Will it float without its peel?

Ages 4–7 with a grown-up · 10–15 minutes · Compare before and after

https://kiddos.ai/explorations/learning-with-gina-and-ollie/will-it-float-without-its-peel

Wonder together

Peel on. Peel off. Will it float with its peel? What about without?

Materials

One ordinary fresh orange, a clear unbreakable bowl, room-temperature water and a tray.

Adult setup — read before trying

An adult pours enough water to cover the peeled fruit while leaving room below the rim, lowers/releases the fruit and peels it by hand without a knife. Keep segments together. Skip for citrus allergy. Do not taste the experiment fruit/water; keep peel from mouths, supervise water and empty it afterward.

Try together

1. Predict; adult lowers whole orange in deep water and releases it.
2. Observe where it settles. Adult removes and peels the same orange by hand.
3. Lower and release the peeled fruit; observe, compare, and describe the actual result.

Keep the comparison clear

Keep fixed: The same fruit, bowl and water.

What changes: Removing peel changes both mass and volume.

Look for: Observe where the released fruit settles relative to the water surface and bottom.

Explain with care

Tiny air spaces in the rind help reduce the whole fruit's average density. Without that layer, the remaining fruit may be denser than water.

Whole oranges usually float and peeled ones often sink, but variety, pith and trapped air matter. Never force the fruit under to match the picture.

Talk about it

Peel on. Peel off. Will it float with its peel? What about without?

Answer cue: Welcome a guess before reading the result. No correct prediction is required.

Where did each version settle after you let go?

Answer cue: Describe the actual positions; the illustrated whole fruit floats and peeled fruit sinks.

Does a lighter object always float more easily?

Answer cue: No. Removing peel changes volume too; weight alone does not decide floating.

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A parent move: Welcome a new prediction before testing the peeled version.

Start simply: An adult handles the fruit while the child points to the waterline.

Explore further: Draw both observations, showing the waterline and the same bowl.

Return to it: Use “usually” and “in our test” when telling someone what happened.

In the classroom

Flexible 20-minute small-group session; pause or shorten as needed.

3 min · Wonder

Read pages 1–2. Invite a prediction with words, pointing or a sketch; keep the result hidden.

4 min · Notice the story

Read pages 3–5. Where did each version settle after you let go? Separate the observation from the explanation.

9 min · Try together

Use the materials and adult setup on this guide, then follow the activity steps in this guide. Observe where the released fruit settles relative to the water surface and bottom.

4 min · Make meaning

Does a lighter object always float more easily? Invite a drawing, a description or an adult-written note. Welcome a new prediction before testing the peeled version.

Understanding check

Does a lighter object always float more easily?

Answer guidance: No. Removing peel changes volume too; weight alone does not decide floating.

Participation choices: An adult handles the fruit while the child points to the waterline. Accept pointing, words, a drawing or adult-directed action. Use the story alone if the activity is unsuitable.

Words to explore

float — Stay at the surface of the water.

sink — Move down into the water.

density — How much mass fits in a given amount of space; adult extension.

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Full adult notes and honest limits

Use a smooth, transparent, unbreakable plastic bowl on a stable tray, one ordinary fresh orange, and room-temperature tap water. Add enough water for the peeled fruit to fit fully below the surface while resting on the bottom, leaving plenty of room below the bowl rim to avoid overflow. The adult pours and gently lowers the whole orange, then lets go. Ask the child to predict before either test and point to where fruit meets water. The adult lifts the same fruit out, peels it by hand without a knife, keeps the segments together, and gently lowers and releases it again. Observe after it settles. Keep the bowl, water and fruit the same; peel removal changes both mass and volume, so this is not a test of mass alone. The waterline may move slightly because the displaced volume changes. Whole oranges usually float; peeled oranges often sink. Variety, ripeness, peel thickness, remaining pith and trapped air can change the outcome. If yours differs, describe or draw the actual result; do not hold it under, change the water, or promise a guaranteed result. The tiny air spaces in the rind help lower the average density of the whole fruit. Removing this relatively low-density layer may leave fruit denser than water. Gravity still acts on floating objects; water pushes upward. Weight alone does not decide flotation. Page 5 is a simplified enlarged peel diagram, not a microscopic image; it does not show a hollow orange or literal air bubbles leaving the fruit. Let the child point, describe, draw, or direct the adult. Ask “What changed? What stayed the same?” Compare your two observations and welcome a changed prediction. For a small group, collect guesses, then draw the waterline on pictures of the two fruit states. Adults handle fruit and water; choose another activity for citrus allergy. Keep peel and fruit away from mouths and younger siblings, do not taste experiment water or fruit, wipe spills, and empty the bowl when finished. This brief activity needs no salt, hot water, knife or special equipment. Gina and the Great Gravity Hug is related reading about Earth’s pull; its shipping story does not contain the orange experiment. No live family trial or measured learning outcome is claimed.

Related reading

Gina and the Great Gravity Hug explores Earth’s pull. The orange activity adds a separate question about floating.

Scientific sources

iop-fruity-floater — https://spark.iop.org/fruity-floater

science-world-floaters — https://www.scienceworld.ca/resource/floaters-and-sinkers/

Read with confidence. Explore Kiddos Books with a grown-up.

App Store: https://apps.apple.com/app/id6720721998

Available physical books: https://www.amazon.com/author/kiddos-books