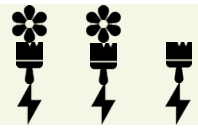
Lesson Plan

Nature
Art
Science



Summary

Curriculum alignments

Craft name	**Nature artist book**
Subjects	Art; media arts
Year group	Year 5+ UK, Grades 4+ US
Key words	Parallel circuits, manifesto, accordion book
English National Curriculum Key Stages 2 and 3	**Nature (geography)** • Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies **Art** • Improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials • Increase their proficiency in the handling of different materials • Use a range of techniques and media, including painting **STEM** • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit;
US Curriculum Grades 3-8	**Nature** • Environmental Education, Knowledge of Environmental Processes and Systems [EE4-S2.4-B, EE4-S2.4-C, EE8-S2.4-B] • Environmental Education , Personal and Civic Responsibility [EE4-S4-D]

	Art • Visual arts, Creating: Investigate – plan - make [VA:Cr1.1.3a, VA:Cr1.1.5a, VA:Cr1.1.6a, VA:Cr1.2.3a, VA:Cr1.2.4a, VA:Cr1.2.5a, VA:Cr1.2.6a] • Visual arts, Creating: Investigate [VA:Cr2.1.4a, VA:Cr2.1.5a, VA:Cr2.1.6a, VA:Cr2.2.3a, VA:Cr2.2.4a, VA:Cr2.2.5a, VA:Cr2.2.6a] • Visual arts, Creating: Reflect - Refine – Continue [VA:Cr2.1.3a, VA:Cr2.1.4a] • Media arts, Creating: Conceive [MA:Cr1.1.3, MA:Cr1.1.4, MA:Cr1.1.5] • Media arts, Connecting: Synthesize [MA:Cn10.1.4, MA:Cn10.1.5, MA:Cn10.1.6] **STEM** • Science (NGSS), Energy [4-PS3-2, 4-PS3-4]

You will need

Artist Manifesto storyboard

Part 1

- Battery holder template
- Foam tape
- Coin cell battery (3V CR2016)
- Conductive fabric tape*
- LED lights
- Pressure sensor
- Cardstock paper 200GSM and A4 paper scraps
- Sellotape
- Frog tape

Part 2

- Flower press with blotting paper and corrugated cardboard
- Nature materials (smaller leaves, flowers)
- Tweezers
- Adhesive book cover paper

Part 3

- Messages template
- Sticky post-its
- Pencils to write with
- Generative AI (optionally)

* For paper circuit materials, we use chibitronics.

Part 4
• Nature materials • Acrylic paint • Gel plate • Brayer roller • Double sided tape • Sticky felt sheets • Pens/pencils

Learning objectives

Students will design and construct a multi-page interactive accordion book circuit (independently or collaboratively), demonstrating an understanding of basic electrical principles, including series and parallel circuits, conductive materials, and pressure switches.
Students will explore natural forms and textures by collecting, drying, and preserving plant materials, then transforming them into custom stickers and layered prints that reflect their observations of the natural world.
Students will integrate visual storytelling, nature-based collage, and personal reflection into a book format, using light, texture, and written messages to communicate themes of gratitude, curiosity, and environmental awareness.

Lesson outline

Duration	Guide
1 hour	**Part 1: Making an interactive book circuit** Students will build a multi-page paper circuit using conductive tape, LEDs, and pressure sensors, learning how to design and connect simple electrical circuits across folded spreads. They will test and refine their designs, embedding battery holders and interactive buttons to bring their books to life with light. **Discussion prompts** ⚡What do you notice about how the electricity flows through your circuit? What happens when you press the button? ⚡Why do you think it's important to keep the positive and negative lines separate in your design? 🖌How did you decide where to place your lights and buttons? Did you try to make the circuit part of your artwork?

	1 hour (1-week drying time)	**Part 2: Drying nature materials and sticker design** Students will collect and press local plants, observing their shapes and textures as they dry. They will then transform these natural elements into custom stickers by carefully cutting around the contours and mounting them on adhesive film. **Discussion prompts** ✽ What kinds of shapes, colours, or textures did you notice in the plants you collected? ✽ Did anything surprise you about how the plants changed as they dried? ✽ How did you choose which parts of the plant to turn into stickers? What made them interesting to you?
	1 hour	**Part 3: Creating nature messages** Students will reflect on their creative process and nature experiences by writing short messages on post-its. These messages will be grouped, discussed, and used as inspiration for collaborative or AI-assisted writing pieces such as poems or manifestos. **Discussion prompts** ✽ What did you learn or feel while working with natural materials in this project? ✽ How did your message connect with the artwork you created? What part of the circuit making challenged you or sparked your curiosity? ✽ If your book could speak, what story or feeling would it share with someone who reads it?
	1.5 hours	**Part 4: Collaging your page spread** Students will create layered nature prints using gel plates and dried plants, experimenting with colour gradients and composition. They will collage these prints with their stickers and messages onto the circuit pages, marking interactive spots and completing their illuminated book spreads. **Discussion prompts** How did you decide which colours and textures to use in your print? What effect were you trying to create? ✽ What do the textures and shapes in your print remind you of in the natural world? How did you arrange your stickers, prints, and messages to guide someone through your page?

	How did you use the lights to enhance your story?

Differentiation and extension activities

- Create a book that tracks changes in plant life across seasons, with circuits lighting up to indicate seasonal transitions.
- Use the manifesto to tell a story about a local ecosystem or environmental issue, with light circuits highlighting key moments.
- Incorporate **light filters** or **translucent materials** over LEDs to create glowing effects or colour changes.
- Combine natural materials with fabric, thread, or recycled materials to create textured, tactile spreads.
- Use the circuits to light up specific words or panels in a poem or comic strip, guiding the reader's attention.
- Extend your printing techniques. Have a look at our YouTube channel for new ideas!
- Add **light sensors** or **touch sensors** to trigger LEDs based on environmental input (e.g., light up when it's dark), using the ChibiChip or another microcomputer. You could also add sound.
- Use a voltometer to measure voltage across different parts of the circuit and discuss how energy flows through the system.