

PRE-AP BIOLOGY SUMMER PACKET

CLASS PERIOD

1

****THIS IS PACKET IS DUE ON MONDAY 8/17! PLEASE DO NOT STAPLE THIS PACKET.**

Welcome to Pre-AP Biology! You have chosen a challenging but worthwhile Biology course. While this class will be enjoyable, please be aware that this class will require studying every day, homework, and numerous out of class assignments. You will be expected to study and be prepared for class (and possibly a quiz) every day. I am looking forward to meeting you, and I hope that you are ready for an exciting school year. ****YOU WILL NEED A ONE INCH, THREE RING BINDER AND 5 TAB DIVIDERS FOR CLASS. I WOULD RECOMMEND NOTEBOOK PAPER WITH REINFORCED HOLES.****

Mrs. Daugherty (email me at edaughe1@kahoks.org if you have questions about this packet)

Please fill out the following information:

Last Name _____ First _____ Middle _____

Address: _____

City, state, zip code: _____

Home phone #: _____

PARENT NAME	RELATIONSHIP TO STUDENT	WORK PHONE #	CELL PHONE #	EMAIL ADDRESS

What school did you attend for 8th grade? _____

What **science** course did you take in 8th grade? _____

What was the name of your 8th grade **science** teacher? _____

What was the grade that you received at the end of the year in your **science** class? _____

What **math** course did you take in 8th grade? _____

What was the name of your 8th grade **math** teacher? _____

What was the grade that you received at the end of the year in your **math** class? _____

RECORD YOUR ANSWERS FOR PAGES 13 & 15 BELOW PLEASE!

- | | |
|--------------------------|--------------|
| 1. Smaller/Larger, _____ | 21. _____ mm |
| 2. Smaller/Larger, _____ | 22. _____ cm |
| 3. Smaller/Larger, _____ | 23. _____ mm |
| 4. Smaller/Larger, _____ | 24. _____ mm |
| 5. _____ L | 25. _____ cm |
| 6. _____ g | 26. _____ mm |
| 7. _____ L | 27. _____ cm |
| 8. _____ m | 28. _____ mm |
| 9. _____ m | |
| 10. _____ μm | |
| 11. _____ cm | |
| 12. _____ p | |
| 13. _____ μl | |
| 14. _____ n | |
| 15. _____ mg | |
| 16. _____ mm | |
| 17. _____ cm | |
| 18. _____ kg | |
| 19. _____ hm | |
| 20. _____ km | |

Directions: Graph the data below. Read pages 1115-1118 in your text book when you are issued it during registration OR access the online text book using the directions below. These pages will help you to do the following graphing part of the packet. Make sure that you understand when to use which type of graph based on the data that you have (like bar, line, or pie chart).

TO ACCESS ONLINE TEXT BOOK:

1. Go to www.glencoe.com
2. Put in Illinois for state, student, and science and the subject and click enter.
3. Click on Biology.
4. Click on Glencoe Biology Illinois Edition 2007 (1st choice on list).
5. Click online student edition.
6. Click online student edition.
7. Enter in this user name and password:

User name: GLNBIOIL07

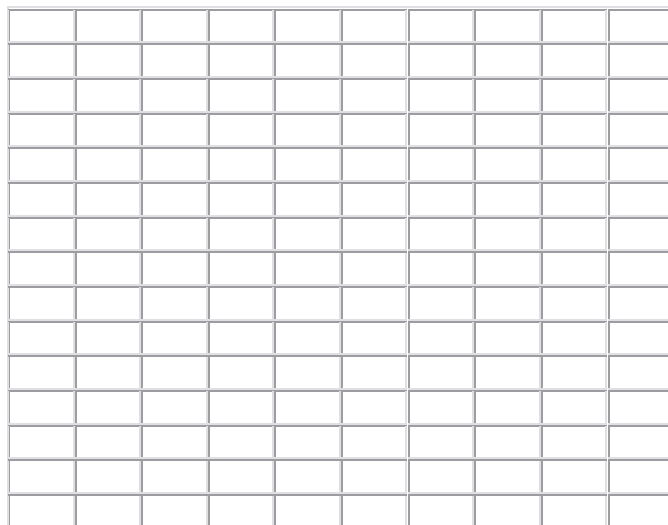
Password: 8lec4EbL

HOW TO CREATE A GOOD GRAPH (GRAPHING GUIDELINES):

