# **Unit 1** Number and Algebra: Number and Place Value

# Australian Curriculum content descriptions: ACMNA001 ACMNA002 ACMNA003 **Unit focus**

- Count with one-to-one correspondence to at least 5
- Count forwards to 5 and backwards from 5
- Read and write numerals 0 to 5
- Represent numbers to 5
- Compare and order numbers and groups of objects



### **Problem of the week**

### Where can we find numbers?

Have students find numbers in their environment. As a class, take photos of the numbers and record them on a chart.

# Warm-ups

### Number groups

Have students move around the room. Call out the number '2' and ask them to form groups of that number. Repeat for numbers 1 to 5. *Variation:* Call out a number from 0 to 10, and ask pairs of students to use their bodies to create the shape of that number.

### **Number fingers**

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Briefly show 3 counters on a projector for students to see. Ask students to show the corresponding number of fingers on their hands. Continue this process for other numbers from 0 to 10.

### Number sequence

Select 5 students and give each student a numeral card from 1 to 5 (BLM 1). Ask students to show their number to the class and stand in order from 1 to 5. Repeat this activity using different students. *Variation*: Ask students to stand in order from 5 to 1.

### **Counting exercise**

Ask students to stamp their feet in unison. When a steady beat sounds, begin a repetitive counting sequence, such as '1, 2, 3, 4, 5; 1, 2, 3, 4, 5'. *Variation:* In addition to the feet stamping and counting sequence, have students clap their hands when they say '5'. Repeat with other counting sequences (such as '3, 4, 5, 6, 7') and with other body movements.

### **Dominoes counting**

Show students Maths-in-a-Box Level I card 8 or a collection of dominoes. Ask students to find:

- double numbers
- particular number combinations (for example, 'Find 4 and 3')
- particular totals (for example, 'Find a domino that shows 5')
- dominoes that are more than or less than a particular number (for example, 'Find a domino that shows more than 5 dots').

# Activities

### **Beginning activities**

### Number walk

Take students on a 'number walk' around the school to find where numbers are used. Discuss why numbers are used in different contexts. Take photos of the numbers to add to the 'Problem of the week' task.

### **Tactile numerals**

Have students write the numerals 0 to 5 using a variety of materials. They could:

- use their finger to write in sand or in shaving cream on the desktop
- paint numerals on a wooden fence or brick wall using a large paintbrush and water
- use chalk to write on cemented areas
- write the numerals with glue and sprinkle with glitter
- trace a numeral using a coloured crayon, and then continue to trace the same numeral using different coloured crayons to produce a rainbow effect.

Have them then complete p. I of the Student Activity Book.

### Making numerals

Have students make the numerals 0 to 5 using a variety of materials. They could:

- use pipe cleaners
- roll and mould playdough
- glue small pasta, seeds or dried beans inside the outline of a numeral printed on card.

### Name that number

Show students a numeral card in the range 0 to 5. Ask them to clap the number of times shown, then point towards the card and trace the numeral in the air, saying the number name. Have students then complete p. 2 of the *Student Activity Book*.

### **Developing activities**

#### Numbers 1 to 5

Have students cut out the numeral cards from the *Student Activity Book* (p. 117). Call out: 'Show me number 2.' Have students select that particular number to show. Repeat this process for other numbers. Then, ask students to show the number that is one before or after the number that is called. Ask students to order the numeral cards across their desk from largest to smallest, and then from smallest to largest. Have students then complete p. 3 of the *Student Activity Book*.

#### Paper plate numbers

Give students a collection of paper plates and pegs. Write a numeral from 0 to 10 in the centre of each plate. Ask students to select a plate, read the numeral and attach that number of pegs to the plate. Students then place the plates in increasing or decreasing order and explain their ordering.

### Die match game

Give each pair of students a die and a set of numeral cards 1 to 6 (BLM 1). Have them place the numeral cards randomly face down on the floor. They take turns to roll the die and turn over a card to find the corresponding numeral card to the number rolled. If it matches, the student keeps the card. If not, the card is returned to its position.

#### Stamping out

Give students a large sheet of paper divided into 6 columns and a set of stamps or stickers. Have them label the columns 0 to 5 and use the stamps to represent each numeral. For example, they may print one dinosaur stamp under number 1, 2 stars under number 2 and so on.

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### Number bag

Give each pair of students a set of objects in a bag. A bag might contain 3 lids, 4 buttons, 2 pencils, 5 dried beans and I shell. Ask students to sort the objects into groups and create numeral cards to label each group. When completed and checked, have students swap bags with another pair and repeat the process.

#### Domino grab

Give each pair of students a copy of BLM 2. Call out a number in the range 1 to 6 and have students point to the domino on the page that has that particular number of dots. Ask students to describe the domino that they pick; for example, 'The domino has 3 dots and 2 dots'.

