



Makes Maths Fun

Level 3 VOLUME & CAPACITY

Bloomsmath is a comprehensive mathematics program which provides a fun way for every student to be learning to the best of their ability.

By Rachel McCann (B.Teach; B.Ed Hons; M.ED (Special Ed.))

Volume & Capacity

Level 3 is designed for students in their third year at school often called Year 2. The Volume and Capacity strand allows students to estimate, measure, compare and record volumes using informal units.

Knowledge: Students will count the cubes to find the volume of each shape and then order the volumes from smallest to largest for each set of blocks.



Students who demonstrate proficiency in this activity move on to Comprehension.



Students stop here as they require additional teacher support to master this activity.

Comprehension: Students will use comparative measures to find the volume and capacity of each shape.



Students who demonstrate proficiency in this activity move on to Application.



Students stop here if time has run out or they require additional support with this activity.

Application: Students will play "Cover Your Block" where the number rolled dictates which cubes, if any, can be covered. The first player to cross one row or all of their blocks depending on the game wins.



Students who demonstrate proficiency in this activity move on to Analysis.



Students stop here if time has run out or they require additional support with this activity.

Analysis: Students match various containers to their estimated volume as 10 milliliters, 500 milliliters and 2 Litres and then draw some containers of their own.



Students who demonstrate proficiency in this activity move on to Synthesis.



Students stop here if time has run out or they require additional support with this activity.

Synthesis: Students will compare their lunch containers and discuss the shape and capacity of each and order them in terms of capacity to hold sandwiches, apples or soup. Students design an ideal container

Evaluation: Suggested questions provide a starting point for discussions related to Volume & Capacity.



Students may complete more or fewer activities for each learning outcome depending on the time allocated and their strength in the area being covered.































All students should participate in the Evaluation discussion to encourage the use of mathematical language, logical reasoning and reflection on that which they have completed.

Name: _____

Block Volume

Count the blocks in each shape and then order each set from smallest volume (1) to largest volume (4).

1.	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____
2.	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____
3.	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____
4.	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____
5.	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____
6.	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____
7.	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____	 Blocks: ____ Order: ____

Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation

Volume & Capacity - Level 3 - Students will estimate, measure, compare and record volumes.



Let's Try This Again





Progress To Comprehension



Name: _____

Comparative Volume



Count the blocks to see how many of the smaller shape's volume are needed to make the larger shape's volume.

1.   Number of Shape 1 Blocks needed to make Shape 2: _____



Shape 1 Blocks: _____ Shape 2 Blocks: _____

2.   Number of Shape 1 Blocks needed to make Shape 2: _____

Shape 1 Blocks: _____ Shape 2 Blocks: _____

3.   Number of Shape 1 Blocks needed to make Shape 2: _____

Shape 1 Blocks: _____ Shape 2 Blocks: _____

4.   Number of Shape 1 Blocks needed to make Shape 2: _____

Shape 1 Blocks: _____ Shape 2 Blocks: _____

Will the number of blocks leave room for more blocks, fill the larger shape to capacity or be too many blocks and overflow?

Shape 1

Shape 2 Circle the correct answer for each question

1.   Need More / Filled To Capacity / Overflowing

2.   Need More / Filled To Capacity / Overflowing

3.   Need More / Filled To Capacity / Overflowing

4.   Need More / Filled To Capacity / Overflowing



Let's Try This Again



Progress To Application

Name: _____

Cover Your Block

You will need:

- 2 dice
- 2 players
- The playing cards below
- 18 Counters

How to play:

Each player selects a card.

Players take it in turn to roll the dice and if a player has a block on their card which matches the number rolled then they cover it with a counter.

The first player to get 3 counters in a row (short game) or cover all their blocks (long game) wins.

Player 1		

Player 2		

Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation

Volume & Capacity - Level 3 - Students will estimate, measure, compare and record volumes.



Let's Try This Again



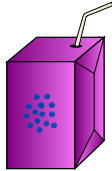



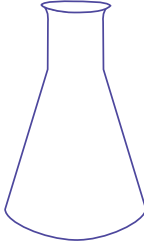
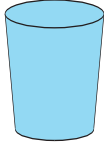






Progress To Analysis

Name: _____

Estimating Volume

Match the containers to their estimated volume.

