

# Physical Science Jeopardy!

Properties of Matter	Light and EM Spectrum	Atoms & Periodic Table	Heat Transfer	Forces
<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>
<u>30</u>	<u>30</u>	<u>30</u>	<u>30</u>	<u>30</u>
<u>40</u>	<u>40</u>	<u>40</u>	<u>40</u>	<u>40</u>
<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>

10- Jan noticed that when she put a tomato in water, it sank. When she put an apple in water, it floated. Why did the tomato sink while the apple floated?

- a) The apple has more surface area than the tomato, which allowed the apple to float.
- b) The apple is more dense than the water, and the tomato is less dense than the water.
- c) The tomato is more dense than the water, and the apple is less dense than the water.
- d) The apple and the tomato have the same density, but the tomato skin absorbed water, making it sink.

Answer: C



20- Katie's teacher has given her a sample that contains a mixture of salt, sand, and iron filings. She is instructed to separate the mixture into the three individual components.

What would be the best physical property to focus on for the first step in separating the mixture?

- a) Density
- b) electrical conductivity
- c) Magnetism
- d) melting point

Answer: C



30- Kendall has 4 beakers, each containing 10 milliliters (mL) of a different liquid. He finds the mass, in grams (g), of each liquid and records it in his notebook. His data are shown in the table.

Kendall wants to know what will happen when the liquids are all combined. He pours them all into a 50-mL beaker, and after a few minutes, the liquids separate into different layers. Which liquid would make up the bottom layer of the beaker?

Liquid	Karo syrup	Milk	Vegetable oil	Water
Color	Dark brown	White	Yellow	Clear
Mass	14.0 grams	10.3 grams	9.1 grams	10.0 grams
Volume	10 mL	10 mL	10 mL	10 mL

Answer: Karo Syrup



40-

A jeweler has two blocks of gold. The first block has a mass of 60 grams (g) and a volume of 3 cubic centimeters (cm<sup>3</sup>). The second block has half the mass and half the volume of the first block.

What is the density of the smaller block of gold, in grams per cubic centimeter (g/cm<sup>3</sup>)?

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

Answer: 20 g/cm<sup>3</sup>



50-

Kari likes to play marbles, and she wants to find out if the density of a marble has any effect on how far the marble rolls. To begin, she selects ten different marbles of various sizes from her collection. She measures the first marble on a balance and finds that its mass is 13.8 grams (g). Then she takes a 100-milliliter (mL) graduated cylinder and fills it to the 50-mL mark.

After she places the marble in the graduated cylinder, the water level reads 56 mL. What is the density of this marble, in grams per milliliter (g/mL)?

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

Answer: 2.3 g/cm<sup>3</sup>



10- Sam was sitting at his desk in front of a window doing his homework. Sunlight shined through the window and a glass of water on the desk and created a rainbow across Sam's paper. Where did the colors in the rainbow come from?

- a) There was a chemical reaction between the sunlight and water that created the colors.
- b) Since the glass was curved, it made the sunlight change colors.
- c) The white sunlight was separated into all the colors that make up white light.
- d) The only way the rainbow could appear is because of a picture on the glass.

Answer: C



20- A large amount of energy is emitted from the Sun. This energy then travels millions of miles from the Sun to the Earth. The energy that comes from the Sun is best categorized as what type of energy?

