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Year 1 Sample

Number Pattern Calculating
Geometry Measurement Statistics

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GMS Activities for the year

Strand and Activity Group Number		Activity Group Title
Geometry	1	Recognizing and naming 2D shapes
Measurement	1	Comparing, ordering and measuring lengths
Measurement	2	Introducing the 1p, 2p, 5p and 10p coins
Measurement	3	Units of time
		Milestone 1
Geometry	2	Making pictures, shapes and patterns
Measurement	4	Comparing, ordering and measuring heaviness
Measurement	5	Comparing, ordering and measuring capacity
Geometry	3	Recognizing and imagining common 3D shapes
		Milestone 2
Geometry	4	Comparing and naming common solid 3D shapes
Measurement	6	Telling the time
Geometry	5	Position, direction and movement
		Milestone 3

NPC Securing Foundations – 12 weeks of introduction

Activity Group Number		Activity Group Title
Securing Foundations	1	Learning about Numicon Shapes, number rods, pattern and counting
Securing Foundations	2	Learning Numicon Shapes, building patterns and counting objects
Securing Foundations	3	Building Numicon Shape patterns, more repeating patterns and number lines
Securing Foundations	4	Comparing and ordering, more patterns, beginning calculating
Securing Foundations	5	Describing relationships, more adding and patterns in movement
		Milestone 1
Securing Foundations	6	Naming number rods, investigating teen numbers and finding totals
Securing Foundations	7	More about teen numbers, number patterns, adding
Securing Foundations	8	Beginning subtracting, sorting, more number patterns
Securing Foundations	9	Sorting, more practical subtracting
		Milestone 2
Securing Foundations	10	Comparing lengths and weights, more subtracting
Securing Foundations	11	Counting and adding
Securing Foundations	12	Similar attributes, numbers to 20 and the '+' symbol
		Milestone 3

Comparing, ordering and measuring lengths

1

Educational context

In this activity group children compare, order and measure lengths in a variety of practical situations. The contexts are varied, but in each case the measurement task has a problem-solving purpose, whether escaping from a castle in a story, delivering greetings cards or building bridges across a river.

Children begin by investigating how to compare and order lengths, and encounter the importance of making comparisons based on a common starting point and keeping lengths 'straight'. They consider terms used to refer to length (or, more precisely, 'linear extension') in different everyday contexts – such as 'length', 'width', 'height', 'depth' and 'distance' – as well as the variety of comparative language that can be used to describe these different dimensions. Finally, they are introduced to using non-standard units of length in a context in which there is a clear need to communicate measurements in a common language.

Throughout the activities, allow children time to experiment, prompting them as needed to recognize problems of judging and measuring length, and to solve these problems appropriately. Encourage them to talk in detail about what they see and do, asking them questions which invite them to use comparative language ('What can you say about … ?') and to explain the reasons for what they are doing ('Why … ?').

Learning opportunities

- To use a range of vocabulary to describe length.
- To compare two or more lengths and describe one as, e.g. longer or shorter, wider or narrower, taller or shorter.
- To order lengths from shortest to longest and vice versa.
- To choose and use suitable objects to measure length.
- To realize that when measuring length by lining up or linking objects, all the objects should be the same length.

Words and terms for use in conversation

length, width, tall, long, longer, longest, short, shorter, shortest, wider, narrower, compare, same, different, distance, height

Assessment opportunities

Look and listen for children who:

- Use the words and terms for use in conversation effectively.
- Recognize that the difference in length between two objects can be shown by aligning them to the same starting point.
- Order two or more objects of the same type by length.
- Make a reasonable judgement as to whether one length is shorter than, equal to or longer than another, e.g. whether an object will fit in a particular space.
- Choose appropriate and consistent non-standard units for measuring length.
- Measure length in non-standard units, recognizing some factors affecting accuracy, e.g. whether the measurement is in a straight line.

Explorer Progress Book 1, pp. 4–5

After completing work on this activity group, give small focus groups of children their Explorer Progress Books and ask them to work through the challenges on the pages. As children complete the pages, assess what progress they are making with the central ideas from the activity group. Refer to the assessment opportunities for assistance.

Explore More Copymaster 6: Longer or Shorter?

After completing work on Activity 1, give children Explore More Copymaster 6: Longer or Shorter? to take home.

Focus activities

1

Activity 1: Comparing lengths

Have ready: Castle Tower (photocopy master 4), three different lengths of string (7 cm, 12 cm and 15 cm), straight edges (e.g. counting sticks, straight-edged lengths of strong card), adhesive tack, sticky tape, Explore More Copymaster 6: Longer or Shorter?

Step 1

Give children a copy of castle tower (photocopy master 4). Set the scene: explain that a princess is trying to escape from the room at the top of the tower shown in the picture. The window is high up, but the princess has found a length of rope that she is planning to use to climb down.

Step 2

Give children a short length of string (about 7 cm) to represent the length of rope the princess has found. Ask whether she can use it to escape. Look and listen for children realizing that it is too short and invite them to explain how they know. Encourage children to demonstrate, using the picture and a length of string, that the rope is too short. Look and listen for children reasoning that the rope must be positioned with one end level with the window ledge, and stretch straight downwards. You could draw this out by making errors for children to correct, e.g. holding the string so that it is not straight, at the wrong level or at the wrong angle (see Fig. 1).

Step 3

Say that the princess has found a second length of rope, and give children a medium length of string (about 12 cm). Ask whether she can use this rope to escape. Look for children checking by positioning the start of the string level with the window ledge, pulling it straight and holding it so that it 'hangs' straight down, e.g. Fig. 2. Listen for children suggesting that this rope is still too short, but recognizing that it will, however, get closer to the ground than the first rope.

