

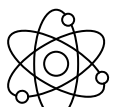
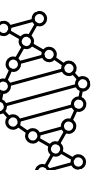

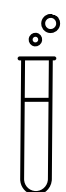
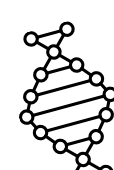
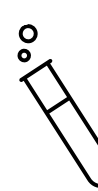
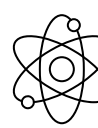


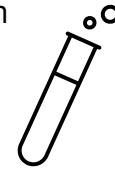



SCIENCE

PROJECT IDEAS

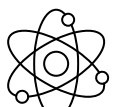

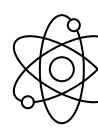


CHEMISTRY

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- Self-Inflating Balloons: What happens when you mix an acid and a base?
 - What Makes Ice Melt Fastest?
 - How salty does water have to be for an egg to float?
 - Which Filtration Material Leads to the Best Drinking Water?
 - Electrolyte Challenge: Orange Juice Vs. Sports Drink – Which substance has the most electrolytes?
 - Investigate how changing the amounts of different ingredients in homemade bath bombs affects their fizziness.
 - How does adding salt or sugar affect the freezing point of water?
 - Design your own slime – Which slime recipe makes the best slime?
 - What is the correct ratio of baking soda to vinegar that will result in the highest launch of a rocket (a plastic canister)?
 - Which dyes are used in the coatings of your favorite-colored candies?
 - Which orange juice has the most vitamin C?
 - Measuring glucose in your food: How sweet is your food?
 - Burning Calories: How much energy is stored in different types of food?
 - How much fat is in your food?
 - The Skinny on Moisturizers: Which works best to keep skin moist?
 - How does acid affect the rate of erosion?
 - Paper Chromatography: Is black ink really black?
 - Sweet as Sugar: Comparing the sweetness of sugar & sugar substitutes
 - Are 'green' detergents less toxic than conventional detergents?
 - What are the effects of temperature on the rate of a chemical reaction?
 - How do different temperatures affect the resulting melted chocolate?
 - Which baking method (traditional, New York, or water bath) produces a cheesecake with the fewest cracks and greatest rise?
 - Do various types of vinegars contain the same amount of acetic acid?
 - Will your medication be functional after spending time in an environment similar to the stomach?
 - How does pH affect copper corrosion?
 - What's the best container for elephant toothpaste (which container creates the most spectacular reaction)?
 - How do various cooking temperatures affect the shape, surface, and texture of maple syrup candy?
 - Does changing the size of the reactant have an effect on the rate (speed) of the chemical reaction?
 - How effective are different sunscreen products at blocking harmful UV radiation from sunlight?
 - Does the coating on a pill make it more difficult to dissolve?
 - How much baking powder do quick breads need?
 - How does the pH of the bleaching solution affect its ability to lighten hair?
 - Can baking soda be used in place of baking powder in recipes?







CHEMISTRY

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- Which metal is most resistant to corrosion?
 - How much iodine is in various types of salts?
 - Can you change the rate of a chemical reaction by changing the particle size of the reactants?
 - How does temperature affect the activity of an enzyme?
 - How does changing the temperature of water affect the gas production of an Alka Seltzer tablet?
 - Does chemical lightening affect the structure of human hair?
 - What factors affect the rate of an iodine clock reaction?
 - How does light affect a chemical reaction?
 - How does evaporation effect heating and cooling?
 - What happens to motor oil as the engine temperature goes up? (viscosity)
 - How does solubility vary with temperature?
 - Which home remedy removes skunk odor the best?



COMPUTERS

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- Are deleted files really gone?
 - How do advertisers, political parties, or nonprofit organizations use social media and what information gained from data mining could they use to optimize their social media use?
 - Do people use different passwords for different accounts?
 - How fast is your computer?
 - Can video games be a form of exercise?
 - Do stereotypes of "gamers" actually match the reality of who plays video games?
 - How does changing the timing between three different animation poses affects how you perceive the quality of a video game character's punch?
 - Do distractions affect driving video game scores?
 - What file format should I use to save my favorite photo? Comparing the strengths and weaknesses of different digital formats.
 - How much extra energy does your peripheral electronic equipment (printers, monitors, speakers) consume each day?

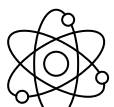



CONSUMER SCIENCE

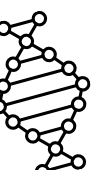

- Are childproof containers really childproof?
- Are more expensive golf balls really worth it?



