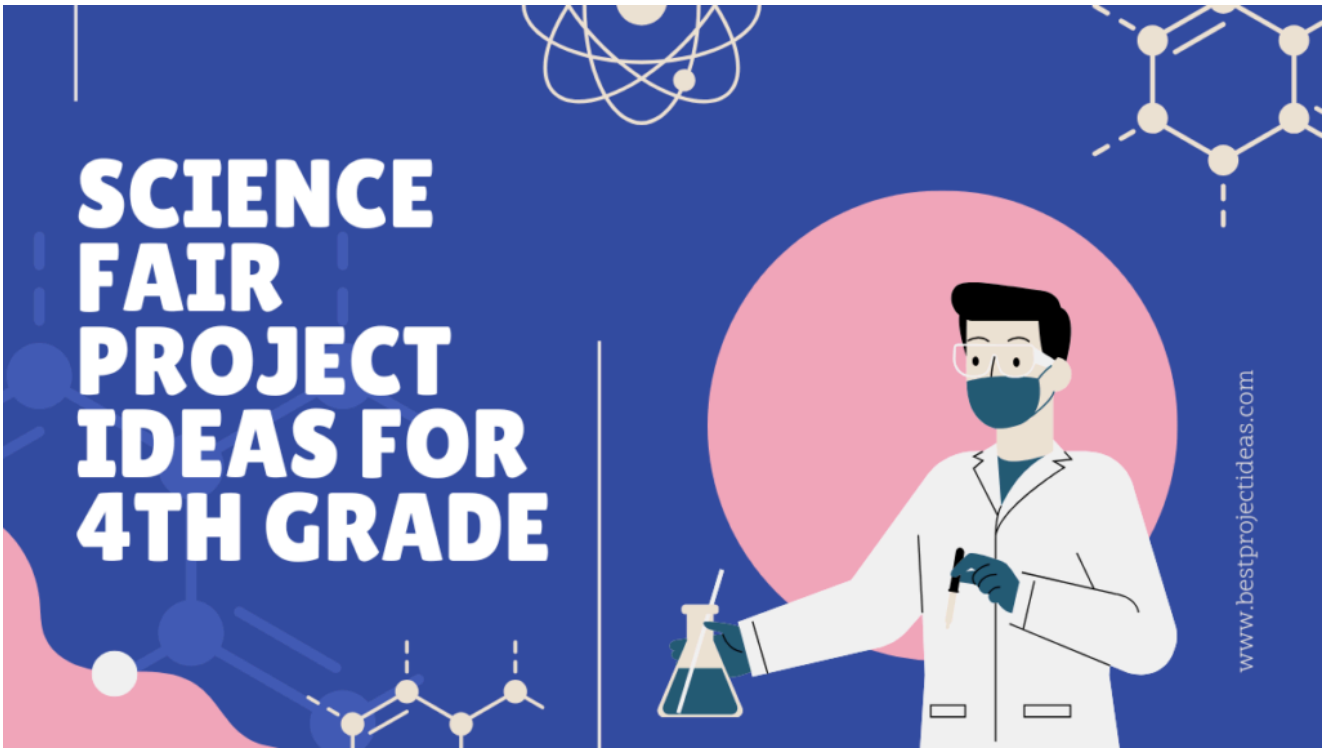
Best Project Ideas

30 Science Fair Project Ideas for 4th Grade

JANUARY 9, 2026 | JOHN DEAR



Are you a 4th grader getting ready for a science fair? Exciting! This article is packed with simple, fun, and safe **science fair project ideas for 4th grade** that you can do mostly at home or at school.

Each project below includes a clear question or hypothesis, a list of materials, step-by-step instructions, what to measure, and a short explanation of the science

behind it. These projects are written so students can read them easily and use them for their own experiments.

A science fair project is a great way to explore how the world works. You will learn to ask a question, test it, collect results, and share what you found. Whether you like plants, weather, chemistry, physics, or animals, there's a project here for you.

Pick one that sounds fun, check with your teacher or parent about safety, and get ready to do real science. Below you'll find 30 well-explained **science fair project ideas for 4th grade** that are ready for you to copy, try, and present.