Step 4

Now say that the princess has found a third length of rope, and give children a long length of string (15 cm). Ask whether she can use this rope to escape. Look for children checking (as in Step 3) and agree that this rope is long enough.

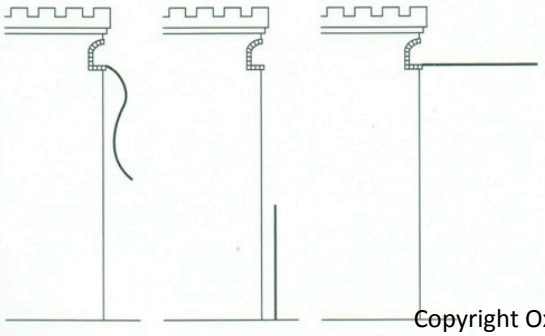
Establish that the rope is exactly the right length to reach the ground from the window: there is no gap so the princess will not need to let go and jump down to the ground, and there will be no rope left over to trail on the ground.

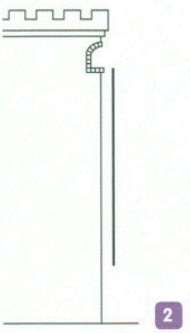
Step 5

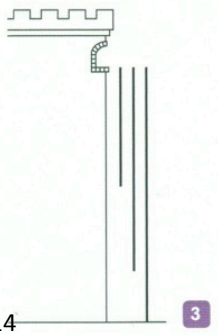
Ask children to draw the three lengths of rope the princess found, in order, on their sheet. Discuss how they could do this and encourage them to stick the three lengths of string in place with adhesive tack as straight as possible, to provide a guide for them drawing along it. Provide straight edges for children to use (e.g. counting sticks, straight-edged lengths of strong card). Remind them that each length should start at the window ledge and make a line running straight down, e.g. Fig. 3.

Step 6

Put some different lengths of 'rope'. Invite children to use their picture from Step 5 to find which ones the princess could use to escape. Encourage them to compare the lengths. Look and listen for children generalizing to say that all those which are the same length or longer than the longest rope already in the picture could be used.







Step 7

You could extend this activity by asking children to show by how much the third rope was longer than the first and second, using the 15 cm string. Give children time to discuss and test this and encourage them to explain what they are doing. Listen for children saying that they are comparing the three lengths and that they need to hold the string straight end to end, along the length of the third rope and move it along to line up with the second and first ropes. Look and listen for children pointing out that the amount of string 'left over' is how much longer the third rope is, e.g. Fig. 4.

After completing work on this activity, give children the opportunity to take home and complete Explore More Copymaster 6: Longer or Shorter? This will help them practise comparing lengths.

Activity 2: Identifying and comparing length and width

Have ready: Numicon Post Box, pictures of objects to illustrate measurable dimensions and distances (e.g. a doorway, a road leading to a town, a high mountain, a lorry next to a low bridge), a selection of envelopes (all oblong, with a variety of proportions, some small enough to fit through the Numicon Post Box), pieces of card of different proportions (one to match to each envelope), straight edges (e.g. counting sticks, straight-edged lengths of strong card), sticky labels saying 'length' and 'width' (optional).

Step 1

Invite children to share their experiences of measuring lengths, e.g. someone measuring them for a uniform, or measuring how tall they are. Remind children of their work in Activity 1 on finding out how long a piece of rope had to be from the window of a tower to the ground, and explain that an upright length like this, e.g. how tall you are, is called 'height'. Explain that the distance 'across' something is called the 'width'.

Show some pictures of objects and talk about different lengths that might be measured and why, e.g. how wide a doorway is, the length of, or distance along, a road, the height of a lorry to see if it will fit under a bridge.

Step 2

Give children an envelope. Ask what measurements they could make. Look and listen for children identifying this as an oblong, with two different lengths of side. Explain that one side is the oblong's length, and one is its width. Explain that the 'width' is usually the shorter side of an object, and 'length' the longer side.

Step 3

Work with children to draw and label arrows showing the length and width of the envelope (see Fig. 5).

Step 4

Give children a selection of envelopes, e.g. Fig. 6. Ask them to draw and label arrows to show the length and width of each envelope, as in Step 3, providing support, as needed. Look and listen for children correctly identifying the width as the shorter side. Explain to children that we can describe shorter widths as 'narrower' and longer widths as 'wider'.

Step 5

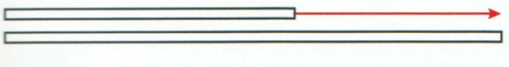
Give children the cards that match the envelopes, and ask children if they can work together to fit the correct card into the correct envelope. Look and listen for children turning the cards, and judging by eye whether a card will fit before trying it. Look and listen for children using language such as 'wider', 'narrower', 'longer' and 'shorter'.

Explain that you want to send these cards to friends but you want to try to make sure that your cards don't get bent or creased in the mail. Discuss that the envelopes need to fit through a letterbox without bending or folding.

Step 6

Give children a Post Box. Ask them to work out which envelopes you can use for your cards. Look and listen for children working systematically to sort the envelopes by finding which will fit through the letterbox, and realizing that they can use the length corner to corner of the slit (see Fig. 7) to fit letters through.

