KIDS PROJECT IDEAS

136+ Science Fair Project Ideas for 7th Grade

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Science fairs are a great chance for 7th graders to explore the world, practice the scientific method, and show off neat, testable results.

Below you'll find a readable introduction that explains how to pick and run a successful project, safety and presentation tips, and then **150 science fair project ideas for 7th**

grade grouped by topic.

Each idea includes an objective, the basic materials you'll need, a short method, and what you'll learn. The descriptions are written so you can copy-paste them directly into a project notebook or report.

Must Read: 120 Absolute New Biology Project Topics For Class 10

How to use these science fair project ideas for 7th grade

1. **Pick a topic you're curious about.** If you love plants, animals, chemistry, electronics, or food — choose something that keeps you excited. Curiosity makes the work easier and more fun.
2. **Keep it testable.** A great science fair project asks a clear question you can test with experiments. Example: "How does the amount of sunlight affect tomato plant height?" is testable. "Why do plants need sunlight?" is too broad.
3. **Follow the scientific method.**
   - Ask a clear question.
   - Do background research.
   - Form a hypothesis (an educated guess).
   - Plan and run experiments (control variables carefully).
   - Record and analyze results.
   - Draw a conclusion.
   - Share your findings with a display board and short report.
4. **Think about variables.**
   - Independent variable: what you change (e.g., light hours).
   - Dependent variable: what you measure (e.g., plant height).
   - Controlled variables: things you keep the same (same soil, same water amount).
5. **Be realistic about time and materials.** Some projects take days, others need weeks. Choose projects you can finish in the time given and with materials you can get.
6. **Safety first.** Wear safety goggles when needed, follow teacher guidance on chemicals and heat sources, never conduct risky experiments alone, and ask permission before using tools or live animals.
7. **Document everything.** Keep a lab notebook with dates, steps, measurements, and photos. Judges love clear records.
8. **Presentation matters.** Use graphs, clean photos, and simple charts on your display board. Practice a 1-2 minute summary of your project and a 30-second elevator pitch.

Safety & ethical reminders for 7th grade projects

- Ask your teacher or parent before starting experiments that use heat, flames, chemicals, live animals, or electricity.
- If your project uses living creatures, follow humane guidelines and get approval. Don't harm animals.
- Label any hazardous materials clearly and dispose of them safely.
- Keep an adult present for experiments involving tools, heat, or batteries.
- When in doubt, choose a safer variant of your idea (e.g., simulations or models instead of live animals).

What to include on your science fair display and report

- Title (clear and short) — include the question.
- Question and hypothesis.
- Materials list.
- Procedure (step by step).
- Data (tables, photos).
- Graphs and analysis.
- Conclusion and explanation of whether the hypothesis was supported.
- Sources and acknowledgements.
- Optional: ideas for further study.

150 Science Fair Project Ideas for 7th Grade

Biology & Life Science (20 ideas)

1. **Effect of Light Angle on Plant Growth**
   Objective: Test how light direction affects seedling growth.
   Materials: potted seedlings, lamp, ruler.
   Method: Place plants with light from different angles; measure growth weekly.
   Learn: Phototropism and plant hormones.
2. **Which Soil Type Holds Water Best?**
   Objective: Compare water retention of sand, clay, and potting soil.
   Materials: soil samples, cups, water, timer.
   Method: Add equal water, measure drainage/remaining moisture over time.
   Learn: Soil porosity and plant watering needs.
3. **Yeast Respiration: Sugar Type Effects**
   Objective: See which sugar causes the most CO_2 from yeast.

Materials: yeast, glucose, sucrose, fructose, balloons, bottles.
Method: Mix yeast and different sugars, capture gas in balloons and compare sizes.
Learn: Fermentation and energy sources.

4. **Ant Behavior and Food Types**
   Objective: Test which foods attract ants fastest.
   Materials: sugar, protein (peanut butter), oil, paper.
   Method: Place food spots and time ant arrival and number.
   Learn: Foraging behavior and preferences.
5. **Do Plants "Remember" Watering Schedules?**
   Objective: Compare plants watered regularly vs. randomly.
   Materials: identical plants, water schedule, ruler.
   Method: Water two groups differently, measure health and growth.
   Learn: Plant stress and growth patterns.
6. **Effect of Acid Rain on Seed Germination**
   Objective: Test how acidic water affects seed sprouting.
   Materials: vinegar solution dilutions, seeds, trays.
   Method: Water seeds with different pH levels and track germination rate.
   Learn: Environmental impact on plants.
7. **Natural Antibiotics from Common Herbs**
   Objective: Test if garlic or onion extract slows bacterial growth (use safe, non-pathogenic cultures or simulated tests).
   Materials: garlic, onion, agar plates (or alternatives), petri dishes (teacher supervised).
   Method: Apply extracts to cultures and measure zones of inhibition.
   Learn: Antimicrobial properties and lab safety.
8. **How Does Temperature Affect Heart Rate (Human)**
   Objective: See how body temperature changes heart rate during rest/after activity.
   Materials: thermometer, stopwatch, volunteers (consent), activity plan.
   Method: Measure resting heart rate and after mild exercise at different room temps.
   Learn: Physiology of heart rate.
9. **Effect of Salt on Plant Growth**
   Objective: Test how saline water affects seedlings.
   Materials: salt solutions, plants, watering schedule.
   Method: Water plants with increasing salt concentrations and observe health.
   Learn: Soil salinity effects.
10. **Bread Mold Growth Under Different Conditions**
    Objective: Compare mold growth in moist vs dry, hot vs cool.
    Materials: bread slices, zip bags, dampness control.
    Method: Store bread under varied conditions; photograph daily.
    Learn: Fungi growth and hygiene.
11. **Does Music Affect Plant Growth?**
    Objective: Test growth of plants exposed to different music genres.
    Materials: plants, speakers, playlists.

Method: Play different music and compare growth after weeks.
Learn: Stimulus effects and experimental controls.