				
	10 Milliliters	500 Milliliters	2 Litres	
				

Draw 2 items which would have about the given volume of each measure below.

10 Milliliters	500 Milliliters	2 Litres



Let's Try This Again

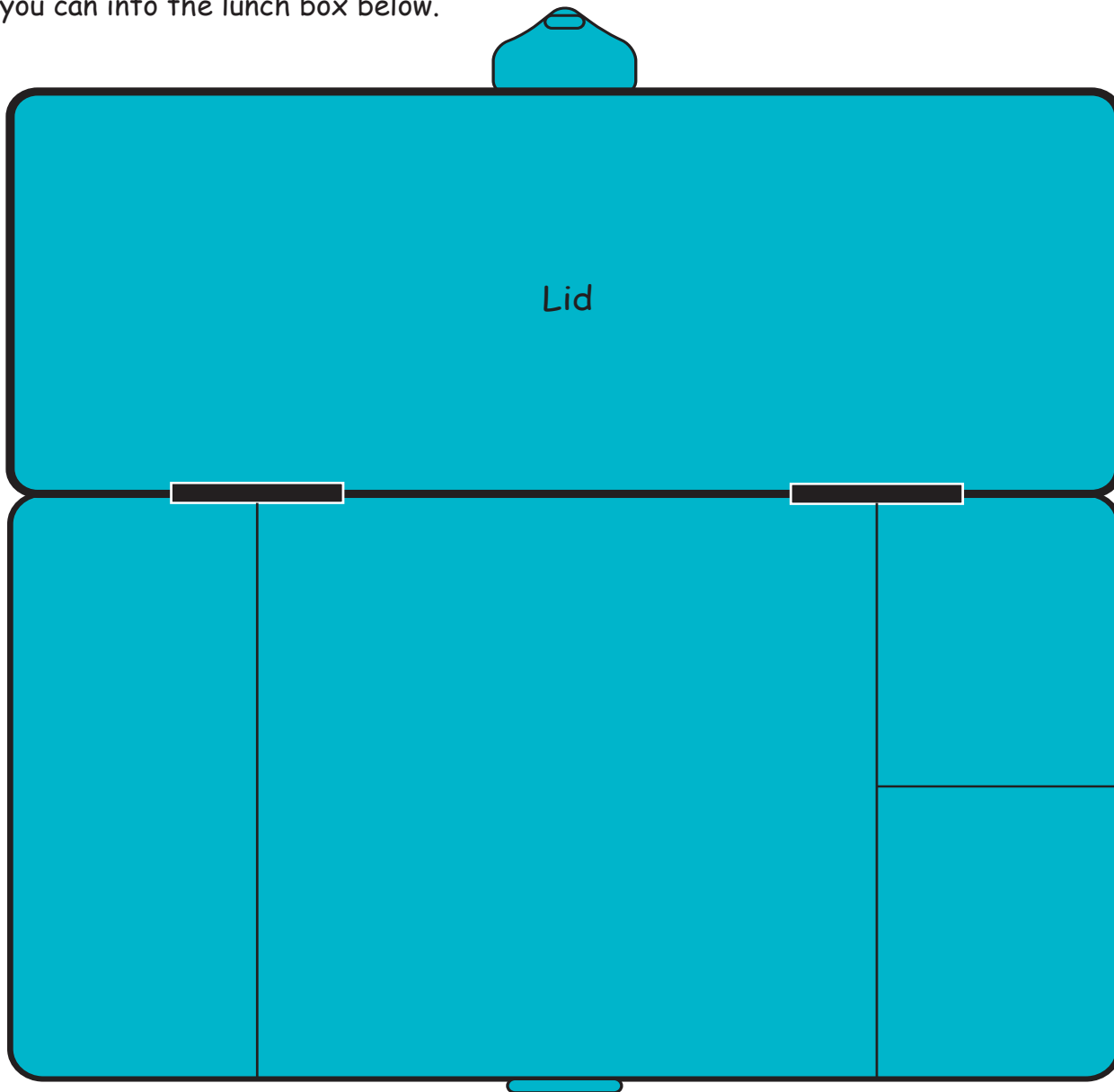


Progress To Synthesis

Name: _____

Design An Ideal Lunch Box

Cut out the items from Design an Ideal Lunch Box 2 and paste as many of them as you can into the lunch box below.



