

Phys/Chem Weekly Planner: All science week of 2.3.2020



Objectives for the week: Chm.2.2 Analyze the structure and nature of the periodic table.
Phys 1.1 Analyze the nature of motion

Day	Honors Physics	Honors Chemistry
Mon	<p>- Warm up (see below) -Student notes: acceleration (2 pages) See teacher example below. Be thorough!! Use Ch 3 on schoology. -*HW= front and back of acceleration questions. Be thorough!!</p>	<p>- Warm up (see below) -Student notes: periodic table Be thorough!! Use Ch 6 on schoology. -*HW= FINISH all pages of notes. Be thorough!!</p>
Tue S	<p>-W/U & get tests back -TEAM presentations -*HW= pg 74</p> <p>42. A construction worker accidentally drops a brick from a high scaffold. a. What is the velocity of the brick after 4.0 s? b. How far does the brick fall during this time?</p> <p>43. Suppose for the previous problem you choose your coordinate system so that the opposite direction is positive. a. What is the brick's velocity after 4.0 s? b. How far does the brick fall during this time?</p> <p>44. A student drops a ball from a window 3.5 m above the sidewalk. How fast is it moving when it hits the sidewalk?</p> <p>45. A tennis ball is thrown straight up with an initial speed of 22.5 m/s. It is caught at the same distance above the ground. a. How high does the ball rise? b. How long does the ball remain in the air? <i>Hint: The time it takes the ball to rise equals the time it takes to fall.</i></p> <p>46. You decide to flip a coin to determine whether to do your physics or English homework first. The coin is flipped straight up. a. If the coin reaches a high point of 0.25 m above where you released it, what was its initial speed? b. If you catch it at the same height as you released it, how much time did it spend in the air?</p>	<p>-W/U & get tests back (?) -short open-notes quiz -LAB!! periodic properties -*HW=Ch 6 pg 198-199 # 25-32, 37,38,41-48, 58-64.</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; background-color: #90EE90; width: 40px; text-align: center;">1 Lilly Takeia Kasey</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; background-color: #40E0D0; width: 40px; text-align: center;">2 Heaven Shania Kamy</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; background-color: #4169E1; width: 40px; text-align: center;">3 William Kirby Laney</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; background-color: #DDA0DD; width: 40px; text-align: center;">4 Edin Mykael Chasity*</div> </div>
Wed	<p>-W/U -go over HW</p>	<p>-W/U https://www.flippity.net/rp.asp?k=11g1RyW9o--73dJLCQP676DNvTyf8gRrhHwepdxl_yiU -LAB: Periodic properties</p>

	<p>-LAB!! How fast can you jump? 3 jumps, average height... come back and calculate.</p> <p>- LAB!! How tall is that thing? THE MARBLE CAN NOT be thrown back up!! 2 practice drops, 5 timed drops.</p> <p>-*HW= do warm ups! Pg 85 #1-10. Finish all test corrections! Finish LABS</p>	<p>(Electronegativity, atomic radius, melting point) ONE of them has to be in 3D and shown to the principal!!!! 😊</p> <p>HW= Test corrections.</p>
Thurs	<p>-W/U -go over HW -Paradigm lab Phase I</p>	<p>-WU Go over HW... any questions? Finish projects</p>
Friday	<p>-W/U TEST: accelerated motion *HW=-Acceleration at an angle paradigm lab phase II READ CH 4- forces</p>	<p>-W/U Periodic table test *HW= READ CH 7 and 8!!!</p>

Warm up activities!

Monday 2.3.20-

<https://evansccca.weebly.com/>

TURN OFF cell phone and put in the bin 😊

Phyz= Have you ever been in free-fall? What did it feel like to you?

CHEM= IF you took out ALL the contents out of a typical student's backpack (a good kid!), how would you arrange piles of items? Describe the contents of these piles.

Tuesday 2.4.20-

<https://evanscca.weebly.com/>

PHYZ Warm up: TURN OFF cell phone and put in the bin



A flea jumps 4.9 ft. how fast was his take off? How long is he in the air?

CHEM Warm up: 1.21.2020 Turn OFF your cell phone and put in bin 😊

Define electronegativity

Wednesday 2.5.20-

<https://evanscca.weebly.com/>

PHYZ Warm up: Turn OFF your cell phone and put in bin 😊

Redo today's quiz here!
(Q & A)

CHEM Warm up: Turn OFF your cell phone and put in bin 😊

Define electron affinity

Thursday 2.6.20-

<https://evanscca.weebly.com/>

PHYZ Warm up: Turn OFF your cell phone and put in bin 😊

-turn IN vertical LEAP lab AND how tall is that? Lab

-turn in #1-10



See that guy? Make a stick diagram for each figure and show a vector for each depicting the acceleration on each one.

CHEM Warm up: Turn OFF your cell phone and put in bin 😊

Explain why atomic radius increases as you go down a group on the periodic table. Then explain WHY atomic size decreases as you go from left to right within the same period.