12. **Comparing Biodegradation Rates of Materials**
    Objective: Test how fast paper, plastic, and cloth break down in soil.
    Materials: material pieces, soil, labeled bags.
    Method: Bury items for set time and check degradation.
    Learn: Environmental decomposition.
13. **How Salt Affects Brine Shrimp Survival**
    Objective: Check survival rate of brine shrimp at different salt concentrations.
    Materials: brine shrimp eggs, saltwater setups, microscopes.
    Method: Prepare salinity gradients and track hatching/survival.
    Learn: Osmoregulation and habitats.
14. **Comparing Handwashing Methods' Effectiveness**
    Objective: Test which washing method removes the most microbes (use safe agar plates with supervision) or simulated glitter method.
    Materials: glitter or agar plates, soap types.
    Method: Compare before/after counts or glitter removal.
    Learn: Hygiene and germ transmission.
15. **Do Plants Grow Faster with Homemade Fertilizer?**
    Objective: Test kitchen compost vs. commercial fertilizer vs. none.
    Materials: fertilizers, plants, measuring tools.
    Method: Apply different fertilizers and compare growth.
    Learn: Nutrients and plant care.
16. **How Does Air Pollution Affect Lichen Growth (or Model Lichens)?**
    Objective: Compare lichen presence near busy roads vs quiet areas (or simulate).
    Materials: field survey tools or model substrates.
    Method: Count lichens or use simulation to model pollutant effects.
    Learn: Bioindicators and air quality.
17. **Effect of Different Drinks on Tooth Enamel (Model Tooth Experiment)**
    Objective: Test erosion of egg shell (model for enamel) in soda, water, juice.
    Materials: eggshells, drinks, containers.
    Method: Soak shells and observe color, hardness changes.
    Learn: Acid erosion and dental health.
18. **How DO Light Colors Affect Insect Attraction?**
    Objective: Test whether certain colors attract more insects.
    Materials: colored paper, sticky traps.
    Method: Place traps of different colors and count insects caught.
    Learn: Insect vision and ecology.
19. **Plant Transpiration Rates in Different Humidities**
    Objective: Measure how much water leaves a leaf in varied humidity.
    Materials: balance, leaves, humidity control (humidifier/room).
    Method: Weigh leaves over time in different humidity conditions.
    Learn: Transpiration and plant water loss.

20. **Comparing Decomposition: Shredded vs Whole Leaves**
    Objective: See which decomposes faster in a compost bin.
    Materials: leaves, bin, timer.
    Method: Mix samples, check mass or breakdown over weeks.
    Learn: Surface area effects on decomposition.

Chemistry (20 ideas)

21. **Which Antacid Works Best? (Neutralization Test)**
    Objective: Test neutralizing power of different antacids.
    Materials: antacids, acid solution (vinegar dilute), pH strips.
    Method: Add antacid until pH returns to neutral; compare amounts.
    Learn: Acid-base reactions and pH.
22. **Effect of Temperature on Reaction Rate (Baking Soda + Vinegar)**
    Objective: Measure how temp affects reaction speed.
    Materials: baking soda, vinegar, thermometer, stopwatch.
    Method: Run reaction at different temperatures and time fizzing.
    Learn: Collision theory and kinetics.
23. **How Do Different Liquids Conduct Electricity?**
    Objective: Test conductivity of tap water, saltwater, sugar water.
    Materials: simple circuit, electrodes, voltmeter.
    Method: Measure current through each liquid.
    Learn: Ions and conductivity.
24. **Creating Natural pH Indicators from Red Cabbage**
    Objective: Make a pH indicator and test household substances.
    Materials: red cabbage, blender, pH solutions.
    Method: Make extract and drop on samples to compare color changes.
    Learn: Acids, bases, and indicator chemistry.
25. **Effect of Surface Area on Rate of Dissolving**
    Objective: Test how crushed vs whole tablets dissolve.
    Materials: tablets, water, stopwatch, beakers.
    Method: Measure dissolve time for different sizes.
    Learn: Surface area and reaction rates.
26. **Which Material Best Insulates Heat?**
    Objective: Test heat retention in foam, metal, glass containers.
    Materials: containers, hot water, thermometer.
    Method: Measure temp drop over time.
    Learn: Thermal conductivity.
27. **Making and Testing Biodegradable Plastics**
    Objective: Create plastics from starch and test strength.
    Materials: cornstarch, glycerin, baking soda, molds.
    Method: Make samples and test flexibility and water resistance.
    Learn: Polymers, biodegradation, materials science.

28. **Does Temperature Affect Solubility of Salt?**
    Objective: Compare salt solubility at different temps.
    Materials: salt, water, hotplate, beakers.
    Method: Add salt until saturation; measure amount dissolved.
    Learn: Solubility and saturation.
29. **Rust Formation: Effect of Saltwater vs Freshwater**
    Objective: Test corrosion speed in different solutions.
    Materials: iron nails, saltwater, freshwater, oil control.
    Method: Submerge nails and observe rusting over days.
    Learn: Oxidation and corrosion.
30. **Compare the pH of Different Soaps and Detergents**
    Objective: Measure and compare pH values.
    Materials: pH strips, soap solutions.
    Method: Dissolve soaps and test pH.
    Learn: Basicity and cleaning chemistry.
31. **Electrolysis of Water: Gas Collection**
    Objective: Split water into hydrogen and oxygen with safe setup (teacher supervised).
    Materials: battery, electrodes, water with salt, tubes.
    Method: Run low-voltage electrolysis and capture gas.
    Learn: Water composition and electrochemistry.
32. **Effect of Catalysts: Hydrogen Peroxide & Yeast**
    Objective: Test how yeast speeds up H_2O_2 breakdown.
    Materials: H_2O_2, yeast, measuring cup.
    Method: Mix and measure bubble rate vs no catalyst.
    Learn: Catalysts and reaction rates.
33. **Does Color of Light Change Photosensitive Reactions?**
    Objective: Test photochemical reaction rates under different colors.
    Materials: light filters, photosensitive paper or dye.
    Method: Expose and compare reaction or color change.
    Learn: Light wavelength effects.
34. **Testing Vitamin C Levels in Fruit Juices**
    Objective: Compare vitamin C content using iodine titration (simple, supervised method).
    Materials: iodine solution, starch indicator, juices.
    Method: Titrate to endpoint and compare volumes used.
    Learn: Titration basics and nutrient comparison.
35. **Which Household Item Neutralizes Odors?**
    Objective: Test baking soda, vinegar, activated charcoal.
    Materials: odor source, test containers, smells observation log.
    Method: Place items with odor and note smell after set time.
    Learn: Adsorption and neutralization.

