HANDOUT 8.1a: Sample unit for Grade 1

Number 1

UNIT 1.1
9 hours

About this unit

This unit is the first of eight units on number for Grade 1.

This unit is designed to guide your planning and teaching of mathematics lessons. It provides a link between the standards for mathematics and your lesson plans, and should help you to plan the content, pace and level of difficulty of lessons. You will need to adapt it to meet the needs of your class.

The standards for Kindergarten should be reviewed and consolidated in Grade 1 since not all students will have experienced Kindergarten education.

Expectations

By the end of the unit, most students count up to 20 reliably, read numbers to 20, and use ordinal numbers. They describe simple relationships between two numbers of quantities using appropriate mathematical terms.

Students who progress further count up to 100 reliably, and read and write numbers to 100. They use their knowledge of place value to order numbers.

Students who make slower progress count and order numbers when solving practical problems involving up to 10 objects. They read numerals up to 10. They recognise up to five objects without counting.

Resources

The main resources needed for this unit are:

- overhead projector (OHP), an overhead transparency (OHT) and counters
- interconnecting cubes/bricks
- washing line and pegs
- 1–20 number cards
- 1–10 number cards for each child
- pebbles/buttons and a tin
- yellow stickers
- 1–10 spinner or a 1–10 dice
- 1–6 dice for each pair of children
- *Sample lesson plans for mathematics*: lesson plan 1.1

Key vocabulary and technical terms

Students should understand and use:

- number names to *twenty*;
- comparative language: *more, less, the same*
- quantitative language: *how many? Is there enough?*
- ordinal language: *first, second, third, …, tenth.*

Objectives for the unit

Unit 1.1

9 hours		SUPPORTING STANDARDS including Kindergarten standards		CORE STANDARDS Grade 1 standards (including Kindergarten standards)		EXTENSION STANDARDS including later Grade 1 standards
9 hours **Counting and ordering**	K.2.1	Recite the sequence *one, two, three, …* up to ten.	K.3.1	Recite the sequence *one, two, three, …* up to twenty.	1.2.2	Count to 100 and back to zero by reciting *zero, one, two, three, …*
	K.2.2	Count up to 10 objects and say how many there are.	K.3.2	Count up to 20 objects and say how many there are.	1.2.3	Count reliably and give a reasonable estimate of up to 100 objects.
	K.2.7	Read and write numerals to 10, including 0.	K.3.3	Read and write numerals 11 to 20.	1.2.4	Read and write numbers 0 to 100 in numerals and words.
	K.2.3	Given a spoken number to 10, represent it using real objects.	K.3.5	Given a spoken or written number to 20, represent it using real objects or drawings.	1.2.5	Represent the place value of two-digit numbers (tens and ones) using real objects, models and expanded notation, e.g. 43 = 40 + 3.
	K.2.9	Given a written number to 10, represent it using real objects or drawings.				
	K.2.10	Compare two sets of objects and identify which set has more or less objects.	K.3.6	Compare three sets of objects, and identify which set has more than, the same numbers as or fewer objects than another.		
	K.2.11	Identify the number that is 1 more/less than a given number to 10.	K.3.7	Identify the number that is 1 more/less than a given number to 20.	1.2.8	Identify the number that is 10 more/less than a given two-digit number.
	K.2.12	Order numbers to 10 and position them on a number line.	K.3.8	Order numbers to 20 and position them on a number line.	1.2.6	Compare and order two-digit numbers and position them on a number line.
	K.2.5	Visualise up to five objects without counting.				
	K.2.4	Know that if a set of objects is rearranged, then the number of objects remains the same (conservation of number).				
	K.2.6	Recognise *zero* when counting.				
			1.2.1	Use ordinal numbers (*first, second, third, …, tenth*) to describe the position of an object in a row of objects or the order of a set of events.		