ENGINEERING



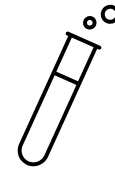
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- Which fin (bilge keel) design is better at keeping a boat from rolling back and forth?
 - Can a suspension bridge carry a greater load than a simple beam bridge?
 - How much mass can an eggshell support? (Testing the strength of arch shapes)
 - Which types of soil amplify side-to-side earthquake shaking motion the most?
 - Can a paper bridge hold up to 100 pennies?
 - Can a toilet paper tube support your weight?
 - Which wing design creates the greatest lift?
 - Which kite design flies best in low winds?
 - Which paper glider design is the most aerodynamic?
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ENVIRONMENTAL

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- How fast do different biodegradable & compostable materials decompose?
 - What detergents can be used to safely clean up an oil spill?
 - Do warmer seas make stronger hurricanes?
 - Are there dangerous levels of lead in local soil?
 - Do your storm drains keep the ocean trash free?
 - Is the energy produced by biofuel equivalent to the energy produced by the same amount of nonrenewable fuel?
 - How much organic waste can composting worms eat?
 - How soon after sunset does the sky become dark?
 - Can water plants be used to determine water quality?
 - How do plants change the buildup of greenhouse gases?
 - Is recycled water really safe?
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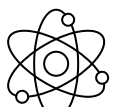
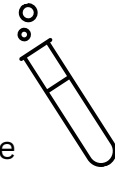



FOOD SCIENCE

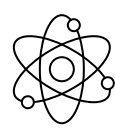
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- What type of cookie sheet causes uneven cooking?
 - Which flour has the most gluten?
 - How much water is required to cook pasta?
 - How does the amount of fat effect the taste and texture of pastry shells?
 - How does the type of flour affect the taste and texture of muffins?
 - How can you prevent an apple slice from turning brown?
 - How do various ingredients affect the adsorption of a marinade into food?
 - How do different kinds of milk affect the resulting cheese?
 - What is the best recipe for making stabilized fresh whipped cream?
 - Which cooking liquids slow the softening of beans the most?
 - Which starch has the best thickening power?
 - What factors cause potato chips to spoil and go rancid?
 - How does the thickness of a piece of steak affect its cooking time?
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FOOD SCIENCE




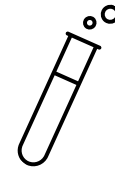

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- What is the best way to make mashed potatoes with the best consistency?
 - Which milk is prone to curdling? Skim, low-fat, or whole milk?
 - What is the best recipe for making processed cheese?
 - Which food presentation technique works best?
 - How does food size impact carryover cooking?
 - Why does food continue to cook after it has been removed from the oven? Why do some cooking directions tell you to let the food “stand” for a few minutes?
 - What is the best way to arrange food in the microwave to ensure that it cooks evenly?
 - What are the effects of roasting peanuts on the color, taste, and texture of peanut butter?
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GEOLOGY

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- Is soil structure an important factor in earthquake dynamics?
 - Which types of soils hold the most water (porosity)?



HUMAN BEHAVIOR

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- Are eyewitness reports reliable enough to be used as substantial evidence in criminal convictions?
 - Are composite faces more attractive than real faces?
 - Do mnemonics help people memorize lists of words or facts?
 - Does gender affect color preference?
 - Can gaming help you score better in school?
 - Is smiling contagious?
 - How efficient are people at multitasking?
 - Can you crowdsource a better school environment?
 - How can prosecutors and defense attorneys make sure that photo lineup procedures used to identify criminal suspects are unbiased?
 - Do people prefer virtual reality headsets over 2D pictures?
 - Does listening to classical music help or hinder concentration and performance on cognitive tasks?
 - Do males and females play the same type of games?
 - Which incentive strategy works best for encouraging small children to complete a task?
 - Do people take longer when someone is waiting for them? Perception vs. Reality
 - Does digital practice really make perfect?
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HUMAN BIOLOGY

- Do blindfolded subjects told to walk in a straight line consistently walk in circles?
- How Does Noise Affect Coordination?
- Are fingerprint patterns inherited?
- Heart Health: How Does Heart Rate Change with Exercise?
- Think Fast: Do video game players have faster reaction times than non-players?
- Which sense is most important for flavor detection: Taste or Smell?
- Is smell a key part of taste? (Testing the influence of smell on taste)
- How does age affect lung capacity?
- Is the heart rate recovery time faster for people who get regular exercise compared to people who do not?
- Does a child's blood pressure depend on his or her age?
- Does age affect a person's ability to detect salt?