Ask children to explain their results and listen for children desribing that it is the width of each envelope which is important, and determines whether it will fit through the letterbox, because if the shortest side does not fit, the longest side will not fit either.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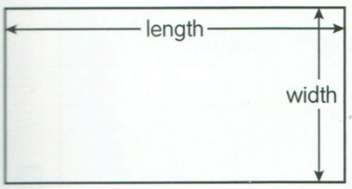

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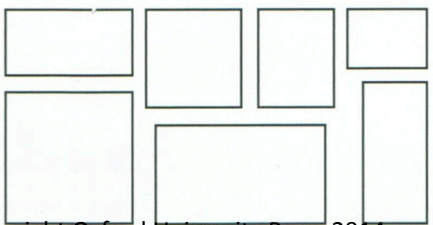
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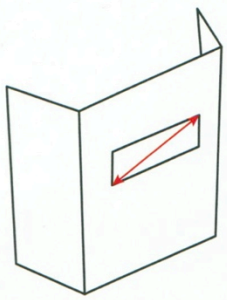
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Activity 3: Measuring distance using non-standard units

Have ready: a large open space, chalk or string and drawing pins, picture or simple model of a footbridge (e.g. made with construction bricks), a range of resources children can use for measuring short distances (e.g. string, large counting sticks, sheets of paper, lengths of card, a floor robot)

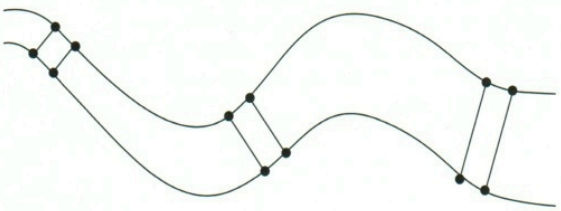
Step 1

Before the lesson mark out, in an open space, the banks of a pretend stream (e.g. using chalk or by tacking down lengths of string e.g. Fig. 8) and the position of several footbridges across it. Ensure that the banks are no more than about 2 m apart and the bridges cross at points where the distance between the banks varies, so that the bridges will need to be different lengths.

Step 2

Set the scene: explain that wooden bridges need to be built across a stream and show a picture or simple model of a footbridge. If possible, tie this in with children's experience of e.g. using a local footbridge; alternatively, you could revisit the scenario used in Activity 1 and explain that the princess needs to get across a series of moats.

Discuss what children know about streams and ask what the builders will need to know to build the bridges. Look and listen for children recognizing that they need to know, e.g. how long the bridge should be, or what length to cut planks of wood to. Agree that this means they need to know the width of the stream or the distance between its banks. Explain that children are going to carry out a survey to find out the distance between the banks where each bridge will be and report back to the bridge builders.



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Step 3

Show children the marked-out stream and where each bridge will be built. Look and listen for children recognizing that the distance between the banks at each site is different. Provide a range of resources for marking their measurements with. Ask children to think and talk about how they could measure the distance between the banks.

If children suggest using a mix of objects to measure the length of a bridge with, ask them how they will explain how long the bridge should be to the builders. Discuss whether using just one type of object, or 'unit' for measuring, makes it easier to describe how long something is, e.g. the bridge is seven cards lengths long.

Step 4

Encourage children to make their measurements using one unit of measurement. Explain to children that 'accurate' means getting as close to the exact amount, e.g. the length, as possible. Ask children why they might need to be accurate when measuring the length of the bridge, and listen for their suggestions, e.g. otherwise the bridge might be too short and fall in the river, or be much too long and have to be cut down to size. Look and listen for children who know that they need to align their units end to end without any gaps to make sure their measurement is accurate.

Talk with children about any different methods they are using, e.g. using one object, marking the start and end of it before moving it across the 'river', or lining up lots of one object from one 'riverbank' to the other. Discuss with them which they find is the best way to ensure their measurement is accurate and in a straight line.

Step 5

Support children, as needed, to make and record their measurements using a different resource each time. Provide or work with children to construct a table in which to display their results, e.g. Fig. 9.

Step 6

Ask children whether they are sure their measurements are correct. Talk about how they can check and encourage them to repeat each other's measurements. Discuss any differences in the results and possible solutions, e.g. agreeing on one person's foot length to use as a unit of measurement for all the bridges, and amend the table as needed. Finally, agree that the table is ready to send to the builders.

Unit	Distance		
	Bridge 1	Bridge 2	Bridge 3
foot lengths	6	8	10
sheets of paper	4	5	6
floor robot steps	7	9	12

9

Practice and discussion

1

Whole-class

- Discuss with children how and when the mathematics they have been learning could help them in solving problems.
- Talk about familiar stories with children and together identify lengths that are important in the stories, e.g. the height of the pile of mattresses in 'The Princess and the Pea', shoe size in 'Cinderella', the height of the beanstalk in 'Jack and the Beanstalk'.
- Work with children to tell a story involving length, as in Activity 1. Encourage children to experiment with and explore comparative language relating to the different lengths of rope. You could make a list of all the different words and terms about length children use.
- Give children a collection of strips of paper or lengths of string, two of which are the same length. Ask children to find which these are.
- Give children a collection of objects, e.g. books, to order by length, width or height.
- Give children, e.g. 15 interlocking cubes. Ask them to find objects in the classroom which are longer than/shorter than/the same length as 15 cubes. Move on, when appropriate, to asking them to measure lengths and widths in numbers of cubes.

Independent

Paired or individual work for Activity 1

Have ready: strips of paper of different lengths, squared paper

Give children two strips of paper. Ask them to arrange them in order of length. Give them further strips as appropriate for them to put in the correct place in the order. Then children stick down their arrangement and describe each strip e.g. the longest/shortest/second-longest/middle-length strip.

You could challenge some children by giving them more than two strips to start with.

Paired work for Activity 1

Have ready: interlocking cubes

Children each make a shape, e.g. an animal, out of interlocking cubes. Then they swap it with their partner, and their partner has to make a copy of the animal. Children explore copying all the lengths correctly.