36. **Comparing Concentration Using Paper Chromatography**
    Objective: Separate ink components from different markers.
    Materials: filter paper, markers, solvent.
    Method: Run chromatography and measure spread.
    Learn: Molecule polarity and separation methods.
37. **Does Temperature Affect Density of Liquids?**
    Objective: Measure density change of water at different temps.
    Materials: graduated cylinder, scale, water bath.
    Method: Weigh fixed volume of water at temps and calculate density.
    Learn: Density and thermal expansion.
38. **Making Superabsorbent Polymers from Diapers (safe demo)**
    Objective: Show water absorption of polymer crystals.
    Materials: disposable diaper crystals (extracted), water.
    Method: Measure grams of water absorbed per gram polymer.
    Learn: Polymers and absorbency.
39. **Comparing Food Preservatives' Effectiveness**
    Objective: Test how different preservatives (salt, sugar, vinegar) prevent mold.
    Materials: fruit slices treated with preservatives, observation.
    Method: Store slices and check spoilage rate.
    Learn: Preservation methods.
40. **Saponification: Make Soap and Test Hardness**
    Objective: Create small batches of soap and compare cure/hardness.
    Materials: oils, lye (supervised), molds.
    Method: Make soap safely with supervision, test hardness after curing.
    Learn: Organic chemistry basics (saponification).

Physics (20 ideas)

41. **Which Surface Produces the Most Friction?**
    Objective: Measure friction forces on different surfaces.
    Materials: block, spring scale, wood, tile, carpet.
    Method: Pull block across surfaces and record force.
    Learn: Friction and surface interactions.
42. **How Does Length of a Pendulum Affect Period?**
    Objective: Test pendulum period vs length.
    Materials: string, weight, stopwatch.
    Method: Make pendulums of different lengths and time swings.
    Learn: Period, gravity, and pendulum math.
43. **Investigate Buoyancy: Shape vs Volume**
    Objective: Test how shape affects floating with same material.
    Materials: clay, water tub.
    Method: Mold shapes and test whether they float and how they displace water.
    Learn: Archimedes' principle.

44. **Which Material Makes the Best Sound Insulator?**
    Objective: Compare sound reduction by foam, fabric, cardboard.
    Materials: sound source, decibel meter (or app), test panels.
    Method: Measure sound levels behind different materials.
    Learn: Sound insulation and wave absorption.
45. **Build a Simple Electromagnet: Coil Turns vs Strength**
    Objective: See how coil turns affect lifting power.
    Materials: iron nail, wire, battery, paper clips.
    Method: Wrap different turns; test how many clips it picks up.
    Learn: Electromagnetism and variables.
46. **Solar Oven Efficiency with Different Reflectors**
    Objective: Test which material reflects heat best.
    Materials: box, foil, mirror, black pot.
    Method: Build ovens with different reflectors and measure temp increase.
    Learn: Solar energy and thermal capture.
47. **Ball Bounce: How Surface and Drop Height Affect Bounce**
    Objective: Measure bounce height on various surfaces and heights.
    Materials: balls, meter stick, surfaces.
    Method: Drop ball, measure rebound height.
    Learn: Elasticity and energy transfer.
48. **Does Temperature Affect Air Pressure Reading?**
    Objective: Compare pressure inside sealed bottles at different temps.
    Materials: sealed bottles, thermometer, scale or gauge.
    Method: Heat/cool bottles and note deformations or pressure proxies.
    Learn: Gas laws.
49. **Build a Water Rocket and Test Launch Angles**
    Objective: Determine best angle for maximum distance.
    Materials: plastic bottle rocket, launcher, water.
    Method: Launch at angles and measure distance.
    Learn: Projectile motion and thrust basics.
50. **How Does Weight Distribution Affect Roller Coaster Speed?**
    Objective: Model a coaster and test different weight placements.
    Materials: toy car, track, weights, timer.
    Method: Run car with various weight placements and time runs.
    Learn: Center of mass and dynamics.
51. **Investigate Insulation: Which Material Keeps Ice from Melting Fastest?**
    Objective: Test insulating effectiveness.
    Materials: ice cubes, containers, different insulators.
    Method: Measure melting time.
    Learn: Heat transfer and insulation.
52. **Comparing Reflectivity: How Color Affects Heat Absorption**
    Objective: See whether dark or light surfaces heat faster in sunlight.
    Materials: black and white paper, thermometer.

Method: Place in sun and record temperature rise.
Learn: Absorption and albedo.

53. **Magnetic Levitation Model Using Repelling Magnets**
    Objective: Build a simple levitation setup and test stability.
    Materials: strong magnets, stands.
    Method: Arrange magnets and measure levitation height and stability.
    Learn: Magnetic forces and stability.
54. **How Does Rope Thickness Affect Strength?**
    Objective: Test breaking strength of ropes of different thickness.
    Materials: ropes, weights, hook.
    Method: Apply weight until break and record max load.
    Learn: Tensile strength and safety factor.
55. **Measuring Reaction Time Under Different Conditions**
    Objective: Test reaction time when tired vs rested.
    Materials: ruler drop test, volunteers.
    Method: Perform reaction tests and compare averages.
    Learn: Neuroscience basics.
56. **Build a Simple Motor and Test Coil Size**
    Objective: Test motor speed with different coil sizes.
    Materials: battery, magnets, wire, axles.
    Method: Build motors and measure RPM (approx).
    Learn: Electromagnetism and motors.
57. **How Do Sound Frequencies Travel Through Different Materials?**
    Objective: Test which materials transmit sound best.
    Materials: speaker, tubes of wood/plastic/metal, microphone.
    Method: Measure sound at receiver end.
    Learn: Sound transmission and mediums.
58. **Investigate Heat Conduction in Metals vs Wood**
    Objective: Compare temperature change across different rods.
    Materials: metal and wooden rods, heat source, thermometer.
    Method: Heat one end and measure temperature along length.
    Learn: Thermal conductivity.
59. **Does Surface Area Affect Rate of Evaporation?**
    Objective: Test evaporation from flat vs deep containers.
    Materials: water, containers, scale.
    Method: Measure water loss over time.
    Learn: Surface area and evaporation.
60. **Testing Parachute Designs for Descent Speed**
    Objective: Find which parachute shape slows descent best.
    Materials: fabric, strings, small weight, timer.
    Method: Drop from height and time descent.
    Learn: Air resistance and drag.

