

Mathematics lessons for Grade 1

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Using these lesson plans

These sample lessons for Grade 1 are suitable for use with a whole class. The lessons are single examples to illustrate different teaching and learning activities. They are not intended to be taught as a sequence. They are drawn from different topics and points in the teaching year to show spread rather than sequence.

The objectives for the lessons are drawn from the standards for Grade 1. Occasionally, a standard from an earlier grade is revised. The relevant standards are shown in the lesson plans.

The lessons are organised in three parts: a starter to introduce the lesson, a main activity, and a final phase to help students to reflect on the lesson and consolidate their learning. Before the starter, you may decide to outline the purpose of the lesson, drawing out for students what they will learn and how this builds on previous work. In the final part of the lesson, you may wish to establish the key learning points, what students need to remember and what they will go on to learn next. There is no expectation that students should copy out the key learning points in their exercise books.

The lesson plans do not include homework tasks because the lessons are single examples taken out of sequence. If your school's policy is to provide homework for Grade 1, you will need to provide this, since homework is an important part of a lesson.

Each lesson plan has sufficient material to support about 45 minutes of teaching. You may need to supplement the activities with additional simpler or more challenging tasks if the students in your class have a range of attainment. You could choose from activities in textbooks or from your own resources. If you wish, different tasks can be given to different groups of students, according to their needs.

There may be too much material in the lesson plan for 45 minutes, since this will depend on the class. In this case, you could designate one of the activities in the lesson as homework, or carry it forward to the next lesson. Be selective about

which activity to cut – it does not have to be the last one merely because it comes at the end.

Answers to questions are provided to help you to correct students' responses and give feedback. Sometimes, alternative answers are possible that are equally correct.

1.1

Ordering numbers 1 to 20

Objectives

- Compare and order two-digit numbers and position them on a number line.
- Identify whole numbers lying between two given two-digit whole numbers.
- Read and write numbers 0 to 100 in numerals and words.
- Describe a simple relationship between two numbers.

Starter

Vocabulary

ones
count on
count back
one more

Resources

A puppet

As a whole class, count aloud up to 30. Then count back to zero.

Tell the class that a puppet is going to say three numbers and that they should say the next three numbers.

Make the puppet say: 15, 16, 17. The students should respond: 18, 19, 20.

Make the puppet say: 10, 9, 8. The students should respond: 7, 6, 5.

Repeat several times, varying the starting number, and counting alternately forwards and backwards. Focus on numbers in the range 1 to 30.

Support students by using three fingers to keep track of the next three numbers and encouraging them to do the same.

Main activity

Vocabulary

more
less
larger
smaller
order
names of numbers to 20

Resources

A set of large number cards 1 to 30
A 'washing line' strung across the room at a height that children can reach
Clothes pegs to peg the cards on the line
A pack of cards from 1 to 20 for each table

Say that today the class will put numbers in order. You want them to use the words *larger*, *smaller*, *more* and *less*. Write these words on the board.

Seat the students in pairs in a circle. Give each student a number card from 1 to 30, distributing the cards randomly around the circle. Ask the student holding number 1 to stand up, and say the number on their card. The student holding 2 follows on, then the student holding 3, and so on, until all the students are standing up.

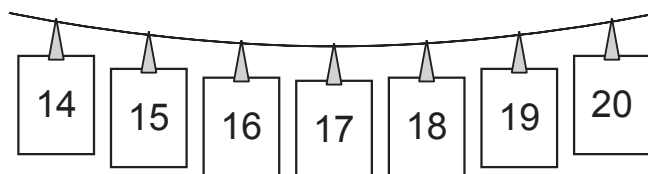
Collect up the cards 21 to 30. Ask the students holding the cards 1 to 20 to place them randomly on the floor where all the class can see them.

Invite one pair of students at a time to choose any card, show it to the class and read out the number. Ask the pair to peg the card in the right place on an empty washing line.

Q Where will you put it? Does it go near the beginning, at the end or in the middle?

Encourage explanations such as: 'it goes next to the 10', 'it goes between 15 and 20', 'it's more than 6'.

