Year One Maths Knowledge Organiser: *Weight and Volume*

· National Curriculum Objectives · Ready to Progress Criteria: National Curriculum core concepts

1. Introducing Weight and Mass

· measure and begin to record mass / weight

Fluency:

Choose 2 objects. Which is heavier / lighter?
Estimate then check with the pan balance.

The _____is heavier than the _____.
The _____is lighter than the _____.

Fill in the gaps:

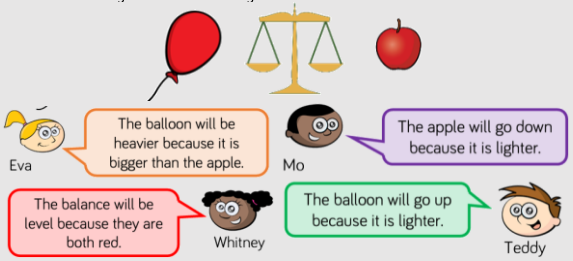
The _____ is heavier than the _____.
The _____ is lighter than the _____.
The _____ is equal to the _____.

Collect objects from around the classroom.
Use the balance to find the heaviest object.

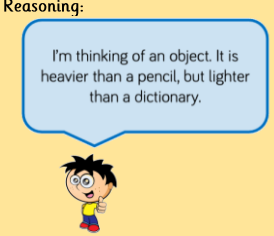
Can you find 2 objects with an equal mass?

Problem solving:

The children are thinking about which weighs more:



Reasoning:



Find objects that Jack could be thinking of.

2. Measure Mass

· measure and begin to record mass / weight

Fluency:

Use cubes to measure items on your table.

The_____ weighs ____ cubes.

Weigh an object using cubes. Then weigh it again using different non-standard units.

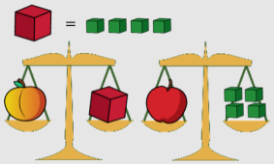
Record your findings.
What do you notice?
Which units were best to use? Why?

Which non-standard units would be best to measure the mass of a heavy nook?

Counters
Wooden blocks
Pencils

Why?

Problem solving:



Amir says,

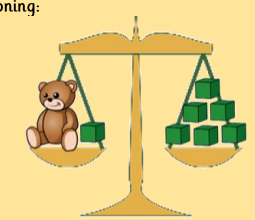
The apple is heavier than the peach, because it weighs 4 cubes.

Teddy says,

The apple and the peach weigh the same.

I agree with .... because ...

Reasoning:



How many cubes does the teddy bear weigh?
I know this because...

3. Compare Mass

· compare, describe and solve practical problems for mass/weight, e.g. heavy / light, heavier than, lighter than

Fluency:

Complete the sentences below:

The cupcake weighs……..cubes.
The grapes weighs……..cubes.
The cupcake is ……..than the grapes.
(heavier / lighter?

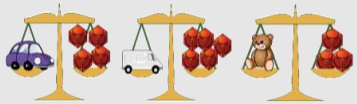
Order the objects from heaviest to lightest:

Use cubes to find the ass of 4 objects

Order them from lightest to heaviest.

Problem solving:

Match the clue to the image:
My object weights more than the car.
My object is less than 5 cubes.
Mr object is not the heaviest or the lightest.



Reasoning:

Tick the statements that are true:

The car is heavier than the van
The van is heavier than the car
The car is light than the van.
The van is lighter than the car.
The car and the van weigh the same amount.

4. Introduce Capacity and Volume

· measure and begin to record capacity and volume

Fluency:

Use water/sand/rice to explore different containers:

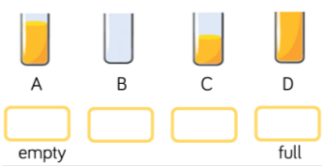
Show full containers.
Show empty containers.
Show almost full containers.
Show almost empty containers.

Use 'more' and 'less' to compare:

A has _____ than B

A has _____ than B

Put these in order from empty to full:



Problem solving:

Always, Sometimes, Never?

The tallest container holds the most liquid.

Identical containers can have a different capacity.

Prove whether the statements are always, sometimes or never true.

Reasoning:

Rosie, Teddy and Amir describe their glasses of water:

Can you fill in how much water could be in each of the children's glasses?

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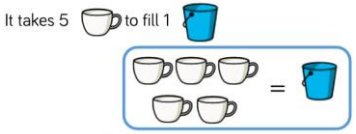
5. Measure Capacity

· measure and begin to record capacity and volume

Fluency:

Use a variety of containers.
Investigate how many small containers it takes to fill the larger containers.

The capacity of the ____ is _____ pots.



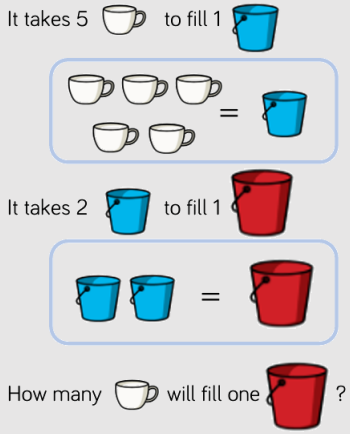
How many will it take to fill 2 buckets?

What about three buckets?

Four buckets?

What do you notice?
Can you continue the pattern?

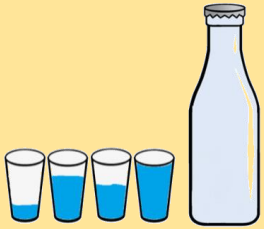
Problem solving:



What else can you find out?

Reasoning:

Whitney pours her cups into the bottle and they fill it exactly.



She says the bottle has a capacity of four cups. Do you agree?

6. Compare Capacity

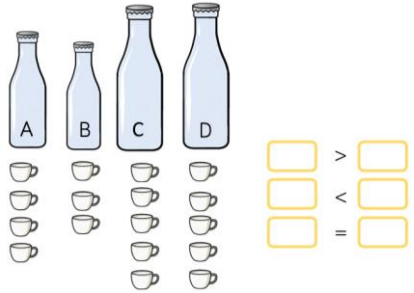
· compare, describe and solve practical problems for capacity and volume [e.g. full / empty, more than, less than, half, half full, quarter]

Fluency:

Take 3 different containers.
Using e.g. a yoghurt pot, fill each container with water or rice.

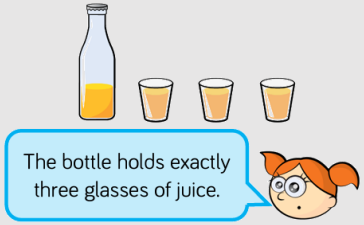
Order the containers from largest to smallest capacity.

Complete the boxes to compare the capacity of the bottles:



Problem solving:

Alex has a bottle of juice. She pours three glasses of juice.

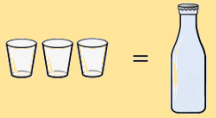


Do you agree? Explain why.

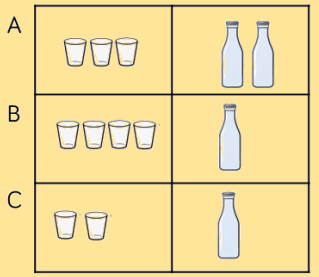
Choose three containers. Investigate how you could compare the capacity of each one.

Reasoning:

If



Circle whether the glasses or bottles hold more in each row:



Vocabulary

capacity	heavy	heavier	heaviest
volume	light	lighter	lightest
mass	full	empty	pan balance
weight	more	less	scales