Environmental Science & Earth (15 ideas)

61. **Measuring Local Water pH and Pollution Levels**
    Objective: Test pH and simple pollutants at different sites.
    Materials: pH strips, water sample jars, turbidity tube.
    Method: Collect samples from sites and compare readings.
    Learn: Water quality and human impact.
62. **Does Composting Speed Depend on Aeration?**
    Objective: Compare compost piles turned regularly vs not turned.
    Materials: compost bins, kitchen scraps, thermometer.
    Method: Track temperature and decomposition speed.
    Learn: Aerobic decomposition.
63. **How Does Temperature Affect Soil Microbe Activity?**
    Objective: Measure decomposition rate at varied soil temps.
    Materials: soil samples, organic matter, incubator options.
    Method: Monitor CO_2 or mass loss.
    Learn: Microbial activity and temp effects.
64. **Pollinator Count: Which Flowers Attract More Bees?**
    Objective: Survey bees visiting different flower species.
    Materials: field notebook, timers, camera.
    Method: Count visits during set intervals.
    Learn: Ecology and pollination.
65. **Compare Runoff from Different Ground Covers**
    Objective: Test water runoff from grass, asphalt, mulch.
    Materials: trays with surfaces, water, measuring cup.
    Method: Simulate rain and measure runoff volume.
    Learn: Permeability and urban runoff.
66. **Microplastics: Which Household Items Shed Most Fibers?**
    Objective: Test fiber release from different fabrics.
    Materials: wash tests with sieves, filters.
    Method: Wash samples and filter wash water to estimate fibers.
    Learn: Microplastic sources and environmental impact.
67. **Does Urban Heat Island Effect Show in Your Town?**
    Objective: Compare temps in urban vs rural spots.
    Materials: thermometer, map, data log.
    Method: Measure temps at different locations and times.
    Learn: Urban heat and land use.
68. **Green Roof vs Regular Roof: Temperature Differences**
    Objective: Model green roof insulation on small boxes.
    Materials: boxes, soil/plant cover, thermometers.
    Method: Measure internal temps under sun.
    Learn: Benefits of green roofs.

69. **Which Mulch Conserves Soil Moisture Best?**
    Objective: Compare moisture under wood chips, straw, plastic.
    Materials: pots, mulches, moisture meter.
    Method: Water pots and measure moisture retention over time.
    Learn: Mulch benefits for gardening.
70. **Do Crushed Shells Affect Soil pH for Garden Plants?**
    Objective: Test effect of crushed shells on soil pH and plant growth.
    Materials: shells, soil, pH strips, plants.
    Method: Mix shells into soil and grow plants, measure pH and growth.
    Learn: Soil amendments and pH buffering.
71. **How Much CO_2 Do Houseplants Remove? (Model Estimate)**
    Objective: Estimate CO_2 uptake of common houseplants.
    Materials: plant, sealed container, CO_2 sensor (or model calculations).
    Method: Measure CO_2 change or calculate based on leaf area.
    Learn: Plant photosynthesis and indoor air quality.
72. **Testing Effectiveness of Different Water Filters**
    Objective: Compare sediment, charcoal, and store filters.
    Materials: dirty water, filters, turbidity tests.
    Method: Filter and compare clarity and odor.
    Learn: Filtration methods.
73. **Comparing Solar Panel Output in Different Angles**
    Objective: Test power output at various tilt angles.
    Materials: small solar panels, multimeter, protractor.
    Method: Measure voltage/current at different angles.
    Learn: Solar energy optimization.
74. **How Do Road Salt Runoff Levels Change After Snow Melt?**
    Objective: Measure chloride levels before and after melt (if seasonal).
    Materials: water samples, chloride test strips.
    Method: Collect runoff samples and compare.
    Learn: Winter road salt environmental effects.
75. **Investigate Local Noise Pollution Levels**
    Objective: Measure decibel levels around school vs busy street.
    Materials: decibel meter (or phone app), map.
    Method: Measure at set times and compare.
    Learn: Noise pollution and impact on health.

Engineering & Robotics (15 ideas)

76. **Design a Bridge from Popsicle Sticks: Which Design Holds Most Weight?**
    Objective: Test truss designs for strength.
    Materials: popsicle sticks, glue, weights.
    Method: Build different bridge designs and load until failure.
    Learn: Engineering design, stress distribution.

