Lesson: **3**-**1**

Concept/Topic: **Temperature Conversions**

**General Outcome(s):** Develop spatial sense through direct and indirect measurement.

**Specific Outcome(s):** Measurement #2 – Demonstrate an understanding of the Imperial system by describing the relationship between Temperature in Celsius and Fahrenheit.

**Required Materials:** Access to smart board, Foldable Handouts, Scissors, Student Handout *Activity 4.1 Prepare a Temperature Graph*

**Corresponding Text:** *Lesson 4.1 Temperature Conversions* Page 138 – 145

**Procedures**

1. Introduce the new unit by having students assemble the new unit foldable.
2. Handout *Activity 4.1* ***Prepare a Temperature Graph****.*Have class work through the activity as a whole. Below are a list of teacher notes for guiding the activity.

*Step 1* 🡪 Instruct students to use a ruler to construct the line of best fit.

*Step 2* 🡪 The relationship between the two temperature scales is positive & consistent, meaning that as you increase temperature in Celsius, it also increases in Fahrenheit.

*Step 3* 🡪 Solutions are .

*Step 4* 🡪 Every  increase matches a  increase.

*Step 5* 🡪 Find the temperature in  on the right axis, then find the value in  that corresponds to it.

*Step 6* 🡪 About .

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1. Have students fill in the formulae for temperature conversions in their unit foldable:

|  |  |
| --- | --- |
| **Converting****Celsius to****Fahrenheit** | **Converting****Fahrenheit****to Celsius** |
|  |  |

1. Using the examples on the smart board, have students complete the examples in their foldable. Emphasize to students that when they substitute into the formula, they should include brackets around the value they substituted to keep the order of operations right.

E.g. Convert  to Fahrenheit E.g. Convert  to Fahrenheit

  

E.g. Convert  to Celsius E.g. Convert  to Celsius

  

1. Assign *Drill & Practice I –* *Temperature Conversions*.
2. Assign: *Math Works 10* *Build Your Skills* Page 143 #1–4.

**** Name:**



Lesson: **3-2 Imperial Weight**

Concept/Topic: **Mass in the Imperial System**

**General Outcome(s):** Develop spatial sense through direct and indirect measurement.

**Specific Outcome(s):** Measurement #2 – Demonstrate an understanding of the Imperial and SI systems by describing the relationship between mass and weight.

**Required Materials:** Access to smart board

**Corresponding Text:** *Lesson 4.2 Mass in the Imperial System* Page 146 – 153

**Procedures**

1. Put up the question *Math on the Job* on page 146 of the text on the smart board. Ask your students to determine how much each package of cat food should be sold for in their partners. Once students have conferred with a partner have them combine their discussion in a group of 4 and ask them to select one person to explain their method to their class.

***Possible Solution****:*

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 *They could make 384 bags and sell them for $3.28 per bag.*

1. Have students copy the definitions for mass and weight into their unit foldable (page 146 in the text) on the back side.
2. Have students read the least 3 paragraphs with you on page 147. Have them complete the table in their foldable on Imperial Units of Weight.

|  |
| --- |
| **Imperial Units of Weight** |
| **Referent** | **Unit** | **Conversion** |
| Slice of Bread | Ounce (*oz*) | 1 *lb* = 16 *oz* |
| Football | Pound (*lb*) |
| 1 *tn* = 2000 *lb* |
| Bison | Ton (*tn*) |

1. Using the following 4 examples on the smart board have students complete their foldable:

Choose the best Imperial Unit to measure the weight of each of the following:

 E.g. A bag of potatoes E.g. A baby

*Pounds Pounds & Ounces*

E.g. A load of gravel E.g. A ring

 *Tons Ounces*

1. Complete *Drill & Practice II – Choosing an Imperial Unit of Weight.*
2. Using the next two examples on the smart board, have students compete their foldable:

E.g. Convert 4250 *lb* to short tons E.g. Convert 7.2*lb* to the nearest ounce

* *

1. Complete *Drill & Practice III – Imperial Weight Conversions.*
2. Assign *Math Works 10 Build Your Skills* Page 151 # 1–4.

