MATHS

Lesson 17

Prep

Topic: Number and place value

Representing quantities

Lesson concepts

- **Number** — Counting
- **Number** — Quantity

Today students will:

- identify quantities in different arrangements and contexts
- make arrangements of quantities to five.

Resources

Find and prepare

collections of small manipulative materials (for example: buttons, counters, beads, shells)

large dotted dice

paper squares

felt-tip pens

digital camera (optional)

Key terms

count, how many, arrange, total, connect, visualise, quantity, same, more, less

For definitions and explanations of terms, please see the Glossary.

Lesson

Introduce the lesson

Say to students

> Today, we are going to learn about making arrangements and visualising numbers up to five in our minds.

Identify quantities in different contexts and arrangements

Display a small collection (this could be a collection of objects, movements, sounds or images).

Ask students to make collections of the same quantity with different materials (for example: hear five claps and show five buttons).

Focus questions

Q: *How did you know how many to put in your collection?*

Q: *How could you check if they are the same quantity?*

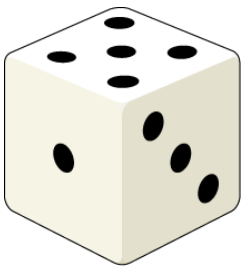
Q: *Will you have more if you have five balls or five buttons? How do you know?*

Q: *How many would you have if you put five blocks in a circle? Or on top of each other?*

Repeat the activity with other numbers to five.

Arrange the dice

Give students a dice and discuss the numbers represented on each of the faces.



Ask students to look at the representation of five on the dice and:

- describe how the five dots are arranged on the dice
- copy the pattern with their finger (in the air)
- copy the pattern on the floor
- copy the pattern on their knee.

Discuss and demonstrate how the five dots could be arranged differently.

Provide students with a small square of paper and a felt-tipped pen.

Ask students to:

- draw five dots on their piece of paper in a different arrangement. For example:

- check that they have the same totals
- compare the arrangements.

Focus questions

Q: *How do you know that is five?*

Q: *How is the arrangement on the paper the same as yours?*

Q: *How could you describe your arrangement?*

Repeat the activity with other numbers to five.

Develop visual representations of quantities to five

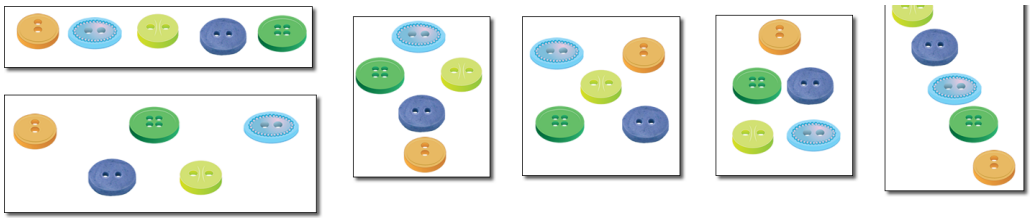
Say to students

“Now you will practise ‘seeing five’ in your mind.”

Explore the quantity of five by counting (for example: five claps, jumps, steps, blocks, balls, buttons, counters, cups).

Ask students to:

- count out five objects
- practise different ways of arranging the five



- select their favourite arrangement.

Focus questions

Q: *How could you describe this arrangement?*

Q: *How is your arrangement similar to or different from that other arrangement?*

Take photos of the representations and display them.

Ask students to arrange different manipulative materials into arrangements similar to the objects in the photographs.

Repeat the activity with other numbers to five.

Ask students to:

- close their eyes and listen to a simple story (such as ‘There was a bird sitting in the tree, along came another one, and another one … to five’ or ‘There was a star in the sky, and then there was another one … to five)
- make pictures in their mind
- draw what they ‘see’ in their mind
- share and describe their picture of the story.

Say to students

“When we ‘see’ pictures in our minds, it is called visualising. We are now going to practise visualising numbers up to five.”

Describe a collection (such as ‘four ducks on the water’ or ‘five people on a bus’).

Ask students to:

- draw what they visualised
- share and compare the visualisations.

Repeat with other stories of numbers up to five.

Focus questions

Q: *How are these pictures the same?*

Q: *How are these pictures different?*

Q: *Are they all the same quantity?*

Q: *How can you check?*

Q: *Which one of these (if any) looks like five on a dice?*