### **Extending activities**

### Subitising die bingo

Sit students in groups of 2 or 3.Ask each student to write 6 numbers (in the range 1 to 6) on a piece of paper. Tell them that they can repeat numbers; for example, 1, 3, 3, 3, 5, 4. Have them take turns to roll a die and cross off the corresponding number on their paper. Continue play until one student crosses off all their numbers.

### **Domino bingo**

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Sit students in groups of 2 or 3.Ask each student to write 6 numbers (in the range 1 to 12) on a piece of paper. Tell them that they can repeat numbers. Have them randomly select a domino and cross off the corresponding number on their paper. Continue play until one student crosses off all their numbers.

### Numbers 1 to 5 extension

Have students:

- write the numbers 1 to 5 five times and choose the example that they think is the 'best', explaining why they have chosen that example
- design a game that involves identifying the number of dots on cards as quickly as possible
- make up nicknames for each of the numbers 1 to 10 after investigating the nicknames for numbers used in bingo; for example, 'legs 11' and '2 black ducks'.

ASS To assess students' knowledge, skills and understandings, teachers could:

- show students a random set of numeral cards 1 to 5 (BLM 1) and ask them to select particular numbers. For example, ask: Can you get me the card that shows number 4?
- show students a random set of numeral cards I to 5 (BLM I) and ask them to state the number name for each numeral.
- ask students to show a number in the range I to 5 on their fingers or by using counters.
- in the warm-up activity 'Number fingers', observe their ability to represent numbers 1 to 5 on their fingers using one-to-one correspondence.
- in the developing activity 'Numbers 1 to 5', observe whether students are able to select numbers 1 to 5 and show the number before or after a given number.
- review p. 3 of the Student Activity Book to monitor if students can order numbers 1 to 5.
- review pp. 1–3 of the Student Activity Book to see if the numerals have been written correctly. If not, students
  may need additional numeral writing tasks (see BLM W1, BLM W2, BLM W3, BLM W4 and BLM W5).

# **Unit 2** Measurement and Geometry: Time

Australian Curriculum content description: ACMMG007

# **Unit focus**

- Sequence events in time
- Relate events to morning, afternoon and night-time
- Identify today, yesterday and tomorrow
- Compare and describe the duration of events informally
- Name and order the days of the week
- Classify weekdays and weekends

### At a glance

#### Resources

- chart paper
- toy cars of varying sizes
- The Three Little Pigs (or similar) materials to make ramps
- magazines

tennis balls

paper cups of varying sizes

balloons

basketballs

- Language
- yesterday, tomorrow, today, night, day, afternoon, morning, night-time, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, week, weekend, first, last, longer time, shorter time, quicker, faster, slower, more time, less time
- Wednesday is a school day.
- The day before Tuesday is Monday.
- It takes less time to build a Lego house than to build a brick house.

#### Link-ups

- Primary Maths Student Activity Book pp. 83-85, 116
- Teacher Resource Book blackline master BLM 3
- Maths-in-a-Box Level / cards 120 and 121

### **Problem** of the week

### What do we do each day?

Create a weekly routine display by labelling 7 pieces of chart paper with a day of the week and displaying them in order (starting with Sunday) on a wall in the classroom. Brainstorm the class activities that occur on a weekly basis, such as library, assembly, sport and reading groups. Use words and drawings to record each activity on the appropriate day/s. Encourage students to include activities that they participate in outside of school.

# Warm-ups

### Last one standing

Students stand in a circle. Select a student to say 'Sunday' and, in turn, ask each student to say the next day in the sequence for the days of the week. If a student calls the wrong day, they sit down and are no longer part of the game. The next student restarts the sequence at 'Sunday' until 'Saturday' is called again. Continue the process until only one student is standing.

### What's the time Mr Wolf?

Select a student to be the wolf and to stand about 5 metres away with their back to the other students. Students call: 'What's the time Mr Wolf?' The wolf turns and calls out a time, such as 7 o'clock. The students would then take 7 steps forward. Continue this process until the wolf decides to say 'Dinner time' and runs after the students to catch one to be the wolf for the next turn.

### Has happened and will happen

As a class, brainstorm the events that have happened today (for example, ate breakfast, caught the bus) and will happen today (for example, eat dinner, go to swimming lessons). Record the events in 2 columns on the board. *Variation:* Create lists for night-time and daytime, and morning and afternoon.

### How many days?

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Review the weekly routine chart created in 'Problem of the week'. Ask: 'How many days until we go to the library?' and 'How many days since we went to the library?' Have students use the chart to count the number of days. Encourage them to then ask their own 'How many days?' questions that can be solved using the chart.

# Activities

### **Beginning activities**

### Sequence a story

Read *The Three Little Pigs* or another story with defined events. Have students describe the sequence of events. Ask:

- What happened after ...?
- What happened before ...?

Photocopy 4 or 5 of the illustrations from the story and have students sequence them in the order they occurred.

