Science fair projects with water, ice and salt for every grade

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Eighteen science fair projects about water, ice and salt, from melting ice cubes and floating eggs to clouds in a jar, with grades, testing days and costs.

Water makes some of the best science fair projects because it's free, it's in every house, and it changes in ways you can time and measure: ice melts, sugar dissolves, salt makes an egg float, colour spreads, puddles dry and warm water makes a cloud. Eighteen of the forty projects on Peabody are built around water, ice or salt, and they run from 1st grade (which cup keeps an ice cube longest) to 8th (does hotter water make a bigger cloud in a jar). Most test in one sitting and cost nothing.

I built the science fair pages on Peabody so each project has the question, the If-Then-Because hypothesis, what to gather, the steps, a results table and a board plan, all ready to print. Here are the water projects, what a fair expects at each age, and how to run one.

Twelve water, ice and salt projects

These twelve put water, ice or salt at the heart of the test. The kitchen things page lists every kitchen project, water or not.

- Project: Which cup keeps an ice cube from melting longest? · Grades: 1st–7th · Testing: 1 day · Cost: about $1 · The water part: an ice cube in paper, plastic, glass and foam
- Project: Which paper towel soaks up the most water? · Grades: 1st–5th · Testing: 1 day · Cost: free · The water part: teaspoons of water until it runs off
- Project: Which boat shape carries the most pennies? · Grades: 1st–5th · Testing: 1 day · Cost: free · The water part: foil boats floating in a tub
- Project: Does sugar dissolve faster in warm water? · Grades: 2nd–6th · Testing: 1 day · Cost: free · The water part: cold, room-temperature and warm water
- Project: What melts ice fastest: salt, sugar or sand? · Grades: 2nd–6th · Testing: 1 day · Cost: free · The water part: ice cubes under a teaspoon of each
- Project: Does food colouring spread faster in hot water? · Grades: 2nd–8th · Testing: 1 day · Cost: free · The water part: one drop in cold, room and hot water
- Project: Where does a puddle dry fastest: sun, shade or wind? · Grades: 2nd–6th · Testing: 2 days · Cost: free · The water part: cups of water left in three spots
- Project: How much salt does it take to float an egg? · Grades: 3rd–7th · Testing: 1 day · Cost: free · The water part: 0 to 8 tablespoons of salt
- Project: Does dish soap stop oil and water from separating? · Grades: 3rd–8th · Testing:

1 day · Cost: free · The water part: oil and water shaken in a jar
• Project: Does hotter water make a bigger cloud in a jar? · Grades: 3rd–8th · Testing: 1 day · Cost: free · The water part: cold, warm and hot water under ice
• Project: Do the heaviest liquids always sink to the bottom? · Grades: 4th–8th · Testing: 1 day · Cost: about $2 · The water part: water weighed against five other liquids
• Project: Which grows crystals faster: salt or sugar? · Grades: 4th–8th · Testing: 5 days · Cost: free · The water part: salt or sugar dissolved in hot water

The other six water projects: What keeps a cut apple from going brown? (slices dipped in plain water, salt water and lemon juice), Do leaves help celery pull up coloured water?, Does a bigger water drop make letters look bigger?, Which soil lets water through fastest?, Where does the most rain land? (a week of rain gauges) and How much water do bean seeds need to sprout? (ten days).

What a fair expects, by age

• 1st to 3rd grade: one thing changed, one thing counted or seen. The paper towel (counting teaspoons) and the ice in different cups (which ones still have ice?) suit the youngest. Three tries, a table, a simple bar graph, and what happened in your child's words.
• 4th to 6th grade: measured with units (seconds, minutes, centimetres) and a mean for every level: add the three tries and divide by three. The sugar, the food colouring and the egg in salt water all give clean numbers.
• 7th and 8th grade: a second variable. Each project has one written out: the egg test with sugar instead of salt, spoon for spoon; the crystals in a warm spot and a cool one; the density tower weighed again cold from the fridge; the oil and water shaken 10, 20 and 40 times.

How to run a water project

1. Put down a tray or a towel first. Several of these are marked as messy.
2. Write the hypothesis on the hypothesis sheet before any water is poured: "If I change ___, then ___ will ___, because ___."
3. Keep the water the same except for the one thing you change. The same amount in every cup, ice from the same tray, the same spoonful. Those are the controls, and each project lists at least two.
4. Three tries at every level, written straight into the results table.
5. Find the middle number or the mean, and graph it. A bar for separate kinds (cups, sprinkles, spots), a line for a number that grows (tablespoons of salt, water temperature).
6. Make the board. The board plan lays out a 36 × 48 inch tri-fold: Question, Hypothesis, Materials, Steps, Results, Conclusion. Take photos while you test: some fair rule sets ban liquids on the display table, so the photos stand in for the cups.

Hot water and salt, safely

Every project on Peabody passes a check in the code before it can be shown: no flames, nothing off the fair's safe-list, no chemicals beyond the kitchen, no animals and no cultures. Hot water appears in three of these (the food colouring, the cloud in a jar and the crystals), never below 2nd grade, and a grown-up pours it every time. The raw egg means washing hands afterwards, and anything tested isn't for eating. Your school's sheet wins.

Try tonight

Line up three paper cups, three plastic, three glass and three foam on a table out of the sun, and label each with masking tape. Drop an ice cube from the same tray into every cup, as fast as you can, and start a timer. Every 10 minutes, look in each cup and write down which still have ice; note the time each cube is all water. The three cups of each kind are the three trials. That's Which cup keeps an ice cube from melting longest?, and it fits 1st grade to 7th. If your child would rather choose, Pick my project asks four questions and hands over one.

Questions grown-ups ask

Can we bring the water to the fair?

Check your school's sheet. One K–5 rule set bans liquids on the display and another bans open containers. Photos or drawings of the test, the results table and the logbook show the same thing without a spill.

Does it matter what kind of salt we use?

The project pages say "salt" and ask you to keep everything else the same. Whatever salt you have, use the same one for every try, and say which on the board's materials list.

Which water project is quickest?

The sugar dissolving, the paper towel and the water drop magnifier each take about 40 minutes in one sitting. The food colouring, the foil boats and the egg in salt water take about 45.

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 stories by reading level for after the cups are washed.

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