Activities

Unit 1.1

Objectives	Possible teaching activities	Notes	School resources
9 hours Recite the sequence *one, two, three, …* up to twenty. Count up to 20 objects and say how many there are. Read and write numerals 11 to 20. Write a number to indicate the number of objects in a set of 11 to 20 objects. Given a spoken or written number to 20, represent it using real objects or drawings. Compare three sets of objects, and identify which set has more than, the same numbers as or fewer objects than another. Identify the number that is 1 more/less than a given number to 20. Order numbers to 20 and position them on a number line. Use ordinal numbers (*first, second, third, …, tenth*) to describe the position of an object in a row of objects or the order of a set of events.	**Short activities: Counting and ordering** Say the numbers from 1 to 10, asking children to join in when they become more confident. As you chant the numbers, hold up the corresponding number of fingers, starting with one thumb on the right so it is on the left as children see it. Say *five* and *ten* more loudly, emphasising one or two hands. Repeat until children can join in the count and hold up the correct number of fingers. Later in the unit, extend the count to 20, folding down all fingers after 'ten' and holding up one thumb as for 'one'.	Try to count in a rhythmic fashion to aid children joining in. Emphasising the five and ten can help children to join in the count and also to link the numbers with one or two handfuls.	This column is blank for schools to note their own resources, e.g. textbooks, worksheets.
	Ask children to put their hands behind their backs. Say 'Hold up 5 fingers. Show me!' at which point children should bring their hands from behind their backs to show you five fingers. Repeat with ten fingers, and then other numbers less than 10.	Include five and ten fingers to make sure children are secure with these. They should soon be able to recognise one hand as five fingers without counting.	
	Give each child between 2 and 10 interconnecting cubes. Ask them to count their cubes and to build a tower with them. Ask children to hold up their towers if they are made from a particular number of cubes. Repeat until children are confident. Ask each child to compare their tower with their neighbour's. 'Is it taller or shorter?' 'Does it have more or fewer cubes?' Ask children to hold up their towers if they have more than, say, five cubes. Ask them to hold up their towers if they have fewer than five cubes. Repeat with other numbers.	This activity can be extended to include numbers up to 20.	
	Secretly write a number less than 10 on a piece of A5 card. Hide it behind a larger piece of card. Slide it up so just the top of the number is showing. 'What number could this be? What number can't it be? Why?' Slide the number up a little more so that more of it is visible. 'What do you think now?' Repeat with other numbers, discussing the straight and curved parts of them. When children are confident, turn the numbers on their sides or even upside down. Include numbers written as on a digital display.	This activity can be extended to include numbers up to 20. You could ask children how many digits are in the number, what the first digit might be and so what numbers it might be/can't be.	
	Tape a number (in the range 1 to 10) to a child's back so that only the other children can see it. Ask the other children to hold up the corresponding number of fingers. Then ask the child 'wearing' the number to turn around, to look at children's fingers and guess what the number is. Repeat with other numbers in the range 1 to 10.		
	Together chant the numbers from 1 to 20, raising hands on every fifth number (i.e. 5, 10, 15 and 20), and clapping to the others. Begin slowly at first, and then try to build up more speed as children become more confident. Repeat, this time pointing to the numbers pegged in order on a washing line while children clap and wave. Repeat, this time counting backwards from 20, chanting slowly to begin with.		

