Phys/Chem Weekly Planner: All science week of 1.27.20

Objectives for the week: Chm.1.1.1 Analyze the structure of atoms, isotopes, and ions.
Phys 1.1.1 Analyze the nature of motion

Day	Honors Physics	Honors Chemistry
Mon	BOTH CLASSES ARE TESTING TODAY!!	
	Physics HW= 1st 4 problems -Model -units on EVERYTHING -Equations clearly shown -Solve using units -Box around answer with units	*CHEM HW= Read Ch 5, DO pg 140-145 #1-10 write out!
Tues	Paradigm lab! Velocity of a toy car. Phase I *HW= get 2 pages (How to read a report) signed! & FIRST 8 problems.. according to above.	https://www.youtube.com/watch?v=EOHYT5q5IhQ Notes: Ch 5- electrons in atoms. *HW= If you ARE ABSENT, Take notes on Everything in chapter five, copy ALL the example problems.
Wed	HW check Paradigm lab phase 2 *HW= test corrections due THURS, .. Google graph with written conclusion on it due THURS!!	HW check https://www.flippity.net/rp.asp?k=11g1RyW9o--73dJLCQP676DNvTyf8gRrhHwepdxl_yiU New seats!! Practice problems: electron configurations! *HW= test corrections due THURS, ..finish pg 3!!!

Thurs	Google Graphs HW= Evansmobile vs. your car problem. *don't forget to finish Wed's warm up!! TEST Friday!	QUIZ- 10 q 3rd BLOCK WILL NEVER EVER be allowed to bring in drinks again!! *HW= finish Lewis dot diagrams and crossword, study for test.
Friday	TEST- VELOCITY PARADIGM DUE MONDAY= Read Ch 3!! (materials in schoology)	TEST- ELECTRONS IN ATOMS DUE MONDAY= Read Ch 6!!

Warm up activities!

Monday 1.27.20-

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Phyz=Give two examples of when a car can have a negative acceleration. (Use words such as "speeding up" or "slowing down" and "positive direction" and "negative direction.) CHEM= WHAT is equal to the mass of 1/12th of the mass of	CHEM= WHAT is equal to the mass of 1/12th of th

a carbon atom?	

Tuesday 1.28.20-

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PHYZ Warm up: TURN OFF cell phone and put in the bin ☺ **Find the 1.00 second challenge average for your team:**	**CHEM Warm up: 1.21.2020** **Turn OFF your cell phone and put in bin** ☺ **Explain why electrons, especially valence electrons, are so important in chemistry.**

Wednesday 1.29.20-

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PHYZ Warm up: **Turn OFF your cell phone and put in bin** ☺ A toy car moves with a velocity of 0.5 m/s. Each wheel has a radius of 1.10 cm. What is the speed of a wheel in m/s?	**CHEM Warm up:** **Turn OFF your cell phone and put in bin** ☺ **Describe the shapes of each of the 4 types of electron orbitals.**

Thursday 1.30.20-

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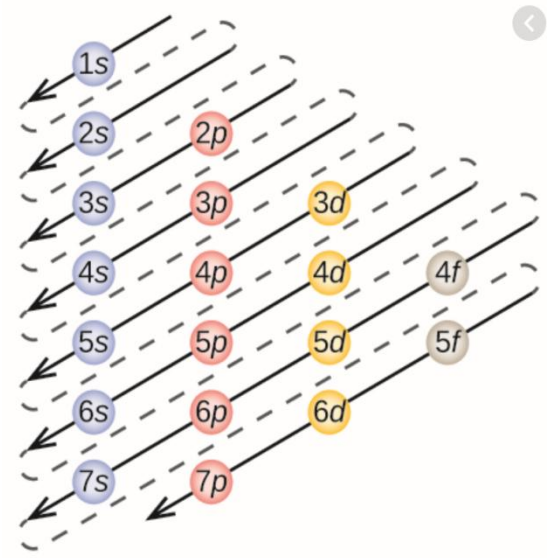
PHYZ Warm up: **Turn OFF your cell phone and put in bin** ☺ https://docs.google.com/spreadsheets/d/1dkSEvKe9bhBinMeVIwWHLT0OA05OXoZqPpd4Xz62W14/edit?usp=sharing make a scatter plot graph and put in a trend line! (line of best	**CHEM Warm up: Turn**

fit)	**OFF your cell phone and put in bin** ☺ Write the electron configurations for the following: Fe^{2+} and Fe^{3+}



