

Volume: what makes a sound louder?

Lesson at a glance

Open by naming the quietest and loudest sounds pupils can hear. Partners predict whether a gentle then strong drum tap will change the volume. Groups sprinkle rice on a drum, tap gently then strongly, watch the rice jump and listen. The sound-explorer interactive on the IWB shows the same bigger-wobble idea and separates loud from high. Pupils record prediction, rice heights and a quietest-to-loudest order on the Investigation Journal page, then revoice that a bigger vibration makes a louder sound.

Learning objectives

- Predict and observe that a bigger vibration makes a louder sound
- Arrange sounds from quietest to loudest using what you saw and heard

Before the bell – prep

Set out one drum or tub-with-film and a pinch of dry rice per group before the bell, but keep them off tables until after Getting Started. Agree a class stop signal. Optional elastic-band guitar per group only if time allows after the drum trial.

Materials

Item	Qty	Per	Source	Low-cost substitute
classroom drum or tub with stretched film or balloon skin	1	group	school kit	empty biscuit tin or ice-cream tub with a balloon stretched over the open end and secured with an elastic band
dry rice	1	group	supermarket	dry salt or uncooked lentils
elastic-band guitar (small box with 2–3 rubber bands stretched across)	1	group	classroom	a ruler held over the edge of a desk and twanged gently
Investigation Journal page	1	pupil	provided printable	plain paper with teacher-led headings said aloud

Safety watch-point

Protect ears from very loud bangs; no tapping near faces; freeze on the class stop signal. Wash hands after handling rice if needed.



Teaching moves

- **What do we think?:** Name volume lightly on the board only. Run think-pair-share on gentle then strong tap: louder, quieter, or the same? Collect predictions without judging. Hold the word vibration back until the rice appears. Steer talk to the sound, not pitch — keep loud and high separate.
- **Gentle then strong:** Model once aloud with wonder-predict-test-observe-think, same spot on the skin each time. Hand over to groups of three to four: one taps, one watches rice, one listens, then swap. Name vibration as the rice jumps. Only offer the elastic-band guitar after every group has finished drum-and-rice and one swap; skip it if minutes are tight.
- **See the wobble on the board:** Drive the sound-explorer interactive yourself on the drum only. Move quiet → loud and ask whether the wobble got bigger and the sound louder. Key check: does the sound get higher like a squeak, or stay the same kind and only get louder? Link the screen wobble back to the jumping rice. Mute the tone if the room needs quiet.
- **Record what we found:** Write the full trio on the board before pencils move: gentle drum, strong drum, talking voice (or school bell once, kept for all). First: prediction plus simple rice-height sketches with quiet/loud labels. Must-finish: quietest-to-loudest order. If writing runs short, keep drawings minimal and push everyone onto the ranking.
- **What did we discover?:** Three minutes only. Draw out in pupils' words: a bigger vibration makes a louder sound, pointing to rice and the board drum. One or two everyday school examples and a light ear-care link. Do not re-run the order. If someone still says the strong tap made it 'higher', one short line or a quick board-drum replay.

What it should show

Strong taps send rice higher and sound louder; gentle taps give a small hop and a quieter sound. A group whose rice barely moves usually needs a thinner film or a firmer centre tap. Ordering should place gentle drum quietest, talking voice in the middle, strong drum loudest (or school bell if you swapped it in).

Misconceptions & interventions

- **Pupils mix up loud with high — they say a strong tap makes the sound 'higher' like a squeak.** — On the sound-explorer drum, move quiet to loud and ask: same kind of sound, only louder, or higher like a squeak? Revoice: bigger wobble changes volume, not pitch.
- **Pupils think one wire of force or 'hitting harder' is magic, not a bigger vibration they can see.** — Point at the rice: the jump is the wobble. Ask which tap made rice jump higher and which sounded louder, so evidence links the two.

Differentiation

Emerging	Developing	Proficient
• Oral rehearsal first (I predicted... I saw the rice... I heard...) and rice-height drawings alone count as a full record; pair with the teacher table for the quietest-to-loudest order. • Keep roles fixed longer so a less confident child only watches rice or only listens before swapping.	• Complete prediction, both rice sketches with quiet/ loud labels, and the three-sound order on the Investigation Journal page. • After one swap, say aloud which tap made the bigger jump and the louder sound.	• Add one short sentence linking bigger wobble to louder sound on the journal page. • If the elastic-band guitar is out, compare gentle and strong pluck by ear only and say whether the same rule held.

Cross-curricular hook

Link to Maths ordering and comparing — pupils rank three sounds quietest to loudest using evidence, not guesswork.