77. **Build a Water Wheel and Measure Power Output**
    Objective: Test blade shapes for efficiency.
    Materials: small wheel, water flow source, generator or dynamo.
    Method: Measure rotation speed or light bulb brightness.
    Learn: Renewable energy and mechanical advantage.
78. **Which Paper Airplane Design Flies Farthest?**
    Objective: Compare DFA (design) for distance and stability.
    Materials: paper, measuring tape, windless area.
    Method: Fold different designs and measure distance.
    Learn: Aerodynamics and design testing.
79. **DIY Wind Turbine Blade Angle vs Power**
    Objective: Test blade pitch effect on power generation.
    Materials: small turbine kit, fan, multimeter.
    Method: Change blade angles and measure output.
    Learn: Wind energy and blade design.
80. **Robotic Arm: Grip Strength vs Motor Torque**
    Objective: Build a simple arm and test load it can lift.
    Materials: servo motors, cardboard or kit parts, microcontroller.
    Method: Incrementally add weights and find max lift.
    Learn: Robotics basics and torque.
81. **Insulated House Model: Best Design for Temperature Control**
    Objective: Compare insulation layouts and window designs.
    Materials: model houses, insulation materials, heat lamp.
    Method: Heat models and measure interior temp over time.
    Learn: Energy efficiency and insulation.
82. **Test Different Wheel Types on Traction**
    Objective: Compare traction of rubber vs plastic wheels on surfaces.
    Materials: model car, different wheels, incline plane.
    Method: Measure distance or climb angle achievable.
    Learn: Traction and surface interaction.
83. **Design a Simple Water Purifier and Test Clarity**
    Objective: Build filter columns and compare water clarity.
    Materials: sand, gravel, charcoal, bottles.
    Method: Filter dirty water and measure turbidity.
    Learn: Filtration and design iteration.
84. **Elevator Model: Counterweight vs Motor Power Efficiency**
    Objective: Test which method uses less energy for lifting loads.
    Materials: string, weights, small motor, battery.
    Method: Compare current draw for lifting same load with counterweight vs pure motor.
    Learn: Mechanical advantage and energy.
85. **Study Drone Propeller Pitch vs Lift (simulated or kit)**
    Objective: Test lift with varied propeller pitch.

Materials: drone kit or small motors, props, scale.
Method: Measure thrust produced by different props.
Learn: Aeronautical design.

86. **Test Different Adhesives for Strength and Flexibility**
Objective: Compare glue types for bond strength.
Materials: wood/plastic samples, glues, weights.
Method: Glue samples and test load until failure.
Learn: Materials testing and adhesives chemistry.
87. **Investigate Insulator vs Conductor in Homemade Circuits**
Objective: Compare wire types and connectors for resistance.
Materials: wires, resistors, battery, LED, multimeter.
Method: Build circuits and measure voltage/current.
Learn: Basic circuits and resistance.
88. **Build a Simple Seismograph Model**
Objective: Design a model seismograph that records vibrations.
Materials: base, hanging mass, pen, paper.
Method: Shake base and record motion traces.
Learn: Earthquake measurement and damping.
89. **Design and Test a Shoe Sole for Better Grip**
Objective: Create patterns and test slip resistance.
Materials: rubber sheets, textured stamps, incline plane with water.
Method: Test slip angle for different patterns.
Learn: Product design and materials testing.
90. **Solar Tracker Model: Does Tracking Increase Panel Output?**
Objective: Compare fixed vs tracking small panel output.
Materials: small panels, motors/sensors or manual tracking setup.
Method: Measure output over day for fixed vs tracked panels.
Learn: Solar tracking benefits.

Computer Science & Math (10 ideas)

91. **Which Sorting Algorithm Is Faster for Small Data? (Simulation)**
Objective: Compare bubble sort vs insertion sort on small lists (program).
Materials: computer, coding environment (Scratch, Python).
Method: Time sorts on lists of different sizes and analyze.
Learn: Algorithms and complexity basics.
92. **Predicting Local Weather with Simple Models**
Objective: Use past temp/rain data to make simple predictions.
Materials: local weather data, spreadsheet.
Method: Create linear models and test accuracy on holdout data.
Learn: Data analysis and modeling basics.
93. **How Does Screen Time Affect Reaction Time? (Survey + Test)**
Objective: Collect data on screen time and test reaction times.

Materials: survey, ruler drop test, volunteers.
Method: Correlate screen time with measured reaction times.
Learn: Correlation vs causation and basic stats.

94. **Image Compression: How Much Quality Can You Lose?**
Objective: Test JPG quality settings and human detectability.
Materials: images, software, volunteers.
Method: Save images at different compressions and ask volunteers which are visibly worse.
Learn: Digital image concepts and perceptual thresholds.
95. **Maze Solving Algorithms with Robots or Simulations**
Objective: Compare right-hand rule vs breadth-first search in a simple maze robot or simulation.
Materials: robot kit or simulation software.
Method: Run algorithms and measure steps/time taken.
Learn: Pathfinding and algorithm performance.
96. **Effect of Sample Size on Survey Accuracy (Simulated)**
Objective: Simulate polls with different sample sizes and compare error.
Materials: computer or spreadsheet.
Method: Simulate random sampling from a population and measure variance.
Learn: Statistics and sampling error.
97. **Does Handwriting vs Typing Affect Memory?**
Objective: Test recall of words written by hand vs typed.
Materials: volunteers, tests, timer.
Method: Have groups study words either handwritten or typed and test recall.
Learn: Cognitive differences and study techniques.
98. **How Does Encryption Strength Affect Time to Crack? (Simulated)**
Objective: Simulate simple ciphers and brute force times.
Materials: computer and simple scripts.
Method: Try to break Caesar vs Vigenère cipher with brute force and measure time.
Learn: Cryptography basics.
99. **Modeling Population Growth: Exponential vs Logistic**
Objective: Use spreadsheet to model populations under different conditions.
Materials: spreadsheet, scenario data.
Method: Build models and compare to idealized data.
Learn: Mathematical modeling and carrying capacity.
100. **Which Factors Improve Typing Speed Most?**
Objective: Test keyboard layout, practice time, and posture effects on typing speed.
Materials: typing test site, volunteers.
Method: Measure WPM under varied conditions and compare results.
Learn: Human factors and ergonomics.