1. Graphs need a title above the graph that summarizes the information that it is showing.
2. Both the X and Y axis need labeled (this means that you need to write what the numbers mean, for example: days, years, degrees Celcius, etc).
3. If you used any kind of symbol or colors then you have to include a key or legend to explain what they mean.
4. Your graph is designed to be visually pleasing and serve as a visual representation of numbers, so make it as large as possible (make it take up as much space as possible on the graph paper).
5. Again a graph is a visual representation of numbers so it needs to be very nice and neat (use rulers if need be).

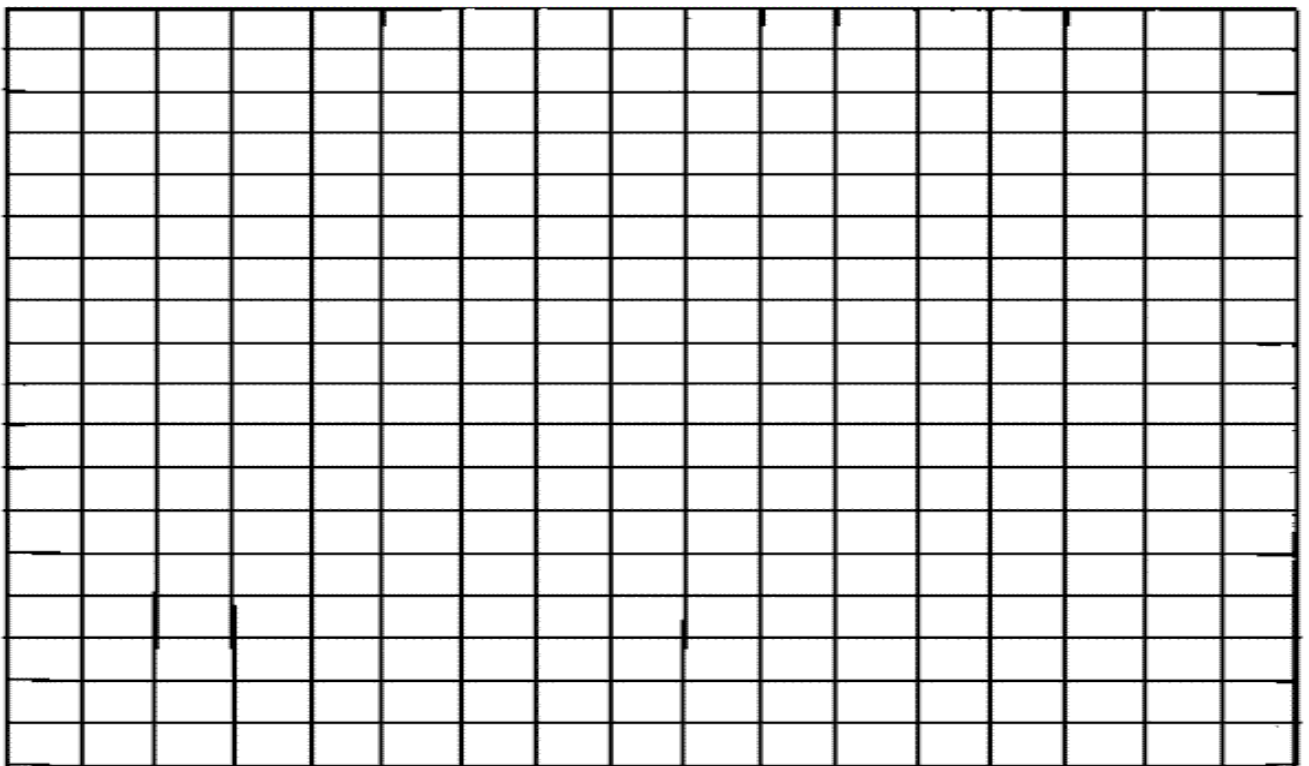
Make a **line graph** for the set of Rainforest data below. The data reflects the amount of rainfall during a 10 hour period. Follow the graphing guidelines discussed earlier.