Friday 1.31.19-

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PHYZ Warm up: **Turn OFF your cell phone and put in bin** ☺ Now that you solved your car problem, make a sketch of a graph of it!!	**CHEM Warm up:** **Turn OFF your cell phone and put in bin** ☺ **Write the complete electron configuration for an atom of Copper, a Copper I ion , and a Copper II ion.**

3.1 Acceleration

Vocabulary

- velocity-time graph (p. 58)
- acceleration (p.59)
- average acceleration (p. 59)
- instantaneous acceleration (p. 59)

Key Concepts

- A velocity-time graph can be used to find the velocity and acceleration of an object.
- The average acceleration of an object is the slope of its velocity-time graph.

$$\bar{a} \equiv \frac{\Delta v}{\Delta t} = \frac{v_f - v_i}{t_f - t_i}$$

- Average acceleration vectors on a motion diagram indicate the size and direction of the average acceleration during a time interval.
- When the acceleration and velocity are in the same direction, the object speeds up; when they are in opposite directions, the object slows down.
- Velocity-time graphs and motion diagrams can be used to determine the sign of an object's acceleration.

3.2 Motion with Constant Acceleration

Key Concepts

- If an object's average acceleration during a time interval is known, the change in velocity during that time can be found.

$$v_f = v_i + \bar{a}\Delta t$$

- The area under an object's velocity-time graph is its displacement.
- In motion with constant acceleration, there are relationships among the position, velocity, acceleration, and time.

$$d_f = d_i + v_i t_f + \frac{1}{2}\bar{a}t_f^2$$

- The velocity of an object with constant acceleration can be found using the following equation.

$$v_f^2 = v_i^2 + 2\bar{a}(d_f - d_i)$$

3.3 Free Fall

Vocabulary

- free fall (p. 72)
- acceleration due to gravity (p. 72)

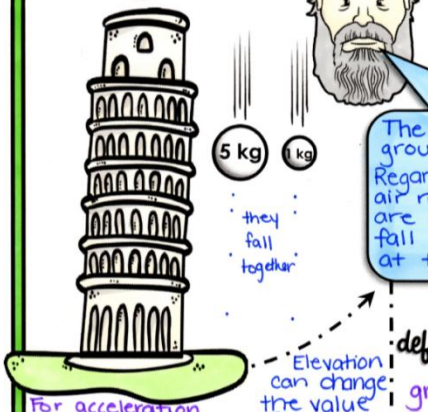
Key Concepts

- The acceleration due to gravity on Earth, g, is 9.80 m/s^2 downward. The sign associated with g in equations depends upon the choice of the coordinate system.
- Equations for motion with constant acceleration can be used to solve problems involving objects in free fall.

Acceleration due to Gravity

Do heavier objects fall faster towards the ground?

The legend goes that Galileo dropped two objects of different mass from the Leaning Tower of Pisa at the same time. Which hit the ground first, the lighter object or the heavier object?

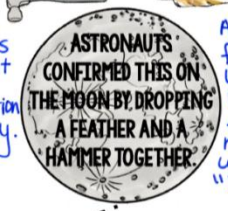


The two objects will hit the ground at the same time. Regardless of mass (and neglecting air resistance) two objects that are dropped together will fall together. They accelerate at the same rate.

Free fall

definition

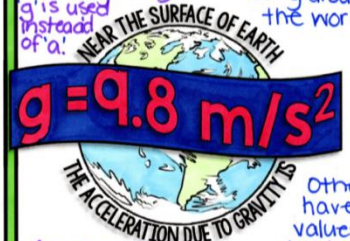
The acceleration due to gravity of an object in the absence of air resistance.



A falcon feather was used because the lunar module was named "Falcon".

