

## Telling Stories with Scratch

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| <b>Subject:</b><br>Science / ADST / Cross-Curricular Integration | <b>Grade:</b><br>Grades 5–10                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Duration:</b><br>2–3 sessions (45–60 min each) |
| <b>Lesson Overview</b>                                           | Students will design a short interactive game in Scratch using visual storytelling to explain a topic of their choice. They will create a sequence of scenes (backdrops) with minimal interaction—such as clicking to continue or pressing a key—that guides the player through a concept, process, or narrative. This can be adapted to any curricular topic: historical events, life cycles, cultural stories, social issues, or fictional tales. |                                                   |

### Curriculum Ties (in addition to satisfying multiple core competencies):

ADST Core Competencies:

**Communication:** Share progress and ideas with peers; provide feedback during development.

**Thinking:** Use critical thinking to select and present information in a meaningful sequence.

**Personal & Social:** Explore topics that connect to community, culture, or global issues.

### Content Objectives

- Research and synthesize information on a chosen topic.
- Use Scratch to create a structured sequence of scenes.
- Apply storytelling principles to make the content engaging and clear.

## Materials & Equipment Needed

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| <b>Consumables:</b> <ul style="list-style-type: none"> <li>• Paper for sketches</li> <li>• Storyboard template</li> </ul> | <b>Non-Consumables:</b> <ul style="list-style-type: none"> <li>• Laptops or computers with internet access</li> <li>• Headphones (optional)</li> <li>• Access to Scratch (<a href="http://scratch.mit.edu">scratch.mit.edu</a>)</li> <li>• Markers</li> <li>• Pens/Pencils</li> </ul> |
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## Lesson & Activity

| Lesson Stages       | Learning Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <b>Introduction</b> | <p><b>Ask:</b></p> <ul style="list-style-type: none"> <li>• Identify the topic you want to teach or share through a short interactive story.</li> <li>• Be specific: choose one part of the concept to focus on (e.g., instead of “life cycle of a plant,” focus only on “how seeds germinate”).</li> <li>• Discuss why focusing on a smaller part makes the story clearer and easier to develop.</li> <li>• Prompt participants to think about <i>who</i> the “player” or “audience” is—What do they know already? What would spark their curiosity?</li> </ul> <p><b>Research:</b></p> <ul style="list-style-type: none"> <li>• Gather the essential facts, terms, and visuals that will support your chosen topic.</li> </ul> |

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|                 | <ul style="list-style-type: none"> <li>• Search for real-life images, diagrams, or short videos that can help you imagine how this concept could be represented visually.</li> <li>• Think about the story elements: Who are the characters? What is the setting? What problem or challenge drives the interaction?</li> <li>• Look at examples for inspiration—this could include existing Scratch projects, simple interactive simulations, or short narrative games. (<a href="https://scratch.mit.edu/projects/1186356488">https://scratch.mit.edu/projects/1186356488</a>).</li> <li>• Make quick notes or sketches to capture your ideas before moving into the design phase.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Activity</b> | <p><b>Imagine:</b></p> <ul style="list-style-type: none"> <li>• Brainstorm the story sequence: Beginning → Middle → End.</li> <li>• Decide what the player will <b>see</b> (backgrounds, characters, objects) and <b>do</b> (move, click, discover, answer, etc.) in each scene.</li> <li>• Choose a visual style that fits your idea: realistic, cartoon, pixel art, collage, hand-drawn, or mixed media.</li> </ul> <p><b>Plan:</b></p> <ul style="list-style-type: none"> <li>• Create or gather every visual element—this includes backdrops, characters, and interactive objects.</li> <li>• You can:             <ul style="list-style-type: none"> <li>○ Draw them yourself (paper, markers, post-its, digital art tools)</li> <li>○ Search for images online (free-use resources, Creative Commons, etc.)</li> <li>○ Generate them with AI tools such as ChatGPT image generation, Gemini, or Copilot, making sure to adapt and credit appropriately.</li> </ul> </li> <li>• For each backdrop (scene), make a sketch or layout showing:             <ul style="list-style-type: none"> <li>○ Background elements (buildings, landscapes, interiors)</li> <li>○ Characters and their positions</li> <li>○ Interactive items (doors, buttons, clues)</li> </ul> </li> </ul> |

