

Discussion Problems

Step 1: Metric Measures

National Curriculum Objectives:

Mathematics Year 6: (6M5) [Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places](#)

Mathematics Year 6: (6M9) [Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate](#)

About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 6 Converting Units](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Metric Measures

1. In order to help categorise each robot, a robotics factory has labelled each one with a different unit of measure.



$10 \frac{3}{4}$ mm



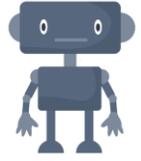
10m



1,500cm



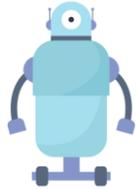
0.75m^2



2,000mm



2 tonnes



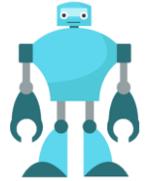
$8 \frac{3}{8}$ miles



0.95L



1,850ml



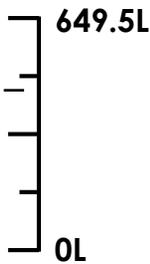
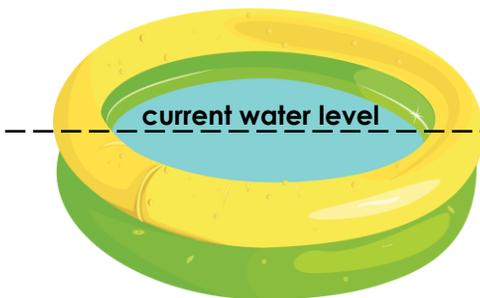
8m^3

Investigate the different possible groups that the robots could be categorised into.

DP

2. Max was filling his paddling pool with water, however, the hose in the garden has suddenly stopped working!

He manages to find five different buckets (each holds a different capacity) to use to finish filling the pool.



Bucket	Capacity
1	8L
2	10L
3	12.5L
4	15L
5	18.5L

The capacity of the pool is 649.5L. Estimate the current volume of the pool.

In order to fill the pool as close to capacity as possible, explore the different combinations of bucket Max could use.

You must use at least three different buckets, but can use each one more than once.

DP

Metric Measures

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$10 \frac{3}{4}$ mm



10m



1,500cm



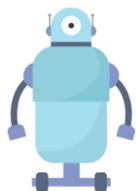
0.75m^2



2,000mm



2 tonnes



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8m^3

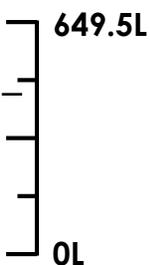
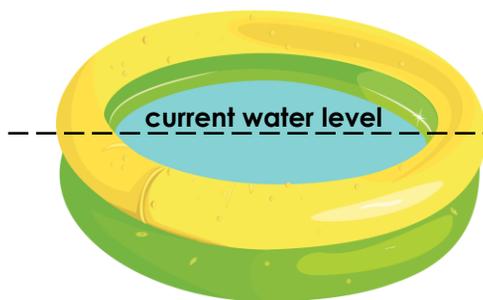
Investigate the different possible groups that the robots could be categorised into.

Various answers, for example: The robots could be categorised in groups with whole numbers and decimal numbers, or in groups with different units of measure (length, volume, weight, perimeter and area).

DP

2. Max was filling his paddling pool with water, however, the hose in the garden has suddenly stopped working!

He manages to find five different buckets (each holds a different capacity) to use to finish filling the pool.



Bucket	Capacity
1	8L
2	10L
3	12.5L
4	15L
5	18.5L

The capacity of the pool is 649.5L. Estimate the current volume of the pool.

Various answers, for example: 461L.

In order to fill the pool as close to capacity as possible, explore the different combinations of bucket Max could use.

You must use at least three different buckets, but can use each one more than once.

Various answers, for example: 5 x Bucket 5 (92.5L), 2 x Bucket 4 (30L), 4 x Bucket 3 (50L), 2 x Bucket 1 (16L) to get a total of 188.5L.

DP