Rainfall (ml)	Time (hr)
2	1
1	2
3	3
5	4
6	5
2	6
13	7
1	8
2	9
4	10



Make a **line graph** for the set of Rainforest data below. The data reflects temperature during a 10 hour period. Follow the graphing guidelines discussed earlier.

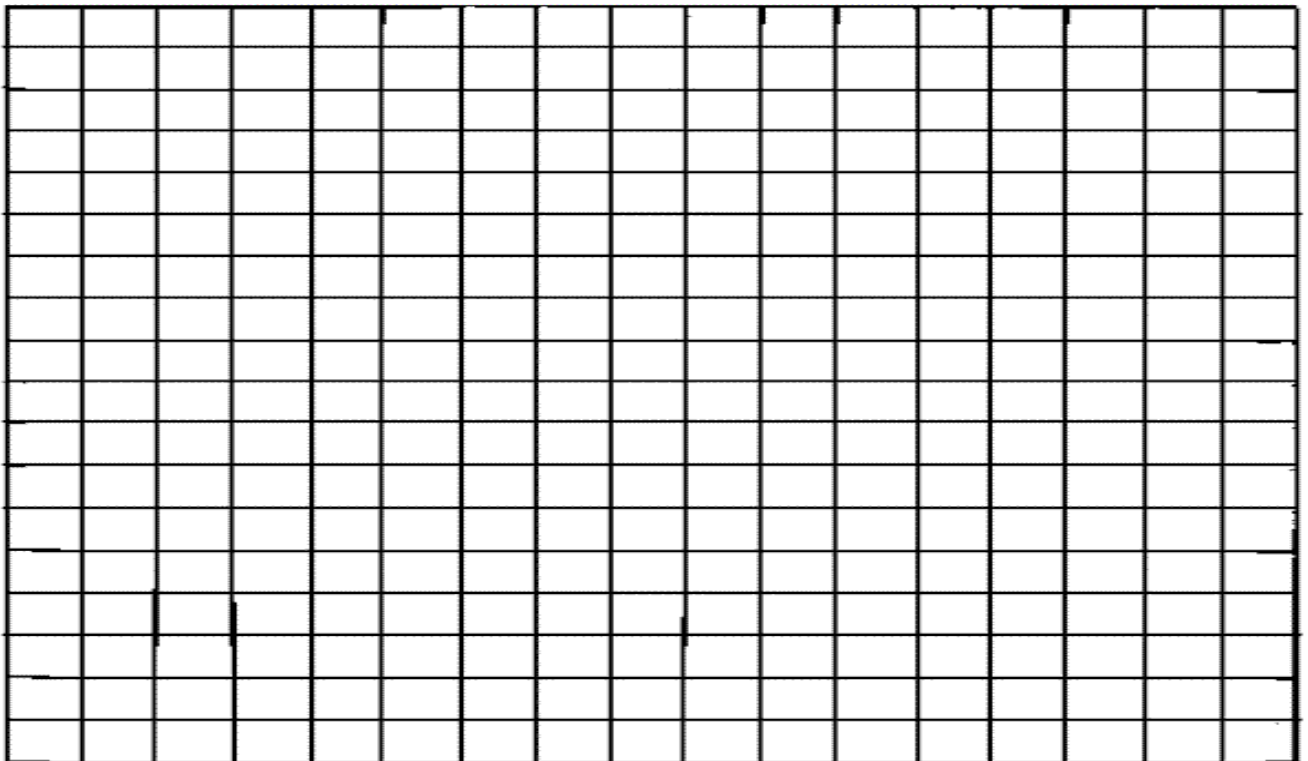
Temperature (F')	Time (hr)
64	1
66	2
71	3
73	4
74	5
78	6
82	7
79	8
71	9
68	10



Graph the data below. Make a double bar graph. Color code your bars and include a key for your graph. Be sure to follow the graphing guidelines discussed earlier.