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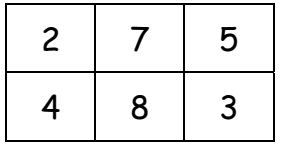
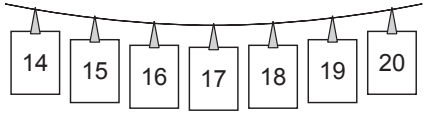
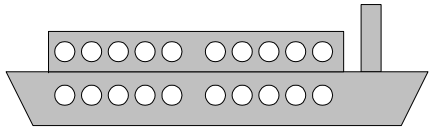
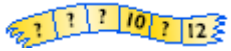
	Count a handful of pebbles/buttons into a tin, saying the number names as you hear the 'clunk' for each pebble dropped. Empty the tin, and drop five pebbles in the tin, asking children to count them as you do so, listening carefully as they drop into the tin. Repeat dropping a small number of pebbles into the tin, this time asking children to count them in their heads. Repeat with numbers less than ten.	It is important that children learn to count sounds, actions and objects that they cannot touch, not just objects they can move.	
	Say strings of three numbers such as *seven, eight, nine* and ask children to say the next number. Repeat using sequences of numbers counting backwards, e.g. *ten, nine, eight*, asking children to say the next number in the sequence.	It is important to practise the skill of counting on/back for later addition/subtraction work, but also because some children find it difficult to recite numbers without starting at *one*.	
	Seat children in a circle and ask them to count round it. As children say their numbers they should raise their hands like a Mexican wave. Start slowly to begin with, increasing speed as children become more confident. Repeat, this time counting backwards from the number of children in the class.		
	Show children three actions, e.g. clap, stamp, pat your head. 'Which did I do first? Second? And third?' Ask children to perform these actions in any order they want. 'Which action did you do first? Second? And third?' Ask children to work in pairs, and to invent their own sequence of three or four actions, agreeing the order in which they will perform them.		
	Counting Put a handful of cubes on the table and try to count them without moving them. 'Oh dear, I'm getting in a muddle. What can I do to help?' Show children how moving the cubes into lines as you count them helps you to keep track of them. Give a handful of cubes to each child and ask them to do the same. When they have counted them they should compare their line of cubes with their neighbour's. Do they have more or fewer cubes?		
	Quickly draw a picture of a park on an A4 piece of paper. Sketch a roundabout, slide and swings. Say that you want to use bricks to build a wall around the park. Show children the bricks you want to use. 'How many do you think I will need? 5? 10? More than 10?' Build a wall (one brick high) around the park and together count the number you used, keeping note of where you started counting. Ask children to work in pairs to quickly sketch their own parks and estimate the number of bricks they will need, build the wall and then count the number of bricks in them.	Here children are counting objects they can see and touch but not move. If children are confident in counting the bricks in their walls, ask them to add another layer to their walls and to count on the total.	
	Show children food items for a class picnic (e.g. bread rolls, apples, tomatoes). Ensure that there are not enough of some items, the right number of others and too many of others. Ask children if there are enough tomatoes for each child to have one. 'How can we find out? Will there be any over?' or 'How many children won't have one, so how many more do we need?' Repeat with the other items.	This activity establishes a purpose for counting and introduces the idea of 'how many more?' for later work on difference.	

Objectives	Possible teaching activities	Notes	School resources
	Read and writing numerals		
	Together count three small counting objects (e.g. dinosaurs, animals, fruits or bricks) into a box/margarine tub, and put the lid on. Count four into another identical tub, and six into a third. Mix the tubs up and ask children to say which tub contains the three objects. Point to another tub and ask how many objects are in this tub. Ask children if it would help to write something on the lid to show how many are in each tub. Give a sticky note to each of three children and suggest they write something on the note to help. Place their sticky notes on the lids, move the tubs around and ask different children how many are in each tub. Draw out that writing numerals or using tallies is helpful. Add more objects to each tub and repeat. Establish that, as the number of objects increases, numerals can be easier to read than tallies.	This activity may help children to see the need for recording numbers.	
	Tell children that you want to plant between 1 and 10 fast growing seeds (e.g. sunflower seeds) into small pots. Say that not all seeds grow and you want to know if they all come up. Ask them what they could do to help. Draw out that they could write the number of seeds planted on the side of each pot. Give each pair of children seeds, compost, a pot and a label to stick onto each pot. Observe the seeds over the forthcoming weeks, and work out how many grew and did not.	This activity could be linked to work in science.	
	Write the numbers 1–10 on the board. Tell children to divide their mini-whiteboards into six areas and then to choose any six (different) numbers to write on their boards. They should write one number in each area. Either spin a 1–10 spinner or roll a 1–10 dice to generate numbers. Call out each number. Ask children to cross out that number if they have it. The first child to cross out all their numbers wins.		
	Ordering numbers		
	Peg numbers 1 to 20 in order on a washing line. Ask children to close their eyes. Turn round 5, 10, 15 and 20. Ask children to open their eyes and to work out which numbers you have turned round. 'What clues can you use?' Repeat, this time turning round 4, 6, 9 and 11. Remove all the cards except 5, 10, 15 and 20. Leave the pegs on the line as place holders. Shuffle the remaining cards and ask children to help you place the cards on the line in order.	 It is helpful to build up children's familiarity with the 'landmarks' of 5, 10, 15, and 20 so that they can see how other numbers fit around them. Encourage children to use language such as *before* and *after*.	Lesson plan 1.1

