

This is a resource for LBS facilitators who have learners using the CLO resource “Masonry Math 1: Measurements and Calculations.”

Note: For several activities in this resource, learners are told they can use a calculator if they wish. **Before assigning this activity to a learner**, facilitators should confirm that calculators or digital devices with calculator functionality are available.

Answer Key

On Page 4, learners are asked to answer several questions about International System of Units (SI) prefixes. The correct answers are in bold below.

How would you write the symbol for milligram? **mg**

What is the prefix name and symbol for 10 units? Name: **deca** Symbol: **da**

Two of these prefixes use the letter “m” as a symbol. The prefix with the upper-case symbol is: **mega** The prefix with the lower-case symbol is: **milli**

What is the smallest prefix on the chart called? **micro**

What does it represent? **A millionth of a unit**

On Page 6, learners are asked to complete the following conversions. The correct answers are in bold below.

Convert 7.5 hectograms (hg) to decagrams (dag): **75 dag**

Convert 74.32 decimetres (dm) to centimetres (cm): **743.2 cm**

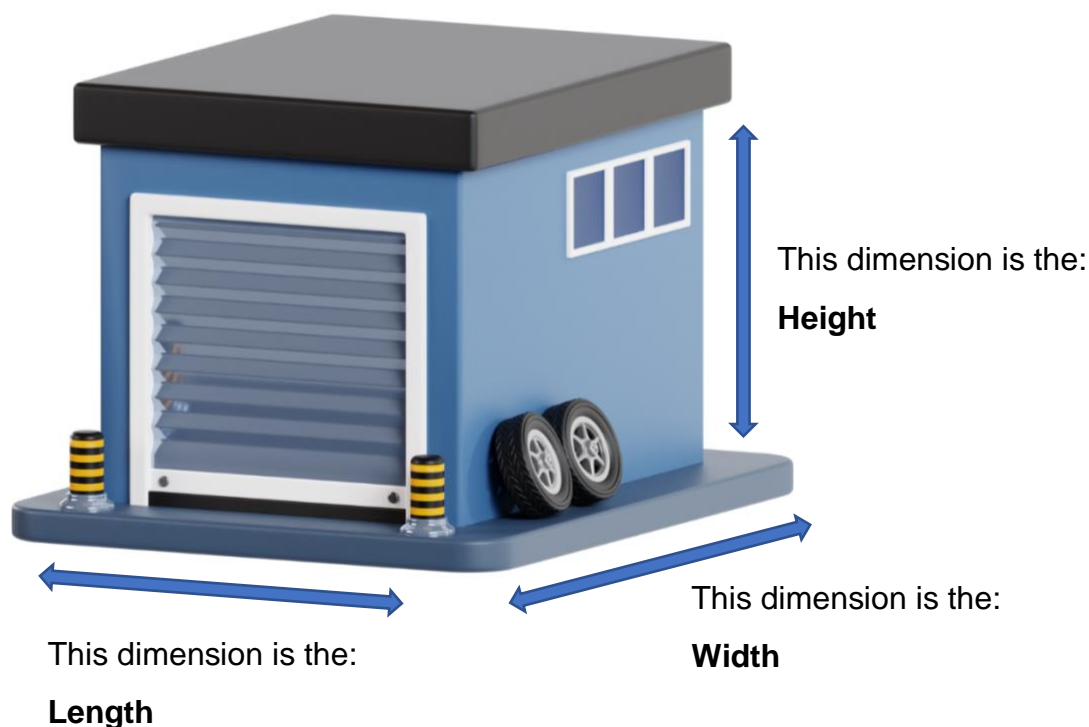
Convert 65,922 metres (m) to kilometres (km): **65.922 km**

Convert 14 milligrams (mg) to micrograms (μ): **14,000 μ**

On Page 7, learners are asked to compare different dimensions of bricks. The correct answers are shown below.

1. Circle which brick is wider: The King **The CSR**
2. How many millimetres wider is it? **10 mm**
3. Circle which brick is higher: **The Titan** The Modular
4. How many millimetres higher is it? **6 mm**
5. Circle which brick is longer: The Norman **The Giant?**
6. How many millimetres longer is it? **100 mm**

On Page 8, learners are asked to label the picture of the garage below with which dimension is its width, height, and length. The correct answers are shown below.



On Page 11, learners are asked to calculate the perimeter of the following structures. The correct answers are shown below.



Structure 1: A square building. Each of the four sides is 18 metres.

$$\begin{array}{ccccccc}
 18 & + & 18 & + & 18 & + & 18 & = & 72 \\
 \text{Side 1} & & \text{Side 2} & & \text{Side 3} & & \text{Side 4} & & \text{Perimeter}
 \end{array}$$

Facilitator note: which dimensions are on which side of the structure is not identified for the remaining activities. Learners can write the dimensions in any spot, as long as they find the correct perimeter.



