

What Matter Is

Cargo Checkpoint with Matterling

Learning target

Recognize matter and distinguish it from light or sound.



Before you begin

Use the reference page and discussion prompts on their own, or open the optional browser adventure. No earlier lesson or physical kit is required.

For online play: use an internet-connected current browser with local storage enabled. Read the three-part Gemling briefing, answer the quick check, and apply the evidence at three checkpoints. Retry feedback supports review; results are not a secure test or gradebook.

Use for teacher-led review, science centers or partner practice. Independent readers may need support with the vocabulary below. The design target is grades 3-5; choose support based on the learner.

Vocabulary and concepts to discuss

Mass; space occupied; observable properties; particles as a simple model

Open Cargo Checkpoint - direct lesson link

Scan the QR code or use the clickable link. This guide is usable offline; the adventure runs on an external educational website.



What Matter Is - key ideas

1. The first clues

Matter has mass and takes up space. Solids, liquids and gases are forms of matter, even when a gas is invisible.

2. How the clues connect

Properties such as texture, shape and how a material flows help describe samples. A sound or a beam of light is not a material sample like air or stone.

3. Our evidence record

Our cargo model includes a rock, water and trapped air. Each takes up space; the air is not an empty nothing just because we cannot see it.

Keep the science accurate

Use simple particle models and measured mass/volume. Formal density calculations and molecular bonding are extensions.

Apply the evidence

Use a specific observation from this lesson to explain one choice. Point to a clue, then connect that clue to a scientific idea.

Curriculum reference: <https://www.nextgenscience.org/dci-arrangement/5-ps1-matter-and-its-interactions>

Talk through the evidence

1. Which invisible example is matter?

Expected answer: Air

Reasoning: Matter has mass and takes up space. Solids, liquids and gases are forms of matter, even when a gas is invisible.

2. What two features define matter here?

Expected answer: Mass and space occupied

Reasoning: Matter has mass and takes up space. Solids, liquids and gases are forms of matter, even when a gas is invisible.

3. Which cargo items are matter?

Expected answer: Rock, water and trapped air

Reasoning: Our cargo model includes a rock, water and trapped air. Each takes up space; the air is not an empty nothing just because we cannot see it.

4. Why include trapped air?

Expected answer: It occupies space and has mass

Reasoning: Our cargo model includes a rock, water and trapped air. Each takes up space; the air is not an empty nothing just because we cannot see it.

Guide the discussion

Ask learners to name the evidence that supports their answer. If an answer differs, revisit the matching key idea on page 2 and invite a revised explanation.

Online rewards: this lesson grants one fixed digital Expedition Discovery. Five saved digital Gemling friends become available only after all six distinct subject lessons are complete, in any order. Digital rewards do not establish physical ownership.