MATHS

Lesson 6

Prep

Topic: Number and place value

Partitioning quantities

Lesson concepts

- **Number** — Names and symbols
- **Number** — Quantity
- **Number** — Counting
- **Number** — Subitising
- **Representations** — Concrete
- **Representations** — Symbolic

Today students will:

- identify parts of a whole.

Resources

Find and prepare

A small collection of blocks for each student (for example: building blocks)

Counting materials (for example: beads, pegs, counters)

Environmental materials (for example: sticks, leaves)

Key terms

counting number, counting sequence, partitioning

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

Lesson

Introduce the lesson

Note

The following language is important to highlight and develop throughout this lesson:
counting number, counting sequence, partitioning, split

Explain to students that they are going to look at five in many different ways.

Note

The intention of this lesson is for students to build number understanding by: counting from any starting point, connecting number names to numerals, subitising small collections of objects, and comparing collections.

Represent different arrangements of quantities to ten

Have students create different buildings made with up to ten blocks.

Ask students to:

- count out (seven) blocks
- construct a building from their counted blocks
- count out another (seven) blocks and construct a different building
- compare the buildings, focusing on how the quantity is the same even though the arrangements are different
- repeat using different numbers to ten
- compare buildings with different numbers of blocks.

Focus questions

Q: *How do the buildings look the same?*
A: For example: They have three on the bottom. They all have five blocks.

Q: How are they different?
A: For example: This one has three on the bottom then two and the other one has four on the bottom and one on the top.

Q: How many blocks in each building?
A: Personal response required.

Q: Even though the buildings look different, what do you notice about the number of blocks in each? How do you know?
A: For example: They have the same number of blocks. I counted the blocks in each building.

Focus questions

Q: Can you tell how many blocks there are without even counting them? Explain.

A: For example: I can see five blocks straight away (subitise) or I can see one part with two and one part with three blocks.

Explore parts in a quantity

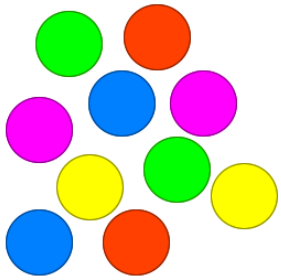
Parts of a collection

Note

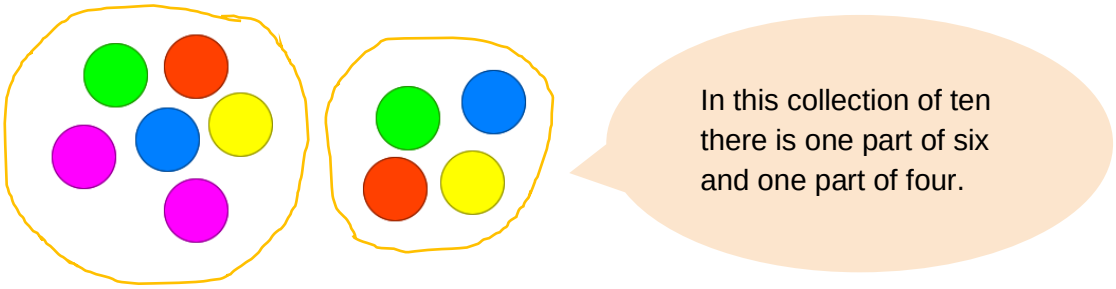
For this activity, it is important that students regularly check the total by counting until they are confident that the whole (or total) is constant i.e. that partitioning does not change the total of the collection.

Demonstrate and discuss with students how they identify quantities as parts of larger quantities:

- Display a collection of materials, for example:



- Ask the students to rearrange the objects in the whole collection into smaller parts, for example:



- Explain that these are parts of the whole collection.

Ask students to:

- rearrange the same collection into two different parts (partitioning)
- explain the parts of the collection
- repeat numerous times, making different partitions using the same collection.

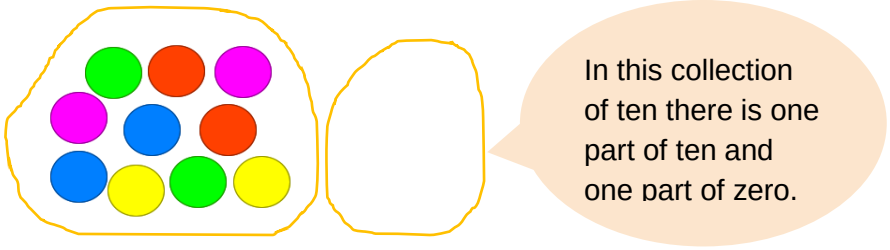
Focus questions

Q: *What did you notice about the parts in this collection?*
A: For example: There were three lots of twos.

Q: Will the amount in the collection change if the parts change? Why do you think that?
A: For example: the total will change.There will be fewer beads.

Note

Students with a clear understanding of 'zero' may wish to use it when partitioning a collection. For example:



Numbers beyond five

Note

It is important that students check the total regularly by counting and subitising until they are confident that the whole or total is constant (i.e. that partitioning does not change the total of the collection).

Discuss the relationship of five to numbers beyond five by demonstrating with hands how six is one hand (five) and one more.

Ask students to show how seven would look. Repeat this with other numbers beyond five.

Ask students to represent quantities beyond five using five as a part of the whole (students may use hands to represent the five part of the whole).

Partition collections

Give students a collection of 10 objects.

Partition the collection into two parts by circling/marking two groups in the image. Discuss the parts of the whole collection.

Focus questions

Q: *What did you notice about the collection?*
A: For example: There are four in one part and seven in the other part.

Q: Is there another way to group this collection? Explain.
A: Personal response required.

Manipulate environmental materials to represent partitioning

Provide students with a collection of environmental materials (for example: sticks, leaves).

Ask students to:

- find out how many ways they can partition the collection they have been given
- record the parts of the collections by drawing.

Focus questions

Q: *What is the total in the collection? How do you know?*
A: Personal response required.

Q: What happened when you made two groups in the collection?
A: Personal response required.

Q: What were the parts that you made?
A: Personal response required.

Q: Can you group the collection in a different way?
A: Personal response required.