RICH MATHEMATICAL TASK BOOKLET

MEASUREMENT

YEAR 1

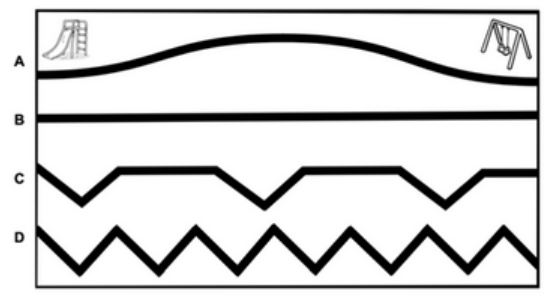
Teacher Booklet

Task 1

Talia wants to take her dog on a long walk.

Can you use the equipment to measure which path in the park is the longest or are they all the same?

Record your measurement unit and measurement count.



Choose a different set of equipment to measure the paths.

Record your measurement unit and measurement count.

Teacher Notes

Before the launch, have a set of objects from the classroom and ask the students to put them in a line from the shortest to the longest.

Have sets of objects that the students can use to measure (e.g., centi-cubes, multilink, rods, ones cubes, match sticks), ensure that there is enough objects in the set that they can cover the entire length to be measured. Refer to these as the unit of measurement.

Use the word length explicitly to describe the linear measurement. Also support students to give the unit of measure in their explanation (e.g., “the length was five centi-cubes long”).

Facilitate students to attend to measurement concepts including that they need to use the same unit of measure, ensure there are no gaps and repeat the unit of measure to the end of the length.

Shareback

Select students to share who have drawn on measurement concepts including using the same unit of repeat, ensuring that there are no gaps and using iteration accurately. Highlight this to all students.

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume. When we measure, we use comparison, specifically, we compare like properties to see which is greater. We can make comparisons using standard or non-standard units of measure and we use mathematical language to describe these.

Conceptual understanding of measurement requires understanding of conservation and transitivity. Conservation requires understanding that when moved or subdivided, an object will retain its size. Transitivity involves understanding that the measures of two objects can be compared to a third object. For example, if object A weighs more than object B, and object B weighs more than object C, then object A will weigh more than object C.

There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Connect

Ask the students to discuss why they got a different measurement count when using a different measurement unit and highlight the relationship between the size of the measurement unit and the measurement count.

Suggested Learning Outcomes

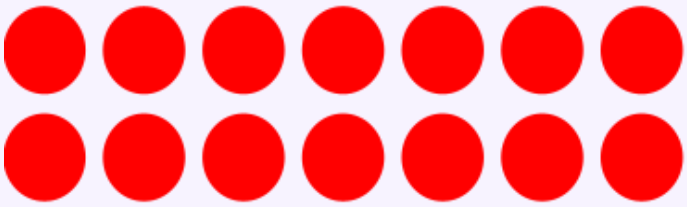
Compare the length of a liner using non-standard units.

Use non-standard units to measure length.

Count whole numbers of units to describe the measurement.

Use measurement language to describe the comparison of length.

Independent Tasks



Use number sentences to represent this pattern in as many ways as you can.

Curriculum Links

During Year 1
Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Mathematical Language

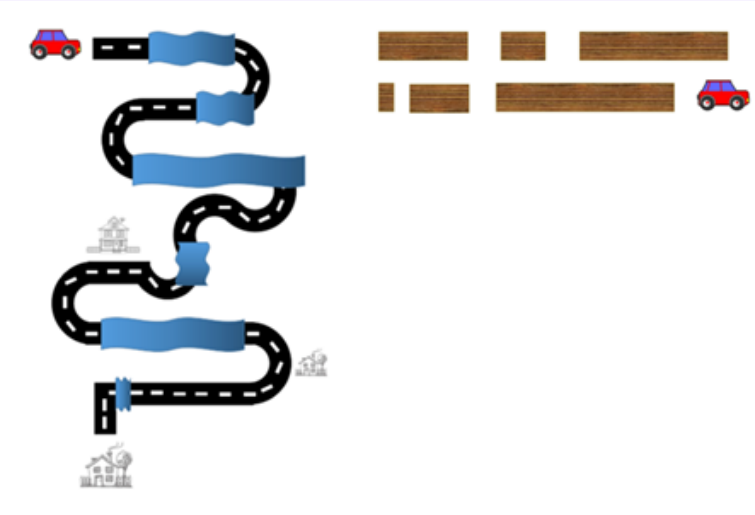
Length, unit of measure, measurement count, longest, shortest, same.

