MATHS

Lesson 16

Prep

Topic: Number and place value

Exploring part–whole relationships

Lesson concepts

- **Number**— Quantity
- **Addition and subtraction** — Process/operation
- **Addition and subtraction** — Relationships
- **Addition and subtraction** — Part–part–whole

Today students will:

- partition small collections.

Resources

Digital

Learning object — Ten in the bed

Find and prepare

Sheet — Boys and girls (cut out)

Sheet — 'Crazy Jack' puzzle

A collection of 10 toys (dolls/teddy bears/action figures) or iceblock sticks in a variety of colours

Playdough and a plastic or blunt knife (optional)

Key terms

partitioning

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

Lesson

Note

Cut along the dotted lines on the **Sheet** — 'Crazy Jack' puzzle. Before the lesson, hide the eight pieces of the puzzle in different places around the room. Students will find the puzzle pieces at the end of this lesson.

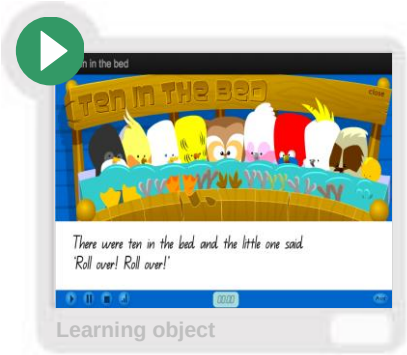
Introduce the lesson

Note

It is important to highlight and develop the following vocabulary throughout this lesson.

part, whole, join, make, and, more, total, altogether, combine, add, more, less, partition, re-join

Partition and identify the parts of a collection



- Have students watch and act out the song from the **Learning object — Ten in the bed**, using the 10 toys or iceblock sticks.
- Explain to students that when there are some toys in the bed and some out of the bed, there will be two parts of the whole group.
- As students act out the song, ask questions to help them see that the whole number stays the same and the parts change.

Focus questions

Q: *What two parts of the whole group can you see now?*
A: For example: Eight in the bed and two out of the bed.

Q: *Which part is bigger: the part in the bed or the part out of the bed?*
A: For example: The part in the bed.

Q: *How do you know?*
A: For example: Eight is more than two.

Q: *How many would you have if they all got back into bed?*
A: 10

Q: *How could the number in the whole group change?*
A: For example. Some more toys came along; some toys left.

Partitioning and re-joining parts

Explain to students that they will complete two activities to explore how a whole group can be split into smaller groups and then joined together again.

Activity 1 — Parts of a group

- Show students the pictures of the boys and girls cut from the **Sheet** — Boys and girls.
- Model ways to partition and re-join the parts of the group of boys and girls.

Say to students

> I can make a group of one person who is wearing a hat and another group of seven people without a hat: one and seven make eight altogether. There are eight people in the group.
>
> I can also make a group of three people with blonde hair, a group of two with red hair and a group of three with brown hair: three and two and three also make eight.
>
> Tell me about some smaller groups that you can make out of the whole group of boys and girls.

Focus questions

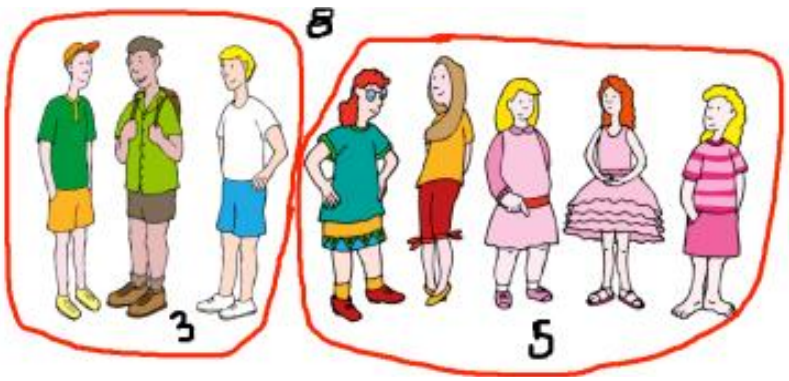
Q: *What parts can you see within the group?*
A: For example: People wearing pink and people wearing other colours.

Q: *Can you see a group of four within the group of eight? How does that look?*
A: For example: People wearing pants and people wearing dresses.

Q: *Can you see another way to make smaller groups? How does that look?*
A: For example: Seven people with shoes and one person without shoes.

Q: *What could you say about the whole group?*
A: For example: There are eight people in the whole group.

- Have students decide on a way to group the boys and girls and glue the pictures into their scrapbook in the parts that they have made.
- Have students draw a circle around the parts of the group and write a number to show how many are all together and how many are in each part.



Activity 2: Partitioning whole objects with playdough (optional)

- Ask students to make a playdough sausage as long as they can.
- Have students use a plastic/blunt knife to cut the sausage into pieces.
- Ask questions to help students to talk about the parts and the whole.

Focus questions

You cut the whole playdough sausage into smaller parts.

Q: *How many parts of the whole sausage did you make?*
Q: *Can you make one whole sausage again? How will you do that?*
A: For example: Join the parts together again.

- Ask students to join the parts together again to make a whole sausage and describe what they have done (for example: I joined all of the parts to make a whole sausage again).
- Repeat the activity, but ask students to make a playdough pizza.

Identify parts of 10

- Have students place the 10 toys or iceblock sticks (from the earlier activity) in a line, one beside the other.
- Ask students to move the toys into smaller groups.
- Ask questions to help students to talk about the parts within the group (partition).

Focus questions

There are 10 toys in this group. Make the whole group into smaller parts.

Q: *What parts did you make?*
A: For example: Five dolls and five teddies; six red iceblock sticks and four blue iceblock sticks.

Q: *Can you make a group of five within the group of 10? What does that look like?*
Q: *Can you see another group of five?*
Q: *What could you say about the whole group?*
A: For example: There are 10 in the whole group. I can make two groups of five toys within the group of 10.

Treasure hunt

- Explain to students that there are eight pieces of a puzzle hiding in different places around the room.
- Ask students to find the eight puzzle pieces and join the parts together to make the whole picture.
- Ask students how many parts are joined together to make the whole picture.
- Store the puzzle pieces in a resealable bag. Students can complete the puzzle again as a play choice activity.