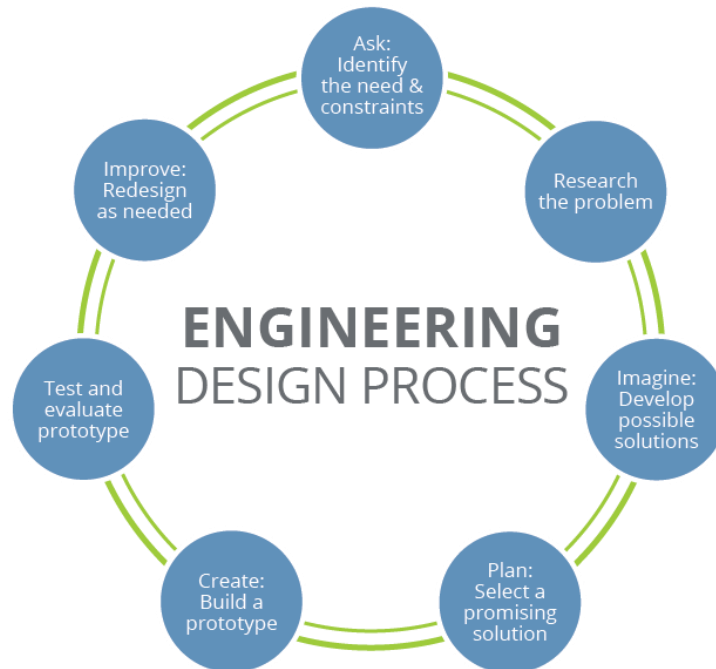
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|                | <ul style="list-style-type: none"> <li>• Use colors, notes, or arrows to highlight important details like where the player starts, clickable spots, or animations.</li> </ul> <p><b>Create:</b></p> <ul style="list-style-type: none"> <li>• Upload your images into Scratch as backdrops and sprites.</li> <li>• Add your main character(s) and basic interactivity (e.g., click to continue, move with arrow keys, press space to trigger dialogue).</li> <li>• Keep it simple—focus on making the story clear and interactive rather than perfecting the art.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Closure</b> | <p><b>Test:</b></p> <ul style="list-style-type: none"> <li>• Share your game with a peer or small group and observe their reactions as they play.</li> <li>• Ask guiding questions like:             <ul style="list-style-type: none"> <li>○ “Was the sequence easy to follow?”</li> <li>○ “What part of the game helped you understand the concept best?”</li> <li>○ “Was there anything unclear or missing?”</li> </ul> </li> <li>• Note any moments of confusion or disengagement—these are opportunities for improvement.</li> </ul> <p><b>Improve:</b></p> <ul style="list-style-type: none"> <li>• Based on feedback, refine your visuals, text, or timing to make the sequence smoother and the message stronger.</li> <li>• Check that:             <ul style="list-style-type: none"> <li>○ The story feels complete from start to finish.</li> <li>○ The educational content is accurate and clearly conveyed.</li> <li>○ The interactions are intuitive and meaningful.</li> </ul> </li> </ul> <p><b>Discussion:</b></p> <ul style="list-style-type: none"> <li>• Share your final version with the whole group and highlight one design decision you’re proud of.</li> <li>• Reflect together:</li> </ul> |

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|                                  | <ul style="list-style-type: none"> <li>○ “How could this type of storytelling game work in science, math, history, or social studies?”</li> <li>○ “How would you adapt it for younger or older students?”</li> <li>• Discuss how narrative framing can make learning more engaging, memorable, and connected to real-world ideas.</li> </ul> |
| <b>Step Ups &amp; Step Downs</b> | <p><b>Step Up:</b> Add narration, background music, sound effects, interactive choices, animations, or branching paths to make the experience richer and more immersive.</p> <p><b>Step Down:</b> Reduce the number of scenes, simplify visuals, use static backgrounds, or focus only on the core message with minimal interaction.</p>     |

## Background Knowledge

### The Engineering Design Cycle:

- **Ask:** What concept, theme, or message do we want the player to experience and understand through the game?
- **Research:** Explore examples of interactive games, noting what makes them engaging. Gather facts, visuals, and ideas related to the chosen theme.
- **Imagine:** Brainstorm possible interactions and how each could reinforce the message.
- **Plan:** Sketch the game flow, design backdrops and sprites, and decide on the variables, events, or conditions you’ll need.
- **Create:** Build the game in Scratch, programming the core interactions and adding visuals, sounds, or animations for feedback.
- **Test:** Share the game with peers to see if the interactions clearly communicate the concept.
- **Improve:** Refine mechanics, visuals, and pacing based on feedback to make the game more effective and engaging.