LIFE SCIENCE

- Extracting DNA from strawberries: Is it easier to extract DNA from under-ripe, ripe, or over-ripe strawberries?
- Which bait works best for a homemade fly trap?
- How does soil affect the pH of water?
- Do different diets affect earth worms and the soil they enrich?
- What are the effects of fertilizers on algal growth?
- Can urine be used as a fertilizer substitute?
- What seeds do birds prefer to eat?

MATERIALS SCIENCE

- Which kind of wood burns slower?
- Are bails of straw a viable construction material for building homes?
- Does temperature effect the stickiness of adhesive tape?
- Which plastic wrap prevents oxidation the best?

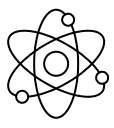
MICROBIOLOGY

- Can sunlight disinfect contaminated water?
- What kind of bacteria live around your home?
- Can cooking yeast reproduce when sugar substitute is used in baking?
- Which household cleaning products kill the most bacteria?
- How do food preservatives affect the growth of microorganisms?
- How do bacterial produce power in a microbial fuel cell?
- What is the best way to guarantee fresh bread?
- Which antifungal medication is the most effective?


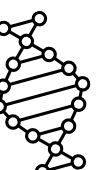

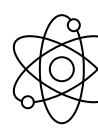



MUSIC

- Do different genres of music have different beats per minute (bpm) ranges?






PLANTS (BOTANY)

- Can mulch reduce garden water requirements?
 - How can you clone a plant?
 - Does gray water effect plant growth?
 - Can plants stop soil erosion?
 - Can plants grow without soil?
 - How do growing rootlets respond to changes in gravity?
 - What kind of pigments can be found in three types of plants?
 - Do oranges gain or lose vitamin c after being picked?
 - Do different red flowers have the same or different pigments?
 - What pigments are found in fall leaves?
 - How do flowers develop? (Which structures develop first)
 - What are the effects of irradiation on seed germination?
 - Do big seeds sprout (germinate) faster than smaller ones?
 - Are soil microorganisms important for plant health?
 - Do different tree species grow at the same rate?
 - Do plants promote pesticide breakdown?
 - What is the relationship between the size of a seed and its ideal planting depth?
 - Can garlic prevent Crown Gail (a plant disease)?
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PHYSICAL SCIENCE

- Does a candle's temperature affect its burn rate?
 - Bicycle Water Bombs: Hitting a Target from a Moving Object - Does changing the speed of your bicycle change the point at which you must release the cargo to hit your target? If so, how does it change the release point?
 - Archimedes Squeeze: At what diameter does an aluminum boat sink?
 - What materials can block a wi-fi signal?
 - What's the fastest way to cool a soda?
 - How does the color of an object affect how much heat it absorbs when exposed to light?
 - Does the temperature of a magnet affect its strength?
 - How do different surfaces affect how high a basketball bounces?
 - Do the number of coils change the strength of an electromagnet?
 - Can a solar oven cook food?
 - Parachutes: Does size matter?
 - How well do different materials create static electricity?
 - How does light intensity change with distance?
 - The effect of bridge design on weight bearing capacity?
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PHYSICAL SCIENCE

- How does the air pressure you create in a bottle rocket before launching changes the maximum height it reaches once launched?
- Does Your Mobile Phone Radiate? Measuring Cell Phone Electromagnetic Radiation
- Making A Candy Waterfall: Can Solids Flow Like Liquids?
- How does friction effect an object's motion?
- What makes a ball so bouncy? (Measuring air pressure)
- Which product is the best insulating material?
- How does the intensity of light change with distance?
- Does weight affect a drone's battery life?
- How does the volume of air in the cavity of a glass bottle affect the pitch of the note that it makes? (Testing different bottle shapes and sizes)
- How does LED brightness vary with the flow of current?
- Helicopter lift off: How does the speed of the rotor affect the amount of lift?
- What are the noise levels of different environments?
- How does viscosity change with temperature?
- How is the musical note produced by a wine glass affected by the fluid level of the glass?
- Does the bearing capacity/strand increase, decrease, or stay the same as spaghetti is bundled together?
- How does spin affect the trajectory of a kicked soccer ball?
- What are the best materials to use for blocking out unwanted noise from the environment?
- What is the effect of temperature on the elasticity of rubber bands?
- Which materials make the most resonant soundboard?



