

Name: _____

Start date: _____

Hand in date: _____

Mark: _____


Math 8 K&E

Measurement -

Metric and Imperial

Measurement

Metric and Imperial Systems

Unit: Metric and Imperial Systems	I Can	Do 
1. The Metric System	I can convert metric units.	Practice: pp. 159–160 pp. 162–167
2. Imperial System	I can identify measurements in the imperial system.	n/a
3. Converting Metric Linear Units	I can convert metric units from smaller to bigger and bigger to smaller. (KHDUDCM)	Practice: pp. 159–160 pp. 162–167
4. Moving the Decimal to Convert Metric Linear Units	I can move the decimal to convert metric measurements from largest to smallest and from smallest to largest.	Practice: pp. 159–160 pp. 162–167
5. Converting Metric to Imperial	I can convert metric measurements to imperial measurements.	Practice: p. 169

NOTES:

Metric units are very simple and are always multiples of 10 from larger or smaller units.

Metric Prefixes						
kilo	hecta	deca	Base Unit	deci	centi	milli
1000	100	10	1 metre gram litre	.1	.01	.001

On the following page are simple ways to remember metric conversions.

King Henry's Daughter Ursula Died Chasing Men
 Kilo Hecta Deca Metre Deci Centi Milli
 Gram
 Litre

When you know the sentence and what you want to convert, you can use the sentence to figure out how many places to move the decimal.

If we were going to change 2.5 km to cm, then we would start at kilo and count to cm.

King Henry's Daughter Ursula Died Chasing Men



$$2.5 \text{ km} = 250000 \text{ cm}$$



If we were going to change 250 mL to L, then we would start at mL and count to L.

Grade 8 Math / Measurement / Metric and Imperial Systems

King Henry's Daughter Ursula Died Chasing Men



$$250 \text{ mL} = .25 \text{ L}$$





Practice: Metric Prefixes 1 of 2

Remember: King Henry's Daughter Ursula Died Chasing Men

- 1000 millimetres (mm) = 1 metre (m)
- 100 centimetres (cm) = 1 metre (m)
- 10 decimetres (dm) = 1 metre (m)
- 10 metres (m) = 1 decametre (dam)
- 100 metres (m) = 1 hectometre (hm)
- 1000 metres (m) = 1 kilometre (km)

Metric Prefixes						
kilometre	hectametre	decametre	Base Unit	decimetre	centimetre	millimetre
1000	100	10	1 metre gram litre	.1	.01	.001

Change units from smaller to larger.

1. 34 cm = _____ dm
2. 9 m = _____ dam
3. 35 hm = _____ km
4. 5000 mm = _____ m
5. 56 dm = _____ hm



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Practice: Metric Prefixes 2 of 2

Change units from larger to smaller.

1. 7 km = _____ cm

2. 21 dam = _____ mm

3. 13 hm = _____ dm

4. 40 m = _____ cm

5. 50 dm = _____ mm

Change units from smaller to larger and larger to smaller.

1. 6 m = _____ dm

2. 70 cm = _____ m

3. 12 mm = _____ hm

4. 25 km = _____ m

5. 60 dm = _____ dam

NOTES:

The metric system can also be used to measure mass and capacity.

Mass Base unit: gram or g

Example: Think cooking, how do you measure sugar?

Capacity Base unit: litre or L

Example: Milk, how do you buy milk?

Remember: King Henry's Daughter Ursula Died Chasing Men

Measuring Capacity

Metric Prefixes						
kilolitre (kl)	hectolitre (hl)	decalitre (dal)	Base Unit	decilitre (dl)	centilitre (cl)	millilitre (ml)
1000	100	10	1 litre metre gram	.1	.01	.001



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Practice: Mass and Capacity

1 of 6

Change from smaller to larger.

1. 30 dL = _____ L
2. 24 cL = _____ hL
3. 16 mL = _____ daL
4. 7 daL = _____ kL
5. 3 hL = _____ kL

Change from larger to smaller.

1. 32 kL = _____ L
2. 5 daL = _____ cL
3. 9 L = _____ mL
4. 13 hL = _____ dL
5. 45 cL = _____ mL

Change from smaller to larger and larger to smaller.