### Toby's day

Discuss the photos presented on card 120 from *Maths-in-a-Box Level 1*. Ask students to identify the events that occur before school and after school, and then encourage them to describe the sequence of the events in the photos.

### Time of day collage

Create a class time collage. Encourage students to draw a picture for night-time, morning and afternoon. (Alternatively, they could find pictures in magazines.) They then cut out their pictures and glue them onto a class display. Have students then complete p. 83 of the *Student Activity Book*.

### **Developing activities**

#### What happens next?

Have students look at the pictures on p. 116 of their *Student Activity Book* and describe the activity in each picture. Ask:Which event occurs:

- before eating breakfast?
- after eating breakfast?
- after school?
- before school?

Students cut out the pictures and sequence them across their desk. They then complete p. 84 of the *Student Activity Book*, explaining the order.

### Long time and short time

Select 2 students to each act out an activity from the following pairs of activities. Have the remaining students discuss which activity will take more time to complete.

- Having a shower or washing hands
- Eating a muesli bar or eating a roast dinner
- Climbing a ladder or climbing a mountain
- Knitting a scarf or knitting a large blanket
- Running a marathon or running to the end of the playground
- Have students then complete p. 85 of the Student Activity Book, explaining their answers. Ask:
- How do you know which activity takes more time?
- How could we check which activity takes more time?

#### Long time/short time experiments

Divide students into small groups to conduct experiments to compare the duration of 2 activities. For example:

- Which toy car moves faster down a ramp: a small one or a large one?
- Which ramp makes the car move slower? (Use ramps set at different gradients.)
- Which paper cup empties faster: one with a large hole cut in the base or one with a small hole?
- Which paper cup empties faster: a large cup or a small cup with the same size hole cut in the base?
- Which balloon takes a longer time to deflate: a large balloon or a smaller balloon?
- Which ball bounces for a longer time when dropped from the same height: a basketball or a tennis ball?

#### **Magazine** search

Have students search through magazines for pictures of things that move. Ask them to cut out the pictures and group them according to their speed – things that move fast and things that move slowly.

### **Extending activities**

### **Gumnuts timeline**

Show students card 121 from *Maths-in-a-Box Level 1*. Tell them that the photos are of the same plant. Ask them to describe each photo and create a temporary label to stick to each picture; for example, 'green buds', 'buds swell', 'buds burst', 'flowers show' and 'flowers die'. Have students draw a timeline for the plant across a strip of paper.

### **Comic strip**

Have students create a comic strip for a day in the life of an animal or an object. Discuss how they could show the times of day in their pictures and encourage them to do so.

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To assess students' knowledge, skills and understandings, teachers could:

- give each student a copy of BLM 3 and ask them to draw a sequence for their day.
- in the beginning activity 'Time of day collage', note the events that students assign to night-time, morning and afternoon, checking if they are reasonable.
- review p. 85 of the Student Activity Book and ask students to explain why one event takes longer than another.
   Have students then name other events that take a long time and a short time.

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# **Unit 3** Number and Algebra: Number and Place Value

# Australian Curriculum content descriptions: ACMNA001 ACMNA002 ACMNA003 ACMNA289 **Unit focus**

- Count with one-to-one correspondence to at least 5
- Count forwards to 5 and backwards from 5
- Read and write numerals 0 to 5
- Represent, compare and order numbers to 5 and groups of objects
- Use 5 as a reference in forming numbers from 0 to 5
- Recognise a dot pattern for numbers to 6 instantly

# At a glance

### Resources

- paper bag
- overhead projector or digital display
- a variety of materials to create numerals (see Tactile numerals and Making numerals activity)
- coloured cubes
- pegs and coat hangers

BLMW4

BLM W5

stamps

- countersdot dice
- dominoes

### Language

• one, two, three, four, five, more, less order, count, before, after, number, four comes after three, two is less than five

### Link-ups

- Primary Maths Student Activity Book pp. 4–6
- Teacher Resource Book blackline masters:
   BLM I BLM 2 BLM 23
- Primary Maths website blackline masters:
   BLM WI
   BLM W2
   BLM W3

### **Problem of the week**

### What combination is in my bag?

Display a large collection of red and blue cubes (or pink and white marshmallows, for interest). Ask students to close their eyes as you randomly select five cubes to place in a paper bag. Have students determine the possible combination of cubes in the paper bag. Record their answers pictorially before opening the bag to reveal the combination.

# Warm-ups

### Number groups

Have students move around the room. Call out the number 2 and ask them to form groups of that number. Repeat for numbers 1 to 5.

*Variation:* Call out a number from 0 to 10 and ask pairs of students to use their bodies to create the shape of that number.

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### **Number fingers**

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Briefly display 5 counters on a projector for students to see. Ask students to show the corresponding number of fingers on their hands. Discuss the different number combinations that students use; for example, 'I have two fingers on one hand and three on the other'. Continue this process for other numbers in the range 0 to 5.