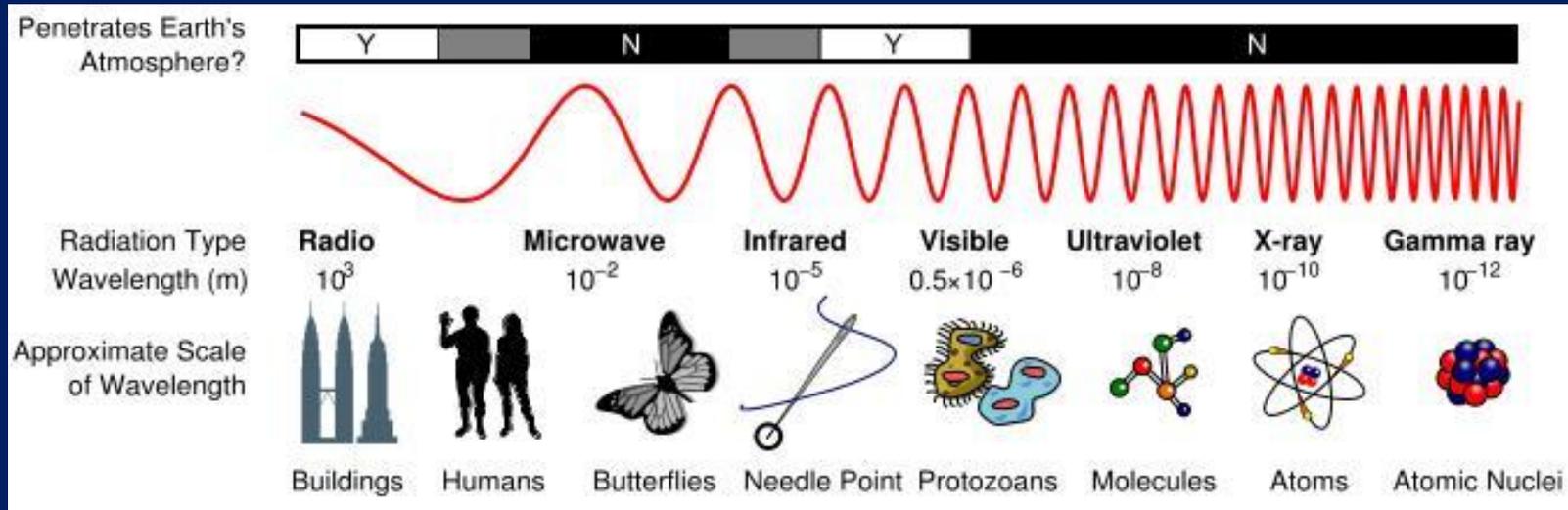
- a) potential energy
- b) kinetic energy
- c) mechanical energy
- d) radiant energy

Answer: D



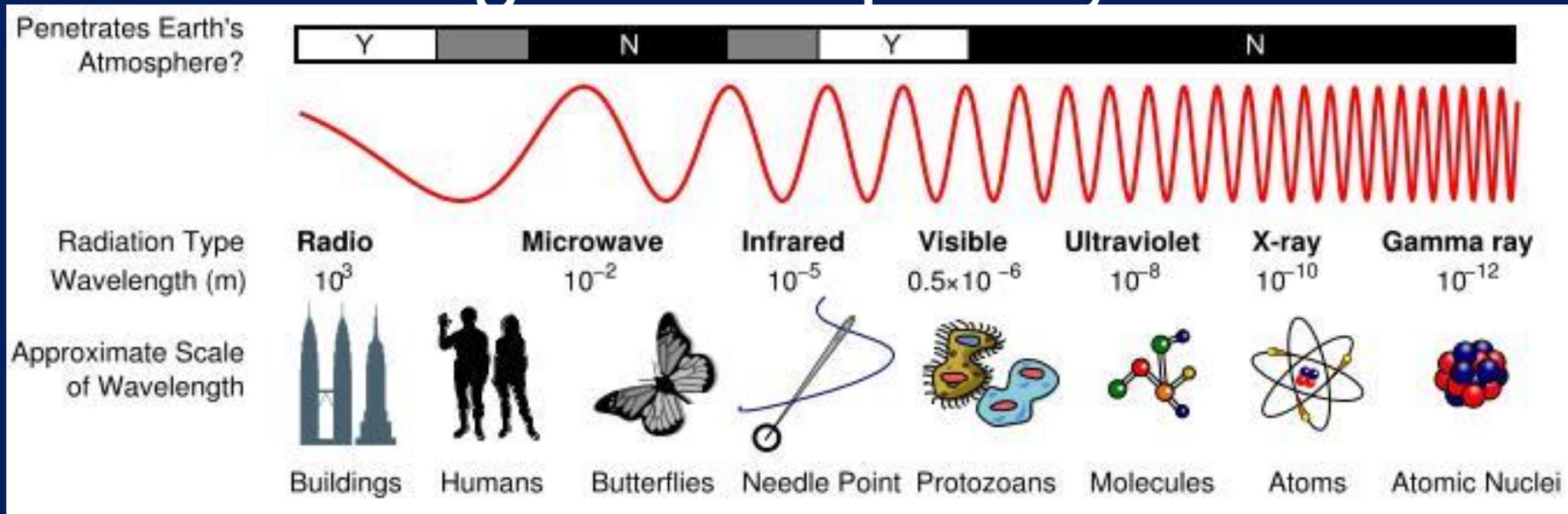
30- According to the EM Spectrum Diagram, which type of electromagnetic energy has a shorter wavelength than ultraviolet waves?