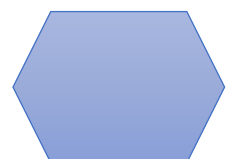
Structure 2: A rectangular building. Two of the sides are 6.5 metres, and the other two are 8 metres.

$$\begin{array}{ccccccc}
 6.5 & + & 8 & + & 6.5 & + & 8 & = & 29 \text{ metres} \\
 \text{Side 1} & & \text{Side 2} & & \text{Side 3} & & \text{Side 4} & & \text{Perimeter}
 \end{array}$$



Structure 3: A trapezoid-shaped building. Two of the sides are 11 metres, one side is 7 metres, and the other side is 3.5 metres.

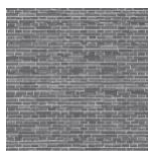
$$\begin{array}{ccccccc}
 11 & + & 7 & + & 11 & + & 3.5 & = & 32.5 \text{ metres} \\
 \text{Side 1} & & \text{Side 2} & & \text{Side 3} & & \text{Side 4} & & \text{Perimeter}
 \end{array}$$



Structure 4: A six-sided building. It has two sides that each measure 28 metres, and four sides that each measure 10 metres. The shape of this structure is called an irregular **hexagon**.

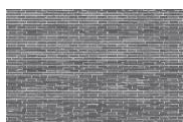
$$\begin{array}{ccccccc}
 28 & + & 10 & + & 10 & + & 28 & + & 10 & + & 10 & = & 96 \\
 \text{Side 1} & & \text{Side 2} & & \text{Side 3} & & \text{Side 4} & & \text{Side 5} & & \text{Side 6} & & \text{Perimeter}
 \end{array}$$

On Pages 14 and 15, learners are asked to calculate the area of the following walls. The correct answers are shown below.



Wall 1: A square wall that is 3 metres (m) long and 3 metres (m) high.

$$\begin{array}{ccccccc} 3 & & \times & & 3 & & = & & 9 \text{ m}^2 \\ \text{Length of the wall} & & & & \text{Height of the wall} & & & & \text{Area of the wall} \end{array}$$



Wall 2: A **rectangular** wall. It is 6.5 metres (m) long, and 2.5 metres (m) high.

$$\begin{array}{ccccccc} 6.5 & & \times & & 2.5 & & = & & 16.25 \text{ m}^2 \\ \text{Length of the wall} & & & & \text{Height of the wall} & & & & \text{Area of the wall} \end{array}$$



Wall 3: A **square** wall that is 3.5 metres (m) long and 3.5 metres (m) high. In that wall is a **door** measuring 1 metre (m) long and 2 metres (m) high. There is also a **window** measuring 0.75 metres (m) long and 1 metre (m) high.

First, calculate the overall area of the wall.

$$\begin{array}{ccccccc} 3.5 \text{ m} & & \times & & 3.5 \text{ m} & & = & & 12.25 \text{ m}^2 \\ \text{Length of the wall} & & & & \text{Height of the wall} & & & & \text{Overall area of the wall} \end{array}$$

Then find the area of the 1 metre (m) long and 2 metre (m) high door.

$$\begin{array}{ccccccc} 1 \text{ m} & & \times & & 2 \text{ m} & & = & & 2 \text{ m}^2 \\ \text{Length of the door} & & & & \text{Height of the door} & & & & \text{Area of the door} \end{array}$$

Now find the area of the 0.75 metre (m) wide and 1 metre (m) high window.

$$\begin{array}{ccccccc} 0.75 \text{ m} & & \times & & 1 \text{ m} & & = & & 0.75 \text{ m}^2 \\ \text{Length of the window} & & & & \text{Height of the window} & & & & \text{Area of the window} \end{array}$$

Finally, calculate the actual area of the wall.

$$\begin{array}{ccccccc} 12.25 \text{ m}^2 & & - & & 2 \text{ m}^2 & & - & & 0.75 \text{ m}^2 & & = & & 9.5 \text{ m}^2 \\ \text{Overall area of the wall} & & & & \text{Area of the door} & & & & \text{Area of the window} & & & & \text{Actual area of the wall} \end{array}$$

On Page 17, learners are asked to answer the following questions about right angles. The correct answers are shown below.

1. How is a right angle written in degrees? **90°**
2. Can the 3-4-5 method be used with any unit of measurement? **Yes**
3. What is the name of the units of measurement most often used in Canadian masonry? **The International System of Units (SI)**
4. The 3-4-5 method has another name based on the person who discovered it. What is the other name? **The Pythagorean theorem**