Month	Mean Daily Max. Temp (°C)	Mean Daily Min. Temp (°C)
January	31.7	18.7
February	30.9	18.6
March	29.2	16.6
April	25.1	12.6
May	20.2	8.9
June	16.6	6.1
July	16.1	4.7
August	17.8	5.8
September	21.1	8.5
October	24.8	12.1
November	27.9	14.7
December	31.1	12.1

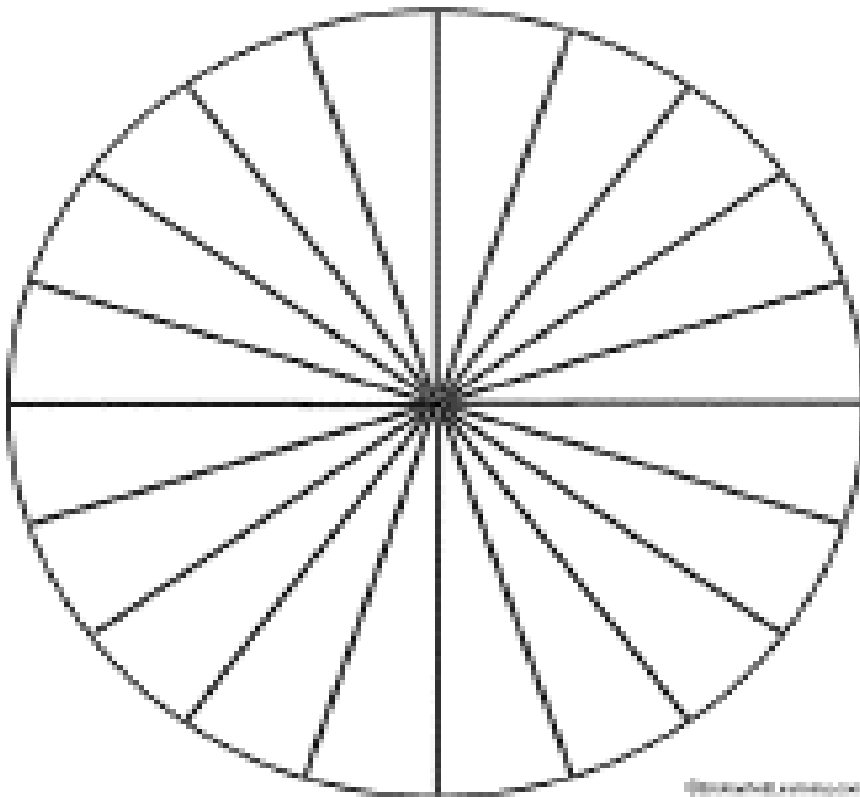
Key:



A pie chart is used to show data that are pieces of a whole. All of the data needs to equal (or add up to) a whole (if data is in %, then it should all = 100%). Make a pie chart of the energy data below. Color code your pie chart pieces and include a key for your chart. Write the % for each pie piece on it. Each piece of the circle below = 5%. Be sure to follow the graphing guidelines discussed earlier.

U.S. Energy use in 1996:

Petroleum	38%
Natural gas	24%
Renewable	8%
Nuclear	8%
Coal	22%



Key:

A large empty rectangular box with a black border, intended for students to create a key for their pie chart. The word "Key:" is written at the top left of the box.

