

GRADE 5 LEARNING PACK

Electricity: Circuits, Conductors & Design

Build and troubleshoot simple low-voltage circuits, compare conductor/insulator materials and use circuit thinking in a design task.

LEARN • PRACTISE • CREATE • REFLECT

Original BrightPencil Kids resource - adult-led where appropriate

A4 edition • 12 purposeful pages • review copy

Print. Learn. Grow.

Grown-up guide

Learning objective

Build and troubleshoot simple low-voltage circuits, compare conductor/insulator materials and use circuit thinking in a design task.

Use this pack well

- Model the first example aloud, then let the learner try.
- Ask “How do you know?” more often than “Are you finished?”.
- Use real objects, talk, movement or observation when the activity suggests it.
- Stop or shorten the session if attention or enjoyment drops.
- Open-ended pages can have many successful answers.

Quality note

This resource was written originally for BrightPencil Kids. Curriculum sources informed scope and progression only; no third-party worksheet or story text is reproduced.

Learn the idea

1 Current requires a complete conducting path in the simple circuit model used here.

2 Switches control whether the path is open or closed.

3 Circuit investigations use only approved low-voltage equipment; mains electricity is outside child experimentation.

Talk about it

Explain one idea in your own words. Give an example from real life, a drawing or an object if that helps.

Diagnose four circuit diagrams with gaps or misplaced connections.

Compare series arrangement observations with one versus two lamps using approved kit assumptions.

Test safe classroom materials as conductors/insulators one at a time.

Explain why changing two variables together weakens a comparison.

Independent thinking

Plan a low-voltage alarm/light model with switch and clear safety boundary.

Try it beyond the page

Real-world / hands-on connection

Use only teacher/adult-approved low-voltage kits in a dry area; never investigate sockets, plugs, mains wiring or household appliances.

Before you finish

What did you notice?

What evidence, object or example helped you?

What would you change if you tried again?

Create something

Your project

Design a low-voltage model lighting system with circuit diagram, materials list, test plan and troubleshooting checklist.

Use this space for planning, drawing, mapping, designing or notes.

CHALLENGE

Think deeper

1. What must a simple circuit have to work?

2. May a child use a wall socket for an experiment?

3. What does an open switch do?

Quick review

1. In one sentence, explain the big idea of “Electricity: Circuits, Conductors & Design”.

2. Draw or write one example that shows you understand.

3. Choose one activity from this pack and explain the strategy you used.

4. Write one question you still have.

Answer & discussion notes

Use these as guidance, not scripts. Open questions can have different successful responses when the reasoning is sensible and evidence-based.

1. Suggested response

A complete conducting path and suitable components/power source.

2. Suggested response

No.

3. Suggested response

Breaks the circuit path.

Review before publication

Check age fit, factual accuracy, clarity, accessibility, rights provenance and whether the activity works in practice. This file remains a review copy until those checks are signed off.

FINISH

My learning reflection

I finished this BrightPencil learning pack.

One thing I understand better now:

A strategy that helped me:

Something I created or noticed:

My next small question or goal:

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