Repeat with other numbers until all the numbers are pegged on the line.



Count along the line and back again, pointing to each number.

Ask some questions about the numbers on the line.

Q Which is the smallest number? Which is the largest number?

- Q Which number is one more than 10?**
- Q Which number is one less than 17?**
- Q Which numbers lie between 3 and 8?**

Repeat with other numbers.

Choose two children to select two cards from the line.

- Q Which numbers have they chosen?**
- Q Which is the larger number? Which is the smaller number?**

Repeat with other pairs of children.

Pick two numbers from the washing line and write them on the board.

- Q Which is the larger number?**

Circle the larger number.

Ask the students to return to their tables.

Give each table a set of number cards 1 to 20. Ask the groups to place the cards face down and to shuffle them so that they are arranged randomly.

In turn, each student should turn over two cards. Everyone on the table should write the two numbers in their books, and circle the larger number.

They then replace their pair of cards face down, and repeat with another two cards.

Other tasks

If necessary, choose further related activities from available textbooks or your own materials. For example:

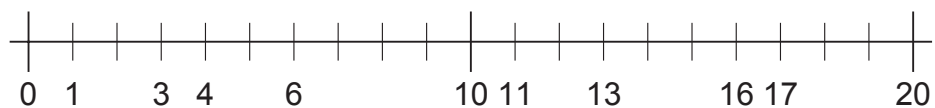
- Secretly remove one, two or three cards from a 1 to 20 or 1 to 30 pack. Shuffle the cards and place them randomly face up on the table. Ask students to find out which cards are missing.
- Place a 1 to 20 or 1 to 30 pack face down on the table. Ask students to turn over three cards and write them in order from the smallest to the largest.

Consolidation

Resources

A pack of cards from 1 to 20 placed in a bag
Mini-whiteboards

Draw a number line from 0 to 20 on the board, with a mark for each number. Write in some numbers but leave some out.



Invite individual students to come and write in the missing numbers.

- Q How can we work out which number goes here?**
- Q Which number comes after 11?**
- Q Which number is one less than 6?**
- Q Which numbers lie between 13 and 16?**

Take the bag of cards and select two of them. Tell the class what they are, e.g. 10 and 15. Ask students to write the smaller of the two numbers on their whiteboards. Take feedback and agree the answer.

- Q What is the relationship between 10 and 15? (10 is less than 15, or 15 is more than 10)**

Then ask:

Q Can you think of a number that lies between 10 and 15?

Again, take feedback. Establish that the numbers that lie between 10 and 15 are all more than 10 and less than 15.

Repeat with other pairs of numbers.

Summary for students

- The number that lies between 17 and 19 is more than 17 and less than 19.
- When you put numbers in order from the smallest to the largest, start with the smallest number, then the next smallest, and so on. Finish with the largest number.

1.2

Simple subtraction

Objectives

- Understand subtraction as *taking away* by subtracting using real objects or a number line.
- Understand the meaning of the symbols +, −, = and use them to record additions and subtractions in a number sentence.

Starter

Vocabulary

how many?
count
add
equals

Resources

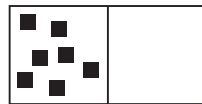
10 cubes
Open box to hold the 10 cubes
Mini-whiteboards
OHT 1.2a

Show the class the 10 cubes. Tell the students that there are 10 of them. With the students, count the cubes into the box. Hold the box so that the students cannot see the contents.

Q How many cubes are in the box?

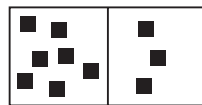
Confirm that there are 10 cubes, if necessary by counting them out and in again.

Show **OHT 1.2a**. Count out 7 cubes from the box, putting them in the left-hand area on the OHT. If you wish, write the numeral 7 in the small box below the cubes.



Q How many cubes are left in the box?

Ask students to write their guesses on their mini-whiteboards. Count out the remaining 3 cubes, placing them in the right-hand area of the OHT. If you wish, write the numeral 3 in the small box below the cubes.



Write on the board: $7 + 3 = 10$. Ask the class to read this number sentence aloud, saying: ‘seven add three equals ten’.