Friday 2.7.20-

<https://evansccca.weebly.com/>

PHYZ Warm up:
Turn OFF your cell phone and put in bin 😊

What would the vector for acceleration look like for all these?

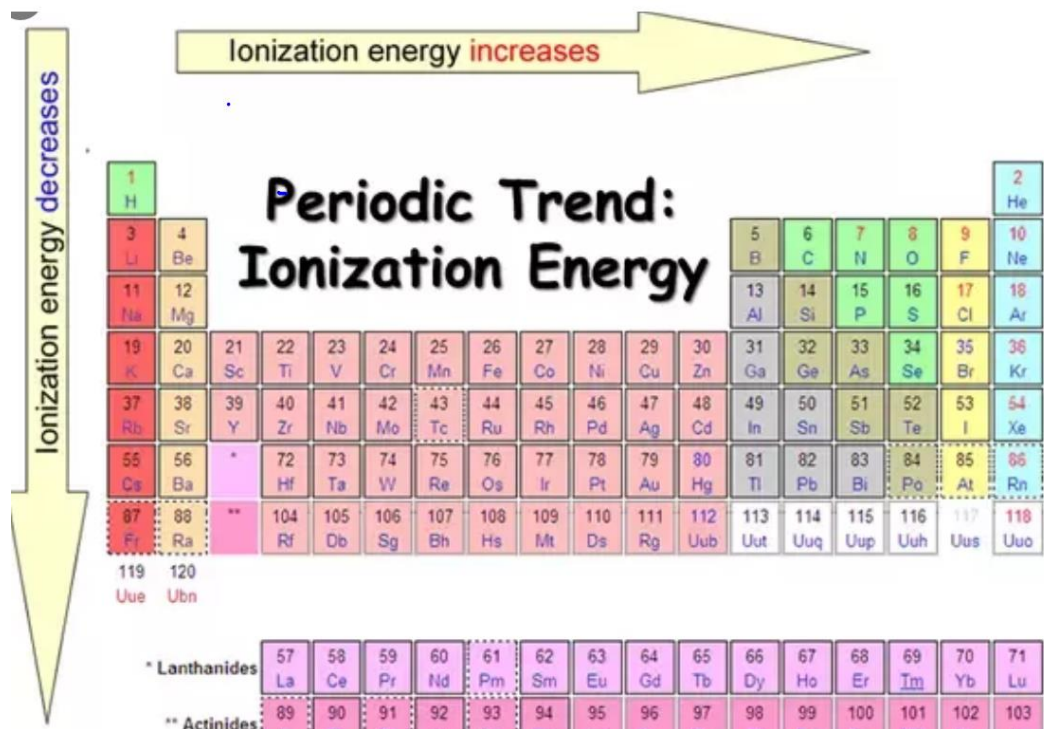
DRAW your two acceleration vectors for the smart lemming.

CHEM Warm up:
Turn OFF your cell phone and put in bin 😊

1) If first ionization energy is HIGH, the electronegativity is _____.

2) What are the representative elements?

-do not include d or f blocks



#	Answer
1	B
2	A
3	D
4	D
5	C
6	C
7	A
8	C
9	A
10	B
11	B
12	B
13	C
14	B
15	D
16	A
17	D
18	A
19	C
20	C
21	D
22	A
23	C
24	D
25	B
26	A
27	C
28	B
29	D
30	D

PHYSICS DATA TABLE:

Angle	Distance (m)	Time (s)	V_{avg} (m/s)	V_f (m/s)	a in m/s^2
20 degrees					
30 degrees					
40 degrees					
45 degrees					
60 degrees					
70 degrees					

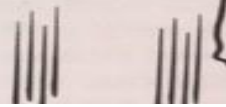
Analysis/conclusion

Angle	Picture	Accepted acceleration	% Error = $\left \frac{\text{measured} - \text{accepted}}{\text{accepted}} \right \times 100$
20 degrees	$\sin \theta = \frac{\text{op.}}{\text{hyp.}} =$	$\sin 20^\circ =$	
30 degrees			
40 degrees			
45 degrees			
60 degrees			
70 degrees			

- 10 - Neat
- 10 - Colorful
- 10 - Creative
- 10 - Complete - follow example + ADD to it
- 20 - Show all equations
- 20 - Show all work w/ UNITS
- 20 - Show all steps to solve

Acce

Do heavier objects
fall faster towards
the ground?



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?



5 kg 1 kg

they fall together

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

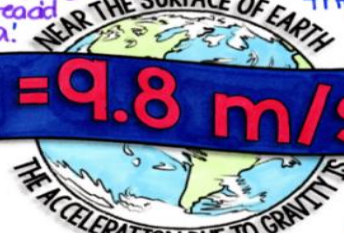
The acceleration due to gravity of an object in the absence of air resistance.