Objectives	Possible teaching activities	Notes	School resources
	Make a tower of five cubes. Ask children to copy your tower. 'How can you be sure that it is the same?' Encourage them to count the number of cubes. Ask children to make a tower taller than yours, and then one that is smaller. 'How do you know that it is taller? Smaller?' Ask children to make a tower using any number of cubes up to ten. Make a tower using six cubes. 'Who has used the same number of cubes as me? Who has used more? Who has used fewer?' Show children a tower of five again. 'How many cubes would be in it if we made it one cube taller?' Encourage children to count on one from 5, rather than counting all of the cubes again. Ask children to make a tower with one more cube than the six cubes in your tower. Repeat, asking children to make a tower with one less cube in it than yours. Repeat, starting with different numbers of cubes in the initial tower.	This activity can be extended to include numbers up to 20.	
	Give each pair of children number cards 1 to 10 (shuffled) and ask them to put them in order. Afterwards they should shuffle them, and see if they can put their cards in order faster than their neighbour. Ask children to take it turn to close their eyes while their neighbour removes one card from the pile of cards, and shuffles them. The first child should then put the cards in order and work out which card is missing. Repeat, this time removing two cards.	This activity can be extended to include numbers up to 20.	
	Draw a picture on an OHT of a ship with ten portholes on the lower deck (with a small gap between the fifth and sixth) and ten on the upper deck arranged as on the lower deck. Place five counters at the front (left) of the upper deck. 'How many people are on the ship? How many will there be if one more gets on?' Add one more counter and agree that there are now six. 'Did we need to count them all? How many will there be if another person gets on?' Continue adding one more person until ten people are on the ship. Encourage children to count on one, rather than counting all of the counters. Remind children that there are ten people on the ship. 'How many will there be if one person gets off? And then another? How many people will be on the ship if there is one less person?' Repeat until children are confident. Place a total of ten people on the ship. 'How many will there be if another person gets on? What if that person gets off? What if another person gets off?' Take all the people off the ship. Roll a dice and show children the number rolled. 'If I put one more than this number on the ship, how many people will I put on?' Give a dice to each pair of children. Ask them to roll the dice, to write the number rolled and to write the number that is one more.	 Make sure that you have no people on the ship at some stage to reinforce the idea of 0.	
	Ask five children to line up at the front of the class. Point to each, saying their postion in the line, i.e. *first, second, …, fifth*. Ask children who is first, last, fifth, next to last, fourth, second, etc. 'How many are in front of the third person? What position is Aisha?' Give each pair of children a pile of different coloured interconnecting cubes. Ask children to make a line according to your instructions. Say that the first cube should be red; the second must be yellow and so on. Ask children to work in pairs to give similar instructions to each other.	It is important that children have opportunity to use the vocabulary themselves as well as hear the teacher use it.	

Assessment	Possible assessment activities	Notes	School resources
Students should be able to respond successfully to a range of oral questions in practical situations. For example:	*Choose five cards (from a set of 1–10 number cards face down). Read each number to me. Point to the smallest number. Point to the biggest number. Arrange them in order from the smallest to the largest.*		
	Roll the dice. Does it show more than three spots, the same or fewer?		
	Which numbers are missing from this line? 		
	Place these number cards (1–20, shuffled) in order from 1 to 20.		
	Pick up as many cubes as you can in one hand. How many did you pick up?		
	How many fingers am I holding up? Write the number on your whiteboards. Show me one more than this number. Show me one less.