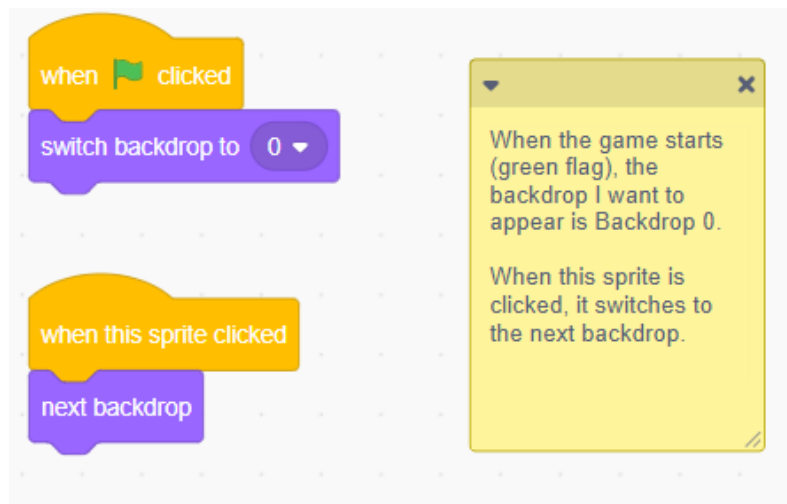
Students should have basic familiarity with Scratch or receive an introductory walkthrough before starting.

The following images show sample Scratch code snippets used in this example projects. (<https://scratch.mit.edu/projects/1186356488>).

These are provided as visual references to help you understand how certain features—such as scene changes, simple animations, and interactive elements—can be implemented. You can use these examples as inspiration when modifying existing projects or creating your own.