Must Read: 30 House Project Ideas for Students

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How to Choose the Right Project

Picking the right project is the first step to a great science fair. Here are quick tips to help you decide:

1. **Pick what interests you.** You will enjoy the project more if it involves something you like—plants, baking, magnets, or weather.
2. **Keep it simple.** Choose a clear question that you can answer with 2–3 tests or trials.
3. **Check materials and time.** Make sure you can get the materials and have enough time before the fair.
4. **Safety first.** Avoid dangerous chemicals or tools. Ask an adult if something seems risky.
5. **Make it measurable.** Good experiments collect numbers or clear observations (height of plant, number of drops, temperature, etc.).
6. **Think about presentation.** Choose a project that gives clear results you can show on a board—charts, photos, and short explanations help.

Materials, Safety, and Presentation Tips

Before starting any experiment, gather your materials and plan for safety:

- **Materials:** Most projects use household items like sugar, salt, water, balloons, paper, seeds, soil, magnets, food coloring, and measuring cups. Make a list before you start.
- **Safety:** Wear safety goggles when needed, use gloves if handling strong cleaners, and always have an adult help with heating or sharp tools. Never taste chemicals unless an adult says it's safe.
- **Measurements:** Use a ruler, measuring cup, kitchen scale, stopwatch, or thermometer to get numbers you can show.
- **Recording results:** Use a notebook to write the date, time, what you did, and what happened each time.
- **Display board:** Use sections—Title, Question, Hypothesis, Materials, Procedure, Results (charts/photos), and Conclusion. Make labels clear and neat.
- **Photos and charts:** These make your project easier to understand. Use bar graphs or line graphs for numbers.

30 Science Fair Project Ideas for 4th Grade

Below are 30 detailed projects. Each idea has: Question/Hypothesis, Materials, Procedure (simple steps), What to measure, and Explanation/Extension ideas.

1. Which Liquid Makes Ice Melt Fastest?

Question/Hypothesis: Which liquid — salt water, sugar water, plain water, or vinegar — melts ice the fastest?
Materials: Ice cubes, salt, sugar, vinegar, 4 bowls, stopwatch, measuring spoons.
Procedure: Put an ice cube in each bowl. Add equal amounts of salt, sugar, vinegar, and plain water to each bowl. Start the stopwatch and check every minute.
Measure: Time it takes for the ice cube to melt completely.
Explanation: Salt lowers water's freezing point so ice melts faster. Sugar and vinegar change melting differently.
Extension: Test different amounts of salt or different temperatures.

2. Do Plants Grow Better with Tap Water or Bottled Water?

Question/Hypothesis: Do plants grow taller with tap water or bottled water?
Materials: 4 identical pots, soil, 4 seedlings (same type), tap water, bottled water, ruler.
Procedure: Plant seedlings in identical pots. Water two with tap water and two with bottled water the same amount. Measure height each week for 4 weeks.
Measure: Height increase (cm).
Explanation: Minerals or chemicals in water can affect plant growth.
Extension: Try distilled water or rainwater.

3. How Do Different Surfaces Affect a Sliding Object?

Question/Hypothesis: Which surface (tile, carpet, wood) gives the most friction?
Materials: Small wooden block, ramp, surfaces (tile, carpet piece, wood), stopwatch, measuring tape.
Procedure: Place ramp on each surface and release the block from the same height. Measure how far the block slides. Repeat 3 times.
Measure: Sliding distance or time to stop.
Explanation: Friction depends on surface roughness.
Extension: Add weight to the block and test again.

4. Which Color Absorbs Heat Most?

Question/Hypothesis: Does the color of paper affect how much heat it absorbs?
Materials: Black, white, red, and blue paper; thermometer; lamp (heat source); stopwatch.
Procedure: Place each color under the same lamp for 5 minutes. Measure temperature on each paper's surface.
Measure: Temperature increase (°C).
Explanation: Dark colors absorb more light and heat.
Extension: Test outdoors in sunlight.

5. Do Different Liquids Affect Plant Growth?

Question/Hypothesis: Will plants watered with soda, milk, or water grow differently?
Materials: 4 pots, soil, identical seedlings, water, soda, milk, measuring cup, ruler.
Procedure: Water each plant with a different liquid weekly. Measure growth for 3–4

weeks.
Measure: Height and plant health.
Explanation: Sugary or fatty liquids can harm plants; plain water is best.
Extension: Try diluted versions of liquids.

6. How Does Salt Affect Boiling Point?

Question/Hypothesis: Does adding salt to water change how it boils?
Materials: Saucepan, water, salt, stove (adult supervised), thermometer.
Procedure: Boil water and record temperature. Then add salt, boil again, and record.
Measure: Temperature at which boiling is steady.
Explanation: Salt slightly raises boiling point.
Extension: Try different amounts of salt.