1. 16 L = _____ kL
2. 367 mL = _____ L
3. 87 hL = _____ dL
4. 54 L = _____ cL
5. 32 daL = _____ dL

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Practice: Mass and Capacity

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Remember: King Henry's Daughter Ursula Died Chasing Men

Measuring Mass

Metric Prefixes						
kilograms (kg)	hectograms (hg)	decagrams (dag)	Base Unit	decigrams (dg)	centigrams (cg)	milligrams (mg)
1000	100	10	1 gram litre metre	.1	.01	.001

Change from smaller to larger.

- 33 dag = _____ g
- 21 cg = _____ hg
- 12 mg = _____ dag
- 6 dag = _____ kg
- 4 hg = _____ kg



Name: _____ Date: _____

Practice: Mass and Capacity

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Change from larger to smaller.

1. 31 kg = _____ g
2. 6 dag = _____ cg
3. 8 g = _____ mg
4. 12 hg = _____ dg
5. 43 cg = _____ mg

Change from smaller to larger and larger to smaller.

1. 13 g = _____ kg
2. 364 mg = _____ g
3. 88 hg = _____ dg
4. 51 g = _____ cg
5. 39 dag = _____ dg

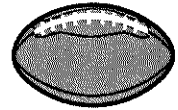
Name: _____ Date: _____



Practice: Mass and Capacity 4 of 6

Word Problems

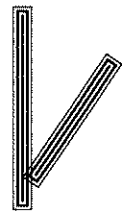
1. Jake threw a football 10 metres. His math teacher wanted to know how many centimetres he threw the football.



2. Alanah was so thirsty she drank 1 litre of orange juice. How many millilitres of juice did she drink?



3. Heather purchased 2 metres of licorice. How many decimetres of licorice did she buy?





Name: _____ Date: _____

Practice: Mass and Capacity

5 of 6

- Keegan and Rob are on a scavenger hunt. They both have to reach the park. Keegan is 3000 metres from the park and Rob is 4 kilometres from the park. Who is closer to the park?

- Measure your foot in centimetres and change your answer to millimetres.



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Practice: Mass and Capacity 6 of 6

Convert the following measurements.

Remember: King Henry's Daughter Ursula Died Chasing Men

1. 20 km = _____ cm

2. 65 cm = _____ m

3. 490 m = _____ km

4. 70 km = _____ m

5. 58 m = _____ cm

6. 7m = _____ mm

7. 15 mm = _____ cm

8. 2.4 m = _____ cm

9. 6.7 km = _____ cm

10. 4.28 cm = _____ mm

11. 53 000 000 cm = _____ km

12. 320 000 000 000 cm = _____ km

NOTES:

Metric Units vs. Imperial Units

Metric units are very simple and are always multiples of 10 from larger or smaller units. Imperial Units though are quite different.

12 inches	= 1 foot	= 25.4 mm
3 feet	= 1 yard = 36 inches	= 91.4 cm
1760 yards	= 1 mile = 5280 feet	= 1.609 km

16 ounces	= 1 pound	= 453.59 g
2240 pounds	= 1 long ton	= 1016 kg
2000 pounds	= 1 short ton	= 907.18 kg

32 degrees fahrenheit	= 0 degrees celsius
212 degrees fahrenheit	= 100 degrees celsius

The metric prefixes are used for all units in the metric system.

In the Imperial Units system, there are no prefixes and each unit has a different name. Very confusing! This is part of the reason why Canada switched to the metric system in the 1970's. In the world now, the United States of America is the only major country that still uses the imperial system of measurements.

In our science class, we will **ALWAYS** use metric units, and **NOT** the imperial units.

Name: _____ Date: _____



Practice: Metric vs. Imperial

1. Using a ruler, measure how long your pen or pencil is.

Inches _____

Centimetres _____



2. Using a ruler, measure how long your running shoe is.

Inches _____

Centimetres _____



3. Using a ruler, measure how long your wrist is to your elbow.

Inches _____

Centimetres _____

4. Using a ruler, measure how long your arm length is stretched out from pointer finger to pointer finger.

Inches _____

Centimetres _____

5. What have you noticed when comparing your measurements in inches to centimetres?
