

GRADE 4 MODULE 2

Unit Conversions and Problem solving with Metric Measurement

Topic A: Metric Unit Conversions

Addition and subtraction single-step problems of metric units provide an opportunity to practice simplifying strategies as well as solve using the addition and subtraction algorithm. Students practice reasoning by choosing to convert mixed units to a single unit before or after the computation

$$2 \text{ km } 608 \text{ m} + 3 \text{ km } 412 \text{ m}$$

Algorithms:

$$\begin{array}{r} 2 \text{ km } 608 \text{ m} \\ + 3 \text{ km } 412 \text{ m} \\ \hline 5 \text{ km } 1020 \text{ m} \\ \quad \quad \quad \uparrow \\ \quad \quad \quad 1 \text{ km } 20 \text{ m} \\ 6 \text{ km } 20 \text{ m} = 6020 \text{ m} \end{array}$$

or

$$\begin{array}{r} 2,608 \text{ m} \\ + 3,412 \text{ m} \\ \hline 6,020 \text{ m} = 6 \text{ km } 20 \text{ m} \end{array}$$

Simplifying Strategies:

$$\begin{array}{l} 2 \text{ km} + 3 \text{ km} = 5 \text{ km} \\ 608 \text{ m} + 412 \text{ m} = 600 \text{ m} + 420 \text{ m} \\ \quad \quad \quad \uparrow \\ \quad \quad \quad 600 \quad 8 \\ \quad \quad \quad \quad \quad = 1020 \text{ m} \\ 5 \text{ km} + 1 \text{ km } 20 \text{ m} = 6 \text{ km } 20 \text{ m} \end{array}$$

or

$$\begin{array}{l} 2,608 \text{ m} + 3,412 \text{ m} \\ \quad \quad \quad \uparrow \quad \quad \quad \uparrow \\ \quad \quad \quad 2,000 \quad 600 \quad 8 \quad \quad 3,000 \quad 400 \quad 12 \\ 5,000 + 1,000 + 20 = 6,020 \text{ m} \end{array}$$

Know that:

1. 1 meter = 100 centimeters
2. 1 kilometer = 1,000 meters
3. 1 kilogram = 1,000 grams
4. 1 liter = 1,000 milliliters

Topic B: Application of Metric Unit Conversions