7. Do Magnets Work Through Different Materials?

Question/Hypothesis: Can a magnet attract through wood, plastic, paper, or metal?
Materials: Magnets, small metal objects (paperclips), samples of wood/plastic/paper/metal.
Procedure: Place material between magnet and paperclip and see if the magnet still picks it up.
Measure: Which materials block magnetic force.
Explanation: Magnetic fields pass through some materials better than others.
Extension: Test thicker materials.

8. How Does Temperature Affect Yeast Rising?

Question/Hypothesis: Does warm or cold water make yeast bubble faster?
Materials: Yeast packets, sugar, warm water, cold water, balloon, bottle.
Procedure: Mix yeast and sugar with warm water in a bottle and attach a balloon. Do the same with cold water. Watch how fast the balloon inflates.
Measure: Time for balloon to inflate.
Explanation: Yeast is alive and works faster at certain temperatures.
Extension: Try different sugar amounts.

9. Can You Grow Crystals from Salt or Sugar?

Question/Hypothesis: Which makes better crystals — salt or sugar?
Materials: Water, salt, sugar, jars, string, pencil, spoon, food coloring (optional).
Procedure: Make saturated solutions of sugar and salt, tie string to pencils and hang in jars. Wait several days and observe crystal growth.
Measure: Crystal size and shape.
Explanation: Different molecules form different crystal shapes.
Extension: Add different temperatures or colors.

10. What Makes Bread Rise More — Baking Powder or Baking Soda?

Question/Hypothesis: Which leavening agent makes better rising for the same recipe?
Materials: Two identical small cakes or muffins recipes that only change between baking powder vs soda, oven (adult help), measuring tools.
Procedure: Bake both recipes the same way and compare height and texture.
Measure: Height and texture (spongy or dense).
Explanation: Baking powder releases gas differently than baking soda.
Extension: Try different recipes.

11. How Effective Are Different Soaps at Cleaning?

Question/Hypothesis: Does liquid soap clean better than bar soap or dish soap?
Materials: Mugs, soil or marker to stain cloth, several soaps, water, stopwatch.
Procedure: Stain identical cloth pieces. Clean each with a different soap the same way. Compare cleanliness.
Measure: Amount of stain removed (use photo or visual scale).
Explanation: Ingredients in soap affect how well oils and dirt are removed.
Extension: Test water temperature.

12. Which Shape of Balloon Holds Air Longest?

Question/Hypothesis: Does balloon shape (long, round, small) affect how long it stays inflated?
Materials: Different shapes of balloons, stopwatch, air pump.

Procedure: Inflate balloons to same size. Time how long until they lose most air.
Measure: Time (minutes/hours).
Explanation: Material and shape cause different surface tension and leaks.
Extension: Test temperature effects.

13. How Do Different Foods Affect Teeth (Eggshell Experiment)?

Question/Hypothesis: Do soda, orange juice, milk, and water affect eggshells (tooth model) differently?
Materials: Eggs, soda, orange juice, milk, water, jars.
Procedure: Place eggs in jars of each liquid for 2–5 days and observe shell changes.
Measure: Shell appearance: color, softness, coating.
Explanation: Acidic drinks can erode mineral parts like teeth enamel.
Extension: Test length of exposure.

14. How Does Sound Travel Through Different Objects?

Question/Hypothesis: Does sound travel better through solids, liquids, or gases?
Materials: Tuning fork or phone playing sound, wooden table, water in a bowl, air.
Procedure: Strike tuning fork and touch it to table, then to a bowl of water, and hold near ear in air. Note loudness.
Measure: Loudness perception (subjective) or use a simple decibel meter app if allowed.
Explanation: Sound travels differently through materials due to particle spacing.
Extension: Test different solids.

15. Which Brand of Paper Towel Absorbs the Most Water?

Question/Hypothesis: Which paper towel brand soaks up the most water?
Materials: Different paper towel brands, measuring cup, water, plate.
Procedure: Pour a fixed amount of water on each paper towel and measure how much it absorbs (weigh before and after or note leftover water).
Measure: Absorbed water volume or weight.
Explanation: Fiber type and thickness affect absorbency.
Extension: Test tearing strength when wet.