Anticipations

Solutions, Misconceptions

Task 2

There has been too much rain and parts of the roads have washed away. We need your help to measure the road and find the bridges to help people get home. (Note: Print this resource A3 size - see copy master)



Use the equipment to measure each part of the road that has washed away. Record the unit of measurement and the measurement count.

Now go to the storage shed and use the measurement unit to find the bridge that will fit for the part of the road that washed away.

Work with your partner until the road is fixed and you can drive the car home.

Teacher Notes

Have sets of objects that the students can use to measure (e.g., centi-cubes, multilink, rods, ones cubes, match sticks), ensure that there is enough objects in the set that they can cover the entire length to be measured. Have a box for the storage shed with the bridge parts in this.

Put the bridge parts in the storage shed away from the maps so that the students must first measure the washed away road and then use this measurement to find the correct bridge length rather than using direct comparison.

When measuring the washed away road, students may either cover the entire length to be measured with the objects or choose to use one or two and repetitively place these to measure.

Use the word length explicitly to describe the linear measurement. Also support students to give the unit of measure in their explanation (e.g., “the length was 6 cubes long”).

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume. When we measure, we use comparison, specifically, we compare like properties to see which is greater. We can make comparisons using standard or non-standard units of measure and we use mathematical language to describe these.

Conceptual understanding of measurement requires understanding of conservation and transitivity. Conservation requires understanding that when moved or subdivided, an object will retain its size. Transitivity involves understanding that the measures of two objects can be compared to a third object. For example, if object A weighs more than object B, and object B weighs more than object C, then object A will weigh more than object C.

There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Teacher Notes

Facilitate students to attend to measurement concepts including that they need to use the same unit of measure, ensure there are no gaps and repeat the unit of measure to the end of the length.

For the independent task, have sets of objects that the students can use to measure (e.g., centi-cubes, multilink, rods, ones cubes, match-sticks), ensure that there is enough objects in the set that they can cover the entire length to be measured.

Shareback

Select students to show how they measured and draw attention to the measurement concepts that they used including using the same unit of repeat, ensuring that there are no gaps and using iteration accurately.

Connect

Model measuring one of the washed away roads with a set of equipment but leave gaps between the measurement unit. Ask the students to discuss the following questions:

- What was different about how I measured?
- Who measured more precisely?

Can you help me fix my measurement mistakes?

Suggested Learning Outcomes

Compare the length of a liner using non-standard units.

Use non-standard units to measure length.

Count whole numbers of units to describe the measurement.

Use measurement language to describe the comparison of length.

Curriculum Links

During Year 1

Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Mathematical Language

Length, unit of measure, measurement count, longest, shortest, same.

Independent Tasks

Puawai and Leith both think that they have the longest walk from home to school.

Use the equipment to measure their walk home and see who does have the longest walk.

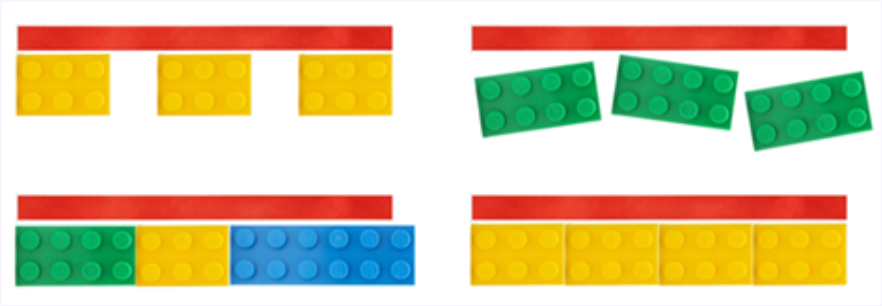
Record your measurement unit and measurement count.