### Which has more?

Show seven red counters and four blue counters on an overhead projector. Ask students to state which coloured group has more. Compare the groups by lining them up side by side to find out how many more. Repeat this process using other groups of counters.

### Name that number

Show students a numeral card in the range I to 6 (BLM I). Ask students to:

- name the number shown
- name the number before the number shown
- name the number after the number shown
- use the number that adds to the number shown to total five (e.g. if a two is shown, students call out three)
- show the number shown on their fingers.

# Activities

### **Beginning** activities

#### **Tactile numerals**

Have students write the numerals 0 to 5 using a variety of materials. They could:

- use their finger to write in sand or in shaving cream on the desktop
- paint numerals on a wooden fence or brick wall using a large paintbrush and water
- use chalk to write on cement areas
- write the numerals in candle wax and then brush coloured ink over the top to reveal the image
- trace a numeral using a coloured crayon, and then continue to trace the same numeral using different coloured crayons to produce a rainbow effect.

### Making numerals

Have students make the numerals 0 to 5 using a variety of materials. They could:

- use pipe cleaners
- roll and mould playdough
- push marbles into plasticine to make dotted numerals.

#### Stamping out

Give students a large sheet of paper divided into six columns and a set of stamps or stickers. Have them label the columns 0 to 5 and use the stamps to represent each numeral; for example, they may print one dinosaur stamp under number one and two stars under number two and so on.

### **Coat hanger numbers**

Give students a collection of coat hangers and pegs.Attach a numeral from 0 to 5 to each coat hanger.Ask students to read each numeral and attach that number of pegs to the coat hanger. Students then place the hangers in increasing or decreasing order and explain their ordering.

### **Developing activities**

### Domino grab

Give each pair of students a copy of BLM 2. Call out a number in the range I to 6 and have students point to the domino on the page that has that particular number of dots. Ask students to describe the domino that they pick; for example, 'The domino has three dots and two dots'. Have students then complete p. 4 of the Student Activity Book.

### **Die match game**

Give each pair of students a die and a set of numeral cards I to 6 (BLM I). Have them place the numeral cards randomly face down on the floor. They take turns to roll the die and turn over a card to find the corresponding numeral card to the number rolled. If it matches, the student keeps the card. If not, the card is returned to its position. After playing the game, have students complete p. 5 of the Student Activity Book.

### Number words

Reproduce each of the cards on p. 5 of the Student Activity Book onto larger individual cards. Give a card to 18 students and have the class sit in a circle. Invite those with dots to lay their card in a space inside the circle. Invite those with words to stand. Read the number word to each student and have them place their card next to the corresponding dot card. Ask the students with numeral cards to stand and do the same.

Have students then complete p. 5 of the Student Activity Book.

#### PS **Five strips**

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Copy BLM 23 onto overhead transparency paper or card. Display each five-strip one at a time and ask students:

- how many dots do you see?
- how many empty squares do you see?
- how many dots and empty squares altogether?
- how many more dots are needed to fill the strip?

Have students then complete p. 6 of the Student Activity Book.

### **Quick subitising**

Give groups of three students a dice and a collection of counters. Have one student roll the dice and race to call out the number of dots shown. The first student to do this collects a counter. Play continues until one student collects ten counters.

Variation: Students could race to call out the number before or after the number rolled.

### **Extending** activities

### **Copy and paste**

Have students use a computer-drawing program to create representations of numbers 1 to 10. Give them the opportunity to show the numbers using stamps, drawing tools, copy and paste or other computer functions, Encourage them to think of ways to arrange their representations so that the objects are easy to count; for example, in groups of 2 for number 10, in groups of 5 and 2 for number 7, or 6 shown in dots, like on a die.

### **Domino bingo**

Sit students in groups of two or three. Ask each student to write six numbers (in the range of one to twelve) on a piece of paper. Tell them that they can repeat numbers. Have them randomly select a domino and cross off the corresponding number on their paper. Continue play until one student crosses off all their numbers.

To assess the students' knowledge, skills and understandings, teachers could:

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- show students a random set of numeral cards 1 to 5 (BLM 1), and ask them to locate particular numbers; for example, ask 'Point to the number 4.'
- show students a random set of numeral cards 1 to 5 (BLM 1), and ask them to state the number name for each numeral
- ask students to show a number in the range 0 to 5 on their fingers, or by using counters
- review pp. 4 and 6 of the Student Activity Book to see if students have written the numerals correctly. If not, give them additional numeral writing tasks (BLMW1–5).