16. How Does Wind Speed Affect a Wind Turbine?

Question/Hypothesis: Will the wind speed change how much a small turbine generates (or how fast blades spin)?
Materials: Small fan, toy wind turbine or pinwheel, ruler, stopwatch, small motor with LED (optional).
Procedure: Use fan at different speeds and measure rotations per minute or whether LED lights up.
Measure: RPM or LED brightness.
Explanation: More wind energy = more mechanical energy.
Extension: Change blade size or angle.

17. How Do Different Drinks Stain Cloth?

Question/Hypothesis: Which drink stains a white cloth the most—juice, soda, coffee, or tea?
Materials: White cloth squares, coffee, tea, soda, juice, water, measuring spoons.
Procedure: Put equal drops of each drink on cloth and let dry. Observe stain darkness. Try washing and see which stain is hardest to remove.
Measure: Stain darkness scale or count how many washes needed.
Explanation: Pigments and sugar affect staininess.
Extension: Test stain removers.

18. How Does Water Temperature Affect Dissolving Rate?

Question/Hypothesis: Does hot or cold water dissolve sugar or salt faster?
Materials: Cups, hot water, cold water, sugar, stopwatch, spoon.
Procedure: Add the same amount of sugar to hot and cold water, stir and time how long until sugar disappears.
Measure: Time to dissolve.
Explanation: Higher temperature increases solubility and speed.
Extension: Test with salt or different stirring rates.

19. Can You Make a Simple Battery from Fruit?

Question/Hypothesis: Which fruit produces the most electricity—lemon, potato, apple?

Materials: Fruits, copper and zinc nails/wires, multimeter or small LED, wires.
Procedure: Insert copper and zinc into fruit and connect with wires to measure voltage.
Measure: Voltage (volts) or whether LED lights.
Explanation: Acid inside fruit causes a chemical reaction that produces a small current.
Extension: Link fruits in series to increase voltage.

20. How Does Friction Change with Speed?

Question/Hypothesis: Does a sliding object's speed change how much friction slows it?
Materials: Ramp, toy car, different surfaces, stopwatch, tape measure.
Procedure: Release car from different ramp heights (different speeds) and measure distance traveled on same surface.
Measure: Distance or time to stop.
Explanation: Friction acts to slow objects; speed can change how long it takes to stop.
Extension: Try different surfaces or heavier cars.

21. Which Soil Type Drains Water Best?

Question/Hypothesis: Do sand, clay, and potting soil drain water at different speeds?
Materials: Three small pots, sand, clay soil, potting soil, water, measuring cup.
Procedure: Pour same amount of water in each pot and time how long it takes to drain or measure water collected underneath.
Measure: Drain time or amount of drainage.
Explanation: Particle size affects water movement through soil.
Extension: Test plant growth in each soil.

22. How Do Different Surfaces Affect Plant Seed Germination?

Question/Hypothesis: Will seeds sprout faster on paper towel, soil, or cotton?
Materials: Seeds (beans), paper towels, cotton balls, soil, small plates.

Procedure: Place seeds on each surface, keep moist, and record days to sprout.
Measure: Days until sprout and sprout health.
Explanation: Surface affects moisture and oxygen for seeds.
Extension: Test light vs dark conditions.

23. Does Music Affect Plant Growth?

Question/Hypothesis: Do plants grow better when they hear music?
Materials: Two identical plants, speakers, music player, ruler.
Procedure: Play music to one plant for a set time each day and keep the other quiet. Measure growth for several weeks.
Measure: Height and leaf health.
Explanation: Some studies show vibrations might affect plants, but results vary.
Extension: Try different genres.

24. How Does the Angle of a Solar Panel Affect Power?

Question/Hypothesis: Does changing a small panel's angle change how much energy it makes?
Materials: Small solar panel and voltmeter or solar toy, protractor, sunny day or lamp.
Procedure: Place panel at different angles and measure voltage produced.
Measure: Voltage (volts) or whether toy runs.
Explanation: Angle affects how much sunlight hits the panel.
Extension: Test at different times of day.

25. Which Fruit Decays Fastest?

Question/Hypothesis: Which fruit (apple, banana, orange) rots fastest at room temperature?
Materials: Fruits, scale (optional), labels, camera to take photos each day.
Procedure: Put fruits on a tray and observe daily changes, taking photos. Optionally weigh them every few days.
Measure: Days until visible decay or weight loss.
Explanation: Different fruits have different water content and skins that affect decay.
Extension: Store some in the fridge to compare.