Anticipations

Solutions, Misconceptions

Task 3

Little Miss Messy is learning to measure. She started by measuring the ribbon.



Look at each picture of how Little Miss Messy measured and decide if she measured correctly.

Can you help her by explaining what she did right and how to fix her mistakes and measure the right way?

Teacher Notes

During the lesson, show each picture and provide students with time to discuss what they notice both in relation to what Little Miss Messy did correctly and incorrectly.

Support students to develop an explanation for Little Miss Messy using measurement language.

If necessary, provide students with concrete material to correct the mistakes that Little Miss Messy had made.

The measurement concepts in this lessons are the need to use the same unit of measure, ensure there are no gaps or overlaps and repeat the unit of measure from the beginning to the end of the length that is being measured.

For the independent task, have sets of objects that the students can use to measure (e.g., centi-cubes, multilink, ones cubes), ensure that there is enough objects in the set that they can cover the entire length to be measured.

Note, change the numbers in the riddles to match with your measurement unit and objects from your classroom, currently the objects are as follows: paint brush, pencil, paper, crayon, and book.

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume.

When we measure, we use comparison, specifically, we compare like properties to see which is greater. We can make comparisons using standard or non-standard units of measure and we use mathematical language to describe these.

There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Curriculum Links

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Shareback

Show each picture and then have the students share back their advice to Little Miss Messy. Record the explanations that they give.

Connect

Read the student explanations and ask them to develop a list for how to measure correctly. Record the responses and display on the maths wall.

Suggested Learning Outcomes

Use non-standard units to measure length.

Identify key concepts related to measurement including using the same unit and iteration.

Use measurement language to describe the how to measure length correctly.

Independent Tasks

What am I?

I am 18 cubes long. I have bristles on the end. What am I?

I am 11 cubes long. You draw with me. What am I?

I am 20 cubes long. You write and draw on me. What am I?

I am 8 cubes long. You colour with me. What am I?

I am 14 cubes long. I have words. What am I?

Mathematical Language

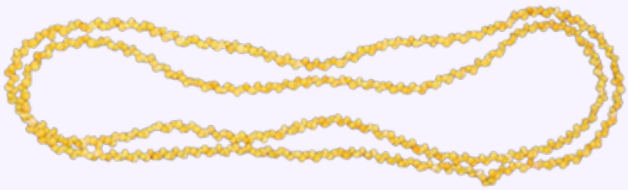
Length, unit of measure, repeat, gap.

Anticipations

Solutions, Misconceptions

Task 4

Teuila has some kahoa hihi for her family reunion. She wants to keep the longest one to give to her Nena.



Use the measurement unit to work out which is the longest kahoa hihi. Can you measure it with one measurement unit?

Record the measurement unit and measurement count.

Teacher Notes

Before starting show the students the image of little Miss Messy measuring (in copy masters). Ask the students to explain what picture shows Miss Messy measuring correctly. Support the students in forming a clear explanation of how to measure. You may like to write this up for the maths wall.

Have three lengths of string (between 15 – 20 centimetres in length if using cubes or 20 – 30 centimetres if using longer rods) for each student to measure and then either centi-cubes, multilink cubes or rods to use as the unit of measure.

Allow students to measure using either a set that will cover the entire length or a single unit.

If students choose to use a single unit then facilitate them to notice how they can keep track of where the cube ended (using a finger or pen mark) so they know where to move it next.

Use the word length explicitly to describe the linear measurement. Also support students to give the unit of measure in their explanation (e.g., “the length was 18 centi-cubes long”).

Support the students to use grouping to record their measurement counts.

For the independent task, have sets of objects that the students can use to measure to cover the entire length (e.g., centi-cube or multilink).

Big Ideas

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There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Shareback

Select students to share who could measure using one measurement unit while ensuring that there are no gaps (using a finger or pen mark each time) and using iteration accurately. If no students measured using one measurement unit, then model this as something previous students have done.

