



Lesson Plan

Nature   
 Art   
 Science   

Summary	Craft name	Botanical Circuits
	Subjects	Art; media arts
	Year group	Year 5+ UK, Grades 3+ US
	Key words	Parallel circuits, herbarium
Curriculum alignments	English National Curriculum Key Stages 2 and 3	<p>Nature (geography, biology)</p> <ul style="list-style-type: none"> • 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 • How organisms affect, and are affected by, their environment, including the accumulation of toxic materials <p>Art</p> <ul style="list-style-type: none"> • Increase their proficiency in the handling of different materials • Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties • Select from and use specialist tools, techniques, processes, equipment and machinery precisely <p>STEM</p> <ul style="list-style-type: none"> • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches • Identify whether a lamp will light in a simple series circuit, based on whether 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	<p>Nature</p> <ul style="list-style-type: none"> • Environmental Education, Knowledge of Environmental Processes and Systems [EE4-S2.4-B, EE4-S2.4-C, EE8-S2.4-B]

	<ul style="list-style-type: none"> • Environmental Education, Personal and Civic Responsibility [EE4-S4-D] <p>Art</p> <ul style="list-style-type: none"> • Visual arts, Creating: Investigate [VA:Cr2.2.3a, VA:Cr2.2.4a, VA:Cr2.2.5a, VA:Cr2.2.6a, VA:Cr2.3.3a, VA:Cr2.3.4a, VA:Cr2.3.5a] <p>STEM</p> <ul style="list-style-type: none"> • Science (NGSS), Energy [4-PS3-2, 4-PS3-4]
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You will need

Botanical Circuits storyboard	
Part 1	
	<ul style="list-style-type: none"> • Flower press with blotting paper and corrugated cardboard • Focal plant and plant parts • Tweezers
Part 2	
	<ul style="list-style-type: none"> • Corrugated cardboard • Coin cell battery (3V CR2016) • Foam tape • Conductive fabric tape*
Part 3	
	<ul style="list-style-type: none"> • A4 paper 100-150GSM • Herbarium Label • Double sided tape • Dry plant materials • Tweezers
Part 4	
	<ul style="list-style-type: none"> • Acetate sheet • Whiteboard marker • A4 paper 250GSM or more • Pencil • Scrap of paper • LED lights, reed switches, conductive fabric tape • Magnet, or magnetic wand

* For paper circuit materials, we use [chibitronics](#)

Learning objectives

Students will observe and document natural specimens through collection, pressing, and annotation, developing their understanding of plant biology, seasonal change, and the role of native flora in local ecosystems.

Students will design and assemble a layered botanical composition using dried plant materials, demonstrating care in handling delicate textures and an understanding of composition, transparency, and visual storytelling.

Students will build and integrate a functional paper circuit using conductive tape, LEDs, and reed switches, demonstrating an understanding of basic electrical principles and how interactivity can enhance scientific and artistic expression.

Lesson outline

Duration	Guide
1.5 hour	<p>Part 1: Observing and pressing plants Students will explore their surroundings to collect plant specimens, observing their features and documenting findings through annotation. They will press and dry the plants using blotting and corrugated paper, learning to handle delicate materials with care.</p> <p>Discussion prompts</p> <ul style="list-style-type: none"> ✿ Why do you think this plant grows in this spot? What might it need to survive? ✿ Can you spot any signs of the season in your plant, like buds, flowers, or dried leaves? 🔧 How can you press your plant carefully, so it keeps its shape and detail? 🔧 How do you decide which parts of the plant to keep and which to leave out?
0.5 hour	<p>Part 2: Constructing the battery pack Students will build a compact battery holder using cardboard, foam tape, and conductive materials, preparing a power source for their circuit. They will learn how to ensure strong electrical contact and prepare for later integration into their artwork.</p> <p>Discussion prompts</p> <ul style="list-style-type: none"> ⚡ What do you notice about how the conductive tape connects to the battery? ⚡ What might happen if the tape or battery isn't touching properly? 🔧 How do you make sure your battery pack fits well with the rest of your design?

1 hour	<p>Part 3: Making the herbarium</p> <p>Students will arrange and mount their pressed plant specimens on acid-free paper, using tweezers and tape to create layered botanical compositions. They will reflect on seasonal changes and plant characteristics while developing precision and visual storytelling.</p> <p>Discussion prompts</p> <ul style="list-style-type: none"> ✿ What do your plants tell you about the place and time they were collected? ✿ Can you guess how your plant might change in another season? 🔧 What makes a good layout for showing off the details of your plant? 🔧 How can you layer your pieces without hiding the interesting parts?
1 hour	<p>Part 4: Designing and testing the circuit</p> <p>Students will design and assemble a paper circuit using conductive tape, LEDs, and reed switches, tracing their layout from a reusable acetate template. They will test and refine their circuits, then overlay their herbarium to create an illuminated, interactive display.</p> <p>Discussion prompts</p> <ul style="list-style-type: none"> ⚡ How does electricity travel through your circuit to light up the LEDs? ⚡ What do you think the reed switch does, and how does it control the light? Where should you place the switch to control all of the LEDs? ⚡ What do you need to check if your circuit isn't working the first time? 🔧 How can you place your circuit so it lines up well with your herbarium design? 🔧 How does adding light change the way your artwork looks or feels?

Differentiation and extension activities

- ✿ Document and press plants from the same location across all four seasons to observe and compare changes over time.
- ✿ Create a composition featuring two plants that live in symbiosis (e.g., clover and nitrogen-fixing bacteria, or trees and fungi).
- ✿ Use a school or local area map to mark where each plant was found, adding notes about habitat and conditions.

- ✿ Investigate and label each plant's traditional medicinal, culinary, or ecological uses.
- 📄 Create a set of herbarium pieces based on a theme (e.g., edible plants, healing herbs, or pollinator-friendly species).
- 🎨 Add ink, pencil, or watercolour to enhance the pressed plant artwork or to illustrate unseen parts like roots or seeds.
- 📄 Present the herbarium pieces in a gallery-style display with artist statements and botanical notes.
- ⚡ Use multiple reed switches or sensors to create a circuit that lights up different parts of the herbarium when triggered.
- ⚡ Instead of a reed switch, create a pressure sensor/button to close the circuit!
- Have a look at our [YouTube channel](#) for new ideas!