Food, Nutrition & Health (10 ideas)

101. **Comparing Sugar Content of Homemade vs Store-Bought Smoothies**
Objective: Compare sugar levels using simple Brix refractometer or nutrition labels.
Materials: refractometer (or labels), smoothie samples.
Method: Measure sugar content and compare per serving.
Learn: Nutrition and hidden sugars.
102. **How Does Cooking Method Affect Vitamin Content (Model with Heat-Sensitive Vitamin)**
Objective: Test vitamin C loss in vegetables boiled vs steamed.
Materials: veggies, cooking tools, iodine test or indicator (supervised).
Method: Cook and compare nutrient estimates.
Learn: Nutrient loss and cooking methods.
103. **Which Preservative Extends Fruit Freshness Best?**
Objective: Test lemon juice, sugar syrup, refrigeration.
Materials: fruit slices, treatments, fridge, observation log.
Method: Treat slices and record spoilage.
Learn: Food preservation basics.
104. **Test Yogurt Cultures: Which Milk Produces the Thickest Yogurt?**
Objective: Compare cow, goat, and plant milks for yogurt texture.
Materials: milk types, starter culture, incubator.
Method: Make yogurts and measure viscosity or thickness.
Learn: Fermentation and dairy science.
105. **Does Color of Plate Affect Perceived Sweetness?**
Objective: Test whether plate color changes taste perception.
Materials: same snacks on different colored plates, volunteers.
Method: Blind taste tests and rating scales.
Learn: Psychology of taste and color effects.
106. **How Long Do Common Household Germs Survive on Different Surfaces?**
Objective: Use safe indicators (like harmless yeast or simulated markers) to compare survival.
Materials: safe cultures or simulated markers, surfaces.
Method: Apply marker and test transfer after set times.
Learn: Surface persistence and hygiene.
107. **Comparing Energy Content of Snacks by Burn Test (Calorimetry Model)**
Objective: Compare approximate calories by burning small samples and measuring temp change in water (classroom-safe model).
Materials: small calorimeter setup, snacks, thermometer.
Method: Burn sample and measure water temp rise.
Learn: Energy content basics (safety supervised).
108. **Effect of Sleep on Short-Term Memory Recall**
Objective: Test student recall after different sleep durations (self-reported).
Materials: short memory tests, volunteers.
Method: Measure recall performance under different sleep conditions.
Learn: Sleep impact on cognition.

109. **Which Breakfast Improves Concentration in Morning Tests?**
Objective: Compare test scores after different breakfast types (protein vs carbs).
Materials: simple quizzes, volunteers, food control.
Method: Randomly assign breakfasts and measure quiz performance.
Learn: Nutrition and cognitive performance.
110. **Testing Electrolyte Drinks: Which Rehydrates Faster?**
Objective: Compare water vs sports drink rehydration (weight-based or thirst scale under supervision).
Materials: volunteers, drinks, scales.
Method: Measure weight change or endurance in light exercise.
Learn: Hydration science and electrolyte balance.

Behavioral & Psychology (10 ideas)

111. **Do People Prefer High or Low Pitch Voices for Instruction?**
Objective: Test clarity preference for different voice pitches.
Materials: recorded instructions, volunteers, surveys.
Method: Play recordings and ask volunteers to rate clarity and preference.
Learn: Perception and communication.
112. **How Color Affects Mood (Simple Survey Test)**
Objective: Test mood before/after exposure to colored rooms or images.
Materials: pictures of colors, mood surveys.
Method: Show colors and record mood ratings.
Learn: Color psychology basics.
113. **Memory: Do Rhymes Improve Recall?**
Objective: Compare recall of facts presented as prose vs rhymes.
Materials: word lists or facts, volunteers.
Method: Test recall after short delay.
Learn: Mnemonics and memory strategies.
114. **Does Smiling Improve Problem Solving Under Stress?**
Objective: Test problem performance with forced smile vs neutral expression under mild stress (ethical and safe).
Materials: puzzles, volunteers.
Method: Assign expressions and time problem solving.
Learn: Mood effects on cognition.
115. **Which Type of Reward Motivates Students More? (Stickers vs Praise)**
Objective: Measure task performance improvement after different rewards.
Materials: small tasks, reward types, volunteers.
Method: Compare task speed/accuracy across reward conditions.
Learn: Motivation theory basics.
116. **Effect of Background Noise on Reading Comprehension**
Objective: Test reading tests under quiet vs noisy backgrounds.
Materials: reading passages, audio noise, timers.

Method: Measure comprehension scores.
Learn: Attention and distraction.

117. **Does Peer Presence Affect Performance?**
Objective: Test if students do better when observed or alone.
Materials: standardized tasks, volunteers.
Method: Compare performance under both conditions.
Learn: Social facilitation.
118. **Which Learning Style Helps Retention Most: Visual vs Auditory?**
Objective: Teach short material visually or by audio and test recall.
Materials: study materials, volunteers.
Method: Assign groups and test retention.
Learn: Learning modality effects.
119. **Color of Light and Productivity for Homework Tasks**
Objective: Test homework accuracy under cool vs warm light.
Materials: lamps of different color temps, tasks.
Method: Measure speed and correctness.
Learn: Lighting and concentration.
120. **Does Word Choice Affect Persuasion (Simple Ads Test)**
Objective: Test two ad wordings and see which convinces more peers.
Materials: two ad scripts, volunteers, survey.
Method: Present ads and record persuasion ratings.
Learn: Language and persuasion.

Botany & Gardening (10 ideas)

121. **Which Compost Mix Produces Healthier Seedlings?**
Objective: Compare compost mixes (leaf, manure, mixed).
Materials: compost types, seeds, pots.
Method: Grow seedlings and measure growth and vigor.
Learn: Soil nutrition and plant health.
122. **Vertical Garden: Which Plant Spacing Produces Best Yield?**
Objective: Test spacing on growth and yield per area.
Materials: vertical planters, seedlings.
Method: Plant at different spacings and measure yield.
Learn: Space optimization.
123. **Hydroponics vs Soil: Plant Growth Comparison**
Objective: Compare growth rates of same plant in hydroponic and soil systems.
Materials: simple hydroponic setup, pots, plants.
Method: Keep nutrients controlled and measure growth.
Learn: Growing systems and nutrient delivery.
124. **Does Music Affect Seed Germination Rate?**
Objective: Play music to one group of seeds and silence to control.
Materials: seeds, speakers.

Method: Track germination percentage and timing.
Learn: Environmental stimuli effects.

