Science fair projects with household items: things most kitchens have

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Sixty-three of Peabody's hundred science fair projects cost nothing. What they use, grouped by what you need: the kitchen cupboard, the junk drawer and the toy box.

You can do a real science fair project with what's already in the house: water from the tap, salt, sugar, ice, cups, spoons, paper, tape, a toy car, a ball and a handful of pennies. Sixty-three of the hundred projects on Peabody cost nothing at all, and none of the other thirty-seven costs more than about $4. Each one still changes one thing, measures one thing and does it three times, so it's a project, not a demonstration.

I built the science fair pages on Peabody so every project says up front what to gather and what it costs, and a project's cost is only what most houses don't already have. Here's what comes up most often, the free projects grouped by where in the house you'll find what they need, and the few worth a small shop.

What comes up most

Counting across all hundred projects, these are the things they ask for most often:

- Masking tape, to mark lines: 54 projects
- Water from the tap: 47
- A stopwatch or a kitchen timer: 39
- A measuring cup: 31
- Clear plastic cups, all the same size: 29
- Paper: 24
- Crayons or markers: 22
- A tape measure or a long ruler, or measuring spoons: 21 each

And for tools, a ruler turns up in 48 projects and scissors in 23. The projects split across three shelves of the house: kitchen things (40 projects), paper, tape and toys (34) and the outdoors and some seeds (26).

From the kitchen cupboard

Seven free projects that test in one sitting with things from the kitchen.

- Project: Which paper towel soaks up the most water? · What you need: three kinds of paper towel, measuring spoons, a plate · Grades: 1st–5th · Testing: 1 day · Cost: free
- Project: Which boat shape carries the most pennies? · What you need: foil, about 100 pennies, a tub of water · Grades: 1st–5th · Testing: 1 day · Cost: free

- Project: Does sugar dissolve faster in warm water? · What you need: sugar, three clear cups, a timer · Grades: 2nd–6th · Testing: 1 day · Cost: free
- Project: What melts ice fastest: salt, sugar or sand? · What you need: ice cubes, salt, sugar, sand, four plates · Grades: 2nd–6th · Testing: 1 day · Cost: free
- Project: How much salt does it take to float an egg? · What you need: a raw egg, about half a cup of salt, a tall glass · Grades: 3rd–7th · Testing: 1 day · Cost: free
- Project: Does more baking soda make a bigger fizz? · What you need: baking soda, white vinegar, a tall clear cup, a tray · Grades: 3rd–8th · Testing: 1 day · Cost: free
- Project: Does dish soap stop oil and water from separating? · What you need: cooking oil, dish soap, food colouring, a jar with a lid · Grades: 3rd–8th · Testing: 1 day · Cost: free

From the junk drawer and the toy box

Five more, all free, with paper, tape, string and a few toys.

- Project: Which floor makes a ball bounce highest? · What you need: a ball, a tape measure, masking tape · Grades: 1st–5th · Testing: 1 day · Cost: free
- Project: Does a steeper ramp make a toy car go farther? · What you need: a toy car, three books, flat cardboard, a tape measure · Grades: 2nd–6th · Testing: 1 day · Cost: free
- Project: Which paper bridge shape holds the most coins? · What you need: paper, books, a small cup, about 100 pennies · Grades: 2nd–7th · Testing: 1 day · Cost: free
- Project: Which wing shape flies farthest? · What you need: three sheets of paper, masking tape, a tape measure · Grades: 3rd–8th · Testing: 1 day · Cost: free
- Project: Does a longer string swing slower? · What you need: string, five pennies, a pencil, a timer · Grades: 4th–8th · Testing: 1 day · Cost: free

That's twelve of the free ones from Peabody's first forty; the sixty added on 30 October brought thirty-five more, from a bottle flip to drops of water on a penny. The rest include the shadow (three water bottles and sidewalk chalk), the cup tower (twelve paper cups and a stack of books), the puddles drying in sun, shade and wind, and three that wait on seeds or rain.

The ones that cost a little

Of the first forty, twelve cost between about $1 and about $3 for whatever most houses lack, and none of the sixty added since costs more than about $4. The four at about $3 are the egg drop, which uses a dozen raw eggs; the toast test, with three kinds of bread; the grass under red, blue and green cellophane; and the colours of paper warming in the sun, which uses four thermometers. The eight at $1 or $2 are the balloon rocket, the static balloon, the apple slices, the ice in different cups, the density tower, the celery, the soil drainage and the seed depth.

How to run any of them

1. Pick one with your child. Pick my project asks four questions (grade, how long until the fair, what you've got, what they like) and the third is literally "What have you got at home?"
2. Print the sheets from the project's page: the hypothesis, the results table and the board plan.
3. Write the hypothesis first. "If I change ___, then ___ will ___, because ___."
4. Three tries at every level, each number written down straight away.
5. The middle number for each level, or from 4th grade, the mean: add the three tries and divide by three.
6. A graph: bars for separate kinds, a line for a number that goes up.
7. The board: a 36 × 48 inch tri-fold, with Question, Hypothesis, Materials, Steps, Results and Conclusion in reading order. Bring photos of the test, not the cups of water.

Kitchen things only, checked in code

Household doesn't mean anything goes. Every project on Peabody is checked in code against a safe-list before it can be shown: vinegar and baking soda are the strongest things used, there are no flames, no chemicals from under the sink, no animals, no cultures, and no people as the thing tested. Hot water and a sharp knife only ever appear on a grown-up's step, and test food is never for eating. Your school's sheet wins if it's stricter.

Try tonight

Pour half a cup of fridge-cold water into one clear cup, room-temperature water into a second and warm tap water into a third. Add a teaspoon of sugar to the cold cup, start a timer, and stir slowly, once a second, until no sugar shows. Write the time down, then do the other two cups. Three rounds, and draw a bar for each. That's Does sugar dissolve faster in warm water?, and all it takes is sugar, water and three cups.

Questions grown-ups ask

Do we need to buy a kit?

No. Every Peabody project is built from things most houses have, and the most any of them costs is about $3. What a fair asks for is one thing changed and one thing measured, three times, and the cupboard is enough for that.

Which household chemicals are allowed?

The elementary rule sets I read allow safe kitchen things such as baking soda and vinegar, in small amounts, and ban dangerous chemicals. One limits a safe chemical on display to under a tablespoon. Peabody stays inside the kitchen cupboard.

Can we take the experiment to the fair?

Check your school's sheet first. One K–5 rule set bans liquids and batteries on the display, and another bans open containers. Bring photos or drawings of the test, the logbook and the results table instead.

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. The library has free stories by reading level for when the board is done.

Free at peabody.kids/blog/science-fair-projects-with-household-items