- a) X-rays
- b) Infrared
- c) Radio Waves
- d) Visible Light



Answer: B

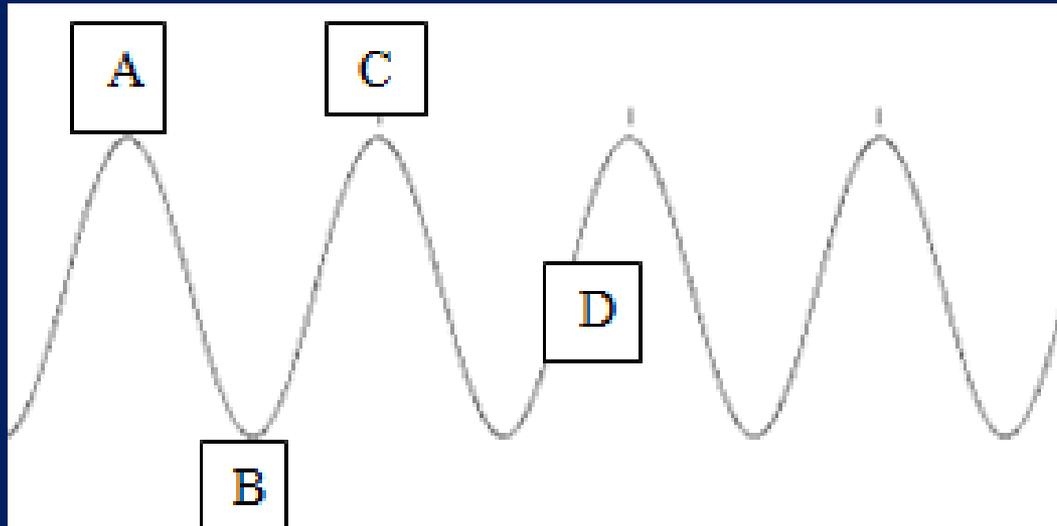
# 40- What frequency of the electromagnetic spectrum would have the highest frequency?



Answer: Gamma Rays



50- A wavelength is the distance between which two letters in the diagram?



Answer: Between A and C



10-In the modern periodic table of elements, all of the known elements are arranged by which property?

- a) Radioactivity
- b) atomic mass
- c) atomic number
- d) number of neutrons

Answer: C



20-Which of the following statements regarding matter is true?

- a) Atoms cannot combine to form compounds.
- b) The elements make up the building blocks of all matter.
- c) Every atom will bond in order to achieve a stable neutron-proton ratio.
- d) There are more than 100 naturally occurring elements that make up all matter.

Answer: B



30-In the modern periodic table, which of the following describes atoms with similar chemical behavior and properties?

- a) They have similar atomic masses.
- b) They are located in the same group.
- c) They are located in the same period.
- d) They have the same number of isotopes.

Answer: B



40-Which of the following statements regarding the periodic table of elements is true?

- a) The periodic table does not list all of the known elements in the universe.
- b) All elements on the periodic table are made up of the same fundamental particles: protons, neutrons and electrons.
- c) The properties of elements can be predicted by their positions in the periodic table, but their bonding patterns cannot be predicted.
- d) All nonliving things consist of elements on the periodic table; all living things consist of things that are not listed on the periodic table.

Answer: B



50-Use your periodic table to determine which of the following pairs of elements would have the most similar properties.

- a) hydrogen (H) and helium (He)
- b) sodium (Na) and potassium (K)
- c) nitrogen (N) and silicon (Si)
- d) calcium (Ca) and iron (Fe)

Answer: B



10- Yuan has several test tubes of different liquids. If Yuan adds heat to the liquid substances, which of the following is most likely to occur?

- a) They will take up less space.
- b) They will become gases.
- c) They will decrease in temperature.
- d) They will become solids.

Answer: B



20- Federico removes a metal spoon from a freezer and places it into a beaker of water that is at room temperature. Which of the following will occur?

- a) Heat will flow from the water to the spoon.
- b) Heat will flow from the spoon to the water.
- c) The temperature of the spoon will decrease.
- d) The water and the spoon will exchange heat at the same rate.

