Standard S8P1a

1. Which of these BEST describes an atom?

A. A particle of matter that carries an overall positive charge.

B. A particle of matter that is formed by the bonding of two or more molecules.

C. The smallest particle of an element that shows all the properties of that element.

D. The smallest particle of an element that can be broken down further to form molecules.

2. What's the difference between "4P" and "P_4"?

A. There is no difference; they both represent the same thing.

B. 4P represents four molecules and P_4 represents four atoms.

C. P_4 represents four atoms chemically bonded together and 4P does not.

D. 4P represents phosphorus atoms that are bonded together chemically and P_4 represents one molecule.

3.

I.	An atom is the smallest unit of an element and a molecule is made up of two or more non-metal atoms chemically bonded together.
II.	An atom is indivisible and a molecule can be broken down into atoms.
III.	An atom is the smallest unit bonded together and a molecule is made up of elements.
IV.	An atom is the smallest unit of an element and a molecule is made up of two or more metal and non-metal atoms chemically bonded together.

Which conclusions best elaborate on the differences between an atom and a molecule?

A. I and II

B. II and III

C. III and IV

D. IV and I

Standard S8P1b

1. The table identifies characteristics of two substances, Y and Z.

Y	Z
Composed of the same type of atoms	Composed of two types of atoms
Has fixed melting point	Does not have fixed melting point

Which of these can be concluded about substances Y and Z.

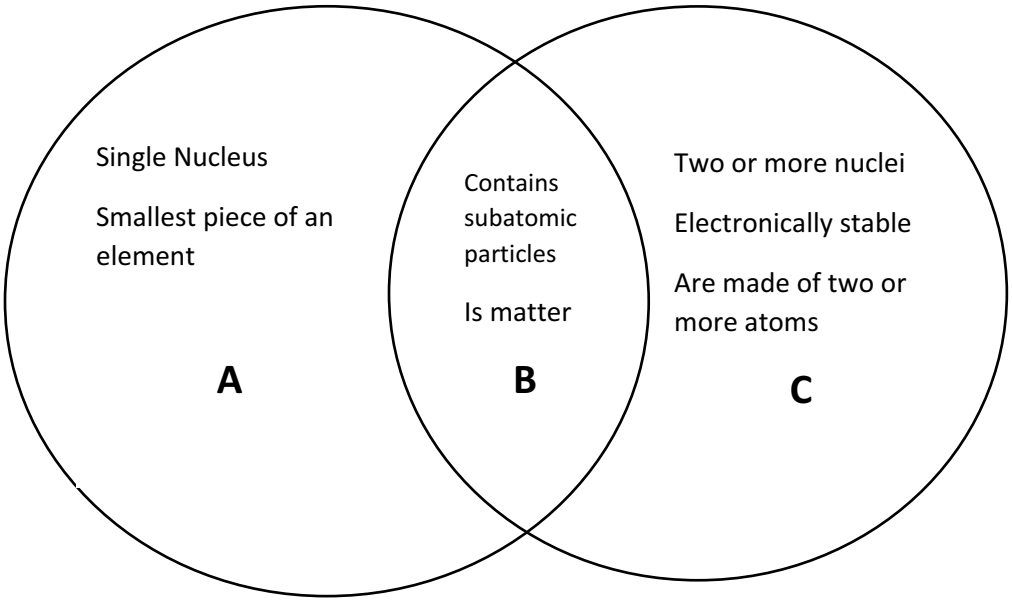
A. Y and Z are both compounds.

B. Y is an element and Z is a mixture.

C. Y is a mixture and Q is a compound.

D. Y is a compound and Z is an element.

2. **Atom vs. Compound**



Summarize the Venn diagram.

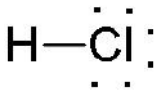
A. Compounds are found inside the matter of atoms.

B. A pure substance may contain subatomic particles but not atoms.

C. Compounds are the most basic form of matter. They combine to form larger atoms.

D. Atoms are the most basic form of matter. They combine to form larger electrically stable compounds.

3.



Elaborate on whether this Lewis structure represents an element or a compound.

A. This element is made up of multiple atoms.

B. It is an allotrope representing chloric acid.

C. The compound is made up of two different atoms.

D. The structural geometry of this shows a molecule.

Standard S8P1c

1. A student is heating water to make hot chocolate. He begins thinking about the effect of heating on the particles of water. Which of these statements correctly describes how the particles of water are affected as the water is heated?

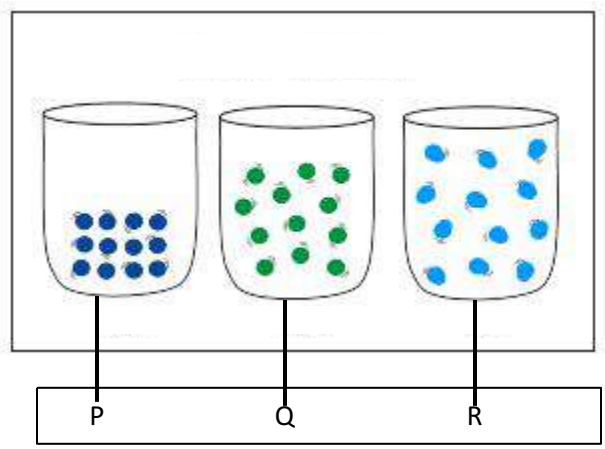
A. The particles start moving faster.

B. The particles start moving slower.

C. The particles start vibrating in fixed positions.

D. The particles start expanding to take up more space.

2. The three jars show the movement of particles in three states of matter.



Dry ice is solid carbon dioxide. As dry ice is heated, it goes directly from a solid to a gas through a process called sublimation.

Which sequence of jars shows the change in motion of particles of dry ice as it sublimes?

A. jar P to jar Q

B. jar P to jar R

C. jar Q to jar R

D. jar R to jar P

3. The molecule arrangement of ice, water, and steam are very different. _____ has the most ordered arrangement, _____ has the next most orderly arrangement, and _____ has the least orderly arrangement of molecules.