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# **Unit 4** Measurement and Geometry: Shape

Australian Curriculum content description: ACMMG009

# **Unit focus**

- Sort 3D objects according to their features
- Manipulate and describe 3D objects
- Predict and describe the movement of 3D objects
- Make models using 3D objects and describe the models

### At a glance

### Resources

- a digital camera
- a variety of everyday objects shaped like spheres, cylinders, cones, prisms and pyramids
- opaque bags
- construction material such as connecting straws, wooden stacking blocks, connecting bricks and connecting shapes
- playdough
- various construction sets that include pictures of the models that can be made
- building blocks
- materials to make ramps

### Language

- roll, slide, round, straight, flat, curved, pointy, edge, surface, round, shape, circle, square, rectangle, triangle, stack, box-shaped, ball-shaped, cone-shaped
- A marble can roll, but a die cannot.
- The party hat is cone-shaped.
- A golf ball cannot stack.
- A die has six flat surfaces.

### Link-ups

- Primary Maths Student Activity Book pp. 92–94
- Maths-in-a-Box Level 1 cards 136, 147 and 155

### **Problem of the week**

### Let's explore shapes around us!

Take students on a walk to find and photograph shapes in buildings and objects. Display the photos as a slideshow presentation or print them as a class book. Have students describe the shapes in the photographs and record their words for each picture. Encourage students to add to the collection of pictures by submitting additional photos of shapes in their home environment and from magazines.

# Warm-ups

### My object

Sit students in small groups and give each group an object to describe. Invite a student from each group to make a statement about their object; for example, 'Our object can roll', 'Our object has a point' or 'Our object is little'. If the student uses a word to describe the shape of the object, then record this word onto a class word list. Have the groups continue to describe their objects to elicit shape-related descriptions.

### Which object?

Sit students in a circle and place 10 everyday objects in the middle. Ensure there are a variety of objects that are shaped like spheres, cylinders, cones, prisms and pyramids. Describe one object using everyday language (such as 'round', 'pointy', 'can roll', 'can be stacked', 'surface') and have students determine the object from the description. *Variation:* Select students to describe an object for others to find.

### **Finding objects**

Divide the students into small groups. Give each group an opaque bag for them to fill with 10 different objects from the classroom. Ask each group to empty the contents of their bag to see if they have an object that:

- has a flat surface
- has a curved surface
- has a flat surface and a curved surface
- has only curved surfaces
- has only flat surfaces
- can roll
- can stack.

Encourage students to show the objects that they find.

### Feely bag

PS U Show students a collection of everyday objects. Ensure there are spheres, cylinders, cones, prisms and pyramids. Ask the students to close their eyes as you place one object into an opaque bag and cover the remaining objects. Invite a student to place their hand inside the bag and describe the object for the remaining students to determine the object from their description.

# Activities

### **Beginning activities**

### **Model material**

Give students a collection of construction materials (such as connecting straws, wooden stacking blocks, connecting bricks and connecting shapes) to make objects of their own choice. Encourage them to describe the 3D shapes used in their construction and to discuss the features of the materials. Ask:

- Describe the shapes you have used.
- How does this material work?
- Describe the material. Is it easy to bend/disassemble? Is it strong?
- Would it be easy to make a tall tower using this material? Why or why not?
- Could you make a ball-shaped object using this material? Why or why not?

### Odd one out

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Have students review the list of words created in the warm-up activity 'My object'. Ask them to look at each set of objects presented on p. 92 of the *Student Activity Book*, and state which object does not belong, giving reasons for their answers. *Extension:* Ask them to find other objects in the classroom that belong in each group.

### **Developing activities**

### **Playdough models**

Sit students in small groups and give each group a collection of objects, such as a die, a ball, a small box, a pencil, a cone-shaped block and a cork. Have them use playdough to model each object. *Variation:* Have students look at the playdough models and match each to an object.

#### **Models from pictures**

Provide a number of different commercially available construction sets for students to create models from pictures. Alternatively, have students build a model using blocks (or other material) and take a photo of it. Use these photos to make a set of cards for other students to copy the model.

### Roll 'em

Show students card 136 from *Maths-in-a-Box Level 1*. Ask them to identify objects that would roll down a steep ramp and objects that would slide but not roll. Have them then collect the objects that are required to complete p. 93 of the *Student Activity Book*, make a ramp to test their predictions and explain the features of the objects that enable them to roll. Finally, have students use plasticine to make different shapes that can roll.

#### **Describing objects**

Have students review the list of words created in the warm-up activity 'My object'. Underline the terms 'flat', 'curved' and 'pointy' (or add them to the list). Ask students to find objects in the room that can be described using each of these words. Have them then complete p. 94 of the *Student Activity Book*.

### **Grouping objects**

Divide students into small groups and give each group an opaque bag. Have them place 10 different objects from the classroom into their bag and swap bags with another group. Ask each group to sort their bag of objects into groups according to a feature, such as function or shape. Encourage students to describe their grouping and explain why an object has been placed in a particular group.

