Weekly Tasks Mathematics

Please see below for details regarding this week’s school tasks.

**KS2**
I hope you are all well and have been enjoying the good weather. Have a go at the following activities when you can. Maybe see if you can complete some of them outside in the sun.

**Maths**
This week, we are going to continue to explore the concept of volume.

https://www.bbc.co.uk/bitesize/topics/zjbg87h/articles/z3jrxfr

This link will be useful to watch before completing the tasks as it will help to give you a basic understanding.

**1st Task**
I can calculate the volume of a cuboid.

What are the features of a cube and a cuboid?

What are the similarities and differences?

Use the link below to help you.

https://www.bbc.co.uk/bitesize/clips/zsqmpv4

Find some objects. Around your house that are either cubes or cuboids. What unit of measurement would you use to measure their volume? (Use the table below of random objects as an example).

<table>
<thead>
<tr>
<th>Object</th>
<th>Use cm$^3$</th>
<th>Use m$^3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>pencil case</td>
<td></td>
<td></td>
</tr>
<tr>
<td>textbook</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cupboard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bookcase</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This cuboid is made from $1\text{cm}^3$

How could you use the length of the edges to calculate the volume?

See step by step instructions below.

- 'This layer has ___ rows of cubes.'
- 'There are ___ $1\text{cm}^3$ cubes in this layer.'
- 'This layer has a volume of ___ cm$^3$.'
- 'There are ___ layers of ___ cm$^3$.'
- 'The volume of the cuboid is ___ cm$^3$.'

If you have Lego at home, you can have a go at creating your own cuboid shapes and calculating their volume.

Or you can create cuboids using paper cubes (using the same net as last week).

Or you can simply draw some cuboids like in these diagrams.

Can you create 3 different examples that show how to calculate the volume.
<table>
<thead>
<tr>
<th>2nd Task</th>
<th>I can find the volume of cubes and cuboids.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What happens if you don’t have cubes to use?</td>
</tr>
<tr>
<td></td>
<td>Then we need to use this formula:</td>
</tr>
<tr>
<td></td>
<td>Volume = length x width x height.</td>
</tr>
</tbody>
</table>

Finding the volume of a cuboid:

<table>
<thead>
<tr>
<th>Finding the volume of these cuboids.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Cuboid 1" /> 6 cm x 3 cm x 4 cm</td>
</tr>
<tr>
<td><img src="image2" alt="Cuboid 2" /> 2 m x 4 m x 5 m</td>
</tr>
</tbody>
</table>

Show your workings in your book.

If you feel like you need more practice have a look at the separate handout sheet for this week.

Cubes use the same formula, but all their sides are of equal length.

3 cm x 3 cm x 3 cm = 27 cm³

* The volume of this cube is 27 cm³.*
This is how we find cube numbers.

Copy and complete the table:

<table>
<thead>
<tr>
<th>Cube</th>
<th>Cube number</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1^3$</td>
<td>$1 \times 1 \times 1$</td>
</tr>
<tr>
<td>$2^3$</td>
<td>$2 \times 2 \times 2$</td>
</tr>
<tr>
<td>$3^3$</td>
<td>$3 \times 3 \times 3$</td>
</tr>
<tr>
<td>$4^3$</td>
<td>$4 \times 4 \times 4$</td>
</tr>
<tr>
<td>$5^3$</td>
<td>$5 \times 5 \times 5$</td>
</tr>
</tbody>
</table>

https://www.bbc.co.uk/bitesize/topics/zyhs7p3

3rd Task

I can calculate missing dimensions.

Draw a box in your book. Label the sides of your diagram like I have below. (If you want a concrete example used a shoe box and measure the length and width with a ruler, the get an adult to measure the height at calculate the volume, they will then need to tell you volume but not the height.)

'A box has a volume of 36 cm$^3$. The width is 3 cm and the length is 4 cm. What is the height?'

![3D diagram of a box]

What do we know? What do we need to find out?

We could calculate the unknown by using written methods:

- $3 \times 4 \times ? = 36$
- $3 \times 4 \times 1 = 12$
- $3 \times 4 \times 2 = 24$
- $3 \times 4 \times 3 = 36$

- 'We know the width is 3 cm.'
- 'We know the length is 4 cm.'
- 'We know the volume is 36 cm$^3$.'
- 'We need to find the height.'
- 'We can write this as' $3 \times 4 \times ? = 36$
- 'which is the same as' $12 \times ? = 36$
- 'And we know that' $12 \times 3 = 36$
- 'So the height is 3 cm.'
Have a go at completing the below examples:

*A box has a volume of 30 cm$^3$. The length is 3 cm and the height is 2 cm. What is the width?*

Can you create some of your own examples? Draw them in your book.

Or ask an adult to create some more missing dimension questions for you.

4$^{th}$ Task

I can apply my learning to contextual problems.

You can use the same cuboid objects that you found in task 1 (or you can find some new objects) for this task.

Using the same method, calculate the volume of the objects. Draw your examples in your book.

For example:

*A cereal box has a height of 20 cm, a length of 10 cm and a width of 3 cm. What is its volume?*

So, the volume of the cereal box would be:

$10 \times 3 \times 20 = 600$ cm$^3$

https://www.youtube.com/watch?v=heQeivFiY1A
| **5th Task** | I can apply my knowledge to problem solve.  
https://nrich.maths.org/cuboidchallenge  
Take a square sheet of paper 20cm by 20cm, cut identical squares from each corner, and fold up the flaps to make a box (without a lid).  
![Diagram of the box](image)  
What is the volume of your box?  
What different volumes can you make by varying the size of the squares you cut out?  
**What is the maximum possible volume of this type of box that can be made from a 20cm by 20cm square of paper?**  
Now try starting with different sized square sheets of paper.  
Can you find a relationship between the size of paper and the size of the square cut-out that produces the maximum volume? |
| **Extra Challenge:** | Dòng nào jin:  
- ‘Danny has 24 m$^3$ of sand to fill a sandpit. He knows that the sandpit is 2 m deep. What might the width and the length of the sandpit be?’  
- ‘A swimming pool has 300 m$^3$ of water in it. What might the dimensions of the pool be?’ |
| **Fluency Work** | Login to TT Rock Stars (link below) and practise your multiplication and related division facts.  
Revise what multiples, factors and primes are:  
https://www.bbc.co.uk/bitesize/topics/zfq7hyc  
Have a go at the following game:  
https://nrich.maths.org/factorsandmultiples |
<table>
<thead>
<tr>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://www.bbc.co.uk/bitesize/subjects/zjxhfg8">https://www.bbc.co.uk/bitesize/subjects/zjxhfg8</a></td>
</tr>
<tr>
<td><a href="https://www.mathsisfun.com/numbers/index.html">https://www.mathsisfun.com/numbers/index.html</a></td>
</tr>
<tr>
<td><a href="https://ttrockstars.com/">https://ttrockstars.com/</a></td>
</tr>
<tr>
<td><a href="https://www.bbc.co.uk/bitesize/topics/zjbg87h">https://www.bbc.co.uk/bitesize/topics/zjbg87h</a></td>
</tr>
</tbody>
</table>