

Conductors & Insulators

Conductor Catwalk with Sparkling

Learning target

Use supplied test evidence to choose electrical materials.



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

Material properties; testing; conducting paths; insulating coverings

Open Conductor Catwalk - 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.



Conductors & Insulators - key ideas

1. The first clues

Electrical conductors let current pass more readily; insulators resist it. Many metals conduct well, while plastic commonly serves as an insulating covering.

2. How the clues connect

Use a test record for the actual material. An insulating covering has a different purpose from the conducting part beneath it.

3. Our evidence record

Our digital table shows metal A completing the test circuit and plastic B not completing it. Choose A for the model link and B for a modeled covering, without testing household electricity.

Keep the science accurate

Use digital or teacher-managed low-voltage models only. No mains electricity, wiring instructions or Ohm's-law calculations.

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/4-ps3-energy>

Talk through the evidence

1. Which material conducts in the record?

Expected answer: Metal A

Reasoning: Electrical conductors let current pass more readily; insulators resist it. Many metals conduct well, while plastic commonly serves as an insulating covering.

2. Which fits the modeled insulating covering?

Expected answer: Plastic B

Reasoning: Electrical conductors let current pass more readily; insulators resist it. Many metals conduct well, while plastic commonly serves as an insulating covering.

3. Why have different materials in the design?

Expected answer: They perform different functions

Reasoning: Use a test record for the actual material. An insulating covering has a different purpose from the conducting part beneath it.

4. How are these results investigated here?

Expected answer: Through supplied digital test records

Reasoning: Our digital table shows metal A completing the test circuit and plastic B not completing it. Choose A for the model link and B for a modeled covering, without testing household electricity.

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.