Paired or individual work for Activity 2

Have ready: interlocking cubes, table for recording lengths

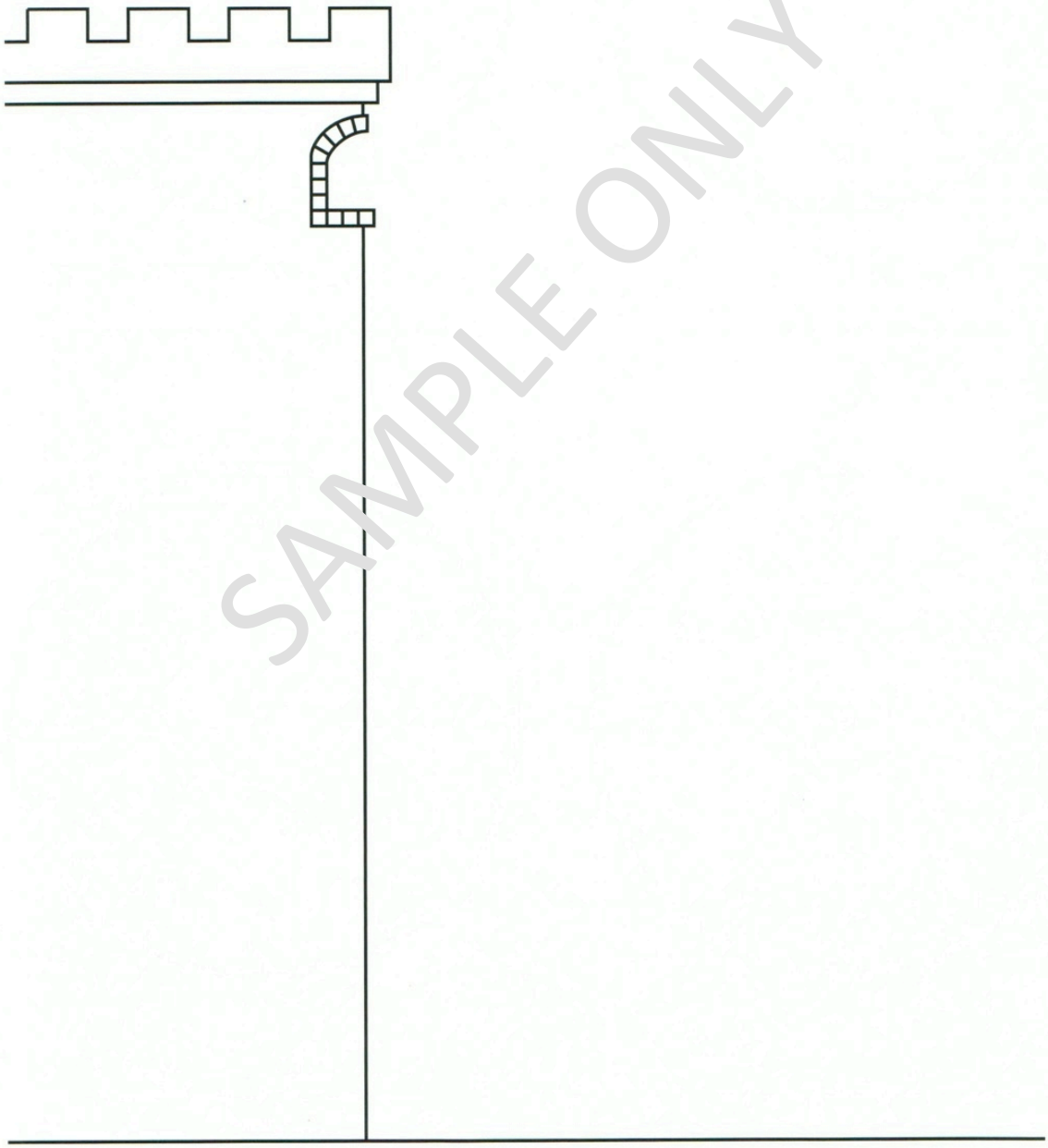
Give children a table listing different lengths of objects in the classroom, e.g. length of a pencil, width of a table, for children to complete by finding the length or width, in number of interlocking cubes.

Vary and extend the practice by encouraging children to add their own lengths to the table or devise their own units.

Small group or paired work for Activity 3

Have ready: short distances (marked with, e.g. chalk and sticky labels), a table listing the marked distances, a range of resources children can use for measuring short distances (e.g. string, large counting sticks, sheets of paper, lengths of card, floor robot)

Mark some short distances between points in the classroom, school hall or playground. List these in a table for children to complete by measuring the distances. Challenge them to devise and use their own units.



Longer or Shorter?

How this will help your child

- This activity will help your child to compare lengths.
- It will also give your child practice in using phrases like 'longer than' and 'shorter than'.

Words and phrases to use

long, longer, longest, short, shorter, shortest, longer than … , shorter than …

You will need

- Scissors
- Pencil
- Colouring pencils

During the activity, look at what your child can do

- Compare lengths, placing the end of their piec of paper against the end of the object they are comparing it to.
- Use the correct vocabulary to describe the difference between two items, e.g. the cra on shorter than the paper, the pencil is lon er th the paper.