A. ice, water, steam

B. steam, water, ice

C. water, steam, ice

D. water, ice, steam

Standard S8P1d

1. A student performs an investigation to determine the properties of an iron nail. The list shows her findings.

The nail can rust.
The nail is denser than water.
The nail is very hard.
The nail can be bent.

Which statement is correct about the student's findings?

A. Rusting is a physical property of iron.

B. Hardness is a chemical property of iron.

C. Rusting and bending are chemical properties of iron.

D. Density and hardness are physical properties of iron.

2. Knowing Melting Points

Substance	Melting Point (°C)
Lead	328
Aluminum	660
Iron	1538
Water	0
Table Salt	801
Table Sugar	185

The task in science lab: Discover which solid substance, without tastin, is sugar. Donna and Dave have five substances to test, and unfortunately, two are white! "Let's heat them!" suggested Donna.

Did Donna have a reasonable solution to their problem?

A. Yes, it would help narrow the search to salt or sugar.

B. No, all four substances have pretty low melting points.

C. No, it's impossible to reach these temperatures in a student lab.

D. Yes, sugar's melting point is much lower than the other four solids.

3.

Common Metals

Name	Melting Point	Density (g/cm^3)
Zinc	419.53°C	7.134
Nickel	1455.00 °C	8.912
Copper	1084.62 °C	8.960
Silver	961.78 °C	10.501
Gold	1064.18 °C	19.282

During Ms. Johns' science class, students were expected to identify various substances using physical properties they could easily measure. Ms. Johns gave each of the five groups a green, metal cube and asked them to identify what the cube was made of.

Matt's cube, after 5 trials, had an average density of 7.40 g/cm^3. His group's cube was made of

A. aluminum.

B. gold.

C. nickel.

D. zinc.

Standard S8P1e

1. Elaborate on the difference between a chemical change and a physical change.

A. A physical change is irreversible where as a chemical change is reversible.

B. A physical change does form new substances and a chemical change does not break any bonds.

C. A physical change rearranges atoms but a chemical change causes a substance to remain the same.

D. A physical change does not break any bonds while a chemical change does form new substances.

2. From the list below, identify which situations contain chemical changes.

I. A pot of water is being heated on a stove. Bubbles form and condensation appears on the lid of the pot.
II. A translucent, blue copper sulfate solution is mixed with another solution and changes to a translucent light blue color.
III. Ammonium nitrate solid dissolves in water and feels very cold.
IV. Red and blue paint are mixed together and the color purple appears.

A. I and II

B. III

C. II, III, and IV

D. I, II, and III

3. A group of chemistry students had to identify six white powders. The students used a variety of tests to identify the powders. They computed the density of each powder. They checked to see if any dissolved in water. One of the powders did not dissolve in water and they thought it was cornstarch. Someone knew that cornstarch felt slippery and reacted with iodine. The students put a few drops of iodine on each white powder. One powder turned black; they guessed that it was cornstarch. They heated the powders in a Bunsen burner flame to see if any would melt. One did and they guessed it might be sugar.

Which test result indicated a chemical change had taken place?

A. dissolves in water

B. feels slippery in water

C. melts when heated in a flame

D. turns black when iodine is added

Standard S8P1f

1. Unknown Elements

Substance	Appearance	Melting Point (°C)	Elecrical Conductivity	After Pounding with Hammer
A	Black powder	3500°C	None	Still Powder
B	Reddish Pellet	1360°C	High	Flattens a little
C	Shiny silver strip	1200°C	High	Retains shape
D	Dull gray pellet	620°C	High	Flattens a lot

In a lab experiment, students had four samples of elements. They made observations about the appearance of each sample, then proceeded to conduct three separate experiments. In the first, they found the melting point of each by holding small samples in a Bunsen burner with a temperature probe. In the second, they held a conductivity probe to two separate sections of the sample. In the final test, they took a small sample and hit it with a hammer.

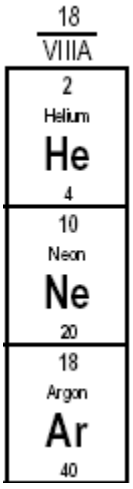
A. A

B. B

C. C

D. D

2.



These three members of the Noble gas family all have one property in common because they are gases at room temperature. That is they

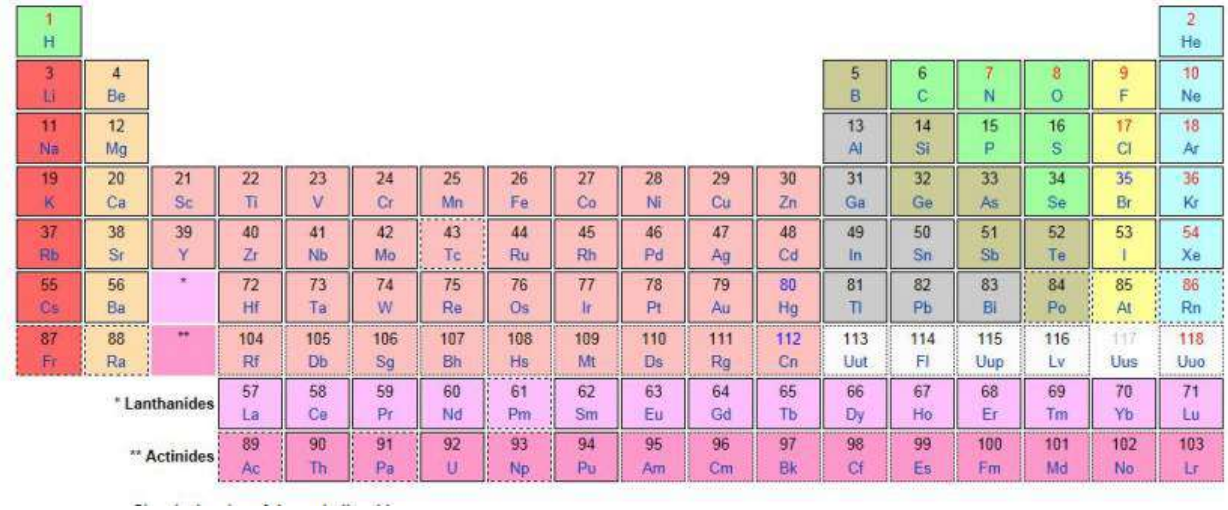
A. are combustible.