Demonstrate how students could use their fingers to work out that there were 3 cubes left in the box. Say ‘seven’ aloud, and then ‘eight’ (hold up one finger), ‘nine’ (hold up a second finger), ‘ten’ (hold up a third finger).

Put all 10 cubes back in the box and repeat the activity four times, with 9 cubes, 5 cubes, 8 cubes, then 6 cubes.

Main activity

Vocabulary

take away, subtract
equals
more, less

Resources

A 0 to 20 number line for each student
A 0 to 20 number line for demonstration
8 large counters or circles of card
Resource 1.2b

As a whole class, count back from 30 to zero.

Q What happens to the numbers when we count backwards? Do they get more or less? (less)

Say that today the class will be practising ‘take away’ questions using the number line.

Write $5 - 2$ on the board.

Q Who can read this question? (five take away two)

Q Is there another way to say it?

Draw out that we can say ‘subtract’ instead of ‘take away’.

Q How can we find out the answer?

Ensure that students understand that when we subtract 2 from a number, the answer will be less than the number. So one way to solve subtraction questions is to count back.

On your demonstration number line, stick five large counters (or circles of card) above the numbers 1 to 5, one above each number.

Q We have 5 counters. How many do we have to subtract? (2)

Subtract the two counters one at a time, starting with the counter above 5, saying: ‘5 take away 1 is 4, and taking away another one leaves 3. We have 3 counters left.’

Now ask the students to show you 5 fingers, and to take away 2 by saying ‘5 take away 1 is 4’ (bending down one finger), ‘and take away 2 is 3’ (bending down a second finger).

Repeat for $8 - 3$.

Give each student a 0 to 20 number line. Tell the students that for your snack today you have a bunch of 20 grapes. Ask them to imagine the 20 grapes.

Q I have 20 grapes and I eat 2. How many grapes are left?

Model how to solve the problem using the number line. Point to 20 and say: ‘20 grapes, eat 1 grape leaves 19’ (as you count back one jump), ‘eat 2 grapes leaves 18’ (as you count back a second jump).

Ask students to use their number lines and to count back 2 from 20.

Record on the board: $20 - 2 = 18$.

Ask the whole class to read this number sentence aloud, saying: ‘Twenty subtract two equals eighteen’.

Q Imagine that I have 20 grapes but that I give 5 grapes away to a friend. How many grapes do I have left?

Encourage students to find out by using their number lines. Ask for answers, then check as a class using the demonstration number line, saying: ‘Twenty subtract 1 is 19, subtract 2 is 18, subtract 3 is 17, subtract 4 is 16, subtract 5 is 15’.

Record on the board $20 - 5 = 15$, and read this sentence aloud.

Q Now I have 15 grapes and I eat 3. How many do I have left?

Q Which number do I need to point to on the number line before I start? (15)

Ensure that the students start on 15 and count back 3, saying: ‘14, 13, 12. There are 12 left.’

Record on the board $15 - 3 = 12$, and read this number sentence aloud.

Give each student a copy of **Resource 1.2b** to complete. They should draw the jumps on the number lines for each question.

Other tasks

If necessary, choose further related activities from available textbooks or your own materials.

Consolidation

Bring the whole class together. Explain that you are going to ask them a subtraction problem to solve without a number line.

Q Imagine that I have 20 grapes and that I eat 4 of them. How many grapes do I have left?

Model counting back from 20 without a number line. Say:

‘I have 20 grapes and I am going to eat 4 of them’. Hold up four fingers.

‘I am going to subtract 4 from 20 by counting back.’

‘20 grapes subtract 1 is 19’ (as you bend down the first finger), ‘subtract 2 is 18’ (as you bend down the second finger), ‘subtract 3 is 17’ (as you bend down the third finger), ‘subtract 4 is 16’ (as you bend down the last finger).

‘I have 16 grapes left.’

Hold up four fingers again. Fold down the first saying ‘19’, the second saying ‘18’, the third saying ‘17’ and the last saying ‘16’.

Record on the board $20 - 4 = 16$, and read this sentence aloud as a whole class.