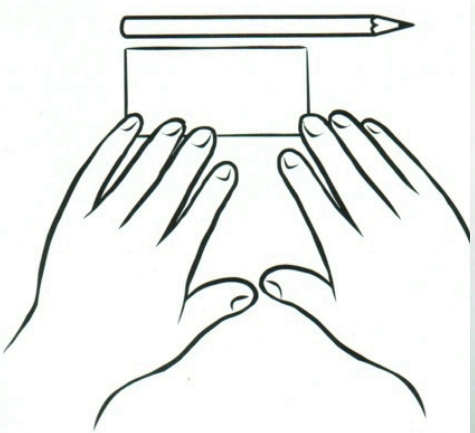
What to do

- Cut out the length of paper from the Longer or Shorter? sheet.
- Encourage your child to compare it to different items in your home, for example, stationery, a book or DVD case, a table mat.
- Before they compare, ask your child if they think the item will be longer or shorter than their length of paper.
- Help your child to line u one end of the length of paper exac with one end of the item. Encourage i em t be accurate. 1
- Ask you hild t record items they found that were shorter than, longer than or the same size

Name ..... Date ..../..../.... 6

Longer or Shorter?

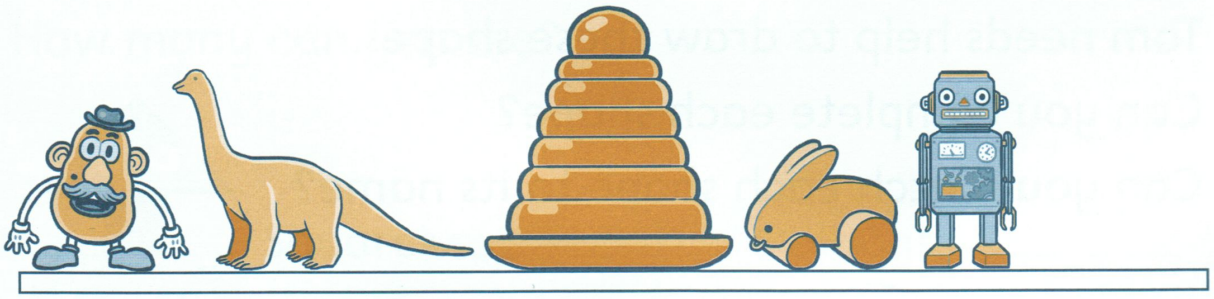
Shorter
Longer
Same length



Have ready: apparatus children could use for measuring length

Date ..... / ..... / .....

Tallest And Shortest



Which is the tallest toy?

Which is the short

Are any toys th

Draw a new toy o
shorter than the

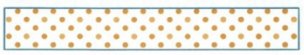
Teacher notes

Have ready: number rods

Date ..... / ..... / .....

Will It Fit?

Jess ha made a box for number rods.



Which number rods fit inside the box? Can you fit more than one number rod in the box?

Can you show which number rods will not fit?

Teacher notes

Similar attributes, numbers to 20 and the '+' symbol

12

Educational context

In the Calculating activities, children go for a walk to look for symbols in the environment and notice that symbols tell us something. The '+' symbol is introduced alongside the Numicon adding action. Familiar adding activities are revisited using '+', providing important practice to help children begin to memorize adding facts to 10. The Pattern and Algebra activities extend earlier work on sorting and reasoning to focus on exploring similar attributes. In the Numbers and the Number System activities, children are consolidating their ability to build numbers to 20 with structured apparatus, to say the number names and label them with numerals. Children also have an opportunity to read and write numerals for these numbers, establishing a secure basis of understanding before they move on to work on higher numbers. For further educational context and teaching support please see pages 36–41.

Learning opportunities

Pattern and Algebra

- To be able to spot and say when something is the same colour, shape or size.
- To be able to spot and talk about other attributes that allow something to be considered 'the same'.

Numbers and the Number System

- To label Numicon Shapes for 0–20 with numerals.
- To learn to write numerals for 0–20 correctly and in order.
- To read some number words from 0–20.

Calculating

- To use and read the words 'and', 'add', 'plus', 'makes' and 'equals' in adding sentences.
- To recognize and use the adding symbol, '+'.

Words and terms for use in conversation

same, equivalent, different, similar, set, because, reason, odd one out, thick, thin, long, short, wide, narrow, big, small, colour words

number names zero to twenty and beyond, ordinal number words (e.g. first, second, third), growing pattern, growing sequence, order, more, continue, next, numeral, count, between

add, and, plus, makes, equals, altogether, together, total, more, larger Shape, larger amount, adding, adding sentence, adding story

Assessment opportunities

Look and listen for children who:

- Use the words and terms for use in conversation effectively in a discussion

Pattern and Algebra

- Explain that if something is similar, some aspect of it is equivalent.

Numbers and the Number System

- Build numbers 0–20 with structured apparatus and write the numerals for each number
- Read numerals 0–20 and write them in response to hearing the spoken number name.
- Read some number words 0–20 and write the corresponding numerals.

Calculating

- Build and read adding sentences with Numicon Shapes, numeral cards, word cards and symbol cards.
- Recognize and know when to use the adding symbol, '+'.

Explorer Progress Book 1a, pp. 26–29

After completing work on this activity group, give small focus groups of children their Explorer Progress Books and ask them to work through the challenges on the pages. As children complete the pages, assess what progress they are making with the central ideas from the activity group. Refer to the assessment opportunities for assistance.

Children will also have the opportunity to complete their Learning Log (pp. 28–29) where they can reflect on the mathematics they have done so far.

Explore More Copymaster 12: Adding Pairs

After completing work on Calculating Activity 2, give children Explore More Copymaster 12: Adding Pairs to take home.

Focus activities

Pattern and Algebra

Finding matching attributes

Activity 1: Playing the attribute game

Have ready: sorting equipment that can be matched by colour, size, shape and type, or Attribute Game – Shapes (cut from photocopy masters 6a and 6b)

Step 1

Give one item of sorting equipment or one card to each pair. Ask them to discuss with their partner everything they notice about it. Listen for children who give clear descriptions. Repeat with different items or cards until children are confident.