B. are compressible.

C. are relatively dense.

D. have no definite shape but a definite volume.

3.



Groups 1 and 2 on the periodic table contain what atom type?

A. metals

B. metalloids

C. non-metals

D. noble gases

Standard S8P1g

1. During a physical science lab investigating chemical reactions, several students place an antacid tablet in a zip-lock bag. They recorded the mass of the tablet, 30 grams, and the bag, 60 grams. They then added 50 grams of water and quickly sealed the bag. The tablet began to fizz and soon disappeared. The bag was filled with gas. If the mass of the liquid after the reaction is completed is still 50 grams, how much gas is produced?

A. 30 grams

B. 50 grams

C. 80 grams

D. 90 grams

2. Ms. Smith is demonstrating a chemical change for her class. She places 15 grams of baking soda into a beaker. Next, she adds 15 grams of vinegar to the same beaker. When the tow compounds make contact, they bubble and fizz a great deal. She places the beaker on the balance and notes that the mass of the solution in the beaker is less than the expected 30 grams.

Why is the mass of the solution in the beaker less than 30 grams?

A. The balance was not working correctly.

B. The gas that was released changed the mass.

C. Mass is always lost in a chemical reaction.

D. The new products have less mass than the original reactants.

3. reactant $\longrightarrow$ product

If there are 4 grams of reactant, how many grams of product are produced by the chemical reaction?

A. 0 grams

B. 2 grams

C. 4 grams

D. 8 grams

Standard S8P2a

1. Which object below involves two energy transformations when used?

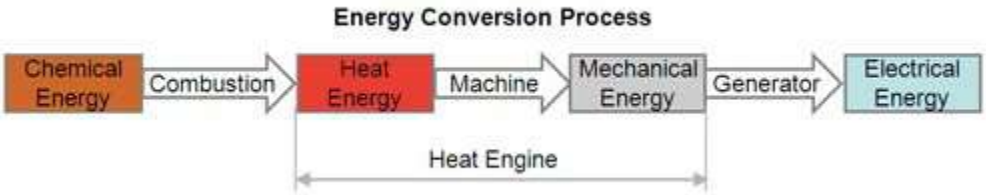
A. a radio plugged into an outlet

B. a toaster

C. a battery-operated remote control car

D. a blender

2.



Scientists tell us that the energy transformation chain in an engine ranges from 25% to 60% efficient. Using the diagram above, explain if this is consistent with the law of conservation of energy.

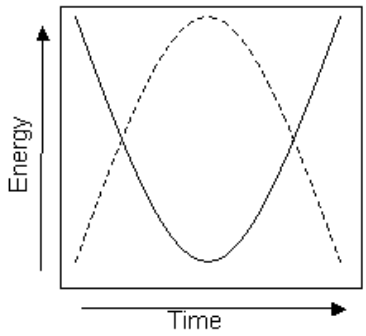
A. Yes. The chemical energy input is converted to three forms of useful energy. The lack of efficiency is due to the construction of the engine.

B. No. Engines do not conform to the law of conservation of energy. Some of the chemical energy input is destroyed and is lost in the form of heat.

C. Yes. Although the engine is not 100% efficient, it does conform to the law of conservation of energy because much of the energy is converted and lost as heat.

D. No. Energy transformations illustrated here do not conform to the law of conservation of energy. The energy input does not equal the energy out because energy is destroyed in the process.

3.



Potential energy ----------

Kinetic energy ——————

According to the graph, which of these remains constant throughout?

A. total amount of energy

B. potential energy

C. kinetic energy

D. time

Standard S8P2b

1. When a roller-coaster car reaches the top of a hill and starts going downward, there is a change in the direction and speed of the car. Which of these can also be concluded about the roller-coaster as it is going downward?

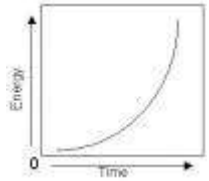
A. Its kinetic energy decreases as its potential energy proportionally increases.

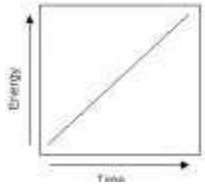
B. Its potential energy decreases as its kinetic energy proportionally increases.

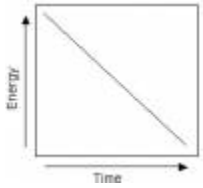
C. Both its potential and kinetic energy proportionally increase.

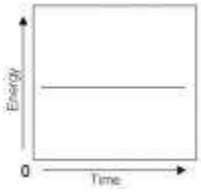
D. Both its potential and kinetic energy proportionally decrease.

2. A pencil falls from a desk. Which graph BEST represents the pencil's change in potential energy?

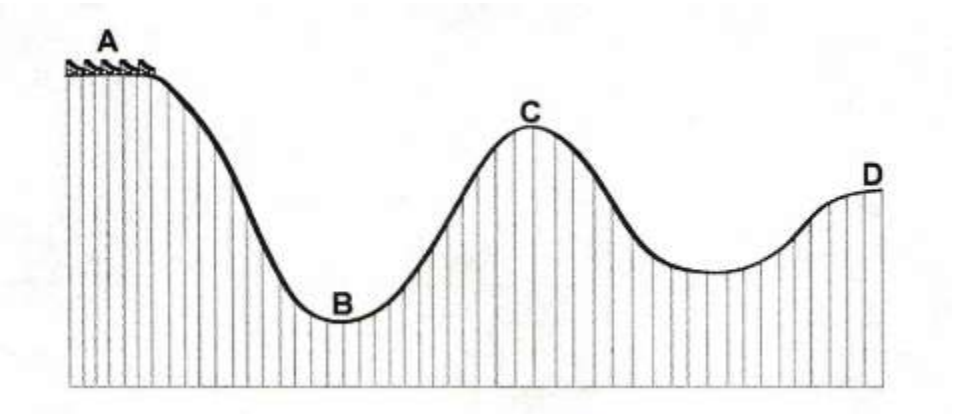
A. 