Connect

Introduce a fourth piece of string which is a different length. Ask the students to estimate how long the string is and then measure using their measurement unit and compare the results.

Suggested Learning Outcomes

Compare the length of a liner using non-standard units.

Use non-standard units to measure length.

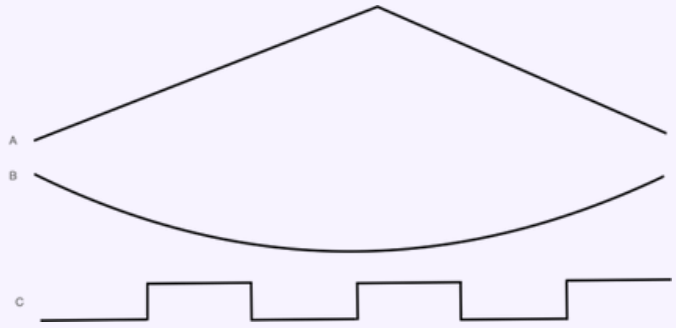
Count whole numbers of units to describe the measurement.

Use measurement language to describe the comparison of length.

Independent Tasks

Ailine and Emme are making skipping ropes. They want to give the longest one to their oldest brother.

Measure the skipping ropes and see which is the longest.



Record your measurement unit and measurement count.

Curriculum Links

During Year 1

Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Mathematical Language

Length, unit of measure, repeat, gap.

Anticipations

Solutions, Misconceptions

Task 5

How wide do you think the classroom is?

Use part of your body as a unit of measurement and measure the width. Record your result.

Teacher Notes

During the launch, ensure that students understand that the width is the straight distance from one side (point of the room) to the other.

Use the word length explicitly to describe the linear measurement. Also support students to give the unit of measure in their explanation (e.g., "the length was 18 feet long").

Facilitate students to attend to measurement concepts including that they need to use the same unit of measure, ensure there are no gaps and repeat the unit of measure to the end of the length.

For the independent activity, have paper and pens for students to draw around their foot and objects that the students can use to measure (e.g., centi-cube, multilink, ones cube).

If there are students who still need to measure end to end then provide them with a set of objects to cover the whole length

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume. When we measure, we use comparison, specifically, we compare like properties to see which is greater. We can make comparisons using standard or non-standard units of measure and we use mathematical language to describe these.

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There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Shareback

Record and display the results for each student including the unit of measure they used (body part) and the measurement count. Ask the students to discuss why they got a different measurement count for different body parts or between different students.

Connect

Ask students to estimate and then measure the width again using a metre ruler. Ask them to discuss why their results are similar when using the metre ruler.

Suggested Learning Outcomes

Compare the length of a liner using non-standard units.

Use non-standard units to measure length.

Count whole numbers of units to describe the measurement.

Use measurement language to describe the comparison of length.

Independent Tasks

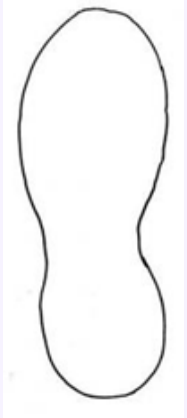
How big is your foot?

Draw around your foot. Now see if you can measure the length of your foot with a measurement unit.

Record the measurement count.

Look in the shoe box. Can you find a shoe that will fit you?

Use the measurement unit to check.



Curriculum Links

During Year 1

Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Mathematical Language

Length, width, unit of measure, measurement count, longest, shortest, same.

Anticipations

Solutions, Misconceptions

Task 6

Mele's Dad wants her to pack these tins of food into a box to send to their family in Tonga. She has two boxes. How many can she fit in each box and still shut the top?

Which box has the greatest volume?

Teacher Notes

Before launching the task blow up three balloons and facilitate the students to discuss what is happening with the balloon and the amount of space as it is blown up. Ask the students what one takes up the most space?

During the launch, use three food packets of different sizes. Have children order from biggest to smallest and discuss with the children which takes up the most space (volume).