Step 2

Hold up two items or cards that share at least one attribute, e.g. colour. Ask children what is the same and what is different about them.

Step 3

Ask a pair to hold up their item or card. Put it where it can be seen. Ask the others to hold up their item or card if it has a matching attribute. Choose one and put it next to the first.

Step 4

Pointing to the second item or card, again ask pairs to hold up their item or card if it has a matching attribute. Choose one and place it next to the second. Repeat several times (e.g. Fig. 1).

Look and listen for children who are able to identify all the different attributes of the items or shapes, e.g. colour, shape and size, and those that identify only one at a time.

Step 5

Look at the arrangement of items or shapes and talk through the different criteria used. Was one criterion more popular than another, e.g. were more items chosen for colour than size? Did children find one criterion easier to match to than another?

Numbers and the Number System

Ordering and writing numerals to 20

Activity 1: Labelling Numicon Shapes 1–20 with numerals

Have ready: Numicon Shapes, Number Words One To Twenty (cut from photocopy master 19), Numeral Cards 0–20 (cut from photocopy master 22), individual whiteboards and pens or paper and pencils, *Numicon Software for the Interactive Whiteboard* (optional)

Step 1

Explain that this activity will remind children about how to build, name and write the numbers 0–20. Ask children to build a growing pattern, 0–20, with Shapes. Discuss whether there will be a Shape for zero. Listen for children who suggest that there is no 0-Shape because zero represents nothing. Discuss this.

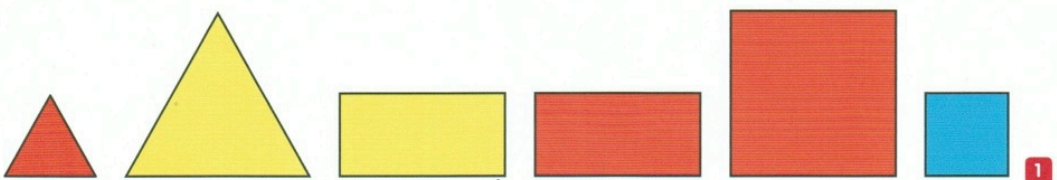
Ask children to name and label each number in the pattern with numeral cards. Look for children who remember the sequence and label the Shapes correctly. Some children may be able to label each number with the number word (photocopy master 19).

Step 2

Ask children to look at each numeral in turn and to explain and show how to write it. Look and listen for children who remember that the 1 is written first for numbers 10–19.

Step 3

Show children Shapes for numbers 0–20 in random order. Ask them to write the matching numerals.



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Calculating

Introducing the '+' symbol

Activity 1: Going on an outdoor symbol-spotting walk

Have ready: clipboards, paper and pencils, digital camera (optional)

Help children to understand the usefulness of signs and symbols by taking them on a 'maths walk' around the local environment. Look for signs which give instructions or warn or direct people using symbols rather than words, e.g. road signs. Encourage children to make a record of these, e.g. by sketching or taking photos. You can also refer to signs and signals we make ourselves, e.g. beckoning, waving, sign language.

Activity 2: Introducing the '+' symbol and action

Have ready: Numeral Cards 1–10 (cut from photocopy master 21), Words and Symbols for Calculating (from photocopy master 42a and 42b), Explore More Copymaster 12: Adding Pairs

Step 1

Ask children to think of an adding story (something that happened recently) and record it as an adding sentence using numerals and words. Some children may use numeral and word cards, while others can write the adding sentences.

Step 2

Ask children to read out their adding sentences. Write each one on the board. Discuss that all these words take a long time to write.

Remind children about their symbol-spotting walk (Activity 1) and the useful symbols that replaced words. Show them the '+' symbol.

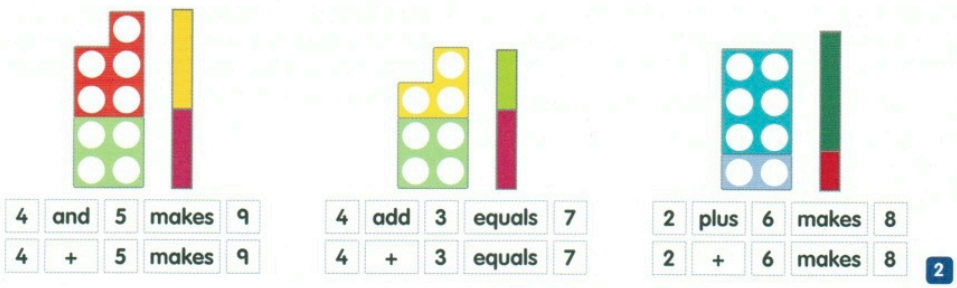
Rewrite the adding sentences on the board using '+' instead of the word 'and', 'add' or 'plus', e.g. Fig. 2. Continue to use the written word 'makes' or 'equals'.

Step 3

Say there is an action to help remember the '+' symbol. Model Fig. 3, saying, 'I'm putting them together. I'm adding.' Ask children to repeat the words as they do the action. Ask them to read the adding sentences aloud.

It is important that children are given time during Independent practice for this activity to try writing adding sentences using the '+' symbol.

When completing work on this activity, give children the opportunity to take home and complete Explore More Copymaster 12: Adding Pairs. This will help children to remember some number facts.



2

3

12

Practice and discussion

Activity 3: Turn it over – a game using adding facts

Have ready: two of each Numicon Shape 1–5 in baskets, Numeral Cards 2–10 (cut from photocopy master 21)

Step 1

'Turn it over' is a game for two players which helps children learn adding facts.