B. 

C. 

D. 

3.



Consider the roller coaster on the track. If you want to increase the kinetic energy of the roller coaster as it proceeds through the course, what is the FIRST thing you should do?

A. Increase the height of point A.

B. Decrease the height at point B.

C. Increase the weight of the roller coaster.

D. Increase the friction between the wheels and the track.

Standard S8P2c

1.

Jan's teacher showed the class a mirror, a lit flashlight, a burning candle, a thick scarf, a woolen mitten, and a sparkly sticker. Jan's group observed the objects and made a list of those that gave off heat.

What did Jan's group notice about the objects that give off heat?

A. They sparkle.

B. They produce light.

C. They are insulators.

D. You wear them to keep warm.

2. When gasoline is burned in a car engine, _____ energy is converted into _____ energy.

A. heat, chemical

B. chemical, potential

C. mechanical, chemical

D. chemical, mechanical

3. What is the purpose of designing electrical circuits in homes and offices?

A. to draw in any harmful radiation in and around the rooms

B. to deliver electrical energy to various electrical devices

C. to warm the rooms from the heat generated by the wires in the circuit

D. to redirect the electrical energy from a lightning bolt and protect the rooms

Standard S8P2d

1. In order to boil an egg, a student puts the egg in a pan of water and heats the pan on the stove. Which methods of heat transfer are used to transfer the majority of the heat to the water and to the egg?

A. radiation and convection

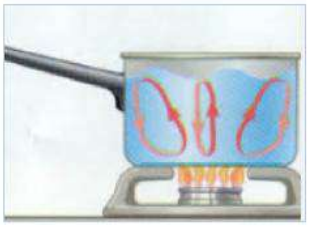
B. radiation and conduction

C. conduction and convection

D. conduction, convection, and radiation

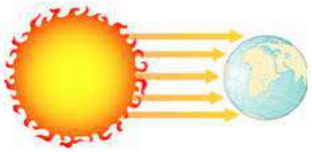
2. Which two images represent the principle of radiation?

I.

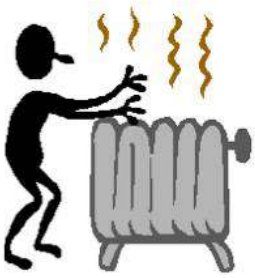


II.

III.



IV.



A. I and II

B. III and IV

C. I and III

D. I and IV

3. Conduction occurs more easily between solids and liquids. This is because the particles in gases are

A. further apart and move faster.

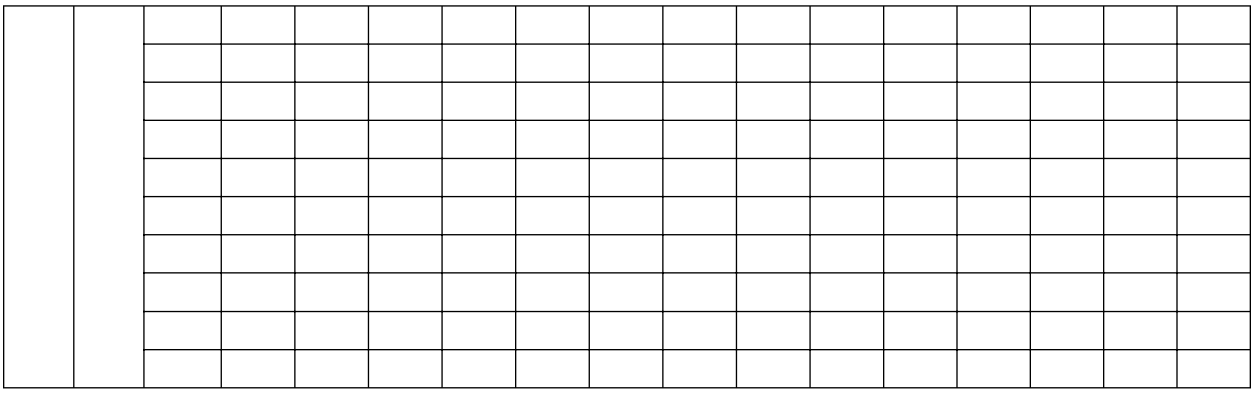
B. closer together and move faster.

C. further apart and move more slowly.

D. closer together and move more slowly.

Standard S8P3a

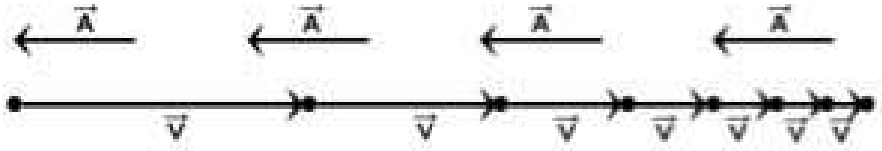
1. The graph shows the velocity of a moving train over time.



Time (in minutes)

During which two intervals of time was the train moving with a constant, positive acceleration?
A. 0-5 and 10-15 minutes
B. 5-10 and 15-25 minutes
C. 10-15 and 25-30 minutes
D. 15-20 and 30-35 minutes

2.



Consider the motion diagram. It illustrates a car's velocity (V) and acceleration (A). Is there a change in either velocity or acceleration? Is there a change in both? Explain.

A. The velocity is changing because the car is slowing down. The car is not accelerating; it would be decelerating.
B. Neither one changes. The velocity remains constant because the car is not changing direction. It is coming to a stop so it is decelerating.
C. The velocity remains constant because the car is not changing direction. The car is slowing down so it is experiencing negative acceleration.
D. Both the velocity and the acceleration change. The car is slowing down = change in velocity. Slowing down would also indicate negative acceleration.

3. A car is traveling at a constant velocity of 60 km/h for 4 hours.

Choose the correct statement about the acceleration of the car.

A. The acceleration of this car is zero.

B. The acceleration of this car is positive.

C. The acceleration of this car is negative.

D. The acceleration of this car is 15 m/s.

Standard S8P3b

1. A cart is being pushed over a smooth surface with a constant force. After five seconds, the cart starts moving over a rough surface. How will the cart be affected once the surface changes?

