WELCOME 9TH GRADE PHYSICAL SCIENCE STUDENTS!

Your success over the next four years of high school are extremely important and dependent upon YOU. There are multiple secrets to success and we hope to provide multiple helpful strategies, activities and options to assist incoming freshman at our academic institution. We encourage students and parents to become involved in our HCCA community. Please review the following information prior to Freshman Orientation in the Fall.

The Hapeville Charter Career Academy Science Department's mission is to mentor and assist students in developing 21st century skills throughout their high school experience including scientific literacy and college and career ready skills. All students are provided with a cutting edge, technology based and project based high quality science education that includes problem-solving, critical thinking, hands-on laboratory experiments, oral communication skills, written communication skills, collaboration, creativity and an encouraging learning environment. If you have questions during the summer months, please email the 9th Grade Physical Science teacher, Mr. Adams at Padams@hapevillecharter.org or the Science Department Chair, Ms. Pecot at mpecot@hapevillecharter.org

ACADEMIC COURSEWORK AND INFORMATION

All Academic Courses at HCCA will have summer packets and course information available for incoming freshman. Summer Packets and Reading Lists will be available in the front office. All coursework will be due the first week of school. Please contact the Department Chair for further details or information.

ENGLISH	Adrian Dunmeyer	**MATH**	Lark Bullock
adunmeyer@hapevillecharter.org		lbullock@hapevillecharter.org	
SCIENCE	Marcia Pecot	**SOCIAL STUDIES**	Dewayne Martin
mpecot@hapevillecharter.org		dmartin@hapevillecharter.org	

SUGGESTED SUPPLIES FOR ALL 9th GRADE COURSES

USB Drive	Composition Notebook	Blue/Black Ink Pens	No 2 Pencils
Color Pencils	Markers	Highlighters	Daily Agenda
Folder	1 – 3 inch Binder	Loose leaf Paper	Pencil Sharpener
Graph Paper	Scientific Calculator	A School Gmail Email address	FULL SCHOOL UNIFORM

SUMMER SCIENCE INFORMATION

All incoming students attending Hapeville Charter Career Academy will be responsible for summer science coursework in all grade levels and ALL science courses. Please contact the front office or science department for details regarding your individual course assignments and information. ALL SUMMER ASSIGNMENTS ARE DUE THE 1ST WEEK OF SCHOOL.

FIELD TRIP OPTIONS

All Teachers provide opportunities for students to attend explorative techniques and field trip options in and out of the class room environment. Field trip options are suggested but not mandatory. Please consider these options provided by the individual teacher ranging from $5-$50 per opportunity throughout the school year.

9TH GRADE COLLEGE TOUR INFORMATION MARCH 2015

Hapeville Charter Career Academy is proud to announce that we are taking 9th grade students to Nashville, TN. Below is a *tentative* schedule and *approximate cost/details* for the trip. *Approximate Cost $450 for 5 days (All inclusive: Activities, Meals, Hotel and Transportation are included in this total fee for students).* A *non-refundable* deposit of $100 must be paid by cash or money order (made payable to Hapeville Charter Schools) BY SEPTEMBER 30, 2014. DEPOSITS CANNOT BE PAID UNLESS AUTHORIZED BY THE TEACHER SPONSOR OF THE 9TH GRADE TOUR.

ALL STUDENTS MUST SUBMIT TEACHER RECOMMENDATIONS TO THE TEACHER SPONSOR OF THE TOUR PRIOR TO SUBMITTING A DEPOSIT AFTER THE 1ST 6 WEEKS OF SCHOOL.

Tentative University Tours and Activities:

Vanderbilt University	Vanderbilt Observatory	Galleria Mall visit
Tennessee State University	Tennessee Titans Stadium Tour	Science Museum Visit
Lebanon Outlet Mall Visit	Fisk University	Meharry Medical School
Parthenon visit	Andrew Jackson Home/Museum Tour	Belle Meade Plantation
Middle Tennessee State University	Tour of Belmont University/Museum	Opryland
Bowling Competition	Movie Night	Ruby Falls

INTERESTED PARENTS ARE WELCOME TO EMAIL MS. PECOT FOR MORE INFORMATION REGARDING THE 9TH GRADE COLLEGE TOUR AT MPECOT@HAPEVILLECHARTER.ORG

ATHLETICS AND EXTRACURRICULAR ACTIVITIES

While academic excellence is our priority, there are multiple opportunities for students to succeed outside of the class room.