Have large boxes labelled A and B for the students to work with. Use food packets which are the same size (e.g., cans of soup, cereal boxes) as the measurement unit.

Monitor for students using vocabulary which includes space, volume, and more than, less than and the same as.

Notice students who use grouping or counting on to find the number of measurement units. If these are not used, model how to use them.

Expect students to represent their solutions using drawing and numbers.

Make comparisons between the measurement count and size of the measurement unit. Discuss with the students that the bigger the measurement unit the more space it takes and therefore less would fit in the same size box.

For the independent task, have different sized containers available and sets of blocks, multi-link cubes, and beads to use as the measurement unit.

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume.

When we measure, we use comparison, specifically, we compare like properties to see which is greater. We can make comparisons using standard or non-standard units of measure and we use mathematical language to describe these.

There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Curriculum Links

During Year 1

Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Shareback

Select students to share who measure the volume of the boxes in a systematic way by layering the bottom first and then filling the rest of the box and ensuring that there are as little spaces as possible. Also focus attention on students who use grouping or counting on solutions to find the measurement unit count.

Connect

Use a different food packet (bigger or smaller, e.g., cereal boxes, soup packets) with different amounts of the packet. Ask students to discuss how many of each packet would fit in the boxes and compare the number of measurement units for each box. Teacher record the solutions using representation involving numbers and drawing.
Ask “what happens to the measurement count when you use a different measurement unit?”.

Suggested Learning Outcomes

Compare the volume of a container using non-standard units.

Use non-standard units to measure volume.

Count whole numbers of units to describe the measurement.

Explain the relationship between size of the measurement unit and the measurement count.

Independent Tasks

Use the different material to measure the volume of each container.

Record the measurement count for each different measurement unit that you used. Draw a picture to show how you measured the different containers and write the numbers to match.

Mathematical Language

Space, volume, more than, less than, same, measurement unit, measurement count, greatest.

Anticipations

Solutions, Misconceptions

Task 7

Leilani would like to choose a box to decorate for her treasures. She would like the box with the biggest volume.

Can you use the material to work out which box has the biggest volume?

Teacher Notes

Have small boxes (e.g., shoe boxes or smaller). Provide students with cubes or blocks that are the same size to use as the measurement unit.

Monitor for students using vocabulary which includes space, volume, and more than, less than and the same as.

Notice students who use grouping or counting on to find the number of measurement units. If these are not used, model how to use them.

Expect students to represent their solutions using drawing and numbers.

Make comparisons between the measurement count and size of the measurement unit. Discuss with the students that the bigger the measurement unit the more space it takes and therefore less would fit in the same size box.

For the independent task, have a range of small boxes and measuring material available for the students to use, you may like to set these up as stations for the students to rotate around.

Shareback

Select students to share who measure the volume of the boxes in a systematic way by layering the bottom first and then filling the rest of the box and ensuring that there are as little spaces as possible. Also focus attention on students who use grouping or counting on solutions to find the measurement unit count.

Connect

Model measuring the volume of the box but leave obvious gaps and use two different sizes of cubes. Ask students for suggestions to develop instructions on how to measure volume. Record these and display on your maths wall.

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume.

When we measure, we use comparison, specifically, we compare like properties to see which is greater. We can make comparisons using standard or non-standard units of measure and we use mathematical language to describe these.

There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Curriculum Links

During Year 1

Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Suggested Learning Outcomes

Compare the volume of a container using non-standard units.

Use non-standard units to measure volume.

Count whole numbers of units to describe the measurement.

Mathematical Language

Space, volume, more than, less than, same, measurement unit, measurement count.

Independent Tasks

What is the volume of these boxes?

If you were going to make yourself a treasure box, which one would you choose and why?

Anticipations

Solutions, Misconceptions

Task 8

Teremoana has made some donuts. Her little brother wonders which is the biggest donut. What would you tell him?

Teacher Notes

For the launch, use two identical cakes (e.g, playdough or modelling clay). Cut one of the cakes into pieces and ask the children to talk about if there is more, or less cake, bigger, smaller, same? If needed, put the pieces back together to show that the volume has not changed.

