ones word

36 is thirty-six: the tens word, a hyphen, then the ones word.

74 is seventy-four. 99 is ninety-nine.

Pairs take turns: one writes a number in words, the other writes it in symbols.

16. Missing numbers in patterns of ones and tens

Find the rule, then the gap

254, 255, ..., 257: the numbers go up by 1, so the missing number is 256.

430, 440, ..., 460: the numbers go up by 10, so the missing number is 450.

Always check the rule with two numbers that are next to each other.

17. Missing numbers in patterns of hundreds and twos

Up and down patterns

120, 220, 320, ...: up by 100, so 420 is next.

900, 800, ..., 600: down by 100, so 700 is missing.

346, 348, 350, ...: up by 2, so 352 is next.

18. Creating number patterns up to 1000

Team patterns

Each group chooses a starting number and a rule: add 1, add 2, add 10 or add 100, or take away 100.

They write five numbers of the pattern on a chart, leaving two gaps.

Groups swap charts, fill the gaps and say the rule. Every member of the group gets a turn to speak.

19. Number games with whole numbers

Game time

Game 1 - Next number: a learner reads a card (for example 619) and says a rule ("add 10"); the next learner says the answer (629).

Game 2 - Who has?: each learner has a card; "I have 300, who has 100 more?" The holder of 400 answers and asks the next question.

Where tablets are available, pairs play a number-pattern game, taking turns.

20. Review: whole numbers to 1000

Number check

Take the number 538. Read it: five hundred and thirty-eight. Show it on the abacus: 5 hundreds, 3 tens, 8 ones. Count on three: 539, 540, 541. Say 100 more: 638. Each group repeats with a number card of its own.

TRY THESE

1. Count on five numbers from 312.
2. What number comes after 549?
3. What comes after 499?
4. Count on from 697 to 703.
5. Count in tens from 210 to 260.
6. What is 10 more than 480?
7. Count in hundreds from 300 to 800.
8. What is 100 more than 456?
9. Count in ones from 588 for six skips.
10. Count in tens from 600 for five skips.
11. What is 100 less than 1000?
12. Count backward in hundreds from 700.
13. Fill in: 1000, 900, ..., 700.
14. Fill in: 600, ..., 400, ..., 200.
15. How many tens and ones are in 57?
16. What is the value of 6 in 62?
17. Show 312 on the abacus. How many beads on each rod?
18. How many hundreds are in 708?
19. What is the place value of 3 in 385?
20. What is the value of 9 in 594?
21. Read 316.
22. Read 452.
23. Read 587.
24. Read 630.
25. Write 8 in words.
26. Write 15 in words.
27. Write 40 in words.
28. Write 70 in words.
29. Write 43 in words.
30. Write 68 in words.
31. Fill in: 318, 319, ..., 321.

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