For acceleration due to gravity, g 's used instead of a !

Elevation can change the value of g around the world.

NEAR THE SURFACE OF EARTH

$$g = 9.8 \text{ m/s}^2$$



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

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

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

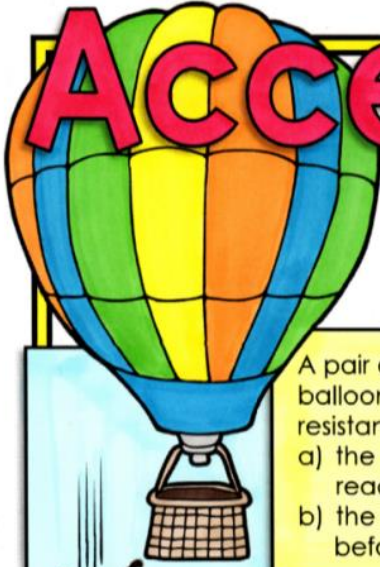


ASTRONAUTS CONFIRMED THIS ON THE MOON BY DROPPING A FEATHER AND A HAMMER TOGETHER.

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

Name: Answer Key

Acceleration due to Gravity



A pair of sunglasses fall from a hot air balloon, 225 m above the ground. If air resistance is negligible, calculate

- the time it takes for the sunglasses to reach the ground
- the sunglasses' final velocity, right before they hit the ground.

$$\begin{aligned} \Delta d &= -225\text{m} \\ \vec{g} &= -9.8\text{m/s}^2 \\ \vec{v}_1 &= 0\text{m/s} \\ \Delta t &=? \\ \vec{v}_2 &=? \end{aligned}$$



a) $\Delta t = ?$

$$\Delta \vec{d} = \vec{v}_1 \Delta t + \frac{1}{2} \vec{a} \Delta t^2$$

$$\vec{a} = \frac{1}{2} \vec{g} \Delta t^2$$

$$\sqrt{\frac{2\Delta d}{g}} = \Delta t$$

$$\sqrt{\frac{2(-225\text{m})}{-9.8\text{m/s}^2}} = \Delta t$$

$$\Delta t = 6.77\text{s}$$

* negative is inadmissible

b) $\vec{v}_2 = ?$

$$\vec{v}_2^2 = \vec{v}_1^2 + 2\vec{a}\Delta d$$

$$\vec{v}_2^2 = (0\text{m/s})^2 + 2(-9.8\text{m/s}^2)(-225\text{m})$$

$$\sqrt{\vec{v}_2^2} = \sqrt{4410\text{m}^2/\text{s}^2}$$

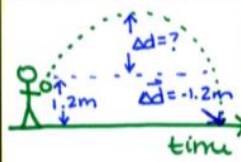
$$\vec{v}_2 = \pm 66.41\text{m/s}$$

↑ choose negative root since \vec{v}_2 is downward.

∴ It takes the glasses 6.8s to reach the ground with a final velocity of -66m/s.

A tennis player tosses the tennis ball up in the air from a height of 1.2 m. If its initial velocity is 3.6 m/s,

- what is the tennis ball's maximum height above the ground?
- How long does it take the tennis ball to hit the ground?



$$\begin{aligned} \text{a) } \vec{v}_1 &= 3.6\text{m/s} \\ \vec{a} &= -9.8\text{m/s}^2 \\ \vec{v}_2 &= 0\text{m/s} \\ \text{at max height } \Delta d &=? \\ \text{b) } \vec{v}_1 &= 3.6\text{m/s} \\ \vec{a} &= 9.8\text{m/s}^2 \\ \Delta d &= -1.2\text{m} \\ \Delta t &=? \end{aligned}$$

a) $\Delta d = ?$

$$\vec{v}_2^2 = \vec{v}_1^2 + 2\vec{a}\Delta d$$

$$-\frac{\vec{v}_1^2}{2\vec{a}} = \Delta d$$

$$-\frac{(3.6\text{m/s})^2}{2(-9.8\text{m/s}^2)} = \Delta d$$

$$0.661\text{m} = \Delta d$$

* 0.661m is how much higher the ball is.

Add 1.2m to find max height.

max height = 0.661m + 1.2m = 1.86m

b) $\Delta t = ?$

$$\Delta \vec{d} = \vec{v}_1 \Delta t + \frac{1}{2} \vec{a} \Delta t^2$$

$$-1.2\text{m} = 3.6\text{m/s} \Delta t + \frac{1}{2} (-9.8\text{m/s}^2) \Delta t^2$$

rearrange

$$0 = -4.9\Delta t^2 + 3.6\Delta t + 1.2$$

QUADRATIC FORMULA

$$\Delta t = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\Delta t = -0.25\text{s} \quad \Delta t = 0.983\text{s}$$

∴ maximum height is 1.9m and the ball hits the ground after 0.98s.



Name: Answer Key