

Sorting magnetic and not magnetic

Lesson at a glance

Open with a recycling-centre magnet that lifts some rubbish and leaves the rest, then a quiet paperclip jump from your palm. Children thumbs-guess three or four objects, then in small groups test a mixed tray with chunky magnets and sort into two hoops: the magnet pulls it, or it does not. A quick notice that many pulled things feel hard and shiny like metal, a thumbs predict for big everyday items, then one or two drawings of each sort on the Investigation Journal page before magnets are counted back.

Learning objectives

- Test objects with a magnet and sort into magnetic and not magnetic
- Notice that many magnetic objects are metal
- Say the sorting reason: the magnet pulls it or it does not

Before the bell – prep

Day before: print one Investigation Journal page per pupil; pack one mixed objects tray and one or two chunky magnets per small group (paperclips, steel nails, wooden pegs, crayons, coins, soft foil ball). Ready two labelled sorting hoops or trays per group. Keep magnet trays covered until the test step.

**Materials**

Item	Qty	Per	Source	Low-cost substitute
chunky magnets (large bar or disc magnets, too big to swallow)	2	group	school kit	large fridge magnets that are firmly sealed and too big for a mouth
mixed objects tray (steel paperclips, steel nail, coins, wooden pegs, crayons, plastic bricks, rubber erasers, soft foil ball, plastic lids)	1	group	classroom	any safe classroom odds and ends with a clear mix of steel items and wood, plastic or rubber
sorting hoops (or two shallow trays) with simple picture labels	2	group	classroom	two sheets of paper or two cardboard box lids labelled with a magnet picture and a cross
Investigation Journal page	1	pupil	provided printable	a plain page folded in half with the two sort groups drawn as circles

Safety watch-point

Chunky magnets only — never small enough to fit fully in a mouth. Keep magnets away from mouths; count every magnet back into the tub at tidy.

Teaching moves

- **Getting Started:** Hold one chunky magnet and let it quietly pull a paperclip from your palm so the class sees the jump. Keep the full trays covered. Link lightly to a recycling crew's big magnet sorting metal from rubbish.
- **Look and Wonder:** Hold up three or four objects one at a time (paperclip, wooden peg, steel nail, crayon). Class shows thumbs up or down; do not test yet. Stick to the two sort labels only — save 'metal' until after real sorting. Model one full cycle aloud: wonder, predict, test, place, say the reason.
- **Test with Magnets:** Demo one shared object at each table, then each child tests about three objects. One-minute warning for fair turns. Circulate asking 'What happened? Did it jump?' Keep magnets away from mouths and count them back.
- **Sort into Hoops:** Children move dry tested objects into the two labelled hoops. Listen for the reason said aloud and revoice: 'the magnet pulled it, so it goes in the magnetic hoop.' If groups disagree on the same kind of object, retest together.
- **What Do We Notice?:** Gather eyes on one magnetic hoop. Named turns: look and gently touch. Hold up the soft foil ball or drinks-can ring pull and retest so the class sees a shiny thing the magnet does not pull. One sentence only: many things the magnet pulls feel like metal, and we still only know when we test.
- **Would it stick?:** Three minutes on the board. Start with the fridge (magnets at home). Thumbs first on each big item, then two or three whys. The drink can is the surprise — if you have an empty can, show after the vote that not every metal sticks.
- **Draw Your Sort:** Hand out the Investigation Journal page. Success bar is light: one or two drawings in each group; labels optional. As you circulate, ask them to point and say 'the magnet pulls it' or 'it does not.' Early-stop at about four minutes so two carpet minutes remain.
- **Make Sense and Tidy:** Take one or two child answers, restate the two sort lines and the hard-shiny notice, one quick recycling link if natural. Count every magnet into the tub, wipe trays, sleeves and floor check.

What it should show

Expect steel paperclips and nails to jump to the magnet; wooden pegs, crayons and most plastic to stay put. Soft foil balls and many drinks cans look shiny metal but usually do not stick — a useful surprise, not a setup error. Most children will notice that many pulled things feel hard and shiny; affirm that, then keep the rule 'we only know after we test.'

Misconceptions & interventions

- **'All metal sticks' or 'if it's shiny it will stick.'** — Retest the soft foil ball or empty drinks can in front of everyone. Revoice: many pulled things feel like metal, but we only know for sure when the magnet pulls.
- **'Heavy things stick' or guessing from look alone without testing.** — Keep the sort rule simple: place only after a real magnet test, and have the child say 'the magnet pulls it' or 'it does not' as they place.

**Differentiation**

Emerging	Developing	Proficient
• Work with the teacher on two clear objects (paperclip and wooden peg) and place with a spoken reason. • Draw one object in each hoop on the Investigation Journal page; labels not required.	• Test about three tray objects and say the sorting reason aloud when placing in the hoop. • Add one more drawing or circle one object that surprised them.	• Try a trickier object such as foil or a coin and say what they noticed. • In the 'Would it stick?' thumbs, give a reason linked to what the magnet did on the tray.

Cross-curricular hook

Link to Aistear/SPHE care for materials — recycling crews sort metal with magnets so it can be reused.