Repeat by asking the students to imagine that you have 20 grapes and eat 5 of them.

Record on the board $20 - 5 = 15$, and read this aloud.

Q Who can tell me the answer to 20 subtract 1?

Q Who can tell me the answer to 20 subtract 2?

Summary for students

- We can solve ‘take away’ problems by counting back.
- Another way to say ‘take away’ is to say ‘subtract’.
- We can use fingers to help solve some subtraction problems. We can also use a number line.
- It is useful to remember number facts. Facts like $20 - 1 = 19$ and $20 - 2 = 18$ are easy to remember.

1.3

Weight

Objectives

- Compare the mass/weight of two or more everyday objects by using direct comparison or non-standard units.

Starter

Vocabulary

heavy
heavier, lighter
heaviest, lightest
larger, smaller
weigh
balance

Resources

A 1 kg packet of sugar
A large packet of cotton wool
A roll of kitchen paper
A kilogram weight wrapped in tin foil
A balance

Tell the class that this lesson is about weighing things.

Q What things do people weigh at home?

Draw out that cooking ingredients get weighed on kitchen scales, or that people may weigh themselves on bathroom scales.

Q What things get weighed in shops?

Use students' experiences and establish, for example, that vegetables may get weighed, or fish or meat, or gold at the gold souk.

Q What do we find out when we weigh things? (how heavy they are)

Write the word *heavy* on the board.

Choose a student to come to the front of the class. Ask him or her to hold the sugar. Tell the class that you are giving the student a packet of sugar and that it is quite heavy. Pass the sugar round the class so that each student can feel it.

Pass the same student the cotton wool. Tell the class that it is a packet of cotton wool and that it is quite light. Pass the cotton wool round the class so that each student can feel it.

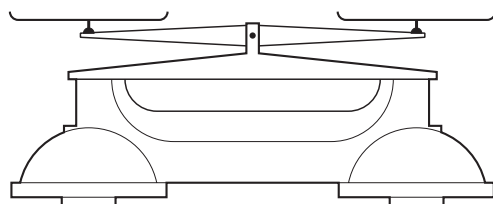
Consult the class.

Q Which is heavier, the sugar or the cotton wool?

Q Which is lighter, the sugar or the cotton wool?

Establish that the sugar is heavier than the cotton wool, and that the cotton wool is lighter than the sugar. Write the words *heavier* and *lighter* on the board.

Tell the class that they can use a balance to check that the sugar is heavier. Set up the balance on a table at the front of the class so that all the students can see it. Write the word *balance* on the board.



Put the sugar on one side and the cotton wool on the other side.

Q What has happened?

Establish that the heavier side goes down and the lighter side goes up.

Q Which is larger, the packet of sugar or the cotton wool?

Hold the two objects side by side to show that the packet of cotton wool is larger than the sugar, and that the sugar is smaller than the packet of cotton wool. Write on the board the words *larger* and *smaller*. Say to the class: 'The packet of cotton

wool is larger. The packet of sugar is heavier.’ Explain that sometimes smaller things are heavier than larger ones.

Show the class the roll of kitchen paper and the weight wrapped in tin foil.

Q Which is larger, the kitchen paper or the tin foil packet? (the kitchen paper)

Q Which do you think is heavier? Who thinks the kitchen paper is heavier? Who thinks the tin foil packet is heavier?

Q How can we check which is heavier? (we can use the balance)

Place one object on each side of the balance.

Q What has happened? (the side with the tin foil packet has gone down, and the side with the kitchen paper has gone up)

Q What does this tell us? (the tin foil packet is heavier than the kitchen paper, and the kitchen paper is lighter than the tin foil packet)

Pass the two objects round the class so that students can confirm by feeling that the tin foil packet is heavier.

Main activity

Vocabulary

heavy
heavier, lighter
heaviest, lightest
weigh
balance
more, fewer

Resources

A small loaf of bread
A packet of biscuits
A small clear polythene bag
Some wooden bricks all the same size
A balance

Show the class the balance, the bread and the bricks. Say:

‘We are going to weigh the bread to see how heavy it is. We will measure the weight of the bread by using these bricks.’