Use pictures of a doughnut or a food relevant to your students. Have the same picture with the whole donut and the same donut cut into halves, quarters, irregular size pieces.

Have playdough available, if needed give students balls to model the donut physically.

Monitor for students using vocabulary which includes space, volume, and more than, less than and the same as.

For the independent task, have pictures of different and the same size objects (e.g., cakes, melons, sandcastles).

Shareback

Select students to share solution strategies where they have recognised that the volume of a 3-dimensional object stays the same however they are arranged and rearranged.

Connect

Give students playdough or modelling clay and ask students to make shapes that take up the same space (volume), more space (volume), or less space (volume).

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume.

When we measure, we use comparison, specifically, we compare like properties to see which is greater. We can make comparisons using standard or non-standard units of measure and we use mathematical language to describe these.

There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Curriculum Links

During Year 1

Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Suggested Learning Outcomes

Compare the volume of objects.

Explain that when an object is subdivided the volume remains the same (conservation).

Mathematical Language

Space, volume, more than, less than, same, divide.

Independent Tasks

Look at the pictures.
Which object has the biggest volume?
Which object has the smallest volume?
Do any objects have the same volume?

Have a look around the classroom.
What can you see that has a large volume?
What can you see that has a small volume?
Does anything have the same volume?

Anticipations

Solutions, Misconceptions

Task 9

Choose two containers and pick them up.

What do you notice about their volume?
Which has the greater volume?

What do you notice about their mass?
Which is heavier and which is lighter?

Teacher Notes

Have a variety of bottles and containers some which are the same so students can swap and explore these as they work.

Have students hold 2 containers (small bottles, buckets) one of which is full of some matter (soil, sand, beans) and with eyes closed, discuss and make comparisons between the 2 containers describing the mass.

Facilitate students to understand that two containers can have the same volume (take up the same amount of space) but that they have different amounts of matter in them so a different mass.

Make sure that the word mass is used for matter in a container. Expect students to use a range of measurement language to describe the mass.

For the independent task, have containers of different sizes (labelled with numbers or letters) that can be filled with water.

Shareback

Select students to share using a range of measurement language to describe what they notice.

Connect

Have variety of pictures of containers with different amounts of matter. Discuss and match which have the same and different volume, and mass.

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume.

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Curriculum Links

During Year 1

Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Suggested Learning Outcomes

Compare and order the mass of objects.

Use measurement language to describe the comparison of mass.

Mathematical Language

Mass, same, different, heavier, lighter, less mass, more mass, massive.

Independent Tasks

Look at the containers.

Which container would hold the greatest volume?
Which container would hold the least volume?
Write down the order from biggest to smallest.

Now test and prove your idea using water.

Anticipations

Solutions, Misconceptions

Task 10

Use the balance scale to weigh the objects

Can you find some objects that have the same mass?

Can you find some objects that have less mass?

Can you find some objects that have more mass?

Teacher Notes

To launch the task show students a picture of an empty seesaw and pictures of different aged children and adults. Ask students to describe how they could be arranged so that the seesaw is balanced, or heavier or lighter on each end.

For the task, use either equal-arm balances (or two plastic bags on two ends of a coat hanger held by a hook.

If students use the term 'weight' press them to say mass when talking about the matter inside a container.

Model to students how to represent their ideas such as the mass of 2 books is more than 3 pencils using < > or = .

For the independent task, have a range of books and objects with balance scales for the students to use.

Shareback

Select students to share using a range of measurement language to describe what they notice.

Connect

Do these shapes have the same or different area?

Have pictures of different tinned food (e.g., fruit, soup, baked beans). Ask the students to select tins so that the mass would be the same and would balance. Record with the number under the pictures in a number sentence (e.g., 3 = 3). Ask students to find examples that would have greater or less mass on each side. Record as number sentences using < and >.

Big Ideas

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Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Suggested Learning Outcomes

Compare and order the mass of objects.

Use measurement language to describe the comparison of mass.