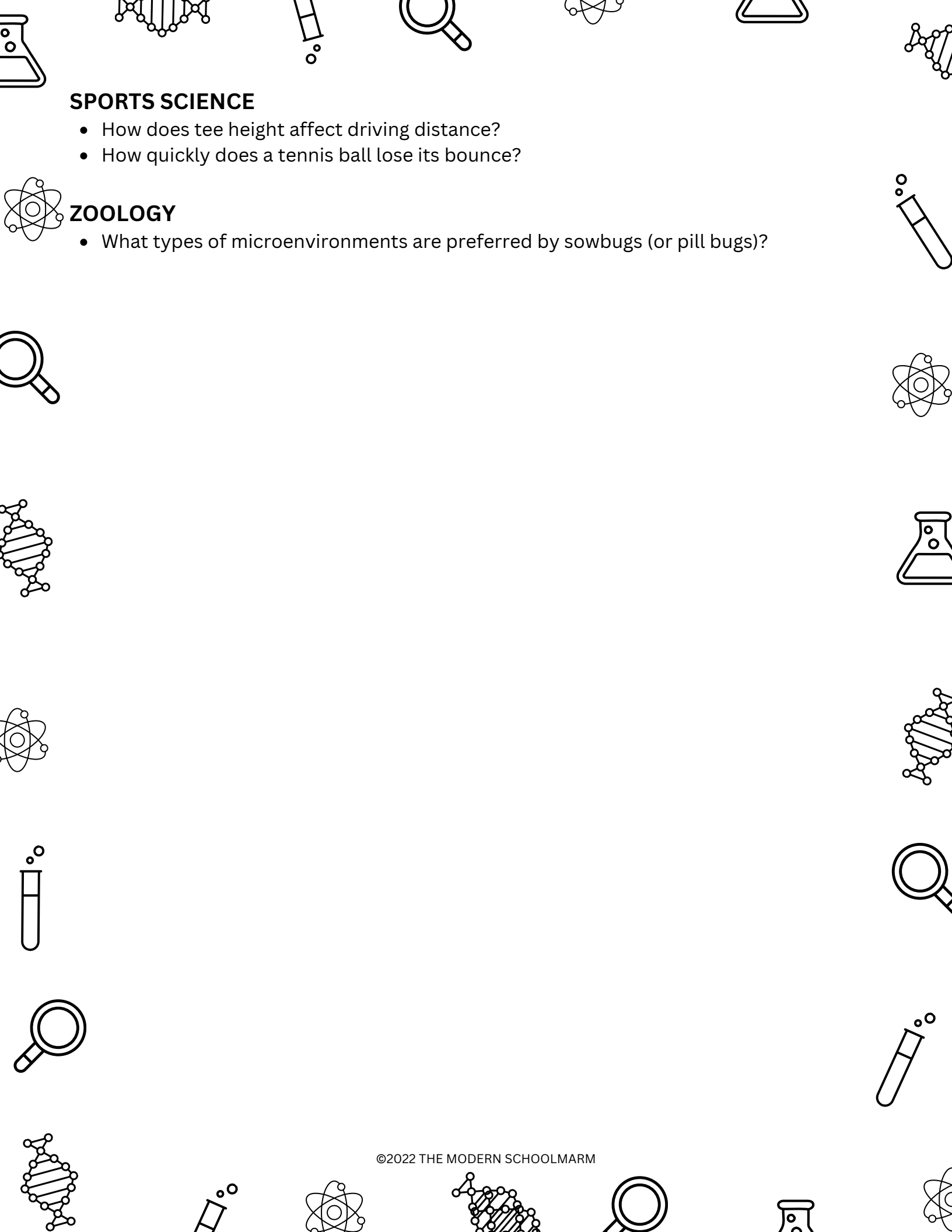
SOCIAL SCIENCE

- Do screen and text color affect retention?
- Does music affect your mood?
- Does chewing gum affect test performance?
- How is reaction time related to the Stroop effect?
- Can people accurately determine if a smile is genuine or fake?



SPORTS SCIENCE

- Do different launch angles affect the distance a football travels?
- Basketball Physics: Where Does a Bouncing Ball's Energy Go?
- Does a player's starting shooting position affect their shooting percentage (average)?
- How does hockey stick flex affect accuracy and speed?
- How high can you throw various types of athletic balls?
- Which skateboard wheels are best for speed and turns?
- Which will fly the farthest: An Aerobie or a Frisbee?



SPORTS SCIENCE

- How does tee height affect driving distance?
- How quickly does a tennis ball lose its bounce?

ZOOLOGY

- What types of microenvironments are preferred by sowbugs (or pill bugs)?