A. The cart's inertia will increase.

B. The cart's velocity will increase.

C. The cart's friction will decrease.

D. The cart's acceleration will decrease.

2. A 10-kg object is pushed across a rough surface. It begins at rest and accelerates to a speed of 4 m/s in a distance of 5 m. Which fact(s) support the conclusion that the object experiences an unbalanced force?

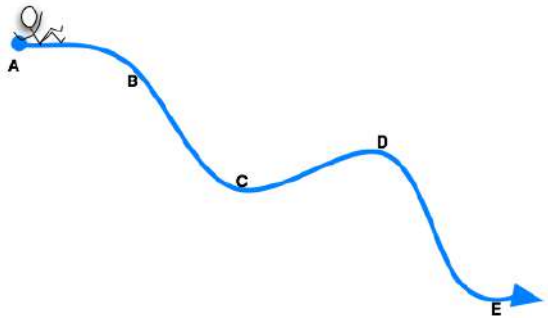
A. The rough surface has friction.

B. The object has a mass of 10-kg.

C. The object accelerates across the surface.

D. The object has a force applied to it and covers a distance.

3.



Consider a person sliding down a water slide at a constant velocity. What are the forces acting on the person as they slide? Are the forces balanced or unbalanced? Explain.

A. Gravity and friction are acting on the person. The forces are unbalanced because the person is sliding down the slide.

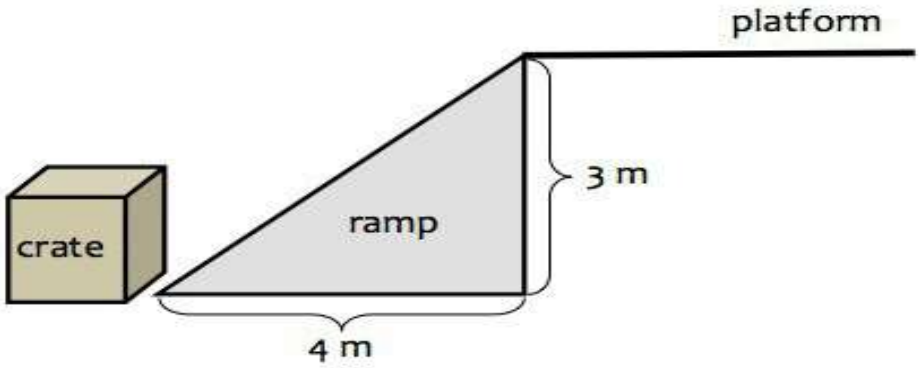
B. Gravity and air resistance are acting on the person. The forces are balanced until the person reaches the bottom of the water slide.

C. Weight, gravity, and friction are acting on the person. The forces are unbalanced. Gravity is the strongest force causing the person to move.

D. Gravity and friction are acting on the person. The forces are balanced. There is no net force because the person is moving at a constant velocity.

Standard S8P3c

1.



Movers want to raise a heavy crate onto a platform. The platform is 3 meters (m) above the ground. The movers do not have enough force to push the crate up the ramp shown in the diagram.

Which solution will best allow the moves to achieve their goal?

A. Change the width of the ramp from 4m to 3m.
B. Change the length of the ramp from 4m to 5m.
C. Change the height of the ram from 3m to 4m.
D. Change the length of the ramp from 3m to 2m.

2. Ms. Sechrist's class is investigating simple machines. Today they are using a crowbar to lift a heavy desk. Most students can lift the desk with the crowbar, even though they couldn't lift it with their bare hands.

One student in the class can't lift the desk; even with the crowbar. What change should be made so the student can lift the desk?

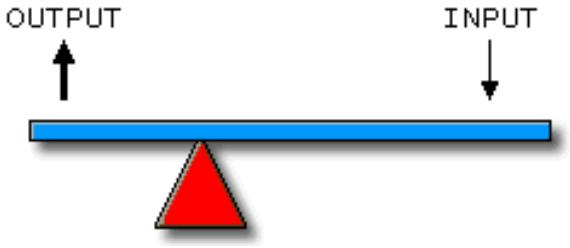
A. Use a crowbar that is longer than the first.

B. Use a crowbar that is shorter than the first.

C. Use a crowbar that is heavier than the first.

D. Use a different type of lever that is the same length as the original crowbar.

3.



What is the primary mechanical advantage of using the simple machine seen in the image?

A. You can apply a small input force and have it multiplied into a large output force.

B. You can apply a large input force and have it multiplied into a small output force.

C. You can apply a small input distance and have it multiplied into a large output distance.

D. You can apply a large input distance and have it multiplied into a small output distance.

Standard S8P4a

1. Many movies have shown scenes where explosions can be seen and heard in outer space. Which statement BEST describes why these scenes are not correct?

A. Sound waves are unable to travel in outer space.

B. Light waves travel too slowly to be seen in outer space.

C. Light and sound travel at different speeds in outer space.

D. Light and sound travel in different directions in outer space.

2. Why can television satellites, which broadcast information as electromagnetic radiation, send signals from the vacuum of space?

A. Electromagnetic radiation increases as the distance increases.

B. Electromagnetic radiation does not need a medium to travel through.

C. Space does not provide a medium that will block the satellite signals.

D. Space is so vast that light waves can spread out to their full size and strength.

3. Waves in water are mechanical waves in which the particles in the medium move in a direction perpendicular to the direction of energy transport. Identify another name for this type of wave motion.

A. transverse waves

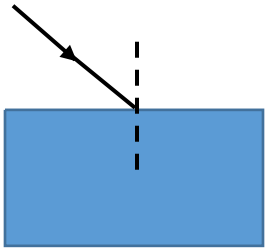
B. pressure waves

C. longitudinal waves

D. electromagnetic waves

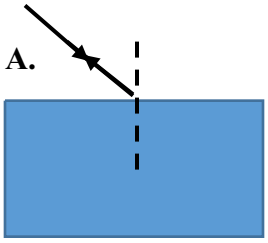
Standard S8P4b

1. A student is drawing a diagram of a light ray as it enters a pane of glass.

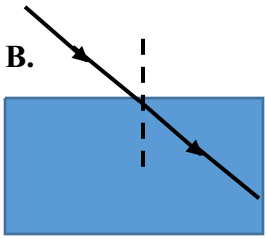


Which of these shows the correctly completed diagram?