125. **Test the Effect of Companion Planting on Pest Reduction**
Objective: Plant companion pairs and monitor pest levels.
Materials: garden plots, plants, pest count log.
Method: Compare pest presence on companion vs single plantings.
Learn: Companion planting and integrated pest management.
126. **Which Mulch Color Warms Soil Most in Spring?**
Objective: Measure soil temperature under dark vs light mulch.
Materials: mulches, thermometers, pots.
Method: Cover soil and record temps over days.
Learn: Soil warming and planting timing.
127. **Testing Different Watering Schedules for Tomatoes**
Objective: Find which schedule yields best fruit production.
Materials: tomato plants, watering plans, scale.
Method: Track fruit count and weight over season.
Learn: Water management and yield.
128. **Effect of pH on Seedling Growth**
Objective: Test seedling growth in soils adjusted to different pH levels.
Materials: soil, pH adjusters, seedlings.
Method: Grow and measure health/growth.
Learn: pH effects on nutrient uptake.
129. **Which Fertilizer Increases Flowering Most?**
Objective: Compare nitrogen vs phosphorus rich fertilizers.
Materials: fertilizers, flowering plants.
Method: Apply and count blooms.
Learn: Plant nutrition and reproduction.
130. **Testing Shade Cloth Densities for Garden Yield**
Objective: Compare yields under different shade percentages.
Materials: shade cloths, plants, yield measurement.
Method: Measure growth and produce under varied shade.
Learn: Light management in horticulture.

Miscellaneous, Materials & Technology (20 ideas)

131. **Testing Ink Drying Times on Different Papers**
Objective: Compare how fast ink dries on coated vs uncoated papers.
Materials: pens, papers, timer.
Method: Mark and touch at intervals to test smudging.
Learn: Material absorption and ink chemistry.
132. **How Does Humidity Affect Static Electricity?**
Objective: Test static charge strength in different humidity.
Materials: balloon, wool, humidity meter or humidifier.

Method: Charge balloon and measure attraction at varying humidity.
Learn: Electrostatics and humidity.

133. **Testing Strength of Homemade Glues (Flour vs Glue vs Hot Glue)**
Objective: Compare bond strength of adhesives.
Materials: sample joints, glues, weights.
Method: Load until failure and record strengths.
Learn: Adhesive properties.
134. **Which Marker Erases Best from Dry Erase Board?**
Objective: Compare erasability of markers by brand/type.
Materials: markers, dry erase board, cleaning solution.
Method: Write, wait, and attempt to erase; rate residue.
Learn: Material compatibility.
135. **Modeling Tsunami Wave Height vs Underwater Slope (Wave Tank)**
Objective: Use wave tank to model slope effects on wave amplification.
Materials: shallow tank, wave maker, slopes of sand/boards.
Method: Generate waves and measure heights at shore.
Learn: Coastal science and wave behavior.
136. **Test Which Paper Insulates Sound Best**
Objective: Layer papers and measure sound transmission.
Materials: speaker, microphone, papers.
Method: Test decibel reduction through layers.
Learn: Acoustic insulation.
137. **Which Bubble Solution Makes Biggest Bubbles?**
Objective: Compare recipes (soap ratios, glycerin).
Materials: soaps, glycerin, water, wand.
Method: Make solutions and measure bubble size and longevity.
Learn: Surface tension and polymers.
138. **Investigate How Color of Clothing Affects Body Temperature in Sun**
Objective: Measure temp under different colored fabrics.
Materials: fabric swatches, thermometer, heat lamp.
Method: Place sensor under fabrics in lamp and record temps.
Learn: Heat absorption and clothing design.
139. **Testing the Strength of Different Knot Types**
Objective: Compare breaking strength of knots.
Materials: rope, weights or hook.
Method: Tie knots, load until failure, record max weight.
Learn: Practical mechanics and knot efficiency.
140. **Making and Testing a DIY Water Filter for Microplastics**
Objective: Build filters and test microplastic capture using visible fibers.
Materials: filter stages, water with fibers, microscope observation.
Method: Filter and examine captured fibers.
Learn: Filtration and environmental engineering.

141. **Investigate Candle Burn Rate Under Different Draft Conditions**
    Objective: See how breeze affects candle burn.
    Materials: candles, fan, timer, measuring.
    Method: Burn under still vs breezy conditions and measure mass loss.
    Learn: Combustion and airflow.
142. **Test Reflective Tape Brightness at Night**
    Objective: Compare visibility of tapes under car headlights.
    Materials: reflective tape samples, flashlight or car, distance markers.
    Method: Measure distance at which tape becomes visible.
    Learn: Safety materials and reflectivity.
143. **Compare Thermal Expansion of Metals**
    Objective: Measure length change of metal rods when heated.
    Materials: metal rods, heat source, caliper.
    Method: Heat and measure expansion carefully.
    Learn: Thermal expansion coefficients.
144. **Which Ingredient Affects Homemade Slime Stretchiness Most?**
    Objective: Test starch, glue amount, or borax levels.
    Materials: slime ingredients, measuring tools.
    Method: Make slimes with variations and measure stretch length.
    Learn: Polymers and crosslinking.
145. **How Do Different Textures Affect Adhesion of Tape?**
    Objective: Test tape stickiness on smooth vs rough surfaces.
    Materials: tape, surfaces, scale for pull test.
    Method: Apply tape and measure force to peel off.
    Learn: Adhesion and surface contact.
146. **Comparing UV Blocking of Different Sunglasses**
    Objective: Test UV transmission using UV meter or UV beads.
    Materials: sunglasses samples, UV beads or meter.
    Method: Expose beads/meter under sunglasses and record UV passing.
    Learn: Optics and eye protection.
147. **Test Which Sponges Hold Most Water**
    Objective: Compare water retention across sponge types.
    Materials: sponges, water, scale.
    Method: Soak, weigh, then squeeze and weigh again.
    Learn: Porosity and absorption.
148. **Investigate the Effect of Magnet Strength on Compass Deflection**
    Objective: Measure compass deflection at different magnet distances.
    Materials: compass, magnets, ruler.
    Method: Move magnet and record angle change.
    Learn: Magnetic field strength and navigation.
149. **What Kitchen Material Conducts Heat Fastest?**
    Objective: Test pans of different materials (aluminum, stainless, cast iron) by heating and measuring temp rise.

