

Deciding on a STEM Fair Question

This is not an exhaustive list; neither do you have to select a question from this list. Each question leads to an investigation.

Ex: Does the length of a string affect the number of swings(indep. variable)(dep. variable)What you will change.What you will measure.

Physical Science

Does the length of a string affect the number of swings of a pendulum in a given time? Does the mass of the pendulum of a string affect the number of swings of a pendulum in a given time? Does the size of a magnet affect the number of items it attracts? Does the strength of a magnet affect the number of items it attracts? Does the type of material through which items are attracted by a magnet affect the number of items the magnet attracts? Does the type of surface affect the speed of a toy car? Does the number of wire wraps affect the strength of an electromagnet? Does the wire gauge affect the strength of an electromagnet? Does the diameter of a nail affect the strength of an electromagnet? Does the type of paper affect the distance a paper airplane flies? Does the weight of paper affect the distance a paper airplane flies? Does the shape of a paper plane affect the distance an airplane flies? Does the angle of launch affect the distance an airplane flies? Does the drop height of a ball affect its bounce height? Does the size of a parachute affect the weight of items it can support? Does the shape of a parachute affect the weight of items it can support? Does the type of materials of a parachute affect the weight of items it can support? Does the shape of a windmill blade affect the amount of wind it produces? Does the length of a rotor affect how far a helicopter can fly? Does the length of a ramp (inclined plane) affect the amount of force needed to pull a load up a ramp?

Does the height of a ramp (inclined plane) affect the amount of force needed to pull a load up a ramp? Does the texture of a ramp (inclined plane) affect the amount of force needed to pull a load up a ramp? Does the length of a ramp (inclined plane) affect the speed a car would travel down the ramp? Does the height of a ramp (inclined plane) affect the speed a car would travel down the ramp? Does the texture of a ramp (inclined plane) affect the speed a car would travel down the ramp? Does the temperature of the air used to inflate a balloon affect the time it takes to inflate a balloon to a given circumference? Does the temperature of a balloon affect the time it takes to inflate the balloon to a given circumference? Does the amount of air pressure in the atmosphere affect the bounce height of a ball? Does the temperature of a ball affect the bounce height of the ball? Does mass affect how fast objects of equal volume will fall through a liquid? Does volume affect how fast objects of equal mass will fall through a liquid? Does the size of a pulley affect the rate at which it lifts a load? Does the mass of a rocket affect the height it travels? Does the size of a rocket affect the height it travels? Does the amount of fuel in a rocket affect the height it travels? Does the amount of air affect the distance a balloon rocket will travel? Does the nozzle shape affect the distance a balloon rocket will travel? Does the angle of ascent affect the distance a balloon rocket will travel? Does the type of material affect the volume of the sound produced? Does the wattage of a light bulb affect the measure of heat produced? Does temperature affect the buoyancy of a boat? Does weight affect the buoyancy of a boat? Does size affect the buoyancy of a boat? Does color affect the rate at which an ice cube melts? Does the temperature of the atmosphere affect the rate at which an ice cube melts? Does size affect the rate at which an ice cube melts? Does the type of liquid affect the rate at which an ice cube melts? Does color affect the temperature of a liquid after a given time? Does the type of material the container is made of affect the temperature of a liquid after a given time? Does temperature affect the distance an item travels when propelled by a rubber band? Does the size of the rubber band affect the distance an item travels when propelled? Does the amount of stretch of a rubber band affect the distance a rubber band will travel? Does the size of a suction cup affect the length of time it sticks securely to a surface? Does the temperature of a suction cup affect the length of time it sticks securely to a surface? Does the type of surface affect the length of time a suction cup sticks securely to a surface? Does the design shape of a bridge affect the amount of weight the bridge supports? Does the type of material affect the amount of weight the bridge supports?

Does the shape of a container affect the evaporation rate of water? Does the size of a container affect the evaporation rate of water? Does the height of a container affect the evaporation rate of water? Does viscosity (thickness) of a liquid have an effect on the rate of evaporation? Does viscosity (thickness) of a liquid have an effect on the boiling/freezing point? Does the amount of air in basketballs affect the bounce height of a basketball? Does the type of liquids affect their freeze rates? Does the depth of a pan affect how long it takes for water to freeze? Does the type of water affect the rate at which iron rusts? Does the type of coating affect the rate at which iron rusts? Does the type of metal affect the rate at which iron rusts? Does the type of food dry cells (tomato, potato, or apple) affect the highest amount of energy measured in voltage? Does temperature affect the ripening rate of bananas? Does packaging affect the ripening rate of bananas? Does temperature affect the rate of solubility of a substance? Does the type of substance affect the rate of solubility? Does temperature affect the growth rate of sugar crystals? Does temperature affect the solubility rate of Alka Seltzer? Does the mass of an object affect its drop speed? Does the density of wood affect how much weight wood will hold in water? Does the size of wood affect how much weight wood will hold in water? Does the type of wood affect how much weight wood will hold in water? Does the type of wood affect the absorption rate of water?

Life Science

Does colors affect the growth rate of plants? Does the type of seed affect the rate of germination? Does the placement of a seed when planted affect the growth of the seed? Does the type of fertilizer affect the growth rate of plants? Does the composition of acid rain have an effect on the germination rate of seeds? Does temperature affect the growth rate of seeds? Does the type of soil affect the growth rate of plants? Does the type of water affect the growth rate of plants? Does the type of water affect the growth rate of plants? Does the type of water affect the growth rate of a seed? Does music affect the growth rate of a seed? Does the type of light affect the growth rate of plants?

Environmental Science

Does the type of soil affect the amount of water retention? Does the type of paper affect the disintegration rate? Does the type of fertilizer have an effect on algae growth? Does using gray water (bath or hand washing) affect plant growth? Does the type of precipitation affect the rate of erosion? Does the type of soil affect the rate of erosion? Does the type of food affect its decomposition rate? Does temperature affect the decomposition rate of food?

Earth Science

Does the angle/position of the sun affect the temperature of shaded areas during the day? Does the angle/position of the sun affect the temperature of non-shaded areas during the day?

Does wind speed affect the height of sand dunes?

Does wind speed affect the distance sand travels?

Does the type of material affect the temperature over time?

Does the type of soils affect percolation rates?

Does the size of a spherical object affect the circumference of the crater when dropped from a certain height?

Does the mass of a spherical object affect the circumference of the crater when dropped from a certain height?

Does the volume of a spherical object affect the circumference of the crater when dropped from a certain height?

Does the size of a spherical object affect the rate at which the object falls?

Does the mass of a spherical object affect the rate at which the object falls?

Does the volume of a spherical object affect the rate at which the object falls?

Engineering Science

Does the road composition affect the top speed of a radio-controlled car?

Does the type of material of a parachute affect the speed of drop?

Does the area of a parachute affect the speed of drop?

Does the design of the levee construction affect water retention rates?

Does the levee construction material affect water retention rates?

Does the number of folds affect the mass it supports?

Does the truss design affect the amount of weight it holds?

Does the slope angle affect the amount of eroded material?