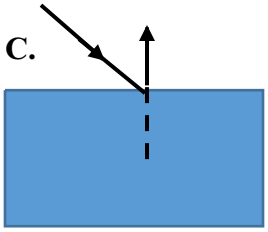
A.



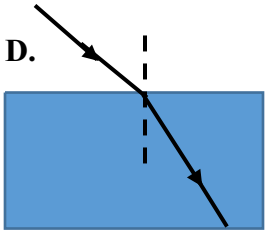
B.



C.



D.



2. Student 1 claims that energy can only be transferred by particles inside a medium. Student 2 does not agree with Student 1. Which statement should Student 2 use as evidence that Student 1 is INCORRECT?

A. Light energy can travel without a medium.

B. Sound energy can travel without a medium.

C. All types of energy can travel without a medium.

D. Mechanical energy can travel without a medium.

3. The term albedo (al-BEE-dough) is a measure of the amount of light reflected by a surface. The higher the albedo value of the surface of a material, the more light is reflected by it. The table gives the albedo values of the surfaces of different materials:

Material	Albedo Value
White roof	0.75
Sand	0.35
Brick	0.20
Fresh asphalt	0.004

Based on the albedo values, which material MUST BE the darkest in color?

A. Sand

B. Brick

C. White roof

D. Fresh asphalt

Standard S8P4c

1. A machine converts sound into a transverse wave as shown.

A.

B.

C.

D.

2.

Your Eye

Vision begins when light rays are reflected off an object and enter the eyes through the cornea, the transparent outer covering of the eye. The cornea bends or refracts the rays that pass through a round hole called the pupil. The iris, or colored portion of the eye that surrounds the pupil, opens and closes (making the pupil bigger or smaller) to regulate the amount of light passing through. The light rays then pass through the lens, which actually changes shape so it can further bend the rays and focus them on the retina at the back of the eye. The retina is a thin layer of tissue at the back of the eye that contains millions of tiny light-sensing nerve cells called rods and cones, which are named for their distinct shapes. Cones are concentrated in the center of the retina, in an area called the macula. In bright light conditions, cones provide clear, sharp central vision and detect colors and fine details. Rods are located outside the macula and extend all the way to the outer edge of the retina. They provide peripheral or side vision. Rods also allow the eyes to detect motion and help us see in dim light and at night. These cells in the retina convert the light into electrical impulses. The optic nerve sends these impulses to the brain where an image is produced.

You are looking at a brightly colored hot air balloon rise in the sunny sky. What is the path the light takes in order for you to see the balloon and the individual colors?

A. cornea-lens-pupil-retina-optic nerve-brain

B. cornea-pupil-retina-cones-optic nerve-brain

C. light-cornea-pupil-retina-cones-optic nerve-brain

D. sunlight-pupil-lens-cornea-retina-optic nerve-brain

3. Light waves come in different wavelengths and frequencies. The color of the light we see is dependent on wavelength. When we see a rainbow, we are actually seeing

A. a single wave of light.

B. light waves of the same frequency.

C. light waves of the same wavelength.

D. light waves of different wavelengths.

Standard S8P4d

1. As a sound wave travels from liquid water into ice, its wavelength would

A. decrease due to wave speed decreasing as it passed through the ice.

B. increase because the wave speed and frequency have increased.

C. decrease since the frequency is now lower.

D. increase in order to keep the frequency the same due to the increase in speed.

2. The note created by a flute will increase the speed of sound increases. when a marching band goes outside on a cold day, what would you predict would happen to note played on a flute?

A. It would decrease because the speed of sound and temperature are proportional.

B. It would increase because the speed of sound and temperature are proportional.

C. It would decrease because the speed of sound and temperature are inversely proportional.

D. It would increase because the speed of sound and temperature are inversely proportional.

3. A nuclear explosion may release tremendous amounts of energy in the form or noise, heat, visible light, radiation, and atmospheric shock wave. An observer watching the explosion from the vacuum of nearby space would be able to experience which of these types of energy?

