

SAMPLE TEST FOR PHYSICS AND CHEMISTRY

Name _____

Score _____

Please fill in the questions below with your best answer.

Newton's first law is:

Newton's second law is:

Newton's third law is:

The length of wave is measured by the distance between:

Draw a wave with both parts to it and draw the line of origin:

The speed of a wave is measured by:

The frequency of a wave is measured by:

The units of frequency are:

Potential Energy is best described as:

Kinetic Energy is best described as:

Radiant energy is best described as: (give an example as well)

Electrical energy is best described as: (give an example as well)

Wind energy is best described as: (give an example as well)

Definition of work: (explain using words)

Now write the definition for work:

3 examples of doing work when you are doing sports:

(explain using words: for example – volleyball: my arm swings forward and applies a force to the ball in a forward direction and the ball moves in that direction.

1)

2)

3)

In the space provided, fill in whether you are doing WORK or NO WORK

Pulling a camel across the desert _____

Direction of force: vertical or horizontal

Direction of motion: vertical or horizontal

Carrying your suitcase to catch a plane to make the finals of American Idol

Direction of force: vertical or horizontal

Direction of motion: vertical or horizontal

Lifting a bag of smelly trash that has been sitting for weeks _____

Direction of force: vertical or horizontal

Direction of motion: vertical or horizontal

Carrying a crate of wild squirrels from the car to the animal hospital

So they can get their shots so they can live in St Luke science room _____

Direction of force: vertical or horizontal

Direction of motion: vertical or horizontal

Making your bed on a Saturday morning and finding pajamas at the end of the bed

From 3 weeks ago and going, PHEW! _____

Direction of force: vertical or horizontal or BOTH

Direction of Work: vertical or horizontal or BOTH

Sitting down for 100 hours and doing History fair stuff _____

Direction of force: vertical or horizontal or BOTH

Direction of Work: vertical or horizontal or BOTH

Explain what a fulcrum is:

I will hold up a machine in class. Explain what type of machine it is:

Simple or compound and what type of simple machine it is. Also tell me how many parts to the machine there are and where the fulcrum is.

1)

2)

3)

4)

5)

Give me two types of pulleys: Give me an example of each:

Math and Physics

- 1) If Cro-Magnon Man is trying to lift a boulder off the ground and the boulder weighs or has a force pushing down on the ground of 600 Newtons, how much force must Cro-Man apply to the boulder in the opposite direction to lift the boulder off the ground. Draw a quick picture on the back of this paper showing arrows of the boulder pushing down and the arrows Cro-Man applies pulling up

Since the equation of $\text{Work} = \text{Force} \times \text{distance}$, and distance is measured in meters, how work does Cro-Man do if he lifts the boulder 1 meter?

Remember the unit of work is the Joule.

What about if he lifts it over his head at 3 meters?

What happens if he lifts it only 50 cm?

What happens if he lifts it only 25 cm?

What is the equation for POWER: Write it down:

- 2) What if he lifted the boulder 1 meter off the ground in 4 seconds? How much power did he exert with his massive hairy biceps?
- 3) Cro-man did not have his usual breakfast of ostrich eggs and leftover squirrel nuts. He is not feeling well today and expressed that he is not a superCro-man, it took him 10 seconds to lift the boulder two meters above the floor? How much work did Cro-man produce and what was his power exerted? Remember, you must figure his work first and then his power second. Write down both equations below:

- 4) Cro-Magnon Woman decides to use a machine to help her. She takes a wooden plank in the back of the cave and slides the boulder up the plank. The boulder still weighs 600 Newtons, but the plank is 3 meters long and is 1 meter above the ground at the highest end.

How much input force must Cro-Magnon Woman now produce to push the boulder up the ramp?! Remember, the amount of work to push the boulder up the ramp is still the same. The amount is now lower because the ramp stretches the work out over a longer distance. Show your work below.

A wave is a transfer of _____ from one place to another.

Waves move through matter by creating a _____.

The matter that a wave is moving through is a _____.

Some waves must have a medium to exist, these are called:
_____ waves.

Waves that do not need a medium to travel are _____ waves.

Is light an electromagnetic wave? True or False

Sound waves are what type of waves. _____

Do sound waves require a medium? _____

Waves in the ocean are called _____

The energy in a transverse wave moves _____

The high point is called the _____

The low point is called the _____

The center is called the _____

A back and forth wave is called _____

When the particles are squeezed they are called _____

When they are far apart they are called _____

The measure of the height of a wave is _____

Small amplitude means low energy. True or False

Large amplitude means high energy. False or True

Wavelength is the distance between crest and trough. No or Yes

What is the wavelength then:

_____ is the # of waves that pass a point in 1 second.

The unit of measurement for this is _____

How many hertz can a human hear _____, a woof woof? _____

When a wave hits a surface and bounces off, it is _____

When waves bend from one medium to another _____

When waves bend and go around an object, it is _____

When two waves combine, that is called _____

When they combine and form a bigger wave: _____

When they combine and form a smaller wave: _____

Please use this list of words to help you finish the equations below :

GRAVITY

MASS

AREA

Finish the equations:

a) FORCE = () X ()

b) PRESSURE =
$$\frac{()}{()}$$

For equation a)... remember the book dropping down to the desk .

For equation b)... remember the hand or finger pressing against the wall .
What is the definition of temperature?

Each choice may be used more than once .