#### **Objects with a purpose**

Show students the objects on card 155 from *Maths-in-a-box Level 1*. Ask them to name each object and discuss its features. For example, ask:

- What words would you use to describe the ball/brick/pipe?
- What is the object used for?
- Could the object roll? Why or why not?
- Could the object be stacked? Why or why not?
- How does its shape help it to be used?

### **Extending** activities

### Memory

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Give each pair of students a collection of building blocks. Ask one student to create a model using 4 of the blocks and show their model to their partner to memorise. They then cover the model and the partner must build it from memory.

### Model with a purpose

Have students make models with a purpose. Ask them to make:

- a model with a tunnel
- a tower that can hold a tennis ball up high
- a bridge that can hold a small box of 10 counters
- a very tall tower
- a house using only triangular-shaped blocks.

To assess students' knowledge, skills and understandings, teachers could:

- show card 147 from *Maths-in-a-Box Level 1* and ask students to point to an object that is ball-shaped, an object that has a curved surface and an object that would not roll. Have students select and describe several objects on the card.
- show card 147 from *Maths-in-a-Box Level 1* and ask students to select 2 objects that are similar and explain why. Ask them to pick other pairs of objects and explain their similarities.
- listen to the language students use throughout the unit to describe the three-dimensional objects.
- review p. 92 of the *Student Activity Book* and ask students to explain why particular objects did not belong in the group. Are they able to find other objects in the classroom that can be added to each group? Are their finds reasonable?
- use the developing activity 'Describing objects' as an assessment task. Can students select an object that is flat, curved or pointy?
- use the developing activity 'Playdough models' as an assessment task. Can students use playdough to represent an object that is ball-shaped, cone-shaped or box-shaped?

# **Unit 5** Measurement and Geometry: Length

Australian Curriculum content description: ACMMG006

# **Unit focus**

- Identify the attribute of length
- Use everyday and comparative language to describe length
- Make and sort long and short constructions
- Compare lengths directly

## At a glance

### Resources

- streamers or string
- a deck of cards
- interlocking cubes
   playdough
- materials to make roads and/or a doll's house
- books of different thicknesses

### Language

- long, longer, short, shorter, ends, start, compare, longest, shortest, length, thick, thicker, thin, thinner, high, higher, low, lower, wide, wider, close, closer, further, narrow, narrower, far away, measure
- The book is longer than my foot.
- Who is taller?

### Link-ups

- Primary Maths Student Activity Book pp. 59–62
- Teacher Resource Book blackline master BLM 16
- Maths-in-a-Box Level 1 card 89

### **Problem of the week**

### Find lengths on your body that are almost the same.

Give pairs of students some paper streamers or balls of twine. Throughout the week, have them investigate which lengths are almost the same. Students could measure their head circumference, the distance between their wrist and elbow or the length of a finger. Encourage students to share their findings to determine if the results are the same for all class and family members.

# Warm-ups

### **Deck sequence**

Take numbers 2 to 7 of all suits from a deck of cards so there is one card for every student. (Alter the number of cards for more or less than 24 students.) Give each student a card. Ask them to group themselves according to their suit, and then stand in forward counting order in their groups. *Variation:* Ask students to stand in backward counting order.

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- balls
- toy cars
- building blocks

### **Counting exercise**

Ask students to count from 1 to 10 as they participate in a physical activity. For example, they could count the number of times they:

- roll a ball to a partner or bounce a ball off a wall
- jump from side to side
- reach to the sky, then touch the ground
- clap their hands or stamp their feet
- roll along a soft mat.

### **Body length**

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Ask students to move around the room and stop on your command. Ask questions involving length and distance. For example:

- Can you make your body the tallest/shortest/widest possible?
- Who is closest to the sink?
- Who is furthest away from the teacher's desk?

#### Language of height

Show students 5 towers of interlocking cubes that are different heights; for example, a red tower using 5 cubes, a blue tower using 7 cubes, a yellow tower using 10 cubes, a white tower using 13 cubes and a green tower using

- 14 cubes. Describe a tower in terms of its height compared to the other towers for students to determine which tower you are referring to. For example:
  - I'm thinking of a tower that is taller than the blue tower. Which tower is it?
  - I'm thinking of a tower that is taller than the blue tower but shorter than the white tower. Which tower is it?
  - I'm thinking of a tower that is shorter than the yellow tower. Which tower is it?
- Describe the height of the blue tower.

Ensure that students understand that there may be more than one correct answer. Invite students to give a description of a tower for others to find.

# Activities

### **Beginning activities**

### Long and short models

Give students a ball of playdough to make one long and one short snake. (They could also use wooden blocks or train track or road pieces to make long and short models.) Have them compare their snakes with those made by another student. Ask: Which snake do you think is longer? How do you know? How could you find out? Students find which snake is longer, then use drawings to record the result. Have them describe the length of the snakes in their drawing. Write their words next to their drawing; for example, 'This snake is the longest'.