A. heat and radiation

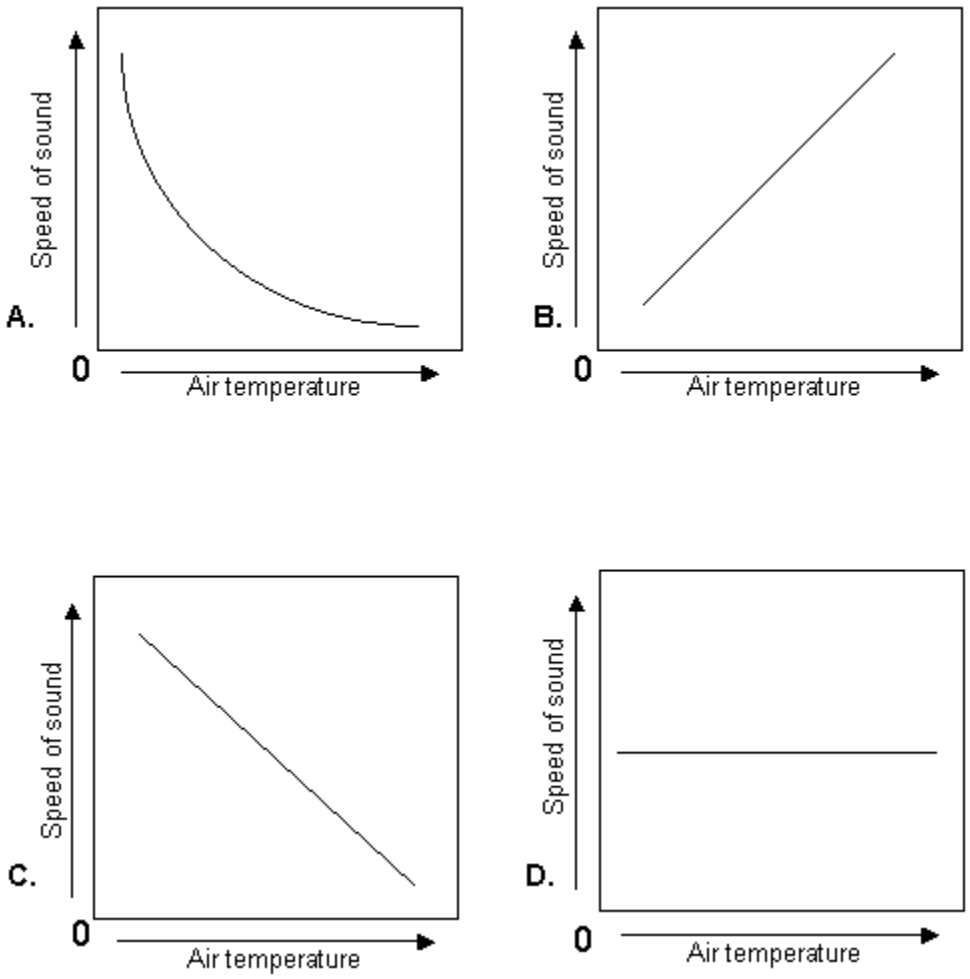
B. sound and radiation

C. light and radiation

D. heat, light, and the shock wave

Standard S8P4e

1.



The British attempted to break the land-speed record and the sound barrier using a jet-powered car. They made their attempt in the morning because this is when the air was coolest. This suggests that the relationship in which graph is true?

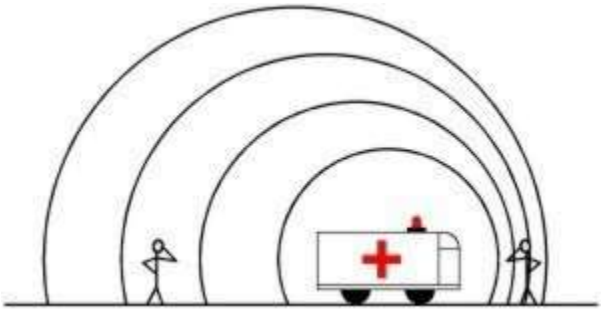
A. A

B. B

C. C

D. D

2.



As the ambulance got closer, Marge noticed that the pitch of the siren got higher. This happened because

A. the sound waves were pushed closer together.

B. the human ear increases pitch over time.

C. the ambulance was closer.

D. the volume increased.

3. Your teacher walks outside the classroom to have a conversation with the principal. Unknown to the teacher, while she is outside the room, the sound waves are transmitted around the edge of the door and spread out on the other side and you can hear the conversation. This is due to sound wave

A. absorption.

B. diffraction.

C. inference.

D. reflection.

Standard S8P4e

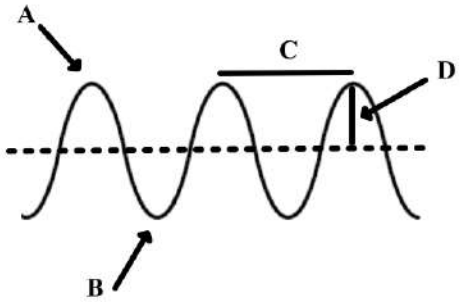
1.

Sean is playing his guitar, holding down one string by pressing his finger at position O. Where should he move his finger to produce a sound with a higher pitch?

A. 1 **B.** 2

C. 3 **D.** 4

2.



A note is played on a flute. Which of the parts of the wave would be affected by playing a higher pitch note and how?

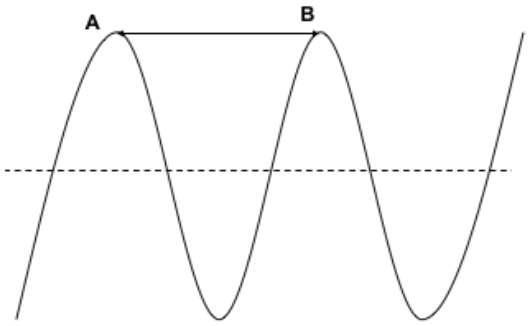
A. D- The frequency would get higher.

B. C- The wavelength would get shorter.

C. C and D-The amplitude and wavelength would increase.

D. A, B, and D- the amplitude and crest would be higher, while the trough would be lower.

3.



What do we call the distance labelled from A to B? What could we do to the note played on an instrument to change that distance?

A. A to B is known as the wavelength and changing the pitch of the note will change its length.

B. A to B is known as the amplitude and changing the loudness of the note will change its length.

C. A to B is known as the wavelength and changing the amplitude of the note will change its length.

D. A to B is known as the wave height and changing the amplitude of the note will change its length.

Standard S8P5a

1. While conducting an experiment, a student determines the gravitational force between two objects of equal mass. He uses this as his control for the experiment. He then conducts five additional experiments. He performs the experiments with the changes listed, measuring the effect of each on the gravitational force between the objects and comparing the result to the information from the control.

Experiment 1. Replace one control object with an object that is double the mass of the objects in the control at the control distance.
Experiment 2. Replace both control objects with objects that are double the mass of the objects in the control at the control distance.
Experiment 3. Using the control objects, double the distance between the objects compare to the control.
Experiment 4. Using the control objects, reduce the distance between the objects by half compared to the distance in the control.
Experiment 5. Replace one control object with an object that is half the mass of the objects in the control at the control distance.

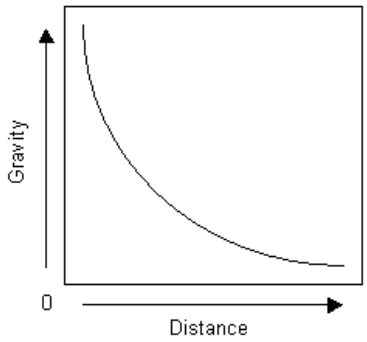
A. 1 and 3

B. 2 and 4

C. 3 and 5

D. 4 and 5

2.