- | | |
|------------------------|-------------------------|
| a) chemical property | b) physical property |
| c) chemical change | d) physical change |
| e) reactivity | f) flammability |
| g) solubility | h) malleability |
| i) helium | j) oxygen |
| k) motor oil | l) vinegar |
| m) floor cleaning oil | n) water |
| o) balloon with oxygen | p) balloon with helium |
| q) matter | r) density |
| s) volume | t) mass |
| u) weight | v) gravity |
| w) Newton | x) smells like PETCO |

1) _____ Describes a substance based on its ability to change into a new substance with different properties

2) _____ Whether or not an object is hard or soft , light or heavy , solid or liquid

3) _____ The actual occurrence of one or more substances changing into new substances with different properties.

4) _____ The actual occurrence of a substance changing physically

5) _____ The international standard unit of force

6) _____ Scent of science room before Mr DiMaio opens the windows

7) _____ The force of attraction of two objects due to their mass

8) _____ Least densest fluid based on experiments on Tuesday.

9) _____ gas that is very light

10) _____ gas that weighs more than the other gas

- 11) _____ grainy texture
- 12) _____ chemical property of wood
- 13) _____ chemical property of anti-acid tablets with water
- 14) _____ ability to flatten into sheets
- 15) _____ sugar dissolves in water
- 16) _____ floated to ceiling faster
- 17) _____ floated to ceiling slower
- 18) _____ mass divided by volume
- 19) _____ amount of matter in a given space
- 20) _____ measure of gravitational force on a given object
- 21) _____ always stays the same no matter where you are in universe
- 22) _____ amount of space taken up by something
- 23) _____ anything that has volume or mass
- 24) _____ did not mix well with motor oil, created large white clumps
- 25) _____ mixed very well with water
- 26) _____ can go from solid to liquid to gas without changing chemical properties
- 27) _____ often causes color changes, fizzing, or foaming
- 28) _____ a person growing old and getting grey hair
- 29) _____ milk staying in your refrigerator for over 1 year and stinking really bad
- 30) _____ breaking a piece of chalk into three pieces

1) Explain how volume is different from area. Write down the two equations as well.

2) Explain how mass is different from weight? Do they remain the same or do they change in different parts of the solar system

3) Explain how density is affected by changes in volume?

4) Explain the difference between inertia and momentum.

5) Explain the difference between speed and velocity. What do you have to include when mentioning velocity?

6) What are the four states of matter?

7) Energy review:
What is the difference between exothermic and endothermic reactions?

8) Give me three examples of each one?

9) What is the difference between a physical change and a chemical change.

10) Give me three examples of each.

1) A squirrel is traveling from Chicago to Paris on a specially designed airplane. The distance is 4800 miles. The plane is scheduled to leave at noon tomorrow and arrive at noon Chicago time Sunday. If Paris is 6 hours ahead of us How long does it take the squirrel to get there?

What will be the average speed of the squirrel plane?

If the plane now experiences a tailwind of 15 mph the entire way, what will be the speed of the plane? How much earlier will the plane get there if the squirrel attaches fake wings and flies the plane with an additional 5 mph to Paris?

If the boat gets the above tailwind and a current moving with the boat at 5 mph, now what will the resultant speed of the boat be? How much earlier will the boat get to Portugal?

2) If two cars are traveling from Chicago to the North Pole in a snowstorm and drive a distance of 1800 miles, what is their speed if they get there in 72 hours?

If Hong is in the car and asks Erik to get out and push and makes the car get there in 66 hours, now what is their speed?

Brian is also in the car and has eaten through 3 days of food in 1 day and now the car is much lighter. He is unhappy with Erik and wants a polar bear to help push the car. The polar bear is picked up halfway to the north pole and does add 5 mph to the car's speed. They would be going faster, but Veronica is slowing the bear's progress by giving him a manicure while hanging out the window. Now tell me the time they would get there?

3) If Frank eats 30 pounds of WHEATIES and has a tremendous amount of energy and runs without stopping from Chicago to the North Pole in 24 hours, what is his speed. Also calculate his speed if he has to carry Angies knapsack of soda and menthos and is forced to stop often at White Hen Pantry for candy which will slow him down to 30 hours?

Using the word key below, write down the name of the element next to the letters provided

- 1) H
- 2) Au
- 3) Cl
- 4) P
- 5) K
- 6) Ti
- 7) Al
- 8) S
- 9) Fe
- 10) Ca
- 11) Cu
- 12) Co
- 13) Ag
- 14) Hg
- 15) Si
- 16) O
- 17) N
- 18) Ne
- 19) Sn
- 20) Pb
- 21) Na
- 22) C
- 23) He

- 24) Ar
- 25) Mg
- 26) Se
- 27) Ge
- 28) Zn
- 29) F
- 30) Kr
- 31) Ni
- 32) Pt
- 33) Ra
- 34) Fr
- 35) Sr
- 36) B
- 37) Be
- 38) Cs
- 39) Li
- 40) I

Word list for above elements:

Titanium Cobalt Nitrogen Helium Zinc Radium Beryllium Iodine
Potassium Copper Oxygen Carbon Germanium Platinum Boron
Lithium Phosphorous Losphorous Calcium Halcium Silicon
IceCreamCone Sodium Sewdium Selenium Nickel Penny Quarter
Strontium Chlorine Clorox Iron Iwalk Mercury Pluto Lead Follow
Magnesium Kyrpton Cesium Sneezeeumm Blessu Francium Sascoium
Flourine Argon Arback Arneverleft Neon Elbowoff Silver
Aluminum Reynoldswrap HelloDrehJun Hydrogen