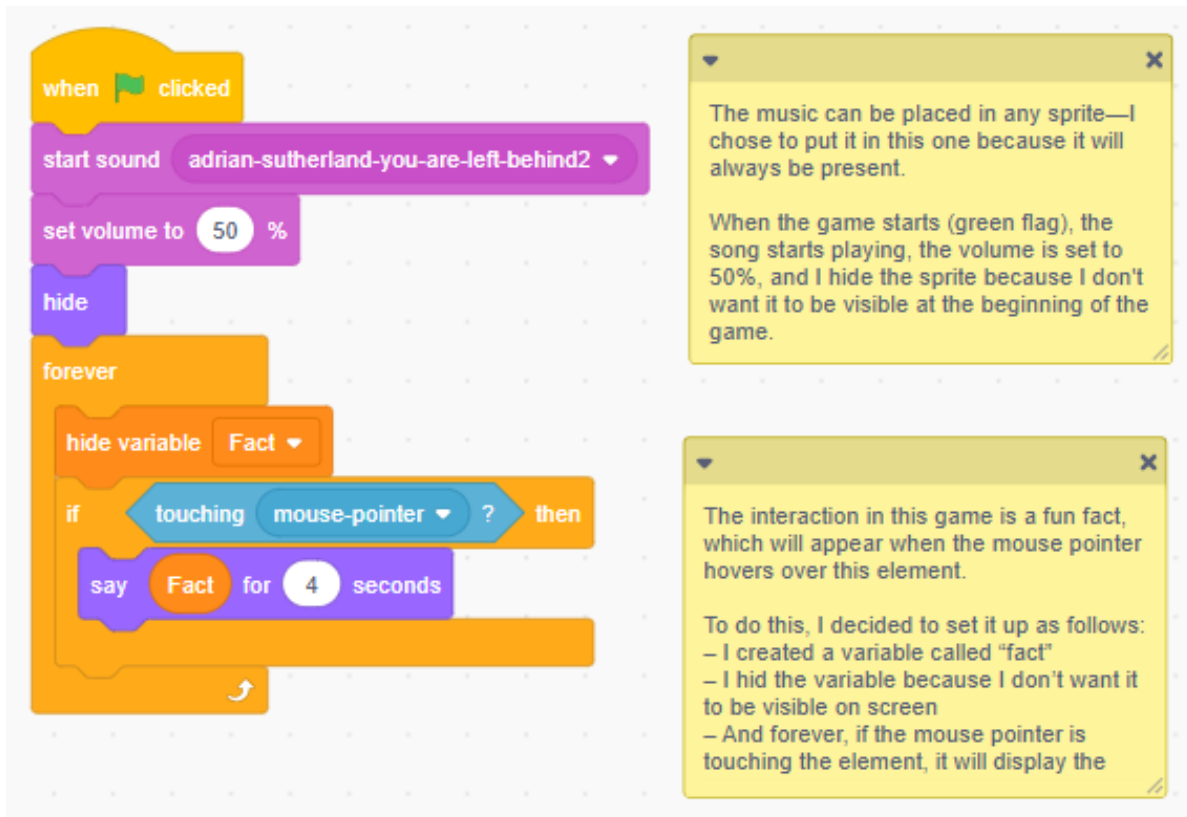
- **Backdrop Switching Example**

This code initializes the game by setting Backdrop 0 when the green flag is clicked. It also changes to the next backdrop whenever the player clicks on the specified sprite. This allows you to control scene transitions interactively within your game.



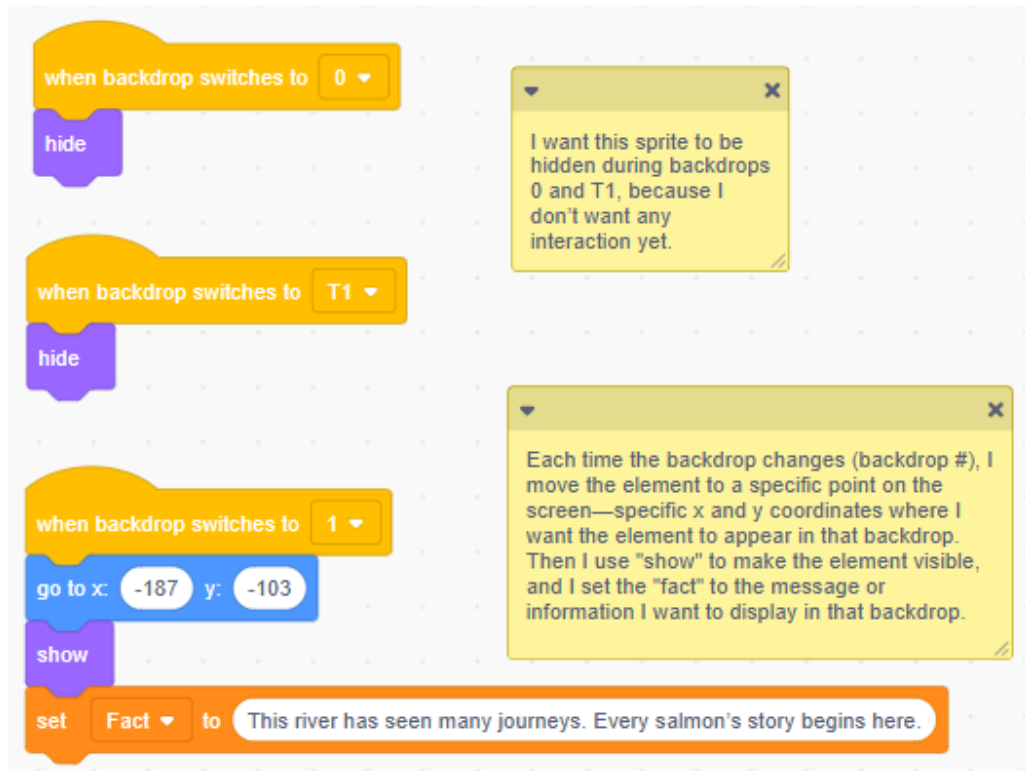
- **Music and Interactive Facts Example**

This code plays background music at a set volume when the game starts, while hiding the sprite from view. It also displays a "fun fact" when the player hovers the mouse pointer over a specific element, creating an interactive learning moment.



- **Backdrop-Based Element Positioning**

This code hides a sprite during certain backdrops and makes it appear at a specific location only in the desired scene. It also updates the “fact” variable with a message relevant to that backdrop, adding context and narrative to the game.



## Additional Resources

You can access to additional resources here:

[https://docs.google.com/document/d/1DnE\\_jxWkMjYDtjBlEbivcyFVgQk-i9PkuSIh8SyWYcA/edit?usp=sharing](https://docs.google.com/document/d/1DnE_jxWkMjYDtjBlEbivcyFVgQk-i9PkuSIh8SyWYcA/edit?usp=sharing)