First Name:_____ Grade:_____

Your Teachers: Mr. Meal, Mr. Richard, Mr. Saltus

Lesson #1- Measurement and Technical Sketching

While you are waiting to get started, use the space below to sketch something from the room around you. It could be your desk, your chair, a trophy, or anything else that you want to draw. This is a good warmup for our lesson today. While you are drawing this, consider the following…

- How do I draw a big object on a small piece of paper?
- How do I make my drawing 3D?
- What details are most important?

Draw as much as you can, and remember… HAVE FUN!

Measurement

Using both the metric and the Imperial sides of the ruler, measure the following pencils and write down their size in the first table below. Then, in the second table, measure the listed items that were included in the drawing kit that we sent you, and write the measurements in there also.

Pencil Measurement	Imperial Measurement	Metric Measurement
Pencil 1	_____ Inches	_____ mm
Pencil 2	_____ Inches	_____ mm
Pencil 3	_____ Inches	_____ mm
Pencil 4	_____ Inches	_____ mm
Pencil 5	_____ Inches	_____ mm

Drawing Kit Measurements		
Object	Imperial Measurement	Metric Measurement
45° Triangle	_____ Inches	_____ mm
30°, 60°, 90° Triangle	_____ Inches	_____ mm
Pencil	_____ Inches	_____ mm
Ruler	_____ Inches	_____ mm
Drawing Board	_____ Inches	_____ mm
This Page	_____ Inches	_____ mm

Can these measurements be simplified?

What would you simplify them to? Pick 2 examples:

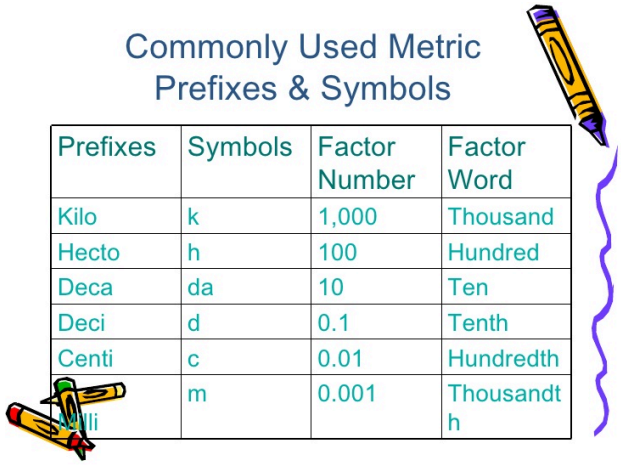
Object	Imperial Measurement	Metric Measurement
Example 1:	_____ _____	_____ _____
Example 2:	_____ _____	_____ _____

Why is it important to simplify measurements?

Which is easier to use, Imperial or Metric measurements?

Conversions

- If a prefix is added, it makes the unit larger or smaller respectively.
- 1,000 meters becomes 1 Kilometer
- 1/100 of a meter becomes a Centimeter (.01 of a meter)
- 1/1000 of a meter becomes a Millimeter (.001 of a meter)



Commonly Used Metric Prefixes & Symbols

Prefixes	Symbols	Factor Number	Factor Word
Kilo	k	1,000	Thousand
Hecto	h	100	Hundred
Deca	da	10	Ten
Deci	d	0.1	Tenth
Centi	c	0.01	Hundredth
Milli	m	0.001	Thousandth

Original	Convert to	Converted Number with Units
.65 m	Centimeters (cm)	
7 cm	Millimeters (mm)	
1000 mm	Meters (m)	
17 mm	Centimeters (cm)	
150 cm	Meters (m)	
Add your own _____	_____	

Technical Sketching

In the box below, draw a rectangle to any length using Inches, how large is the rectangle in millimeters? Measure the length and width.

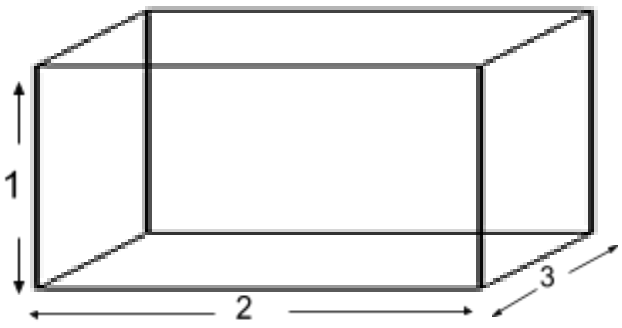
Rectangle Width in Inches: _____ Rectangle Width in Millimeters:_____

Rectangle Length in Inches: _____ Rectangle Length in Millimeters: _____

What planes (Length, Width, Height) are you using in this drawing?

What axes (X,Y,Z) are you using?

Identify length, width, and height of the below objects.



	Object 1	Object 2
1)	_____	_____
2)	_____	_____
3)	_____	_____

Now that you have done a 2-D drawing, and you understand length, width, and height, try to turn that drawing into a 3-D Shape. Make a cube using the last drawing as the front face, then add some depth to it. Try two different techniques, Orthographic and Isometric drawings, to make the shape 3-D. Use your title block sheets for both of these drawings.

Which of these two techniques makes a more accurate drawing? Which is this the one that looks more exact?

References