Science Fair Project Ideas

Physical Science: Machines (3–4)

Simple Machines

What are all of the simple machines found in a car?

Which simple machines are found in different toys?

Can a pet rat be trained to use a simple machine? Which one?

Which simple machine do students use most often during the school day?

How many kitchen utensils are actually kinds of simple machines?

Inclined Plane

What is the angle and surface type of the fastest playground slide in my neighborhood?

How much energy is needed to push an object up ramps of different angles?

How does the amount of air in bicycle tires change how hard it is to climb a paved hill?

Wedge

Which type of nails require the least force to pound into a piece of wood?

Which size and shape of wedge takes the least force to split a piece of wood?

Does the size of a doorstop wedge affect how well it can hold open a door?

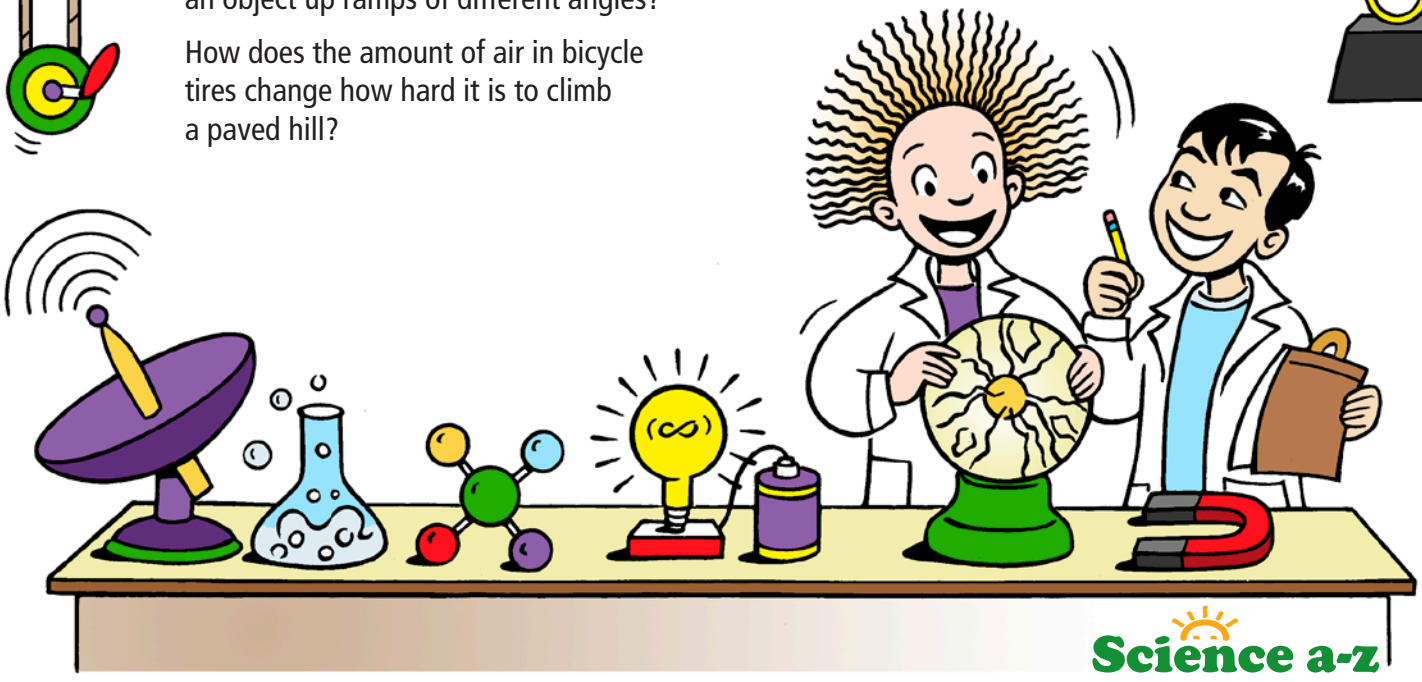
Screw

Why are there so many different types of screws in a hardware store?

Does it take more force to drive in a screw or to unscrew it? Why?

Does the size of a screw affect how much force is needed to drive it in?

Is it easier to use a flathead or a Phillips screwdriver? Why?



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More Science Fair Project Ideas

Physical Science: Machines (3–4)

Lever

Does changing the position of a fulcrum affect the amount of force required to lift a load?

Which types of scissors make it easiest to cut paper? Why?

Which shape of fulcrum makes it easiest to ride a seesaw?

What type of nut can you crush most easily with a nutcracker?

Wheel and Axle

Which design of waterwheel turns an axle most over a period of time?

Which toy car travels farthest—one with three, four, or six wheels?

Does the weight in a wagon increase the amount of work needed to move it?

Does the type of bicycle tire change the amount of work that is needed to ride up a paved hill?

Gear

Which gear allows a rider to go the fastest on a bicycle? Why?

Does changing the gear ratio affect the speed at which gears rotate?

How many teeth are needed to make a set of gears work?

Pulley

How does the number of pulleys affect how much work is needed to lift a load?

How much counterweight is needed to lift an object using one pulley? Two? Three?

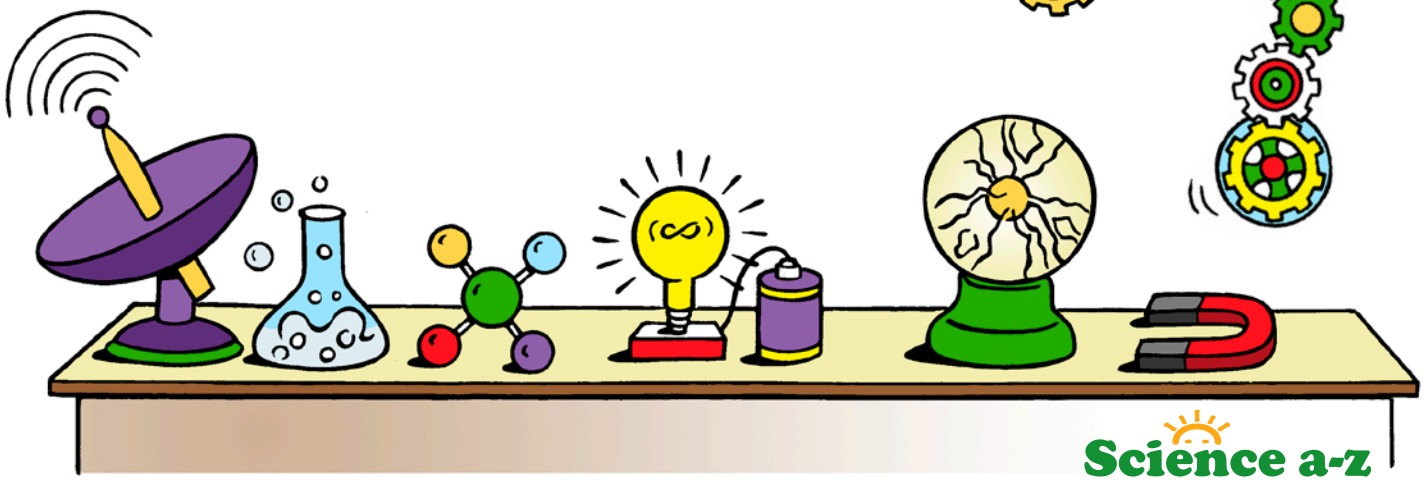
Does the size of a pulley change how much work is needed to lift a load?

Complex Machines

How do gas engines work?

How does a turbine create electricity?

Can a Rube Goldberg machine perform a simple task using all seven types of simple machines?



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