26. How Do Different Paper Types Affect Rocket Flight?

Question/Hypothesis: Does the type of paper (printer, construction, tissue) affect how far a paper rocket flies?
Materials: Paper types, tape, scissors, meter stick, launcher or your hand.
Procedure: Make rockets the same shape from different papers and launch. Measure distance. Repeat 3 times each.
Measure: Average distance.
Explanation: Weight and stiffness affect flight.
Extension: Change tail design or add fins.

27. What Temperature Is Best for Yeast Bread Rising?

Question/Hypothesis: Will bread dough rise fastest at warm or cool temperatures?
Materials: Bread dough divided into portions, warm place (oven with light on), cool place, ruler to measure rise.
Procedure: Put dough in different temperature spots and measure rise over time.
Measure: Increase in dough height.
Explanation: Yeast activity depends on temperature.
Extension: Try different kneading or sugar amounts.

28. Can You Grow Mold Faster on Different Foods?

Question/Hypothesis: Does bread, cheese, or fruit grow mold faster?
Materials: Small samples of bread, cheese, fruit, plastic bags, labels, magnifying glass.
Procedure: Put samples in labeled bags and store at same room conditions. Observe daily and note which shows mold first.
Measure: Days to first mold and mold amount.
Explanation: Foods with more moisture and nutrients mold faster.
Extension: Test refrigerator vs room temperature.

29. How Does Salinity Affect Floating?

Question/Hypothesis: Does adding salt to water make objects float better?
Materials: Cups, water, salt, raw egg.
Procedure: Place an egg in plain water and note if it sinks. Add salt gradually and

observe when it floats.
Measure: Amount of salt required for egg to float.
Explanation: Salt increases water density, which increases buoyant force.
Extension: Test different objects.

30. Does Sugar Affect Plant Health?

Question/Hypothesis: Does adding sugar to plant water help or hurt plant growth?
Materials: Plants, sugar, measuring spoons, water, ruler.
Procedure: Water one plant with plain water, another with diluted sugar water weekly. Measure growth and note leaf health for several weeks.
Measure: Height and leaf condition.
Explanation: Plants make sugar by photosynthesis; adding sugar can harm roots.
Extension: Try different concentrations.

Preparing Your Report and Display Board

After you complete a project, the next step is to organize your findings into a clear report and an eye-catching display board.

1. **Title:** Make it short and interesting. Use your exact project question if possible.
2. **Question and Hypothesis:** Write the main question and your predicted answer (hypothesis).
3. **Materials:** List everything you used with exact amounts.
4. **Procedure:** Write steps clearly so someone else could repeat your experiment.
5. **Results:** Show your data in tables and graphs. Include photos if you took any.
6. **Conclusion:** State what you found. Did the results support your hypothesis? Explain why using simple science terms.
7. **Discussion:** Mention what went well, any problems, and what you would change next time.
8. **References:** If you read a book or website, list it.
9. **Presentation Tips:** Practice explaining your project in 2 minutes. Prepare one poster board side for background, middle for the main experiment, and

right side for conclusion and graphs.

A clear display should include a neat title at the top, labeled sections, and a few large photos or graphs. Use bullet points and short sentences so judges can read easily.

Ideas to Expand or Improve Your Project

If you want to make your project more advanced or do the next step later, try these:

- Increase the number of trials for better accuracy.
- Test more variables (like more liquids, more surface types).
- Use better measuring tools like digital scales or thermometers.
- Try the experiment in different seasons or environments.
- Turn the project into a community study by testing more samples (more soils, more plants).

Must Read: 30 Structure Project Ideas — Practical, Student-Friendly Projects

Conclusion

These **science fair project ideas for 4th grade** were written to be simple, interesting, and safe for students to try. Each idea includes a clear question, materials, steps, and an explanation so you can learn real science by doing.

Remember: good science asks a clear question, uses fair tests, records careful results, and shares what was learned. Choose a project you are curious about, plan carefully, keep a lab notebook, and ask an adult for help when needed.

Your science fair is a chance to show how you think like a scientist—observe, test, and explain. Have fun exploring and good luck with your science fair!

Blog, Project Ideas

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I am a creative professional with over 5 years of experience in coming up with project ideas. I'm great at brainstorming, doing market research, and analyzing what's possible to develop innovative and impactful projects. I also excel in collaborating with teams, managing project timelines, and ensuring that every idea turns into a successful outcome. Let's work together to make your next project a success!

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