Elevation can change the value of g around the world.

For acceleration due to gravity, g is used instead of 'a.'



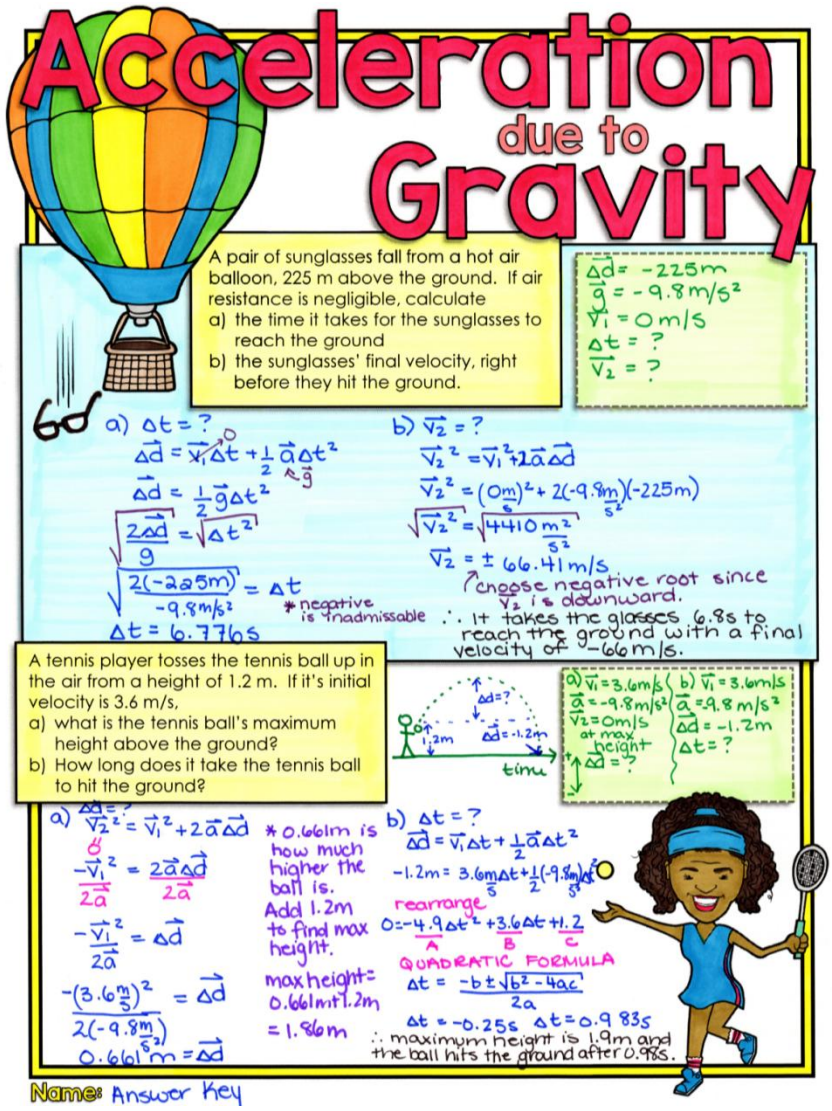
$g = 9.8\ m/s^2$

Other planets have different values for their acceleration due to gravity.

As a vector, the acceleration due to gravity is written:

$\vec{g} = -9.8\ \frac{m}{s^2}$

Name: Answer Key



PHYSICS paradigm lab: Velocity of a toy car

Objective: To analyze the motion of a toy car.

Materials: 1 constant velocity vehicle, 2 metersticks, 1 whiteboard, 1 strip of tape, 1 stopwatch, 1 D/E marker.

Procedure:

1) Obtain toy car and secure a space in the hall for experiment.
2) Make a starting line and practice timing the distance the car moves in 1 second MANY times before collecting samples for average distance it travels in one second.
3) Record all data from step 2.
4) Begin the experiment again and practice timing the distance the car moves in 2 seconds a couple of times before collecting samples for average distance it travels in two seconds.
5) Repeat steps 2-4 to get accurate data for up to 8 seconds.