Mathematical Language

Mass, same, different, heavier, lighter, less mass, more mass, massive.

Independent Tasks

A book is on one side of the balance scale and two objects are on the other side so the scale is level. What might the two objects be?

Can you find different solutions using the scale?

Anticipations

Solutions, Misconceptions

Task 11

Tasi has two loaves of bread that have the same mass. Her Dad cuts one of the loaves into two pieces. She thinks the loaf cut into two pieces will have a greater mass.

Do you agree with Tasi?

Cut one of your loaves of bread and use your balance scales to see if the mass stays the same or changes.

Try cutting the loaves in different ways and see if the mass changes or if it always stays the same.

What do you notice?

Teacher Notes

Before launching the task, ask students to give examples of animals that would have a large mass, and animals that would have a small mass.

For the task, give students two pieces of playdough or modelling clay shaped into a loaf which have the same mass.

Facilitate the students to experiment with subdividing one of the loaves in different ways to illustrate conservation.

Shareback

Select students to share who notice that the mass of an object stays the same even when it is subdivided into pieces.

Connect

Have sets of pictures of different shaped cakes with one cut into pieces and the other remaining whole. Have students match the picture sets that would have the same mass.

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume.

When we measure, we use comparison, specifically, we compare like properties to see which is greater. We can make comparisons using standard or non-standard units of measure and we use mathematical language to describe these.

There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Curriculum Links

During Year 1

Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Suggested Learning Outcomes

Compare the mass of objects.

Explain that when an object is subdivided the mass remains the same (conservation).

Mathematical Language

Mass, same, different, heavier, lighter, less mass, more mass, massive.

Independent Tasks

What things can you find that are heavy but small?

What things can you find that are light but large?

Anticipations

Solutions, Misconceptions

Task 12

The post office needs your help to work out the mass of the parcels.

Can you use the cubes to work out the mass of each parcel?

Teacher Notes

To launch the task, ask students if they have heard the word 'gram' and what they think it means. Introduce the centi-cube and tell the students that it weighs one gram. Let the students hold it. Then introduce a stick of ten centicubes and establish that it weighs ten grams.

For the task, have wrapped up boxes to represent packages for the post office. Have balance scales available for students to measure.

Expect the students to use representations (e.g., drawing and numbers). Model how to record the numbers and how to count in tens.

Facilitate students to notice that the unit can be combined to make ten units.

Shareback

Select students to share who have been able to combine the measurement units to find out the mass of the parcels.

Connect

Ask students to use the mass measures of their classmates to order the parcels that have been weighed from greatest mass to least mass. Focus attention on how the measurement units can be combined as tens and ones.

Big Ideas

There are a range of attributes that we can measure including length, mass, time, area, angle, and volume.

When we measure, we use comparison, specifically, we compare like properties to see which is greater. We can make comparisons using standard or non-standard units of measure and we use mathematical language to describe these.

There are key principles related to measurement including that the size of the measurement unit remains the same (including identical units or subdivisions), units are repeated with no gaps or overlaps (iteration), the unit is part of a whole and the measurement is expressed as the total number of units used.

Curriculum Links

During Year 1

Compare the length, mass (weight), volume, or capacity of objects directly or indirectly (e.g., by comparing each of them another object, used repeatedly)

Suggested Learning Outcomes

Use units to measure mass on a balance scale.

Compare the mass of an object using grams.

Mathematical Language

Mass, same, different, heavier, lighter, less mass, more mass, massive.

Independent Tasks

Select one or more of the following assessment tasks (attached at the end of the document) as the independent activity:

Assessment 1: Measure the length of lines.

