MATHS

Lesson 9

Year 1

Topic: Number and place value

Recording equal quantities

Lesson concepts

- Equivalence — Conservation
- Equivalence — Language
- Equivalence — Balance
- Number — Quantity
- Addition and subtraction — Process/operation
- Representations — Symbolic

Today students will:

- record equal expressions
- explain how the total remains the same regardless of the order in which the parts are combined.

Resources

Find and prepare

Small collection of items in two colours, such as buttons, pegs or blocks

Key terms

equivalent (equal), equivalent/equal to, not equal

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

Lesson

Introduce the lesson

Explain to students

In this lesson, you will learn more about the meaning of 'equals'. You will also work with addition and find out what happens when you change the order of the parts when you add.

- Discuss with students:
  - situations where quantities are required to be equal
  - what might happen if the quantities are not equal.

Note

Situations may include:

- sharing situations (for example, distributing counters for a game, sharing treats)
- balancing situations (for example, on play equipment, in a boat)
- matching situations (for example, doing buttons up).

Focus question

Q. *What does equal mean in these situations?*

Q. *What might happen if the quantities are not equal?*

Record equivalence

- Write the '=' symbol.

Focus questions

Q. *Have you seen this sign? Where?*

A. Answers will vary.

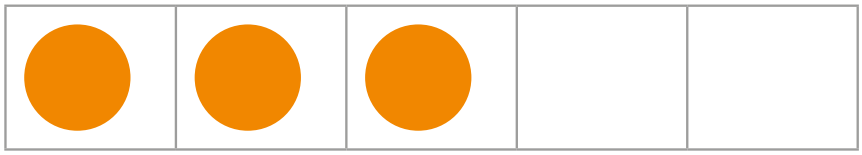
Q. *What do you think this sign means?*

A. For example: the same as

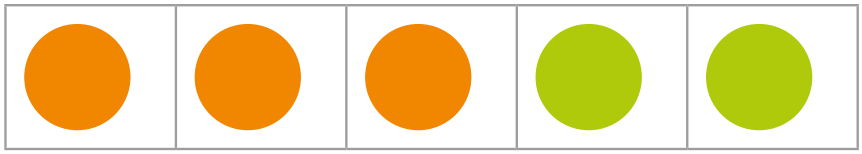
Explain to students

This is the special symbol that means 'equals'.

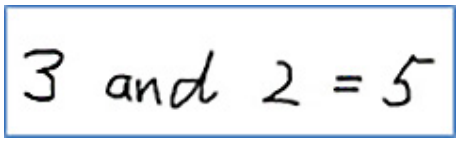
- Explain that students will use the equals symbol to record number sentences.
- Draw a simple 5 × 1 grid (with each space large enough to fit an item).
- Place three items on the grid.



- Ask students to:
  - identify what the total would be if all the places were filled
  - identify the other part required to fill the frame
  - fill the frame with items of another colour



  - say the addition number sentence that it represents (such as '3 and 2 equals 5').
- Show students how to record the number sentence using the equals symbol.



- Rotate the grid 180°.
- Discuss the new orientation of the grid with students noting that the position of the parts has changed, but that the total has remained the same.
- Record the related number sentence (that is, 2 and 3 = 5) under the first number sentence.
- Ask students to repeat this exercise with another combination that makes 5 (that is, 1 and 4; 4 and 1).

Note

Highlight how the number sentence can be written a number of ways without changing the totals (such as 3 and 2 = 5, 2 and 3 = 5, 5 = 2 and 3, 5 = 3 and 2).

Represent commutativity

- Present a simple addition problem (such as 'There were four bears and two more came along. How many bears are there altogether?').

Focus questions

Q. *What type of problem is this?*

A. An addition problem

Q. *How might you solve this problem?*

A. For example: Join the parts together.

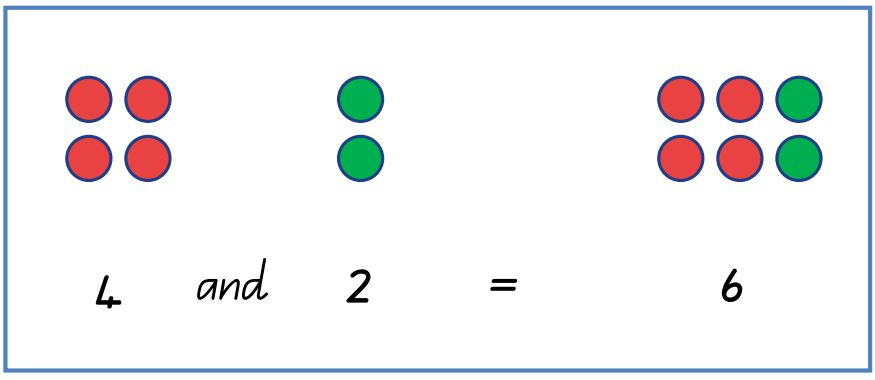
Q. *What are the 'clue' words that tells you the operation/function?*

A. 'and' and 'more came'

Note

Reinforce that this addition problem asks students to find out what 4 and 2 are equal to, or the same as.

- Provide students with items to represent the number problem.
- Ask students to:
  - count a group of four items
  - count a group of two items
  - join the groups together
  - identify the total
  - record the number sentence using the equals symbol (for example '4 and 2 = 6').



- Leave the first arrangement of six items displayed.
- Present the related addition problem (such as 'There were two bears and four more came along. How many bears are there altogether?').
- Ask students to:
  - represent the number story using materials
  - compare the two number story displays (that is 4 and 2, and 2 and 4).

Focus questions

Q. *How many items did you get when you combined the first groups?*

A. 6

Q. *How many items in the second group?*

A. 6

Q. *What words could you use to describe the totals of these groups?*

A. For example: They are the same/equal.

- Repeat the activity with different numbers, as needed, to reinforce the concept.

Reinforce to students

‘In ‘addition’, the total remains the same regardless of the way the parts are arranged or the order in which they are combined.’