This graph shows the change in the force of gravity as distance increases. The graph will never reach zero, which suggests that

A. gravity cannot cross space.

B. the force of gravity does not change regardless of distance.

C. every object exerts gravitational force on every other object.

D. more distant objects exert a stronger gravitational force on other objects.

3. The graph represents the gravitational attraction between two equal masses vs. their distance apart, which statement BEST describes the information presented by the graph?

A. Distance is the only factor is space, not on earth.

B. Gravitational attraction is inversely proportional to distance.

C. Gravitational attraction is inversely proportional to distance.

D. Gravitational attraction is not related to the distance between objects.

Standard S8P5b

1. Light bulbs on a string of lights are connected using parallel circuits. Which of these BEST explains why parallel circuits are used instead of series circuits?

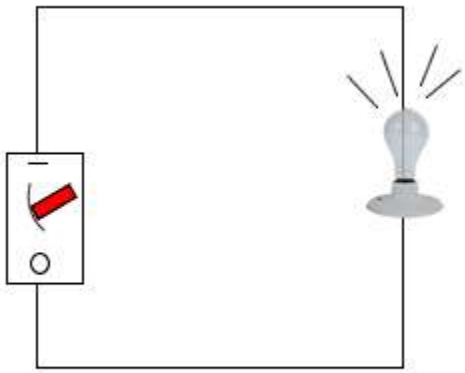
A. Parallel circuits use less energy.

B. Parallel circuits are easier to make.

C. If one light goes out on a parallel circuit, no other lights go out.

D. If one light goes out on a parallel circuit, all the other lights will go out.

2.



What would occur if you were to replace the bulb in the circuit with a much brighter bulb?

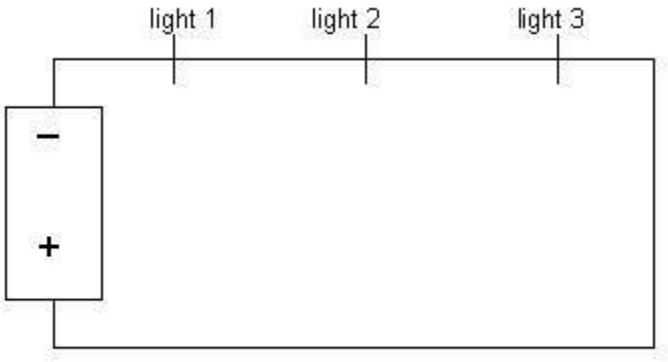
A. The new bulb would not fit into the system.

B. More energy would be transferred from electrical light.

C. The light bulb would not work as it would require too much energy.

D. The new bulb would only burn as bright as the old one because the same amount of energy is available.

3.



One disadvantage of this type of circuit is that

A. the addition of new light bulbs decreases resistance.

B. as more lights are added to the circuit, the voltage to each decreases.

C. as more lights are added to the circuit, the current to each increases.

D. when the current to one light is turned on, the current to the other lights turns off.

Standard S8P5c

1. Renaldo and Nasreen build an electromagnet by wrapping a wire around a nail and connecting the wire to both terminals of a battery. When they test the electromagnet, it can pick up 6 paper clips. Their teacher wants all groups to pick up at least 10 paper clips. What could Renaldo and Nasreen do to increase the number of paper clips their electromagnet picks up?

A. make the wire longer

B. remove the nail from the center of the wire

C. increase the number of loops of wire around the nail

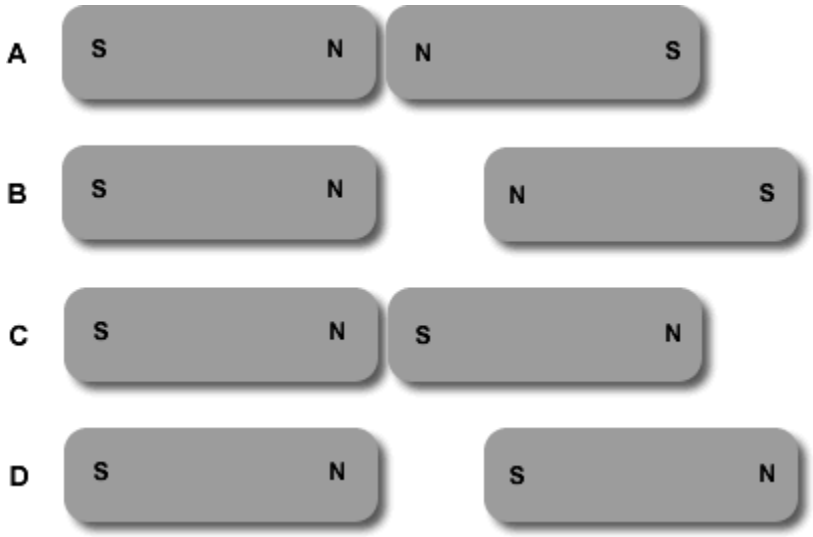
D. spread the loops of wire apart on the nail so they do not touch

2. A table has several directional compasses, several lengths of wire, an iron nail, a battery, an ammeter, a light bulb, a permanent magnet, and a rubber eraser.

A student is asked to design an experiment to prove that a moving charge will produce a magnetic field. From the items on the table, which items can be used together to design such an experiment?

A. A battery, an iron, and a wire
B. A battery, a length of wire, and a direction compass
C. A battery, a permanent magnet and a directional compass
D. A permanent magnet, a length of wire, and a directional compass

3.



Which set of magnets correctly shows us repulsion?

A. A

B. B

C. C

D. D

Answer Key

Standards	#1	#2	#3
S8P1a	C	C	A
S8P1b	B	D	C
S8P1c	A	B	A
S8P1d	D	D	D
S8P1e	D	B	D
S8P1f	A	B	A
S8P1g	A	B	C
S8P2a	C	C	A
S8P2b	B	A	A
S8P2c	B	D	B
S8P2d	C	B	A
S8P3a	A	D	A
S8P3b	D	C	D
S8P3c	B	A	A
S8P4a	A	B	A
S8P4b	D	A	D
S8P4c	B	C	D
S8P4d	D	A	C
S8P4e	B	A	B
S8P4f	A	B	A
S8P5a	C	C	C
S8P5b	C	B	B
S8P5c	C	B	B