For each pair, arrange numeral cards 2–10 face up, in order, in a 3 × 3 grid (e.g. Fig. 4).

One partner chooses two Shapes, 1–5, from a basket, puts them together and says the adding sentence. They turn the numeral card showing the total face down (e.g. Fig. 5) and return the Shapes to the basket.

Step 2

Partners repeat, taking turns, until all the numeral cards have been turned over. Look for children who realize they need to check which totals have not been turned over before selecting Shapes.

Whole-class

Getting Started

- Show children pictures of objects arranged in Numicon Shape patterns. Use the Numicon Maths Story Starters (print from the *Planning and Assessment Support*) or pictures on the *Numicon Software for the Interactive Whiteboard*. Ask children to say the number of objects. Extend by asking children to jot down the numerals for the Numicon Shape pattern.

Pattern and Algebra

- Ask children to compare two objects, stating their similarities and differences. Repeat with different objects.

Numbers and the Number System

- Show numerals for numbers 0–20, in order. Point to two numbers (which are not side by side) and ask children to name the numbers that come between them.
- Write numerals for up to four numbers, 1–20, out of order on the board. Ask children to help you order them.
- Point to the numerals for a number, 1–20, on the Numicon Display Number Line. Ask children to show it using number rods or Numicon Shapes. Repeat for other numbers, 1–20, in any order.
- Show children 10–20 objects grouped into Numicon Shape patterns. Ask them to say the number name or write the numerals.
- Show children a number word (zero to twenty) and ask them to write the numerals.

Calculating

- Whenever possible, use children's names in describing everyday adding situations, e.g. 'When tidying up, Chloe picked up five bits of paper and Rashad picked up three. How many pieces of paper did they pick up altogether?'
- Show adding sentences using Numicon Shapes and/or numeral, symbol and word cards (cut from photocopy masters 21, 42a and 42b). Ask children to make up adding stories using the sentences.

2	3	4
5	6	7
8	9	10

4

2	3	4
5	6	7
	9	10

5

Independent

Getting Started

Choose any Getting Started Independent practice activity from Securing Foundations 1–5 that you assess children need to practise. Continue with this until children are secure in giving number names to Numicon Shapes and in building and visualizing Numicon Shape patterns.

Pattern and Algebra

Work in pairs or small groups for Activity 1

Have ready: Attribute Game – Shape (cut from photocopy masters 6a and 6b)

This is a game for two to three players. Children share out the cards and decide who will start. The first player places a card on the table. Children take turns to try to match one of their cards according to one of the attributes (colour, size or shape). If they can, they place it next to the card on the table, making their card the next one to be matched. If not, they miss a turn. The winner is the first to use all their cards. This game can also be played with equipment designed for sorting.

Numbers and the Number System

Paired work for Activity 1

Have ready: Numicon Shapes, Numicon 0–5 and 6–10 Dice, Empty Number Track with 10 Spaces (photocopy master 11 – enlarge to A3 if needed)

Partners fill in numerals for 11–20 on the number track. They take turns to roll a dice, pick up the matching Shape and combine it with a 10-shape to make a teen number. They colour the teen number on the number track. The first to colour all the squares on the track wins.

Calculating

Paired work for Activity 2

Have ready: Numicon Spinners with Spinner Overlays 1 (using overlays 1–5 and 6–10 cut from photocopy master 31), Numicon Shapes, Numeral Cards 1–10 (cut from photocopy master 21), Words and Symbols for Calculating (photocopy masters 42a and 42b)

Each partner spins a number and collects the matching Shape. Partners add their Shapes together, say the adding sentence and set out the numeral, '+' symbol and word cards to show it.

Paired work for Activity 2

Have ready: Numicon Feely Bag containing two of each Numicon Shape, Numeral Cards 1–10 (cut from photocopy master 21), Words and Symbols for Calculating (photocopy masters 42a and 42b)

Partners take turns to take two Shapes from the Feely Bag, add them together and say the adding sentence. They then use the numeral, '+' symbol and word cards to show the sentence.

Paired work for Activity 2

Have ready: Numicon Shapes, two Numicon 0–5 Dice, Numeral Cards 1–10 (cut from photocopy master 21), Words and Symbols for Calculating (photocopy masters 42a and 42b)

Pairs roll both dice, pick up the Shapes that match the numbers rolled, say the adding sentence and build it using numeral, '+' symbol and word cards.

Paired work for Activity 2

Have ready: Numicon Shapes, two sets of Numeral Cards 1–5 in a basket and a set of Numeral Cards 1–10 (cut from photocopy master 21), Words and Symbols for Calculating (photocopy masters 42a and 42b)

One partner chooses two numeral cards from the basket and uses them with '+' symbol and word cards to set out an adding sentence, without the total. The other partner finds the total and records it with the appropriate numeral card. Both partners check. They can use Shapes to help them.

Paired work for Activity 2

Have ready: Numicon Feely Bag containing Numicon Shapes 2–10, Numeral Cards 1–10 (cut from photocopy master 21), Words and Symbols for Calculating (photocopy masters 42a and 42b)

Partners take one Shape from the Feely Bag and combine two or more Shapes to equal it. They say the adding sentence, then build it using numeral, '+' symbol and word cards.

Adding Pairs

How this will help your child

- This activity will give your child the chance to use the '+' symbol in adding number sentences.
- It will encourage them to remember some adding facts (number bonds).