Materials: small pan samples, burner, thermometer.
Method: Heat each and note how fast they reach certain temps.
Learn: Thermal conductivity in cookware.

150. **Design a Reusable Water Bottle That Keeps Water Cold Longest**
Objective: Compare sample insulating designs (double wall, vacuum, foam).
Materials: bottle prototypes or existing bottles, ice, thermometer.
Method: Fill with ice water and measure temp change over hours.
Learn: Insulation and product testing.

Must Read: 99+ Easy Class 12 Physics Investigatory Project Topics 2026

Conclusion & Final Tips

You now have **150 science fair project ideas for 7th grade** to pick from, grouped by topic and ready to use. Here are final tips to turn any idea into a great science fair project:

- **Narrow your question.** Turn a general idea into a specific testable question (example: “Which soil holds water best?” rather than “How does soil work?”).
- **Make a clear hypothesis.** State what you expect to happen and why, using your background research.
- **Plan your procedure with controls.** Decide how many trials you’ll run (3 is typical) and how you’ll keep variables consistent.
- **Collect data carefully.** Use tables and take photos. Raw data matters.
- **Analyze results with graphs.** Bar graphs and line charts help judges quickly see your findings.
- **Explain your conclusion.** Say whether your hypothesis was supported and why the results likely happened. Suggest improvements or future tests.
- **Practice your presentation.** Be ready to explain your project in plain language and answer questions about your process and results.

Good luck picking a project — pick something you’re excited about, plan carefully, and have fun discovering real science. If you want, tell me which category you like and I’ll help you turn one idea into a full plan with a materials list, step-by-step procedure, data table template, and display board text.

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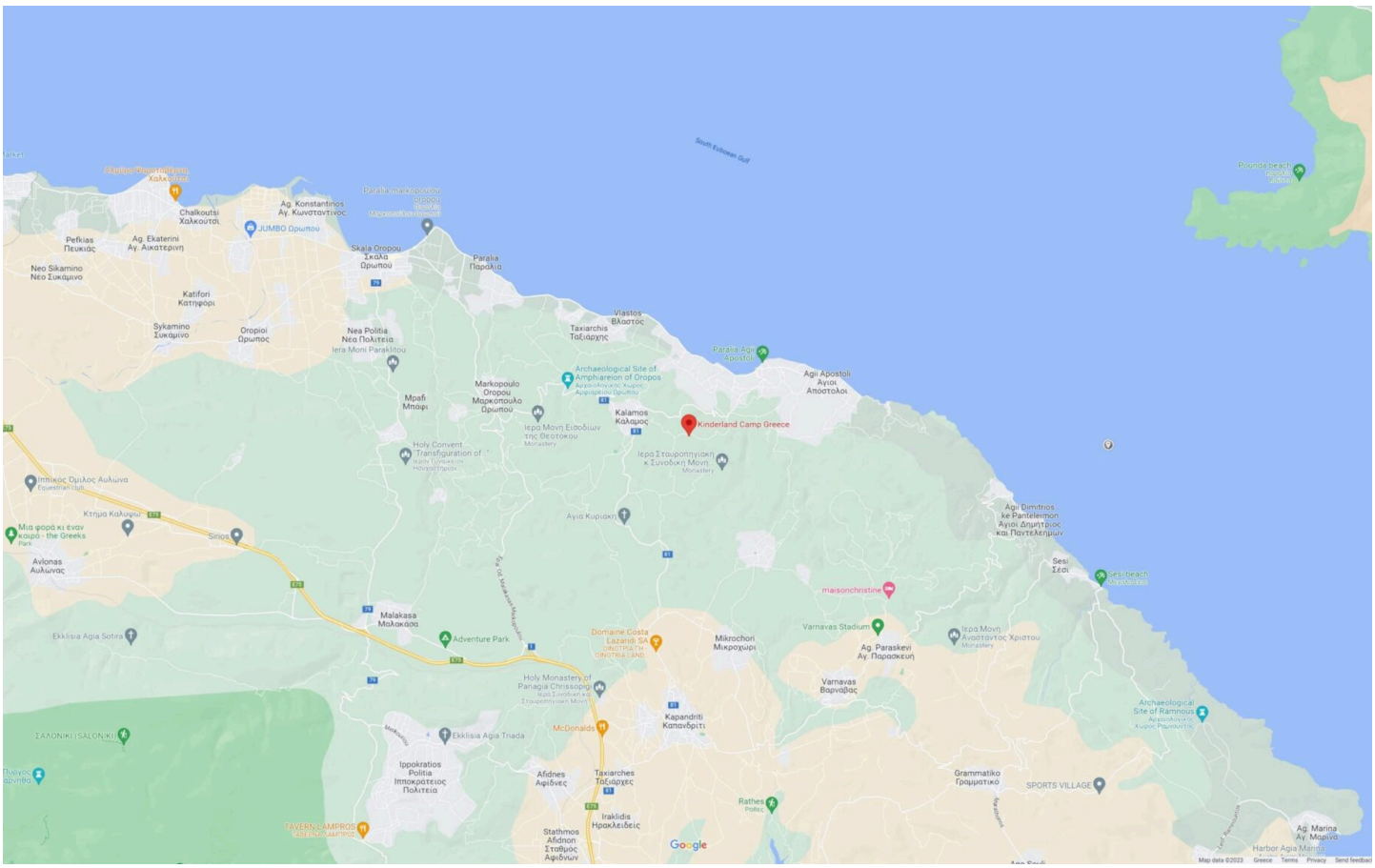

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Address

Ten assi, Cali 190 14, USA

Contact

Office hours: 09:00am - 6:00pm

chloekidsprojectideas@gmail.com

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