Ask the students to feel how heavy the bread is. Pass it round the class.

Show the class the clear polythene bag.

Q How many bricks do you think I need to put in this bag to make it as heavy as the bread?

Take some guesses and write them on the board. Say that they can use the balance to find out. Put the bread on one side and the bag on the other. Start counting bricks into the bag: one, two, three, four, ... When the pans on the balance are level, stop counting. Explain that the bricks now balance the loaf, and that this means that the bricks weigh the same as the bread.

Q How many bricks are in the bag? (for example, 9)

Write on the board: ‘The bread weighs 9 bricks’.

Say that you will now weigh the biscuits. Pass round the biscuits. Take the bricks out of the bag. Ask:

Q How many bricks do you think we need to put in the bag to balance the biscuits?

Take guesses as before. Weigh the biscuits to discover, for example, that they weigh the same as 6 bricks. Write on the board: ‘The biscuits weigh 6 bricks’.

Q Which is heavier, the bread or the biscuits? (the bread)

Q How do you know? (the bread needs more bricks to balance it)

Q Which is lighter, the bread or the biscuits? (the biscuits)

Q How do you know? (the biscuits need fewer bricks to balance them)

Confirm that the bread is heavier by putting it on one side of the balance and the biscuits on the other side. Observe what happens.

Other tasks

If necessary, choose further related activities from available textbooks or your own materials. For example:

- Give each group of two or three students a book to weigh. Ask them to find some things in the classroom that are lighter than a book. Then ask them if any of the things are larger than the book.
- Give a group of three or four students a balance and a shoe, a book and a pencil case (or similar objects). Ask them to find out which object is the lightest and which is the heaviest. When they have found out the order, they can draw the three objects in that order, from lightest to heaviest.
- Give each group of four students a balance, some bricks and a book. Ask the group to estimate how many bricks will balance the book. Write down their estimates. Students check by weighing the book in bricks.

Consolidation

Resources

- A roll of kitchen paper
- A large packet of cotton wool
- Some wooden bricks all the same size
- A balance

Bring the whole class together.

Invite two students to the front of the class. Ask them to find out by balancing each object against the bricks which is heavier, the cotton wool or the kitchen paper. Encourage them to explain to the class what they are doing at each stage of the process.

When they have found out how much the first object weighs in bricks, write on the board, for example, 'The kitchen paper weighs 8 bricks'.

When they have found out how much the second object weighs in bricks, write on the board, for example, 'The cotton wool weighs 5 bricks'.

Ask the whole class:

Q Which is lighter, the kitchen roll or the cotton wool? (the cotton wool)

Q How do you know? (it needs fewer bricks to balance it)

Summary for students

- We use a balance to find out which of two things is heavier.
- The side of the balance that goes down is the heavier side. The side that goes up is the lighter side.
- We can balance objects using bricks. The more bricks that we need to balance an object, the heavier it is. So if a book weighs the same as 12 bricks, and a ball weighs the same as 5 bricks, the book is heavier than the ball.
- Sometimes smaller things are heavier than larger ones. For example, our bag of sugar was heavier than our large packet of cotton wool.

1.4

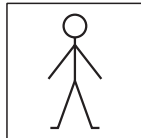
Pictograms

Objectives

- Collect a simple set of data, organise it and represent it in a pictogram in which the symbol represents one unit.
- Interpret simple pictograms in which the symbol represents one unit.
- Solve simple addition and subtraction problems by using data from graphs.

Preparation

Make some 'people' cards, about 5 cm by 5 cm, enough for one for each student in the class.



Prepare a large sheet of paper with a grid with eight rows and seven or eight columns. Number the rows as shown below. Each square on the grid should be about 6 cm by 6 cm, large enough for a 'people' card to be stuck in it.

10								
9								
8								
7								
6								
5								
4								
3								

Pin up the grid so that all the students will be able to see it and reach it.

Starter

Vocabulary

title
key
pictogram
most, least
more, fewer
most common

Resources

'People' cards
Blu-Tack
A large sheet of paper

Choose a student.

