

MATHS







Lessons 21-24

Prep

Topic: Using units of measurement

Exploring student size

Lesson concepts

-  Length — Language (describing, comparing, ordering)
-  Length — Direct comparison
-  Mass — Language (describing, comparing, ordering)
-  Mass — Direct comparison
-  Capacity — Language (describing, comparing, ordering)
-  Capacity — Direct comparison

Today students will:

- ▶ compare the size of objects using direct comparison
- ▶ describe and represent the size of objects.

Resources

Find and prepare

Common household materials (for example: rice, flour, water, sugar, containers of different size)

Items of clothing for playing dress-ups

Toys/dolls for dressing up

Key terms

height, length

For definitions and explanations of terms, please see the [Glossary](#).

Lesson

Note

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

big, bigger, compare, cover, curvy, describe, fat, heavy, height, length, light, long, longer, mass, measure, represent, short, shorter, smaller, space, straight, tall, thick, thin

How big are you? (Four lessons)

Introduce the lesson

Note

The learning in these four lessons is intended to direct students to explore the mathematics of capacity and length. They will explore the language and tools used to compare length and capacity.

- Explain to students that they will answer the inquiry question 'How big are you?'

Explore big and small things

- Support students to complete activities such as:

1. Fitting clothing

- While playing dress-ups, students may:
 - determine which dress-up items are too big, too small, fit perfectly
 - make head bands that fit toys and dolls
 - decide if a ribbon will fit around the student's/doll's head
 - identify who may own which shoes.



Can I fit in this?



How big is the teddy?

2. Pouring and cooking

- Students may consider:
 - how much a container holds
 - how much flour/water/sugar you need to make a cake
 - how things get shorter or longer when they are cut or rolled.

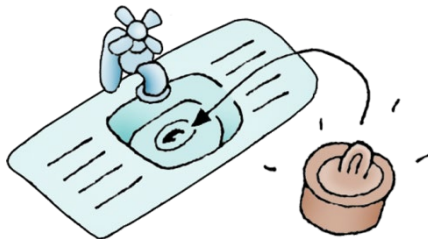


How does the size of the banana change as it is chopped?

3. Fitting into spaces

- Students may consider space when:
 - deciding whether a truck will fit under a bridge or in a tunnel
 - playing a limbo game where the levels get lower.

Will that plug fit in the hole?



4. Picking up objects

- Students may consider mass when:
 - observing cranes and pulleys
 - lifting blocks
 - making cubbies
 - balancing on a seesaw.

5. Identifying where measuring is happening in familiar texts

- Ask students to identify measuring that happens in familiar texts, for example:
 - *Who sank the boat?* (mass)
 - *Cinderella* (capacity)
 - *Goldilocks* (length, mass and capacity)

Focus questions

Q: What does 'big' mean?

Q: How do you know if something is big?

Q: What can you measure to find out if something is big?

Plan to determine how big students are

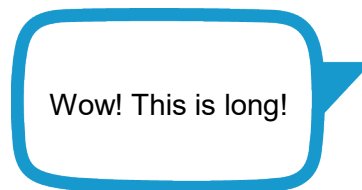
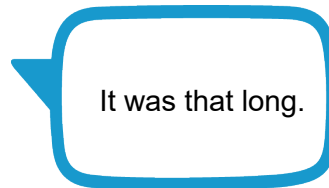
- Explain to students that they are going to use mathematics to:
 - investigate ways of measuring
 - help them answer the question ‘How big are you?’
- Support students to complete activities such as:

1. Describing themselves

- Ask students to describe themselves using:
 - the language of measurement
 - images and drawings
 - gestures.

2. Comparing themselves with objects and other people

- Students may:
 - predict and then directly compare themselves (side-by-side) with objects and other people
 - describe the comparisons using familiar measurement words
 - refer to length, height and the space when thinking about themselves.



3. Identify opposites

- Students could:
 - identify the language of opposites
 - describe objects that have opposite features.



It was full.
Now, it's empty.

I will put the
short piece on
the long piece.



4. Describe objects using two or three obvious measurement attributes

- Students could describe an object that has the two or more features.



My robot is tall
and skinny.

The road is long
and high.



- Organise students to make a plan to answer the question 'How big are you?'
- Students will:
 - predict how they might describe themselves
 - list ways that they could measure themselves
 - complete a variety of experiences that develop a detailed idea of how big they are.

Focus questions

Q: *How are you going to find out how big you are?*

Q: *What things could you measure?*

Suggested activities

What is shorter/taller than me?

- Students discuss and carry out direct comparisons of height by standing beside objects and/or other people and determining if they are taller or shorter.

What holds more/less than my hand?

- Students hold a handful of rice, or a similar continuous material, and pour it into different-sized containers.

What size clothes do I wear?

- Students could try on clothing of different sizes to compare if the clothes look big/small, loose/tight, too long/short.

Describe and represent their size

- Explain to students that they are going to:
 - reflect on their findings by referring to the inquiry question ‘How big are you?’
 - refine their understanding of measurement
 - reflect on the mathematics that they have learned.

My leg is shorter than the platform.



Focus questions

Q: *Could you be bigger than an elephant? Explain.*

Q: *How could you remember what you found out?*

Q: *How could you display the information?*

Note

Student responses may include:

- I am this big.
- I am shorter than the window.
- My hand is shorter than this paintbrush but thicker.
- I can fit into my big brother/sister's clothes, but they look too big on me.

Justify how big they are

Note

Students communicate and justify their findings and reflect on learning. Through discussion, investigate and consider ways their findings can be presented, for example: poster, drawings, photos.

Focus questions

Q: *What did you find out? What makes you think that?*

Q: *What mathematics have you learned?*

Q: *What new measurement words have you learned?*

Note

Student responses may include:

- I am bigger than a margarine container. I think that because I cannot fit in a margarine container and I cannot be stacked in the cupboard like a margarine container.
- My body is longer than a margarine container.
- My hand is smaller than a margarine container. I know that because it can fit in the margarine container.
- My hand holds less rice than a margarine container.
- I am heavier than a margarine container.

Explore further questions

Focus questions

Q: *What other questions do you have about measuring?*

Q: *How could you use your measuring skills to explore objects at home or at school?*

Q: *Why do you think you need to know how big things are?*