Athletics:	Football	Basketball	Baseball	Volleyball	Cross Country	Cheerleading
	Track	Softball	Soccer			

Activities:	Skills USA	Miss Hapeville Pageant
	Traveling Production Team	Environmental Ambassadors Club
	Beta Club	National Honor Society
	Science Olympiad	Year Book Club
	Stinging Scholars	Science Club

HAPEVILLE CHARTER CAREER ACADEMY SCIENCE FAIR

The Hapeville Charter Career Academy Science Fair will take place for all grade levels during FALL semester during the school day. Parents are encouraged to participate and attend the awards ceremony. If you are interested in volunteering for the day, please contact any HCCA science teacher for more information. ALL STUDENTS ARE ENCOURAGED TO RESEARCH SCIENCE FAIR TOPICS DURING THE SUMMER MONTHS AND DISCUSS TOPICS WITH THEIR TEACHER UPON RETURN TO SCHOOL IN THE FALL.

INTERNATIONAL TRAVEL INFORMATION FOR STUDENTS

The Educational Tour Foundation is partnering with the Science AND Literature Departments in order to provide an international travel experience for students. Please contact the individual teacher for more information. Travel Tours introduce teachers and students to project-based learning and service learning options. Through authentic community connections and hands-on experience, students develop a deeper global awareness and increase critical thinking and problem solving skills.

PARIS: Ms. Crawford, ACrawford@hapevillecharter.org

GREECE: Ms. Dunmeyer, ADunmeyer@hapevillecharter.org

COSTA RICA or BELIZE: Ms. Pecot, MPecot@hapevillecharter.org OR www.marciapecot.blogspot.com

9th Grade Physical Science Summer Science Packet 2014

Instructions:
This packet covers the fundamental skills you will need throughout your tenure in high school. Please work on your packet throughout the summer. If you come across a problem you do not know how to complete, do not skip or guess at it. Look it up on a science website, old textbook or notebook, or ask someone for help. Do not simply scribble anything into the packet. You will not receive credit for unmerited answers. Extraordinary effort will be rewarded with extraordinary grades. You must show your work for all calculation problems. You are encouraged to work on this packet with classmates. As always, however, you are intended to perform your own work. In addition to the summer packet questions, you are required to complete summer reading of the books listed, THE TEN MOST BEAUTIFUL EXPERIMENTS BY GEORGE JOHNSON and A BRIEF HISTORY OF TIME BY STEPHEN HAWKING. You must submit a 3-5 page summary of each book upon your return to school in the Fall on the first day of classes.

Your summer packet will be graded based on the following **rubric:**

Criteria	Possible Points	Earned Points
Submitted on time	10	
Neatness	10	
Work Shown	10	
Boxed Answers	10	
Effort	10	
Correctness	50	
TOTAL	**100**	**GRADE: _____**

Happy summer,   Mr. Adams

PART I: What is Science? For this section, you must do research to answer the questions. You can simply Google some of this information.

What is *your* definition of science?

_____
_____
_____

Define science.

_____
_____
_____

What is technology?

_____
_____
_____

Technology is often advancing. What are some examples of advances in technology?

_____
_____
_____

Science and technology are interdependent. Advances in one lead to advances in the other. Give an example of this phenomenon.

_____
_____
_____

What is physical science?

_____
_____
_____

Branches of Science:

1. Natural Science
   a. Physical Science
      i. Physics - is the study of

      _____

      ii. Chemistry - is the study of
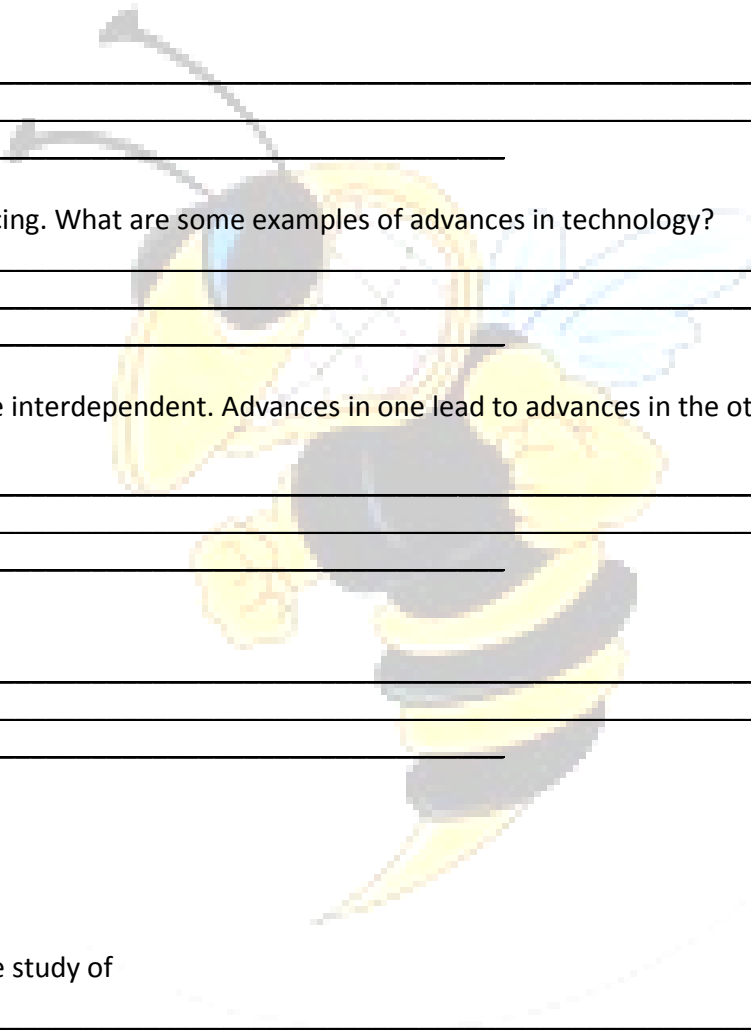
      _____

   b. Earth & Space Science
      i. Geology - is the study of

      _____

      ii. Astronomy - is the study of

      _____

c. Life Science
  i. Biology – is the study of

  _____

  ii. Zoology – is the study of

  _____

2. Social Science

PART II: The Scientific Approach

Put the following items in order of the scientific method.

Develop a theory.   Ask a question.   Draw conclusions.

Analyze data

Develop a hypothesis.   Experiment or test idea.   Make an observation.

.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Define the following terms used in the scientific method.

8. Independent variable:

_____

_____

9. Dependent variable:

_____

_____

10. Control group:

_____

_____

11. Scientific law:

___

___

Read the following experiment and identify the steps in the scientific method.

Last year, Wendy planted seeds in a garden. She noticed that not all of the seeds became plants. This year, she asked herself, "On average, how many of the seeds in a package will grow?" She thought maybe 25% of the seeds in a package would not grow. She bought three packages containing twenty-five seeds each. She planted each package of seeds in separate boxes so she could keep careful count of the number of seeds that would grow. She drew a diagram of the boxes and indicated where each seed was planted. As the seeds sprouted, she put a green X on the place in her diagram where the seed was planted. If the seed did not grow, she put a red X on the place in her diagram where the seed was planted.

At the end of her investigation, she noticed that four seeds in the first box did not grow. The second box had six seeds that did not grow. In the third box, only five of the seeds did not grow. Wendy concluded that an average of five seeds in each package did not grow. For future gardens, Wendy assumed that eighty percent of the seeds in a package would grow.

