

— Thank You Event Sponsors —



Science Expo 2019



Physical Science

Answer Key

Want more science?
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Free and family friendly!

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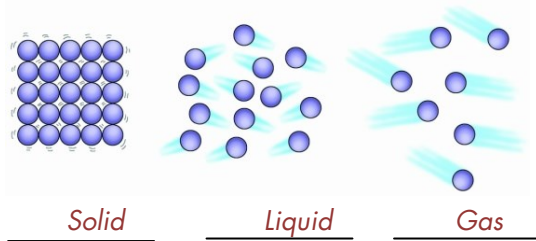
Wednesday Mar. 20 4:00-6:00 pm	North Lake Tahoe Family Night UC Davis Tahoe Science Center 291 Country Club Drive, Incline Village, NV
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Thursday Apr. 4 4:30-6:30 pm	South Lake Tahoe Family Night Lake Tahoe Community College Gymnasium One College Drive, South Lake Tahoe, CA
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Properties of Matter

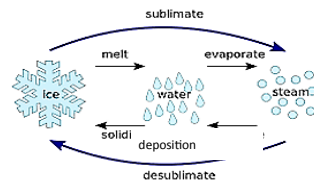
Physical Properties

Matter on the Move: What are the three states of matter?



Phase Change Poppers: What is the phase change called when a solid changes directly into a gas?

Sublimation



Invisible Mass: Air has mass.

True or False (Circle one)

It's a Gas: When citric acid and baking soda react, what gas bubbles out of the solution?

Carbon dioxide

Slime Time: What type of fluid acts like both a liquid and a solid?

Non-Newtonian fluid or "Oobleck"



Mixtures

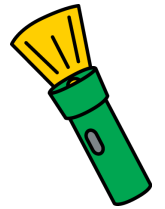
Separation Anxiety: Are mixtures separated by chemical or physical means?

Chemical or Physical (Circle one)



Energy

Light

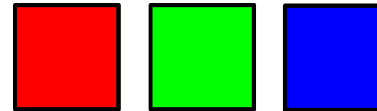


Color Combination: When you combine red, green, and blue light, what color light do you get?

White light

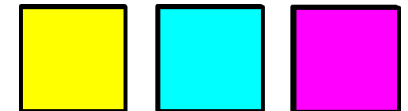
Colored Shadows:

Color-in the 3 primary colors of light



Three Little Pigments:

Color-in the 3 secondary colors



The Sky is Purple?: What gives the sky its color?

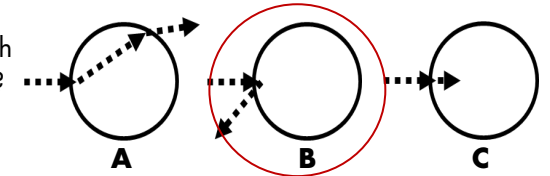
Light scattering



Great Wall of Color: Did you see colors reflected in the bubble film?

Yes or No (Circle one)

Laser Light Show: Which image represents reflection? (Circle one)



Refraction Action: The bending of light is called Refraction.

Super Spectroscopes: A spectroscope is a tool used for observing a spectrum of Visible light.

It's a Mirror-cle: Why does it look like you are flying?

The foot off the ground is reflected and looks like a second foot.



Energy

Mechanical



Give it a Ride: Potential energy is stored energy.

Kinetic energy is energy in motion.

Keep Your Eye on the Ball: Energy cannot be created nor destroyed but can change into different forms.

True or False (Circle one)



Heat

Some Like it Hot: Name 3 methods of heat transfer and an example of each.

- 1) *Conduction—touching a hot stove, frying pan on a burner, etc.*
- 2) *Convection—hot air rising in a room, soup circulating in a pot, etc.*
- 3) *Radiation—feeling warmth of the sun, warming hands near fire, etc.*

Sound

Musical Coat Hangers: Which is the best medium for sound waves to travel?

Solid Liquid Gas (Circle one)

Seeing Sound: What creates sound?
Sound is created by a vibrating object.



Fuel

US Fire Service: Prescribed fires and thinning are two ways foresters clear excess fuels to improve forest health and help prevent catastrophic or dangerous fires.



Properties of Matter

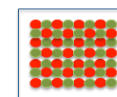
Density

Mystery Box: What is the definition of density?

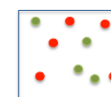
How tightly packed a material is and how much space it takes up or Mass/Volume.

Floating Golf Ball: Which is more dense?

Freshwater or Saltwater (Circle one)



High Density



Low Density

Hot and Cold Density: How can you change the density of water?

You can change the density of water by changing the temperature.

Changing the Density of an Object: Can two objects have the same volume but different densities? Why?

Yes, because of differences in the objects' mass.

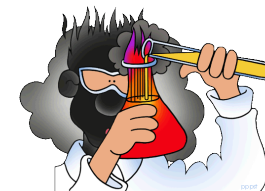
Chemical Reaction

Gassy Lava Lamp: What is a chemical reaction?

A process that rearranges molecular structures of a substance

Shake it Up!: An indicator, like cabbage juice, is used to demonstrate that a chemical reaction has taken place.

True or False (Circle one)



Exothermic vs. Endothermic:

Exothermic reactions release energy in the form of heat. (For example, Calcium chloride mixed with water feels warm and can be used to melt ice.)

Endothermic reactions absorb energy in the form of heat. (For example, Urea mixed with water feels cold.)

Forces & Motion

Air Pressure

Automatic Balloon Inflator: Which takes up more space?

Hot air or Cold air? (Circle one)



Mystery Candle: Is the pressure higher or lower inside the flask?

Higher or Lower? (Circle one)



Gravity

Gravity keeps you down: Air Resistance causes falling objects to slow down.

Strike a Balance: What physics concept keeps objects balanced?

The center of gravity of an object.



Friction Frenzy:

What is an example of friction in every day life?

Examples: driving, skiing, rubbing hands together.

Physics of Animal Flight

Flight: What are two things that help animals fly?

Wing shape, wing size, mass, wing movement and/or wing speed.



Forces & Motion

Magnetism

Magnet Magic: Magnetic fields cause magnetic

attraction and repulsion.



Magnet Mania: All metals are magnetic. True or False? (circle one)

Eddy Currents: Does a magnet fall faster in a:

Copper tube or Plastic tube? (Circle one)



Properties of Water

Magic Playing Card: What bond is breaking when the water spills out?

Adhesion OR Surface Tension.

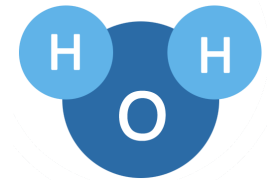
H₂Olympics:

Cohesion is the attraction between water molecules.

Adhesion is the attraction between water molecules and other materials.

Surface Tension is the strong bonds formed between water at the surface.

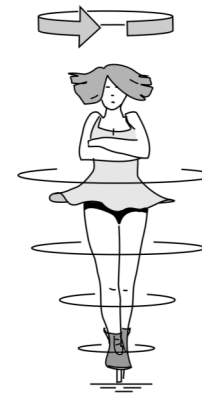
Capillary Action is the movement of water molecules within materials.



Momentum

Momentum Machine:

Match the type of momentum to the photo.



Angular

Linear