Q How many letters are there in your first name?

Write the student's name on the board, and count the letters in it with the class.

Ask other students:

Q How many letters are there in your first name?

Q Who has four letters in their name? Who has six letters?

Make sure that every student knows how many letters they have in their name.

Give each student a 'people' card. Choose a student.

Q How many letters are there in your name? (for example, 5)

Help the student to stick their card by the number 5 on the grid.

Repeat the process for the other students, making sure that they align the cards correctly.

When all the students have stuck their cards on the graph, write the key. Stick up an extra 'people' card and write 'This means 1 child' besides it. Read this out to

the class. Explain that this is the *key* and its purpose is to help them to read the graph. Give the graph a title, reading it out to the class.

Explain that they have made a pictogram, and write the word *pictogram* on the board. Read out the title and the key once again.

Count the total number of ‘people’ cards on the graph and check that it corresponds to the total number of students in the class. Stress that there is one card for every student.

Ask questions to help students to interpret the graph, counting the ‘people’ cards where relevant.

- Q How many names have 6 letters?**
- Q How many names have 3 letters?**
- Q How many more names have 6 letters than have 3 letters?**
- Q What is the least number of letters in a name? What is the most number of letters in a name?**
- Q Which number of letters is the most common?**
- Q How many children have fewer than 5 letters in their name?**
- Q How many children have more than 7 letters in their name?**

Main activity

Vocabulary

title
key
label
graph
most, least
more, fewer

Resources

OHT 1.4a

Show **OHT 1.4a**.

Tell the class that a class of children made a graph. Each of them had a square of sticky paper. They put it on the graph to show which colour they liked best. Point out the title of the graph and read it out to the class.

Point out the colours that the children chose – red, orange, blue, green, yellow – and read them out to the class.

Point out the key at the side of the graph, and explain that one shaded square represents one child.

Point to the label ‘yellow’. Ask:

Q How many children like yellow best?

Count the shaded squares next to yellow with the class. Show students how the fifth shaded square is next to the number 5 on the scale.

Point to the label ‘green’. Ask:

Q How many children like green best?

Count the shaded squares next to ‘green’ with the class. Show students how the fourth square is opposite the number 4 on the scale.

Point to the label ‘blue’. Ask:

Q How many children like blue best? How can we tell without counting the squares?

Establish that they should look to see which number is opposite the last shaded square. For blue, this is 7. Repeat with orange and red.

Q How can we tell from the graph which colour the children liked best? (look for the colour that has the most shaded squares next to it)

Q Which colour is it? (red)

- Q How can we tell from the graph which colour the children liked least?**
(look for the colour that has the fewest shaded squares next to it)
- Q Which colour is it?** (orange)
- Q How can we tell from the graph how many children there are altogether in the class?** (count all the shaded squares)

Establish by counting that 26 children altogether chose a colour.

Other tasks

If necessary, choose further related activities from available textbooks or your own materials.

Consolidation

Resources

Copies of Resource 1.4b,
one per student

A red, yellow, blue and
green crayon for each
student

Tell the class that they are now going to make their own graph of their favourite colours. Give a copy of **Resource 1.4b** to each student. Say that you have already prepared the outline of a graph and that they will now finish it.

They are going to choose the colour that they like best from the four colours red, yellow, blue and green. They can vote for just one of these colours. Write a list of the four colours on the board:

red
yellow
blue
green

Ask students to put up a hand when you say the colour they want to choose.

Q Who likes red best?

Count the number of students, and write the number on the board next to the word 'red'. Repeat with yellow, blue and green.

Point to the word 'red' on the board, and the number next to it.

Q How can we show this information on our graph?

Establish that they need to colour the correct number of squares above the label 'red' on the graph. Ask students to do this, then repeat with yellow, blue and green.

Q What questions could we ask about our graph?

Encourage students to suggest and then answer questions such as:

Q Which colour do we like best?

Q Which colour do we like least?

Q How many more children like red than like green?

Summary for students

- A pictogram shows information. It must have a title and a key so that people who look at the graph can understand the information.