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PRE-AP BIOLOGY OUTLINE OF CHAPTER ONE (NOTES)-
You must use your text book to do this assignment. If you have not picked up your book from registration, then you may access the online book using the directions provided on page 3 of this packet.
Fill in the outline below using your textbook.

Name _____ Period _____ Date _____

1.1 Introduction to Biology page 4

I. The Science of Life

A. The Science of life

1. What is biology?-

II. What do Biologists do?

A. Study the diversity of _____. Example:

B. Research _____. Example:

C. Example:

D. Example:

E. Example:

III. The Characteristics of Life

A. Made of one or more cells. Description:

B. Description:

C. Description:

D. Description:

E. Description:

F. Description:

G. Description:

H. Description:

1.2 The Nature of Science page 11

I. What is Science? Definition-

A. What do scientists do?

1. Relies on Evidence.

a. What is the difference between a scientific theory and the way people say theory in conversation?

2. Expands _____.

a. What is the difference between science and pseudoscience?

3. _____ Explanation:

4. _____ Explanation:

5. _____ Explanation:

6. _____ Explanation:

7. _____ Explanation:

II. Science in _____

A. Forensics-

B. Science literacy. What is ethics?

1. Issues that relate to Biology:

1.3 Methods of Science page 16

I. Scientific Method (what is it)?-

STEPS TO SCIENTIFIC METHOD IN BOLD AND UNDERLINED!

A. Ask a Question

1. What is the difference between observation and inference?

B. Form a hypothesis (define it)-

C. **Collect the Data** (Performing an experiment, but what is an experiment?)-

1. Controlled Experiments:

a. What is a control group?

b. What is the experimental group?

2. Experimental Design:

a. What is an independent variable?

b. What is the dependent variable?

c. What is a constant?

3. Data gathering (what is data)-

4. Investigations (describe):

D. Analyze the Data

1. How is data represented?

E. **Report Conclusions** (where do they do this and how)-

- F. Student Scientific inquiry (What are 4 questions should you ask yourself when you conduct an experiment?)
- 1.
 - 2.
 - 3.
 - 4.
1. Lab Safety (what is a safety symbol)-

THE METRIC SYSTEM

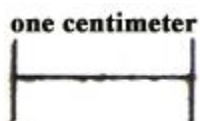
The **metric system** is the standard measurement system used in science and medicine. The following are the units of measurement used in the metric system:

Unit	Symbol	What it Measures
meter	m	length
gram	g	weight
liter	L	volume
Celsius	C	temperature

Metric Conversion

The metric system is favored in science and through much of the world because of the ease in which measurements can be converted. In the metric system, conversions between different orders of magnitude are based on powers of ten, so to convert you just need to move the decimal point (look at the metric ladder on the next page to see how this works).

Metric Conversions: A Visual Aid



Equals



Note:
millimeters are smaller than centimeters, but there are a larger number of millimeters in a given length.

When you convert from a larger size unit to a smaller size unit (say from cm to mm), the actual number you end up with is larger.
 (2 cm converts to 20 mm)

When you convert from a smaller size unit to a larger size unit (from mm to cm), the actual number you end up with is smaller.
(30 mm converts to 3 cm)

You need to remember this relationship (it's logical, but you may find you need to remind yourself of this often to avoid confusion!) as you convert between units.

There are two things you need to determine when converting:

1. The relationship between the units (which is a smaller unit, which is a larger unit)
2. The order of magnitude of the difference between the units (factor of 10, 100, 1000 etc)