Answer: A



30- If you hold a cold glass of iced tea on a summer's day, which of the following will take place?

- a) Cold will travel from the glass to your hand.
- b) The temperature of the iced tea will decrease.
- c) The temperature of your hand will increase.
- d) Heat will travel from your hand to the glass.

Answer: D



40- Beth takes a sip of very hot soup and decides to put an ice cube in her bowl.

Which **best** describes what happens next?

- a) The cold from the ice evaporates in the air.
- b) Heat is destroyed as the ice melts.
- c) Heat from the soup flows into the ice cube.
- d) Cold from the ice cube flows into the soup.



Answer: C

50- Car engines generate a lot of heat. In a water-cooled engine, a water pump prevents the engine from burning up by circulating liquid coolant through the engine. That liquid is then pumped to the radiator. A fan then causes air to flow through the radiator. Which **best** describes the flow of heat through this system?

- a) The fan blows cool air through the engine, and heat leaves the engine in one continuous movement.
- b) The coolness from the water pump's liquid coolant flows into the hot radiator, cooling the system.
- c) Heat from the engine is transferred to the liquid coolant, which transfers to the radiator and then to the air.
- d) Heat is transferred to the air flowing through the radiator. It is then dissipated into the atmosphere.



Answer:C

10-Adam is studying forces in the lab. If he applies an unbalanced force to an object, what could happen?

- a) Only the object's speed can change.
- b) Only the object's direction can change.
- c) Neither the object's speed nor direction can change.
- d) The object's speed, direction, or both can change.

Answer: D



20- You observe your book on your table. The book is not in motion. What is the net force AND what forces are acting on the book?

Answer: Net force =0, Gravity and the table exert equal force



30-

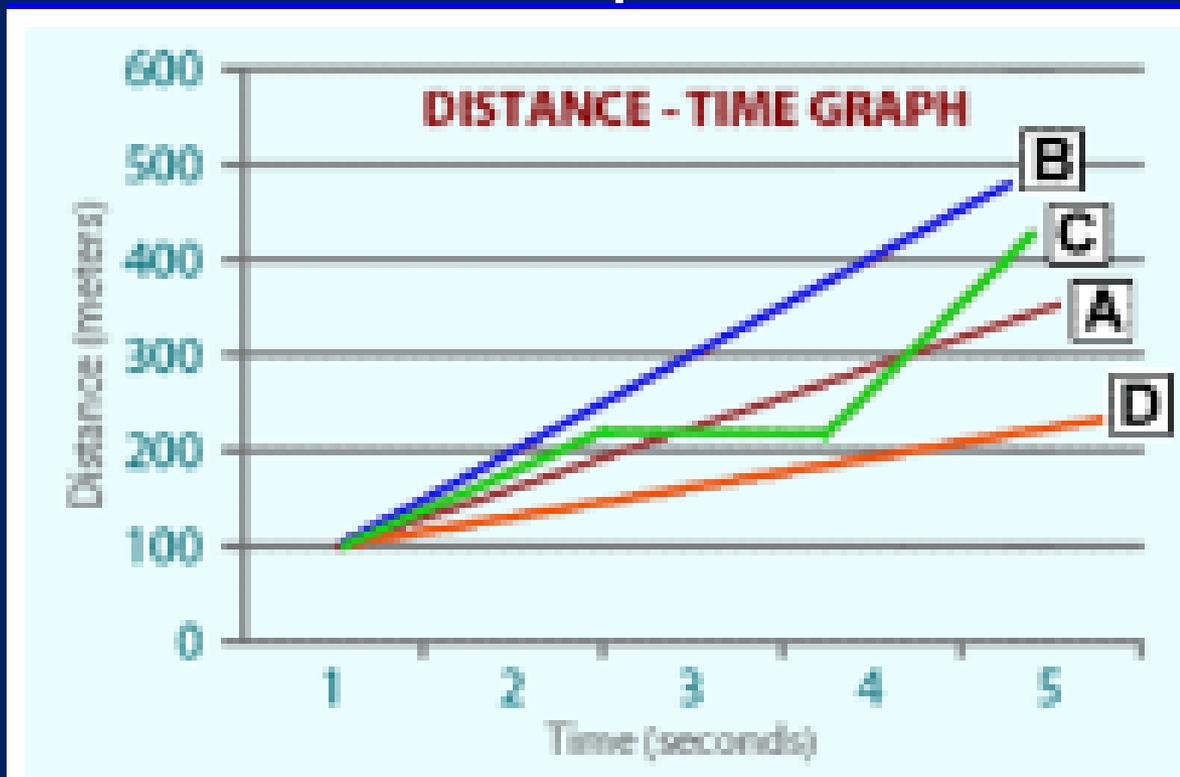
Carla pushes a toy car and lets it go. The toy car rolls and gradually comes to a stop. What would make the car stop?