### Near or far

Have students drive vehicles around a model town or on a car play mat. They could also play with dolls in a doll's house. During their play, ask students to describe which vehicle or doll is closer to a particular feature. For example:

- Which doll is closer to the red chair?
- Which car is further away from the pool?
- Whose car is closest to the airport?

### **Tall and short**

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Ask students to make tall towers using building blocks. Have them compare their tall towers to determine:

- Who has the tallest/shortest tower?
- How could you check which tower is the tallest/shortest?
- How will you know which tower is the tallest/shortest?

Ask them to draw a tall tower and a short tower. Encourage them to describe the height of the towers in their drawing. Write their words next to their drawing.

### **Developing activities**

### Length words

Show students card 89 from *Maths-in-a-Box Level 1*. Discuss the language of length by finding things in the picture that are high, wide, tall, narrow, near, far, low, long and short. During the discussion, have them explain how they know which object is 'near to' and 'far from' the photographer. Have them then complete p. 59 of the *Student Activity Book*.

### A longer pencil

Ask: What is length? Encourage students to describe the attribute using their own words. Tell them that length is the measurement of an object from end to end. Show them 2 pencils of different lengths and ask: How could we find out which pencil is longer? How will you know when a pencil is longer? Have students find an object in the room that is longer than their own pencil.

### **Comparative language**

Show students 3 books that are different thicknesses, such as a thick encyclopedia, a home reader and a large class big book. Have them compare the books and ask:

- Which book is taller? How could we check?
- Which book is thicker? How could we check?
- Which book is wider? How could we check?
- Which book is longer? How could we check?

Have students complete p. 60 of the *Student Activity Book* as a class, describing how they could draw each object to show the comparative language.

### A length of string

Give students a length of string (or streamer) and ask them to find an object that is:

- longer than the length of string
- shorter than the length of string
- about the same length as the length of string.

Have them share their findings and explain how they know when an object is shorter than the length of string. Have students then complete p. 61 of the *Student Activity Book*.

### **Compare your pencil**

Sit students in small groups and have them collect the objects presented on p. 62 of the *Student Activity Book*. As students complete the page, have the remaining students complete some of the beginning activities or 'Lizard lengths' (see below).

### **Lizard lengths**

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Give students a copy of BLM 16. Have them cut out the lizard cards along the dotted lines. Ask them to order the lizards from shortest to longest and glue them onto paper in this order. Ask students to explain how they determined which lizard is the shortest. *Variation:* Have students find an object that is almost the same length as each lizard.

### **Extending activities**

### **Height problem**

Give the following description for students to draw.

There are 5 houses on Feet Street. The red house is the tallest house. The green house is taller than the yellow house and the yellow house is shorter than the blue house. The blue house is shorter than the green house. The purple house is taller than the green house.

Variation: Have students create their own height problems using trees, yachts or animals.

### Same as me

Have students predict and then measure the number of interlocking cubes that are needed to build a tower that is the same height as themselves.

ASS To assess students' knowledge, skills and understandings, teachers could:

- listen to the language students use to describe length (such as 'high', 'wide', 'tall', 'narrow', 'near', 'far', 'low', 'long', 'short') during the activities. Are they using the words in correct contexts?
- ask students to explain what length means. Give them 2 objects that are different lengths and ask: How could you find which object is the longest?
- review p. 60 of the *Student Activity Book* to note whether the students understand the terms and can represent them using drawings.
- in the developing activities 'A longer pencil', 'A length of string' and 'Compare your pencil', observe the students' process of measuring. Do they align one end and use comparative language, such as 'longer' and 'shorter'? Can they describe when an object is longer, shorter or about the same length?

# **Unit 6** Measurement and Geometry: Location

Australian Curriculum content description: ACMMG010

# **Unit focus**

- Give and follow simple directions to locate an object or themselves
- Use everyday language to describe their location in relation to an object

### At a glance

### Resources

- a camera
- We're Going on a Bear Hunt by Michael Rosen
- medium-sized boxes and stuffed toys
- an overhead projector
- small objects such as shells and seeds

The apple is on top of the desk.

counters

### Language

above, below, on top, inside, next to, near, far away, under, behind, beside, between, in front of, closest, closer, below,

**BLM 18** 

BLMW14

• The ball is between Lara and the tree.

### Link-ups

- Primary Maths Student Activity Book pp. 106–108
- Teacher Resource Book blackline masters
   BLM 4
   BLM 17
- Primary Maths website blackline masters
   BLMW12
   BLMW13
- Maths-in-a-Box Level 1 card 164

### **Problem of the week**

### Who is . . . ?

Line students in 3 rows for a class photo. Take the photo and make a large print onto paper. Ask students to identify particular students in the photo based on positional language clues. For example:

- Who is in front of ...?
- Who is next to ...?
- Who is behind ...?
- Who is between ... and ...?