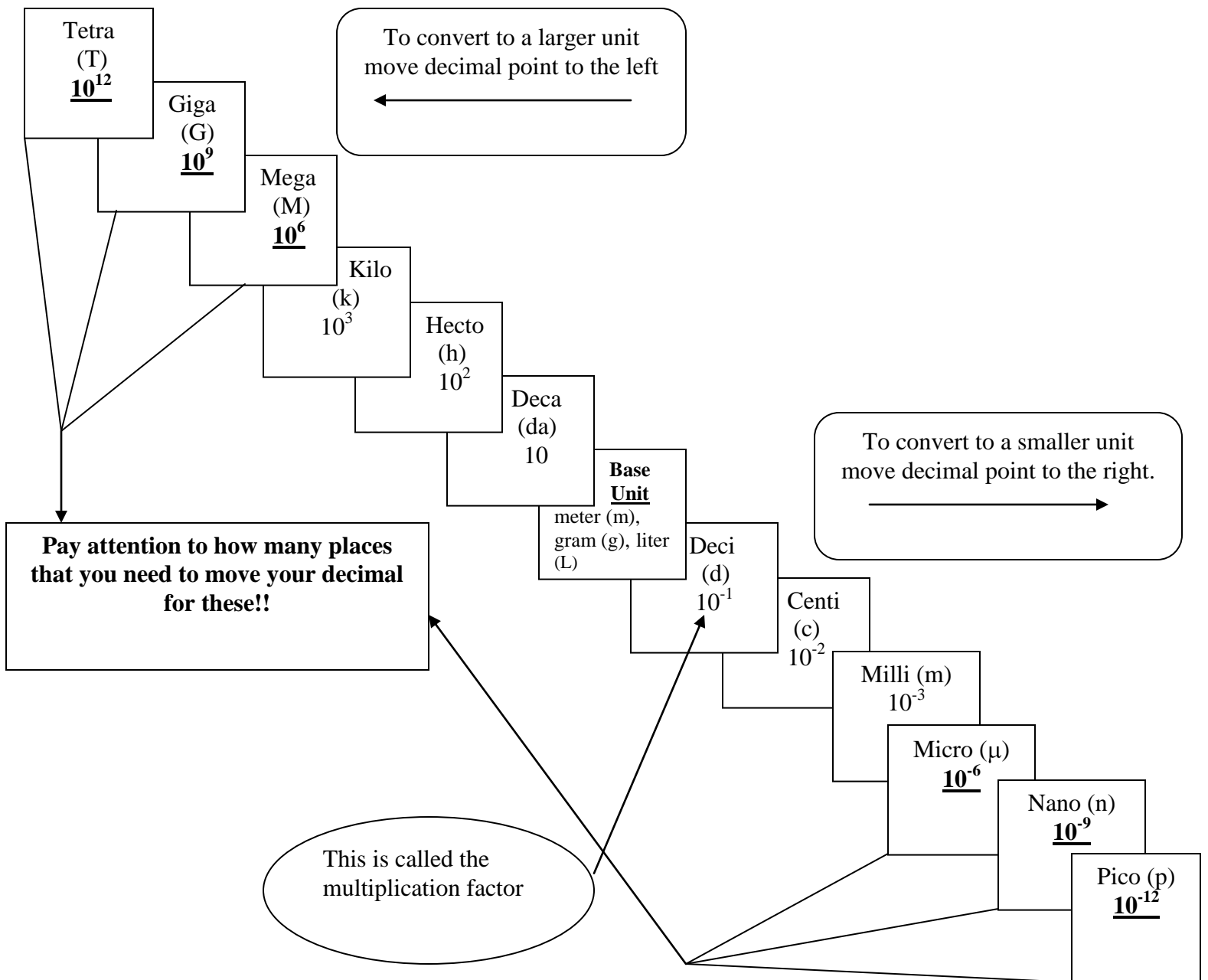
The mechanics of conversion:

- when converting from a larger size unit to a smaller size unit, move the decimal place to the right
- when converting from a smaller size unit to a larger size unit move the decimal place to the left
- for each factor of 10, the decimal moves one place

Some examples:

- a decimeter is larger than a centimeter by a factor of 10
So, to convert from decimeters to centimeters, you would move the decimal place ***to the right one place***
Example: 5.4 dm = 54 cm
- a millimeter is smaller than a meter by a factor of 1000 (10^3)
So, to convert from millimeters to meters, you would move the decimal place ***to the left three places***
Example: 3400 mm = 3.4 m
- a microliter is smaller than a liter by a factor of one million (10^6)
So, to convert from microliters to liters, you would move the decimal place ***to the left 6 places***

METRIC LADDER



RECORD YOUR ANSWERS TO THESE QUESTIONS ON THE ANSWER PAGE (PAGE 2 OF THE PACKET)

Use the metric system information on the previous pages to answer these questions (the metric ladder will be very helpful):

1. A deciliter is smaller/larger (circle one) than a milliliter by a factor of _____
2. A micrometer is smaller/larger (circle one) than a meter by a factor of _____
3. A nanometer is smaller/larger (circle one) than a millimeter by a factor of _____
4. A decigram is smaller/larger (circle one) than a microgram by a factor of _____
5. Convert 6.0 deciliters into liters = _____ L
6. Convert 0.8 kilograms into grams = _____ g
7. Convert 42.0 microliters into liters = _____ L
8. Convert 897.0 centimeters into meters = _____ m
9. Convert 5,684.0 millimeters into meters = _____ m
10. Convert 4 milliliters into microliters = _____ μm
11. Convert 87 micrometers into centimeters = _____ cm
12. Convert 206 nanograms into picograms = _____ p
13. Convert 4.5 centiliters into microliters = _____ μl
14. Convert 34,567 millimeters into nanometers = _____ n
15. Convert 3.09 micrograms into milligrams = _____ mg
16. Convert 18.235 centimeters into millimeters = _____ mm
17. Convert 232 millimeters into centimeters = _____ cm
18. Convert 34692 grams into kilograms = _____ kg
19. Convert 34.662 decameters into hectometers = _____ hm
20. Convert 7825.22 meters into kilometers = _____ km

HOW TO USE A RULER

Metric Rulers

Metric rulers are fairly easy to read. They deal with centimeters and millimeters only. You won't have to worry much about fractions.

Take a look at the following Metric Ruler (not drawn to scale).

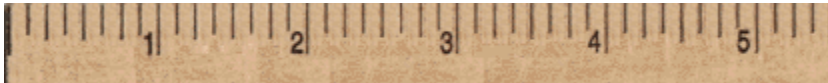


The larger lines with numbers are centimeters, and the smallest lines are millimeters. Since millimeters are $1/10$ th of a centimeter, if you measure 7 marks after a centimeter, it is 1.7 centimeters long.

English Rulers

English rulers, are much more difficult to read. This is mostly because they deal with fractions, which are a bit more difficult to learn.

Take a look at the following English Rulers.



A ruler marked in 8ths. Every mark is $1/8$ th of an inch.



A ruler marked in 16ths. Every mark is $1/16$ th of an inch.

***WE WILL ALWAYS MEASURE IN METRIC UNITS! ALWAYS MAKE SURE THAT WHEN YOU USE A RULER YOU ARE LOOKING AT THE METRIC SIDE (SOME RULERS CONTAIN ONE SIDE THAT IS METRIC AND ONE THAT IS ENGLISH).**

Measure the following objects below in the unit asked for using a metric ruler:

***If you do not have a metric ruler at home you may print one and cut it out to use. Go to:*

http://www.vendian.org/mncharity/dir3/paper_rulers/

Print the first one foot ruler. Cut out the ruler and be sure to measure with the cm side. Remember that there are 10mm in each cm (the small lines in between the cm are mm).

21. What is the length of A in mm?
22. What is the length of B in cm?
23. What is the length of C in mm?
24. What is the length of D in mm?
25. What is the length of E in cm?
26. What is the length of F in mm?
27. What is the length of G in cm?
28. What is the length of H in mm?

**** WRITE YOUR
ANSWERS ON
THE ANSWER
PAGE 2 OF THIS
PACKET PLEASE!**