Volume & Capacity - Level 3 - Students will estimate, measure, compare and record volumes.



1. What do you think the volume of this lunch box may be? _____

2. What can be done to make more food fit into the lunch box? _____

3. Use the back of this sheet to design a lunch box which would fit all the items. You can use curved edges on your lunch box - it does not have to be rectangular.



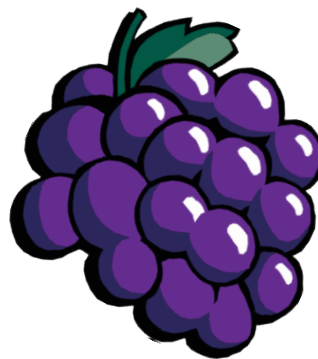
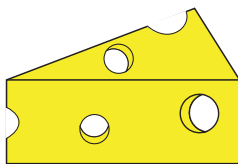
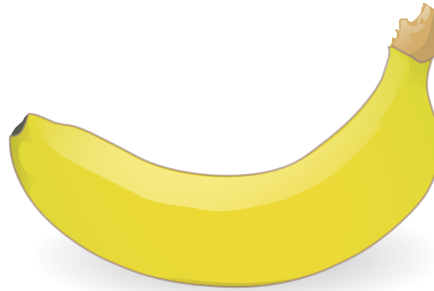
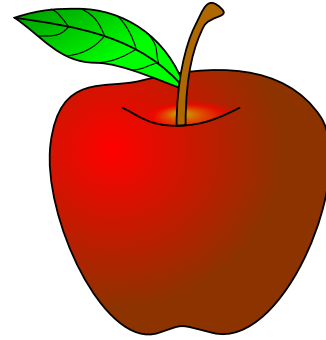
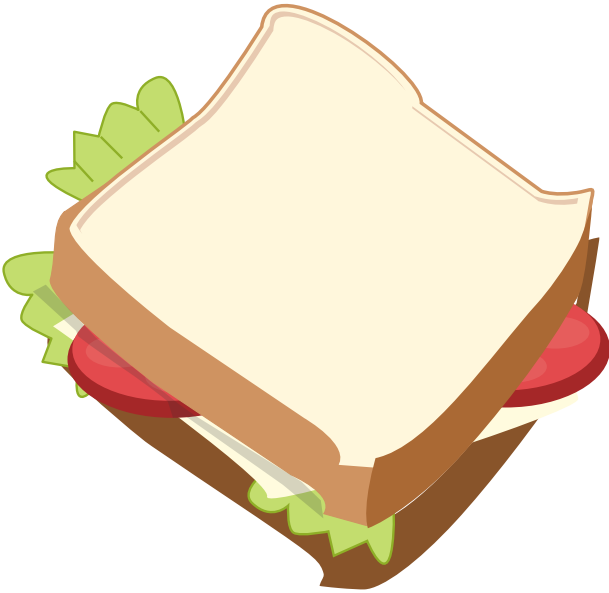
Let's Try This Again



Progress To Evaluation

Name: _____

Design An Ideal Lunch Box 2



Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation

Volume & Capacity - Level 3 - Students will estimate, measure, compare and record volumes.



Let's Try This Again



Progress To Evaluation

Volume & Capacity Discussion

The following questions and activities are provided as a starting point for fun discussions related to Volume & Capacity. During these conversations students will have an opportunity to use appropriate mathematical language in its correct context, to engage in reflection on the Volume & Capacity activities they have completed and to use logical reasoning to tie their in-class mathematics to its everyday context.



Using a bucket in a trough have students estimate how much water will be displaced by various items and see if they are correct.



Check if the water displaced by an empty jug is the same amount of water needed to fill that same jug.



Discuss the difference between capacity and volume and have students see how full they can fill a jug if they are expected to carry it 50 meters.



Collect a number of different 1 Litre containers and demonstrate that they all hold 1 Litre even if they look completely different.



Discuss the lunch boxes students created and the volume difference between curved and straight sides and why lunch boxes tend to have curved sides.

