

Be A Scientist: Testable Question Ideas

Interest Area:	Testable Questions:
Physiology & Sports	How does temperature/fatigue affect the speed of reflexes? How does the duration of exercise affect the pH of spit? How does soda (or acidity in general), affect tooth enamel? How does duration and type of exercise affect heart rate? How does type of drink (sports drink, orange juice, water) affect the amount of electrolytes present?
Food	How does sense of smell affect the ability to taste different foods? (do not use artificial flavors or candy) How do different amount (or substances) of vinegar (or salt, lemon juice, etc.) affect mold growth on bread? (use bread without preservatives) How do different emulsifiers affect the separation time of salad dressing? How does length of time a cutting board is exposed to lunchmeat affect microbe growth after cleaning? How do sugar substitutes affect yeast fermentation?
Microbiology *most of these require agar plates	How do different types of disinfectants/soaps affect microbe growth? * How do different conditions (salinity, basic, acidity, temp, etc) affect yeast fermentation? How do different substances (gum, toothpaste, mouthwash) affect mouth germs? * How do sugar substitutes affect yeast fermentation?
Building & Civil Engineering	How does the material of a bridge affect its strength? How does type of adhesive affect the strength/durability of a bridge? How do reinforcement bands affect bending stress and where a rod breaks? How does fence structure affect wind resistance?
Circuits & Electrical Engineering	How does the angle of the sun/color of light affect the output of a solar cell? How does the length of a resistor affect the amount of light energy produced by a circuit? How do different types of materials affect their ability to conduct electricity?

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Aerodynamics & Physics	How does the wing shape/bend, tail position, type of material, affect flight of an airplane? How do different types of parachute materials affect how long it takes to reach the ground? (or how does size of a parachute affect its performance)? How does stretching a rubber band affect how far it will travel? How does temperature affect rubber band elasticity? How does mass of a vehicle affect its speed? How does the length of a lever effort arm affect how much effort it takes to lift a load?
Chemistry	How does the amount of baking soda added to vinegar affect how much gas is produced? (could also use alka seltzer and water) How does temperature affect the speed of chemical reactions? (or time for food coloring to fully diffuse in water) How does viscosity affect the time required for an object to travel through a liquid? How does the material an ice cube is wrapped in affect how long it takes to melt? How does temperature affect the formation of crystals?
Environmental Science & Plants	How does temperature (or other conditions) affect seed germination? How does the acidity of water (acid rain) affect aquatic plant viability? How does clay content of soil affect how much water it can hold? How does plant type (or leaf shape) affect transpiration rates in plants? (tie plastic bags around leaves and measure amount of water collected) How does the toxicity of “green” versus conventional chemicals affect the environment? How do different cleaning agents affect oil removal from bird feathers?