Science fair projects for 4th graders you can do at home this weekend

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Twelve 4th grade science fair projects that test in two days or less at home, each with three tries, a mean column, a graph and a board plan to print.

A good 4th grade science fair project changes one thing, measures what happens in centimetres or seconds, does it three times at every level, and works out the mean. Thirty-three of the forty projects on Peabody fit 4th grade and test in two days or less, so a weekend is enough: count the swings of a string of pennies, time paper parachutes, float an egg in salt water or race sugar dissolving in cold and warm water. Test on Saturday; find the means, draw the graph and make the board on Sunday.

I built the science fair pages on Peabody so a family can do the whole project from one page: the question, the If-Then-Because hypothesis half filled in, what to gather, the steps (read aloud if your child wants them read), a results table that already has the mean column from 4th grade, and a board plan. Here is what a 4th grade fair asks for, twelve projects that fit a weekend, and how to run one.

What a 4th grade fair expects

In 4th grade the fair turns into something close to real lab work. A 4th grader can measure with a ruler or a timer, write the unit in the table's header, and add up three tries and divide by three. That mean column is the clearest difference between a 3rd grade table and a 4th grade one, and it's one of the first things a judge looks for.

In plain terms, a 4th grade project should have:

- One thing changed and one thing measured, with units. "The length of the string" and "how many swings in 15 seconds", not "pendulums".
- Three tries at every level. One try can be a fluke; three show whether the result holds.
- A table with units in the header and a mean column.
- A graph: a bar graph when the things tried are separate kinds (three wing shapes), a line graph when the thing changed is a number that goes up (20, 40, 60 cm of string). Each project says which.
- A conclusion that says right, partly right or not, and points at the numbers that show it.

A grown-up's job at this age is to check and ask questions. Motion projects (ramps, parachutes, pendulums, rockets) are a natural fit, since timing and measuring them is something a 4th grader can do alone.

Twelve that fit a weekend

Thirty-nine projects fit 4th grade in all, and thirty-three of those test in one or two days. Here are twelve of the thirty-three, a spread across motion, mixing and weather. Every one is free or close to it.

- Project: Does a longer string swing slower? · Grades: 4th–8th · Testing: 1 day · One sitting: about 45 minutes · Cost: free
- Project: Does a bigger water drop make letters look bigger? · Grades: 4th–8th · Testing: 1 day · One sitting: about 40 minutes · Cost: free
- Project: Do the heaviest liquids always sink to the bottom? · Grades: 4th–8th · Testing: 1 day · One sitting: about 75 minutes · Cost: about $2
- Project: Does a bigger parachute fall slower? · Grades: 3rd–8th · Testing: 1 day · One sitting: about 60 minutes · Cost: free
- Project: Which wing shape flies farthest? · Grades: 3rd–8th · Testing: 1 day · One sitting: about 60 minutes · Cost: free
- Project: Does a pointed nose make a straw rocket fly farther? · Grades: 3rd–7th · Testing: 1 day · One sitting: about 50 minutes · Cost: free
- Project: How much salt does it take to float an egg? · Grades: 3rd–7th · Testing: 1 day · One sitting: about 45 minutes · Cost: free
- Project: Does dish soap stop oil and water from separating? · Grades: 3rd–8th · Testing: 1 day · One sitting: about 60 minutes · Cost: free
- Project: Does a steeper ramp make a toy car go farther? · Grades: 2nd–6th · Testing: 1 day · One sitting: about 45 minutes · Cost: free
- Project: Does sugar dissolve faster in warm water? · Grades: 2nd–6th · Testing: 1 day · One sitting: about 40 minutes · Cost: free
- Project: What melts ice fastest: salt, sugar or sand? · Grades: 2nd–6th · Testing: 1 day · One sitting: about 90 minutes · Cost: free
- Project: Where does a puddle dry fastest: sun, shade or wind? · Grades: 2nd–6th · Testing: 2 days · One sitting: about 20 minutes · Cost: free

Not on the list, and why: six projects that fit 4th grade need more than a weekend. The crystals take five days, the rain gauge a week, the beans in bags ten days, the plants that bend toward the window twelve, and the seed depth and grass-under-coloured-light tests fourteen each. They make good projects with more notice; the one weekend page lists everything that fits two days.

The weekend, in order

1. Saturday morning: pick and gather. If your child can't choose, Pick my project asks four questions (grade, days, what's in the house, what they like) and hands over one. Print the hypothesis sheet and the results table from the project's page.

2. Write the hypothesis before testing. "If I change ___, then ___ will ___, because ___." The first two blanks come filled in; the because is your child's, and a guess is a fine because.
3. Saturday afternoon: test. Three tries at every level, each number written in the table the moment it's measured. Mark a start line with masking tape so every try starts from the same place.
4. Sunday morning: the mean and the graph. Add each level's three tries and divide by three. Plot the means, not every try.
5. Sunday afternoon: the conclusion and the board. One honest paragraph, then lay out the board: a 36 × 48 inch tri-fold with six sections in reading order (Question, Hypothesis, Materials, Steps, Results, Conclusion). The results, table and graph together, go in the middle.

Safety, in one paragraph

Every project on Peabody is checked in code before it can reach a child. A project that gathers anything off the fair's safe-list, mentions a flame, uses a chemical beyond the kitchen, tests an animal or a person, grows a culture, or has fewer than three tries at three levels doesn't get published. Any step with a sharp knife, a toaster or hot water is marked as a grown-up's step. Your school's sheet wins, though: if it says something different, follow it.

Try tonight

Tape five pennies into a little stack, tie them to a string and hang them 20 cm below a pencil taped to the edge of a table. Pull the pennies out to the side until the string is straight, let go, and count the swings while someone times 15 seconds (over and back is one). Three counts, then the same at 40 cm and 60 cm. That's the whole of Does a longer string swing slower?, and the mean column in the table will be your child's first.

Questions grown-ups ask

Does a 4th grader really need to work out a mean?

It's what most 4th grade fairs start to look for, and it's simple: add the three tries, divide by three, and round to a whole number or one decimal place. Peabody's results table adds the column from 4th grade, so your child sees where it goes.

What if one of the three tries is way off?

Do that try again and write a line in the logbook saying why (the car hit a chair leg, the parachute caught on the table). Tries that land close together are a sign the test was fair, and a judge may ask about it.

How much should I help a 4th grader?

Less than you think. Check that the start line is the same every time, ask what they kept the same and why, and let them do the measuring, the writing and the deciding. The words on the board should be your child's.

Peabody (peabody.kids) is free through the end of 2026, with no ads and no sign-up, and nothing a child taps on the science fair pages is sent anywhere. When the board is done, the library has stories at every reading level.

Free at peabody.kids/blog/science-fair-projects-for-4th-graders