



Thomas A. Edison Career & Technical Education High School

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Math & Science

10th grade SCIENCE SUMMER ASSIGNMENT

Name _____

SUMMER READING PROJECT- SCIENCE

Due date: Your Science teacher will be asking for your project during the first week of school in September 2016.

As part of your course work in Science next year, you will read a book on a scientist (or a group of scientists) whose work has had a major impact on the development and advancement of scientific knowledge. After you read the book, you will then write a paper summarizing the key points about the scientist you have selected. The paper will become part of your Science grade for the Fall 2016 term. Here are some guidelines to help you in preparing your paper:

- The paper should be 2-3 pages in length: typed, double-spaced
- The paper should emphasize the following:
 1. Background information on the scientist (biographical data)
 2. What inspired him/her to a career in science?
 3. What important questions were being pursued in their work?
 4. Describe their experiments and their work.
 5. What conclusions were reached?
 6. Why is (was) their work important?
 7. What further work needs to be done today in this area of science?

You must clearly indicate the title of the book and when it was written. Since different grades take different science courses, choose a scientist that is appropriate for the course you will take next school year (Starting September 2016):

- Grade 9 students- a biologist (for Living Environment)
- Grade 10 students- a chemist, physicist, or geologist
- Grade 11 students- a chemist, physicist, or geologist
- Grade 12 students- see your AP teacher if you will be taking AP Biology
a psychologist if you will be taking AP Psychology
see your AP teacher if you will be taking AP Physics
an environmental, forensics, or marine scientist if you will be taking Environmental, Forensics or Marine Science

Or, you may choose any scientist you find interesting. You can ask a librarian to assist you in finding the name of scientists, or you can search on the Internet. Your teacher will grade this project on how thoughtfully you answer the above seven questions.



HISTORY OF MEASUREMENT

Complete this part of assignment on this sheet in the blank spaces. You may use the Science-Metric/SI Reference table attached below. This work must be handed in along with your Summer Reading Project.

For millions of years, both humans and animals have had to compare the size of objects, locations, and distance in order to survive. It is hard wired into our DNA as a survival mechanism; it is something that is done instinctively, as with many animals. Likewise, measuring is an important component of every area of science; the key is to use the correct units to describe what you are measuring.

1. Think of any 5 objects, locations, or products found at home, outside, or in the classroom. Write them down in the first column. For each item you described, in the second column, write down what or units you think they are measured in.

<u>Name of Object, Products, or Places</u>	<u>They are measured using these units:</u>
a) _____	_____
b) _____	_____
c) _____	_____
d) _____	_____
e) _____	_____

2. An ancient method of determining length was using the human foot to measure with. What is the problem with using this method? _____

Another unit of measuring length that is often mentioned in ancient texts is the cubit. A cubit is the length from your elbow to the tip of your middle finger. What is the problem with using this method? _____

The old way to measure the weight or purity of gold was to see how many carrot seeds equaled its weight on a balance scale. What is the problem with using this method? _____

3. For most of our history we've used a complicated medieval system of measurements we inherited from England. The problem is that there are many different names for each thing you measure, and endless units of fractions. How many of you like to add, subtract, multiply, and divide different units of fractions? Thought so! Since 1789, almost every other country has begun using the Metric or SI system of measurement. There are no fractions, fewer names to know, and only zeros and decimals to calculate.

What measurement system do we use for our money? _____
 Which American leader helped create this system? _____
 Where did he get this idea from? _____

4. What kinds of **units** do we use to measure different kinds of objects or activities?
 a) size of a soda bottle _____ (in Metric or SI)
 b) size of your car engine _____ (in Metric or SI)
 c) road signs seen on the NYS Thruway north of Albany, indicating distance going to and from Canada _____ (in Metric or SI)
 d) how much you weigh? _____ (in Metric or SI)
 e) volume of milk in the container on your lunch tray _____ (in Metric or SI)
 f) how gasoline is sold in the USA _____ Is it in Metric/SI? _____

5. What would be 1 good reason for the USA to completely switch over to the Metric or SI system? _____

Science - Metric/SI Reference Table
A Quick Guide to the Units used in the Metric (or SI) System

***BASIC UNIT OF MASS (weight) is the:** **GRAM**
 ***BASIC UNIT OF LENGTH is the:** **METER**
 ***BASIC UNIT OF VOLUME (liquid) is the:** **LITER**

To measure large volumes of liquids, you use:	LITERS
This is used to on small containers of juices made overseas:	DECALITERS
To measure small precise volumes of liquids, you use:	MILLILITERS

To measure long distances, you use:	KILOMETERS
To measure large objects, you use:	METERS
To measure something precisely or small objects, you use:	CENTIMETERS
To measure really small things or very small objects, you use:	MILLIMETERS
To measure parts of cells and other microscopic objects, you use:	MICROMETERS

To measure the mass of large objects or quantities, you use:	KILOGRAMS
To measure the mass of small objects or quantities, you use:	GRAMS
To measure the mass of very small objects, or quantities, or with extreme precision such as medicines you use:	MILLIGRAMS
To measure the mass of microscopic quantities, you use:	MICROGRAMS

The prefix MEGA means:	1,000,000	of any unit you are using
The prefix KILO means:	1,000	“ “ “
The prefix DECA means:	1/10th	“ “ “
The prefix CENTI means:	1/100th	“ “ “
The prefix MILLI means:	1/1000th	“ “ “
The prefix MICRO means:	1/1,000,000th	“ “

***** REMEMBER: In the METRIC/SI system, you just count the zeros and move the decimal point back and forth when you are converting from one unit to another!**