Words and phrases to use

add, and, plus, makes, equals, altogether, total, more, larger Shape, larger amount, number sentence, adding sentence, adding story, adding symbol, adding sign

You will need

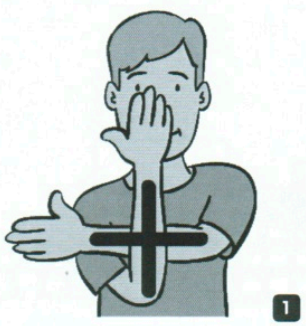
- Colouring pencils
- Card Numicon Shapes 1–10
- Scissors

During the activity, look at what your child can do

- Say adding number sentences and show them with Numicon Shapes and the action for addi e.g. hold up a 5-shape and a 4-shape ar d s add (make action for adding 1) 4 equals 9'
- Write and say adding number senten e in response to adding stories you h ve to d, e.g. 'There were four passengers on t bus. Five more got on. How many pe ple were on the b altogether?' Your child says '4 and 5 equals 9' and writes 4 + 5 equ ls 9

What to do

- Ask your child to lay out all their card Numicon Shapes in order.
- Cut out the cards containing the adding pairs from the Adding Pairs sheet and place them face down on a table.
- Show your child the trains from the Adding Pairs sheet. Choose a train to play the game with.
- Take turns to turn over an adding pair card and work out the total using card Numicon Shapes.
- Colour the space on your train that shows the total. 2 If the total is already coloured, put the card [illegible] and miss a go.
- The winner is the first to colour all of their train.

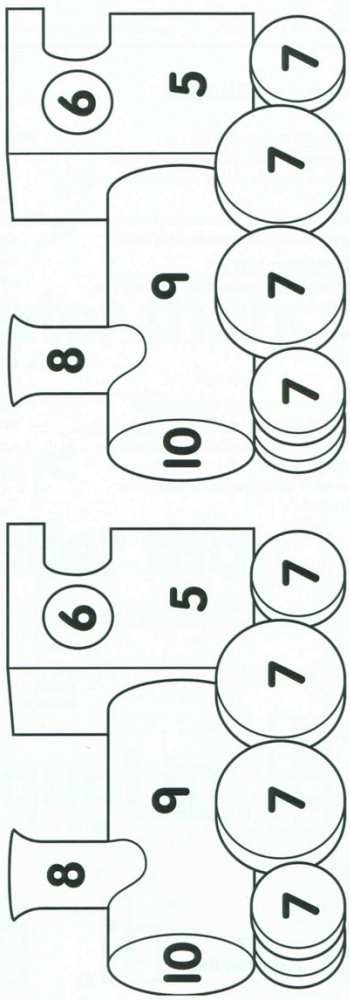


1

Name _____ Date ____/____/____

Adding Pairs

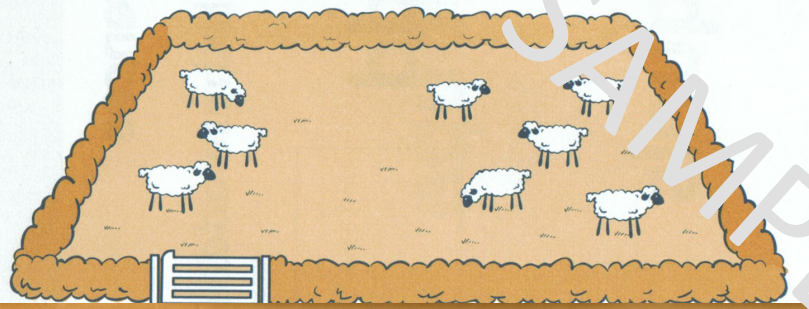
1 + 4	3 + 4
2 + 3	5 + 3
1 + 5	4 + 4
2 + 4	6 + 3
3 + 3	5 + 4
1 + 6	5 + 5
2 + 5	6 + 4

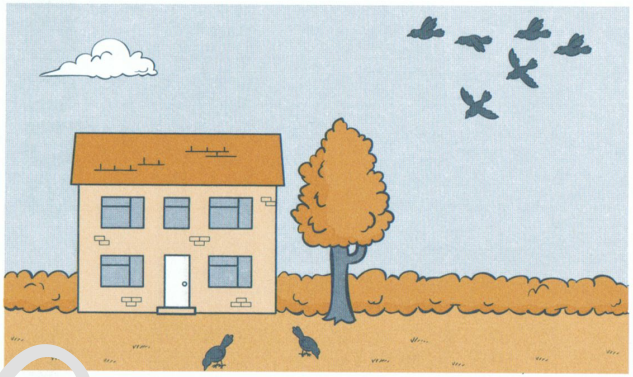


Date ..../..../....

Adding Sentences

Can you write adding sentences for these pictures?





Have ready: Numicon Shapes, colouring pencils

Date ..../..../....

Ordering Numbers

Can you fill in the missing numbers on the number lines?

10 ——— 15

17 ——— 13

Your friends have some stickers. Amos has 16. Sarah has 11. You have less than Amos, but more than Sarah. How many stickers might you have?

Teacher notes

My Learning Log

Date ..../..../....

I can write a number story.

I know these facts.

Date ..../..../....

My learning about numbers.

Date ..../..../....

Reflections.

My favourite maths was...

I would like more time to think about...

I felt proud when...

42a Words and Symbols for Calculating

+	−	=	and
+	−	=	and
<	add		plus
<	add		plus
>	take away		
>	take away		

42b Words for Calculating

difference between	is	balances	leaves
subtract			

19 Number Words One To Twenty

one	two	three	four
five	six	seven	eight
nine	ten	eleven	twelve
thirteen	fourteen	fifteen	sixteen
seventeen	eighteen	nineteen	twenty

22 Numeral Cards 0–20

0	1	2	3
4	5	6	7
8	9	10	11
12	13	14	15
16	17	18	19
20			