- a) A force must be applied to the car in a direction opposite to that in which it is moving.
- b) A force must be applied pushing the car forward in the same direction as the moving car.
- c) A force must be applied in a direction pushing the car upward to make the car stop.
- d) A force must be applied in a direction pulling the car downward causing the car to stop.

Answer: A



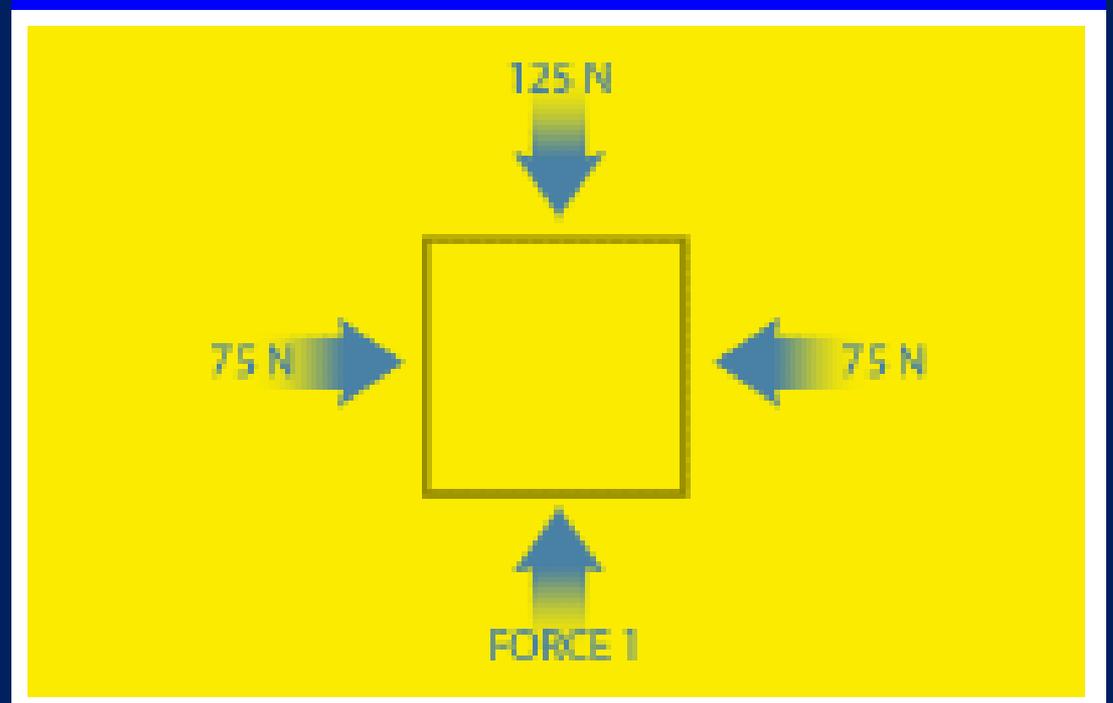
40- Cheyenne is drawing a graph that shows four different objects and the distance each object travels in 5 seconds. Which line on the graph shows the object that is traveling with the fastest constant speed?



Answer: Line B



50-If the object in the picture moves upwards with a net force of 100 Newtons (N), what is the value of Force 1?



Answer: 225N



# Final Jeopardy! Rules

- You can wager any amount you want up to your current score.
- I will accept only one answer for the question.
- Your team must decide on this answer together, take a vote if needed.

# FINAL JEOPARDY!

When a candle is lit, the wick burns, the wax melts, the candle changes shape, and the air around the candle heats up. Which of the following is an example of a chemical change?

- a) the wick burning
- b) the wax melting
- c) the candle changing shape
- d) the air around the candle heating up