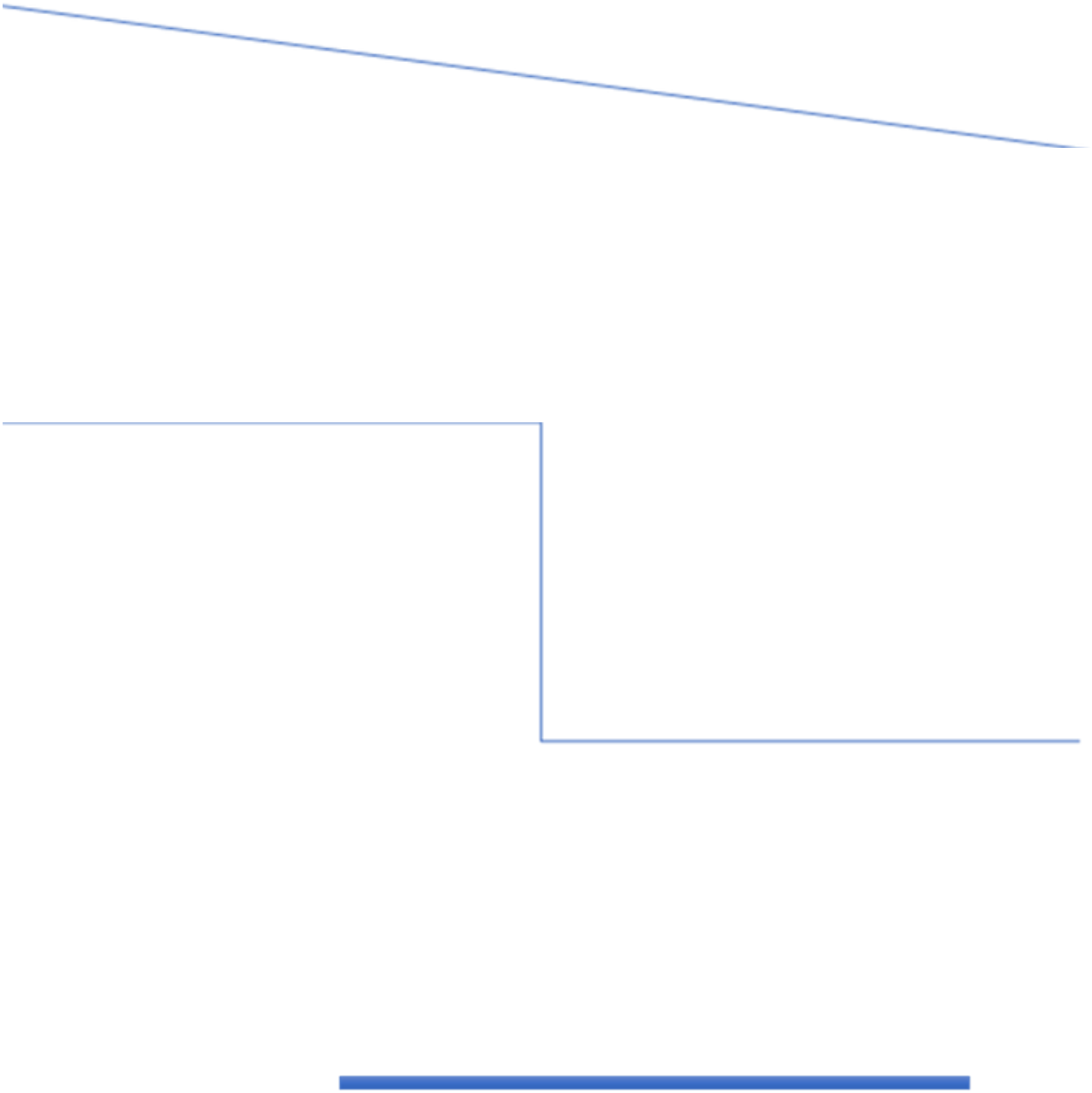
Assessment 2: What box is the biggest?

Anticipations

Solutions, Misconceptions

Assessment Task 1 - Year 1

Use something in the classroom to measure the lines below. Write what you choose to use to measure and show how you measured each line and the measurement count. Label the lines from shortest to longest.



Assessment Task 2 - Year 1

Which one of these boxes is the biggest? Which one is the smallest? Describe how you measured it and how you know.

(Teacher notes: Give students 3 small boxes and centi-cubes or multi-link. Take photos of students' way of measuring)