Throughout the week, encourage students to pose their own 'Who is?' questions for others to solve.

## Warm-ups

### Ten-frame numbers

Copy BLM 4 onto an overhead transparency and cut out each ten-frame. Place one of the ten-frames on an overhead projector. Briefly display the ten-frame and encourage students to describe the arrangement of dots; for example, 'I saw 7 dots – 5 dots in one column and 2 in the other'. Continue this process using other ten-frames.

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### 20 chart

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Show students a copy of BLM 17.Ask them to identify the number that is:

- above number ...
- below number ...
- between number ... and ...
- 2 more than ...
- 2 less than ...
- I before ...
- I after ...

### Simon says

Call out 'Simon says' and follow with an instruction involving a positional word from the language list. For example:

- Simon says put your hands on top of your head.
- Simon says put one foot in front of the other.
- Simon says put your hands in between your knees.
- Simon says put your hands behind your back.

Every now and then, give an instruction without saying 'Simon says' before it. Students should not follow these instructions.

### I spy

Play 'I spy' using positional language to describe the location of something in the classroom. For example: I spy with my little eye something that is:

- above the board
- under the window
- next to the classroom door
- inside the long cupboard.

Have students determine the object from the description.

# Activities

### **Beginning activities**

### **Playground obstacle course**

Create an obstacle course in the playground by placing objects along a course that students can move over, under, around, through, etc. Have students complete the course and then describe their journey.

### A bear hunt

Read the story (or recite the lyrics) We're going on a Bear Hunt by Michael Rosen. Have students recreate the scene for the story using materials and objects from the classroom and re-enact the journey in small groups. *Variation:* Have students change the positional words to create a different journey.

### **Developing activities**

### Toys on a shelf

Have students complete p. 106 of the Student Activity Book, then give each pair of students a copy of BLM 18.Ask

them to find small objects in the room (such as counters, shells and seeds) that can be placed on each shelf. One student places the objects on the shelves and then poses questions using the terms 'above' and 'below' (for example, 'Which object is above the shell?') for their partner to locate a particular object.

### **Position it**

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Show students card 164 from *Maths-in-a-Box Level 1*. Discuss the position of different objects in the picture; for example, 'Find something that is in the toy truck, above the poster, inside the red box'.

Sit students in small groups with a box and a toy, such as a stuffed animal or a toy car. Call out an instruction for the placement of the toy in relation to the box. For example:

- Place your toy next to the box.
- Place your toy on top of the box.
- Place your toy under the box.
- Place your toy inside the box.
- Place your toy far away from the box.
- Place your toy near the box.

Have students then complete p. 107 of the Student Activity Book.

### PS Position barrier game

Give each pair of students a copy of BLMW12 and 4 counters. Have the first student turn away as the second student puts 4 counters on their picture. The second student describes the position of their counters so the first student can place their counters in the same position on their picture. Have students compare their pictures and explain if they are different.

### Who is ...?

Ask students to move around the room. Call out 'Freeze!' and describe the location of a particular student in the classroom for them to determine who is being described. For example:

- Who is in front of the teacher's desk?
- Who is in between the board and the play corner?
- Who is standing in the wet area?
- Who has the computer behind them?

Invite students to ask their own 'Who is?' questions. Have them complete p. 108 of the Student Activity Book.

### What is ...?

Students move around the room. Call out 'Freeze!' and ask students to state an object that is located in a position in relation to themselves. For example, say: Name an object that is:

- behind you
- far away from you
- beside you
- between you and the board.

### **Extending activities**

#### Ted's obstacle course

Write 'under', 'over', 'around', 'between' and 'through' on the board. Sit students in small groups and give each group a small soft toy. Ask students to create an obstacle course for their toy using objects from the classroom, such as chairs, blocks, pillows, paper and cardboard. Have them show the class their design and give a commentary as the toy completes the course; for example, 'Ted goes under the chair, around the Lego house ...'.

### **Bear hunt extended**

Have students read the story (or recite the lyrics) We're Going on a Bear Hunt by Michael Rosen and create a map to show the journey to the cave. If appropriate, ask students to add positional words to their map as directions for the journey.

### **Blindfold maze**

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Give each pair of students a maze (BLM W13 and BLM W14), a pencil and a blindfold. Blindfold one student and have them attempt to draw a route through the maze as the second student describes where to go; for example, 'Go up. Now turn and draw the line towards me'.

To assess students' knowledge, skills and understandings, teachers could:

- in the developing activity 'Position barrier game', listen to the language students use to describe the position of an object in relation to other objects.
- use p. 107 of the *Student Activity Book* to assess students' understanding of the terms 'on top', 'inside', 'next to', 'below', 'near' and 'far away'.
- use p. 108 of the *Student Activity Book* to assess students' understanding of the terms 'behind', 'on top of', 'beside', 'between' and 'behind'.