LESSON PLAN

Coding a simple game in Scratch

In this activity, students will use Scratch to create a simple game, such as a maze or a character that catches objects.

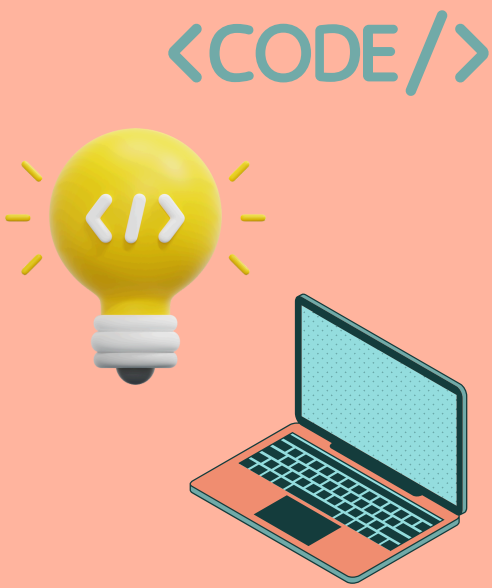
45-60 min

Duration

Recommended age for this game

10-12 years

Learning Objectives



- Understand the basics of programming logic, including loops, sequences, and conditional statements.
- Develop problem-solving and critical thinking skills through coding.
- Create and test a functional game prototype.
- Foster creativity and collaboration in a digital environment.

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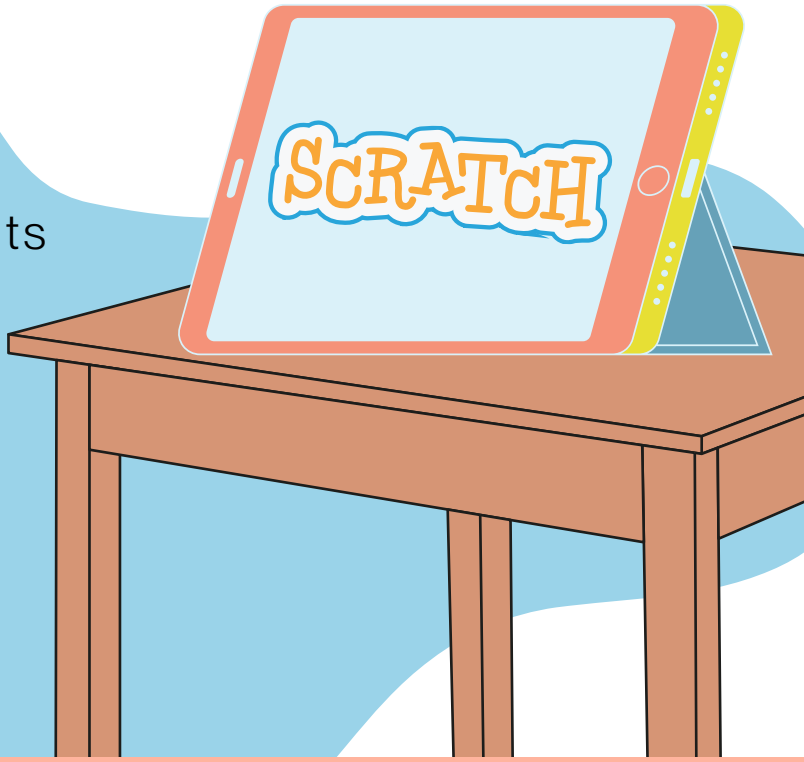
Materials and tools needed

- Computers or tablets with internet access.
- Scratch accounts for students (https://scratch.mit.edu).
- Projector or screen for teacher demonstrations.
- Headphones (optional, for game sound effects).



Guidance for Teachers

Activity description

Students will create a simple Scratch game, such as a maze or a catching game, using drag-and-drop coding blocks.

They will design the characters, set game rules, and test the game for functionality.

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Guidance for Teachers

Preparation

- Familiarize yourself with Scratch's interface and create a simple example to demonstrate in class.
- Prepare a step-by-step guide or slideshow to introduce Scratch and the project objectives.
- Divide students into small groups if they'll work collaboratively.
- Test all devices to ensure compatibility with Scratch.

Implementation steps

- INTRO: Explain what Scratch is and show a quick demo of a simple game. Highlight also key coding blocks like motion, events, loops, and conditions.

- PLANNING: Guide students to brainstorm game ideas and sketch their designs on paper. Encourage them to define game objectives, such as winning conditions or obstacles.

- CODING: Help students set up their Scratch projects and start coding. Circulate to support troubleshooting and encourage experimentation with blocks.

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Guidance for Teachers

- TESTING: Have students test their games, identify bugs, and improve them. Encourage peer feedback to refine their projects.
- SHOWCASE: Allow students to present their games to the class and explain their coding process.

Follow-up and reflection

- Organize a "game fair" where students play each other's games and provide feedback.
- Assign a short reflection task:

What did they enjoy?

What was challenging?

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Student Activities

Activity description	Expected outcome	Technology integration
Design a Game Plan	Students will define their game's objective, rules, and characters.	Use Scratch's "backdrop" and "sprite" options to visualize designs.
Code Game Movements	Students will program sprites to move or interact with each other.	Utilize "motion" and "event" blocks in Scratch.
Add Game Logic (Win/Loss)	Students will use conditional statements to define outcomes.	Use "if-then" and "broadcast" blocks for logic implementation.
Test and Debug	Students will identify and fix coding errors.	Debug using Scratch's stage preview and block highlighting.
Share Game	Students will share projects and discuss their coding choices.	Use Scratch's sharing feature or class projector

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Reflective questions for students

- What challenges did you face while coding your game, and how did you overcome them?
- Which coding blocks were the most useful for creating your game?
- If you could add one new feature, what would it be and why?
- How did you use feedback from others to improve your game?
- What did you learn about teamwork or problem-solving through this activity?

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Differentiation ideas

Advanced Students

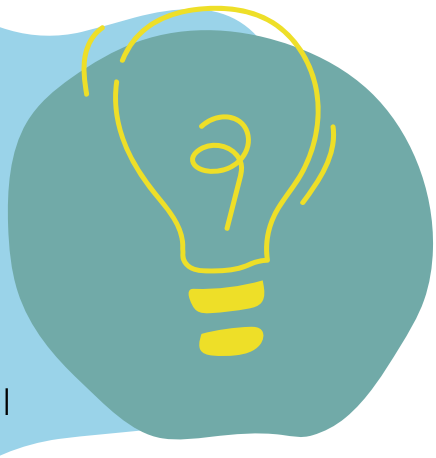
- Encourage them to add complexity, such as:
  Multiple levels or timers.
  Advanced logic like scoring systems.
  Additional animations or sound effects.
- Ask them to assist peers who need help, reinforcing their knowledge.

Students with special needs

- Pair them with a buddy for additional support.
- Break the task into smaller steps and offer visual guides.
- Focus on celebrating progress over perfection.

Tips

- Keep instructions simple and use visuals to explain coding blocks.
- Encourage creativity by allowing students to personalize their games.
- Allocate extra time for troubleshooting and debugging.
- Foster a supportive environment where students feel comfortable asking for help.
- Use peer feedback sessions to encourage collaboration and idea-sharing.



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Additional materials and references

- Scratch Website: https://scratch.mit.edu
- Getting started with Scratch Guide
- Interactive Coding Tutorials
- Video tutorial on How to use Scratch for Kids

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