12. What is the observation?

13. State the question.
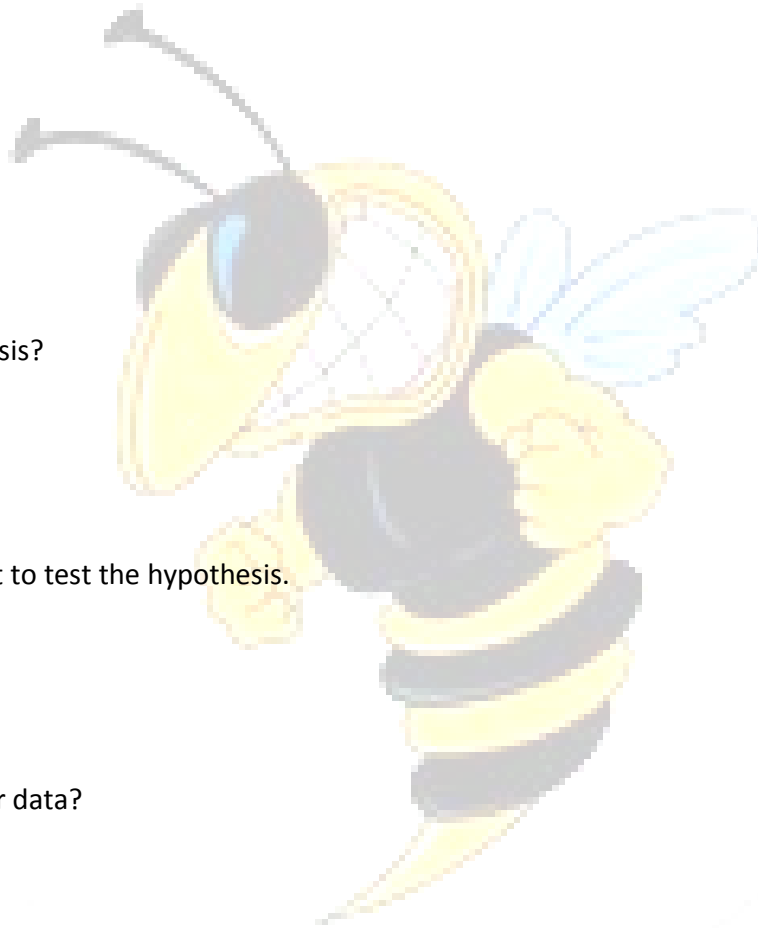
14. What was her hypothesis?

15. Explain her experiment to test the hypothesis.

16. How did she collect her data?

17. What was Wendy's conclusion?

18. State the prediction she made.

PART III: Measurement and Conversions (You will need a calculator for this section).

SI Units and SI Prefixes:

Scientist use a set of measuring units called SI, or the International System of Units. The abbreviation SI derives from the French name *System International d'Unites.* The SI Unit system is used as a universal way to readily interpret data.

The following table depicts the SI base units.

You

Quantity	Unit	Symbol
Length	Meter	m
Mass	Kilogram	kg
Temperature	Kelvin	K
Time	Second	s

are

required to **know** the SI measuring base units and prefixes.

SI Prefixes are metric prefixes that allow for a more convenient way to express SI base units.

The following table depicts the **SI prefixes**.

Prefix	Symbol	Meaning	Multiply unit by
giga-	G	Billion (10^9)	1,000,000,000
mega-	M	Million (10^6)	1,000,000
kilo-	k	Thousand (10^3)	1,000
deci-	d	Tenth (10^{-1})	0.1
centi-	C	Hundredth (10^{-2})	0.01
milli-	m	Thousandth (10^{-3})	0.001
micro-	µ	Millionth (10^{-6})	0.000001
nano-	n	Billionth (10^{-9})	0.000000001

Conversions:

A conversion factor is a ratio of equivalent measurements that is used to convert a quantity expressed in one unit to another unit.

Example: Convert 12 dozen to eggs. (Conversion factor 1 dozen = 12 eggs)

$$2 \text{ dozen } \times \frac{12 \text{ eggs}}{1 \text{ dozen}} = 24 \text{ eggs}$$

Common Conversions:
- There are 5280 feet in 1 mile
- There are 0.034 ounces in 1 milliliter
- There are 0.454 kg in 1 pound
- There are 1.6 kilometers in 1 mile

- There are 73 gallons in 2 barrels
- There are 1.05 quarts in 1 liter
- There are 4 quarts in 1 gallon

Do the following one-step unit conversions:

1. Convert 0.347 kilometers to miles.

2. Convert 870 kilograms to pounds.

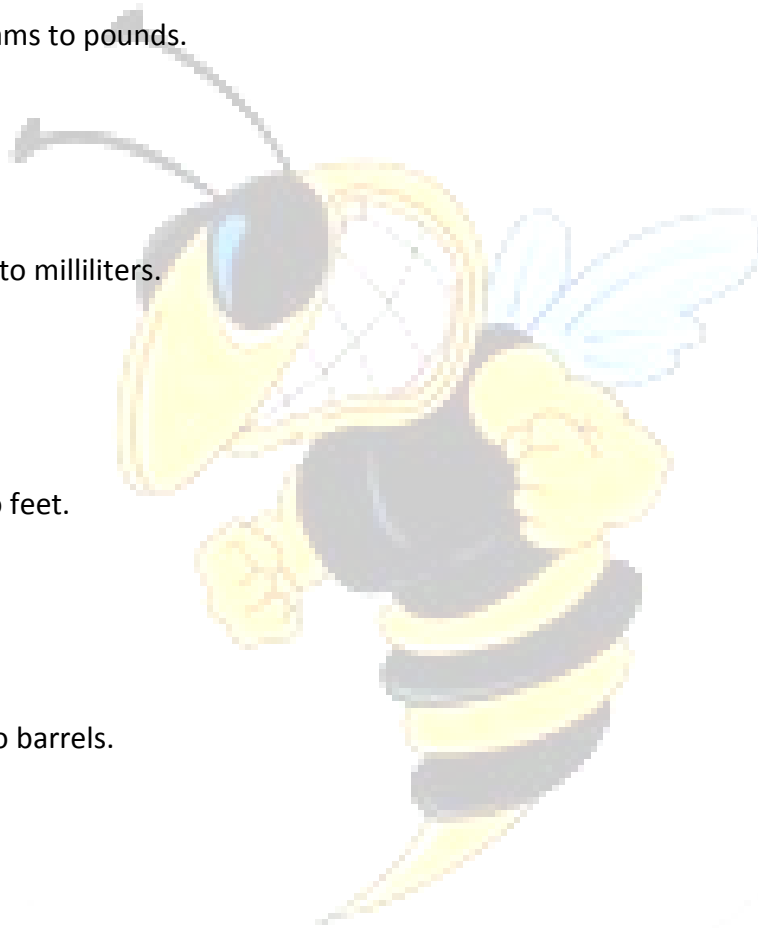3. Convert 84 ounces to milliliters.

4. Convert 82 miles to feet.

5. Convert 4 gallons to barrels.

6. Convert 45 quarts to gallons.

Do the following multi-step unit conversions:

7. Convert 746 days to centuries.

8. Convert 56 kilometers to inches (there are 12 inches in one foot).

9. Convert 120 barrels to quarts.

10. Convert 37 quarts to gallons

Unit Conversions:

Example: 25g = _____ *kg*

25 g   X   __1 kg__   = 0.025 kg
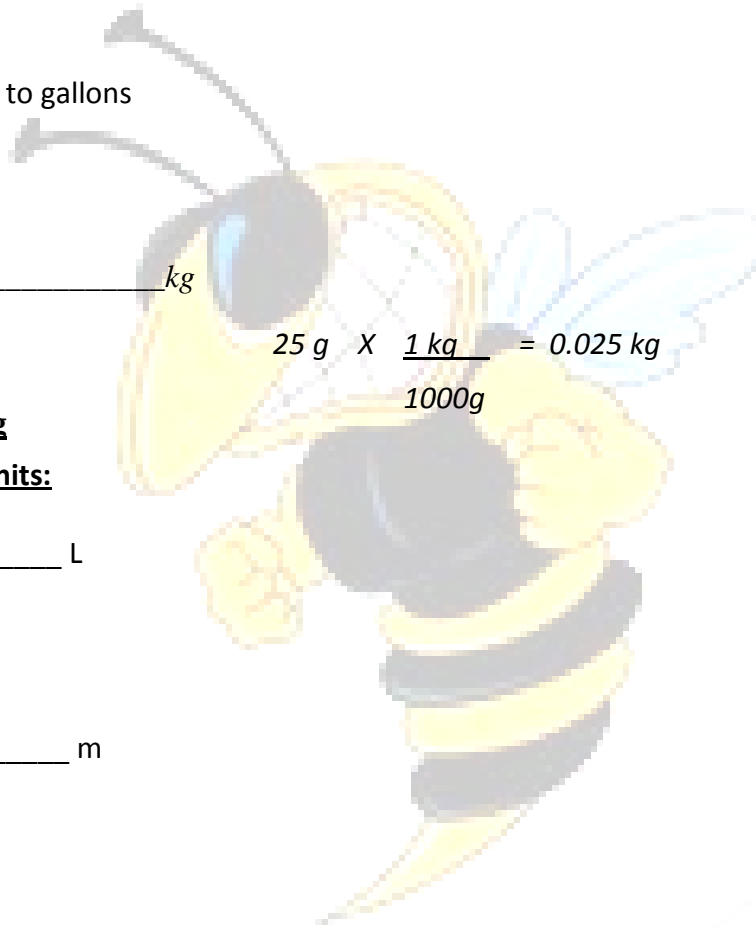   1000g