Lesson: **3-3 SI Mass**

Concept/Topic: **Mass in the Système International**

**General Outcome(s):** Develop spatial sense through direct and indirect measurement.

**Specific Outcome(s):** Measurement #2 – Demonstrate an understanding of the Imperial and SI systems by describing the relationship between mass and weight.

**Required Materials:** Access to smart board

**Corresponding Text:** *Lesson 4.3 Mass in the Système International* Page 154 – 161

**Procedures**

1. Put up the question *Math on the Job* on page 154 of the text on the smart board. Ask your students to determine how much of the drug should be administered when the patient has a mass of 70 *kg* in partners. After students have conferred with a partner have them combine their discussion in a group of 4 and ask them to select one person to explain their method to their class.

***Possible Solution****:*

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*They should give him between 0.7 and 2.1 mg.*

1. Have students complete the following table in their foldable:

|  |
| --- |
| **Mass Conversions in SI System** |
| **Referent** | **Unit** | **Conversion** |
| Too small to feel | Milligram (*mg*) |  |
| ¼ of a sugar cube | Gram (*g*) |
|  |
| Baseball bat | Kilogram (*kg*) |
|  |
| Giraffe | Tonne (*t*) |
| *Note: The metric unit 1 tonne (t) is not the same in weight as the Imperial Unit 1 Ton (t).* |

1. Use the *Discuss the Ideas* on page 156 to have a classroom discussion. Have students devise a solution together in partners then go over a few student solutions with the class:



***Possible Solution****:*

 * *

1. Using the following 4 examples on the smart board have students complete their foldable:

Choose the best SI Unit to measure the mass of each of the following:

 E.g. A bag of apples E.g. Medicine in a pill

*Kilograms Milligrams*

E.g. A Honda Civic E.g. Sugar in a can of pop

 *Tonnes Grams*

1. Complete *Drill & Practice IV – Choosing an SI Unit of Mass.*
2. Using the next two examples on the smart board, have students complete their foldable:

E.g. Convert 3450 *g* to kilograms E.g. Convert 2.3*kg* to milligrams

* *

1. Complete *Drill & Practice V – SI Mass Conversions.*
2. Assign *Math Works 10 Build Your Skills* Page 158 # 1–5.

Lesson: **3-4 Making Conversions**

Concept/Topic: **Converting Between Mass and Weight in SI & Imperial Systems**

**General Outcome(s):** Develop spatial sense through direct and indirect measurement.

**Specific Outcome(s):** Measurement #2 – Demonstrate an understanding of the Imperial and SI systems by describing the relationship between mass and weight.

**Required Materials:** Access to smart board

**Corresponding Text:** *Lesson 4.4 Making Conversions* Page 162 – 171

**Procedures**

1. Put up the question *Math on the Job* on page 162 of the text on the smart board. Ask your students to determine how much Jim must pay for his rolled barley in partners. After students have conferred with a partner have them combine their discussion in a group of 4 and ask them to select one person to explain their method to their class.

***Possible Solution****:*

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*Jim’s total bill will come to $1151.77.*

1. Have students complete the following table in their foldable:

|  |
| --- |
| **Converting Mass to Weight** |
| **Unit** | **Conversion** |
| *Gram (g)* | 1 *g* = 28.4 *oz* |
| *Kilogram (kg)* | 1 *kg* = 2.2 *lb* |
| *Tonne (t)* | 1. *t* = 1.1 *tn*
 |

1. Using the 4 following examples, have students complete their unit foldable.

E.g. Convert 325 *g* to ounces E.g. Convert 5.4 *t* to the nearest tonne

 

E.g. Convert 4250 *lb* to tonnes E.g. Convert 23 750 *mg* to ounces  

1. Assign Drill & Practice VI – Mass/Weight Conversions
2. Using example 1 on page 163 of the textbook (on the smart board), have students complete the example in their foldable (on the back side).

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***Possible Solution*** *(from text) on next page.*

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1. Assign *Math Works 10 Build Your Skills Page 165 #1–7*
2. Assign *Math Works 10 Practise Your New Skills Page 169 #1–9*