Therefore, 25g = **0.025 kg**

Convert the following units:

11.   3470 mL = _____ L

12.   13.5 cm = _____ m

13.   0.65 L = _____ mL

14.   234 mL = _____ L

15.   238 g = _____ cg

16.   535.50 g = _____ kg

17.   542 L = _____ kL

18.   0.094 kg = _____ g

19.   125.4 mg = _____ g

20.   149 cm = _____ m

21.   450 cm = _____ m

22.   17 mm = _____ m
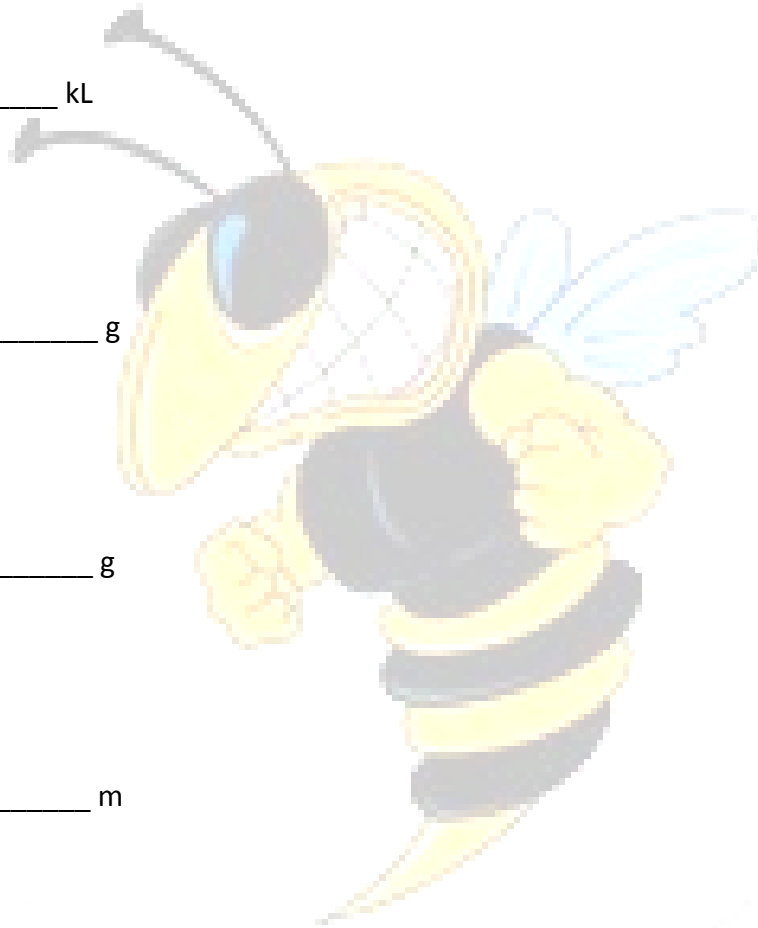
23.   22 Mg = _____ g

24.   22 Mg = _____ ng

Temperature Conversions:
Kelvin is the SI base unit for temperature. A thermometer is an instrument used to measure temperature. Temperature is measured in Fahrenheit (°F), Celcius (°C), or Kelvin (K). Below are the formulas used to convert from one scale of temperature to another.

$$°C = \frac{5}{9}(°F - 32.0)°$$

$$°F = \frac{9}{5}(°C) + 32.0°$$

$$K = °C + 273$$

Convert the following **temperatures to the desired unit.**

Example: Convert 22 °C into °F.

$$°F = \frac{9}{5}(22°C) + 32.0° = 71.6°F$$

25.   11 ºC into ºF.

26.   0 ºC into ºF.

27.   27 ºF into ºC.

28.   137 ºF into ºC.

29.   15 º C into K

30.   300 ºF into K