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Coding Adventure: Sketch to Animation with Konstantine 👾

Instructions:

Check out this sample lesson plan and activity ideas for inspiration, ideas, and more. Feel free to edit, delete, or highlight to make it your own! These notes are yours to customize. They will not be published anywhere such that you're held to teaching exactly what's here.

Topics

coding, beginner, computer programming, sketch, animation

Lesson Ideas

Lesson Title

Coding & Computer Programming

Duration

1 hour

Lesson Plan

1. **Introduction to Coding Concepts (10 minutes)**
   - Brief overview of what coding and computer programming are, including the idea of creating instructions for computers.
   - Explain basic coding concepts such as commands, loops, and sequences.

2. **Hands-On Activity: Coding with Blocks (10 minutes)**
   - Use an online platform such as Scratch or Code.org.
   - Guide the kids to drag-and-drop code blocks to create simple commands.

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3. **Creating a Simple Animation Sketch (15 minutes)**
   - Demonstrate how to create a basic sketch using Scratch.
   - Walk through animating a character or shape, focusing on movement and sequence.

4. **Interactive Coding Challenge (15 minutes)**
   - Set a challenge for kids to modify or extend their animation.
   - Encourage creativity, like adding new movements or characters.

5. **Showcase and Share (5 minutes)**
   - Allow kids to share their animations with the class.
   - Encourage them to explain their code briefly.

6. **Wrap-Up and Q&A (5 minutes)**
   - Review key learning points.
   - Open the floor for any questions about coding and computer programming.

Materials List

- Computers or tablets with internet access
- Access to Scratch or Code.org

Adaptations for Different Ages

- **Younger Kids (6–8 years):** Use very simple drag-and-drop interfaces, focus more on storytelling through animation.
- **Older Kids (9–12 years):** Introduce more advanced concepts like conditionals and variables, allow more complex projects.

Movement Break

- **Code Break Dance (5 minutes):**
  - Create a dance sequence inspired by coding loops (e.g., clap twice, jump, spin, repeat).

Bonus Activities

- **Create Your Own Sprite (10 minutes):**
  - Allow kids to design their own characters in Scratch before animating.

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- **Code a Family Challenge:**
 - Encourage kids to teach a family member a simple coding project they learned during the lesson.

Series Outline

Week 1: Introduction to Coding
- Discuss the basics of what coding is and its purpose.
- Introduce different programming languages.
- Interactive game concept: "Code Your Own Adventure" using simple commands.

Week 2: Understanding Algorithms
- Explain algorithms with everyday examples.
- Activity: Create a step-by-step algorithm for a simple task (e.g., brushing teeth).
- Group activity: Break down a simple game or toy feature into an algorithm.

Week 3: Programming Logic and Problem Solving
- Introduce logic statements (e.g., if-then-else).
- Problem-solving puzzles using logic grids and flowcharts.
- Activity: Debug provided code snippets to fix errors.

Week 4: Exploring Scratch
- Introduction to Scratch: What it is and its interface.
- Create a simple character and animate it using blocks.
- Group project: Design a short interactive story using Scratch.

Week 5: Basics of Animation
- Explain how animation works in the context of programming.
- Activity: Create a short animation storyboard.
- Hands-on: Animate a bouncing ball using basic coding techniques.

Week 6: Introduction to Python
- Set up Python environment (e.g., Go through IDLE or online platforms like Repl.it).
- Write simple scripts to print messages and do basic arithmetic.
- Build a mini-project: Create a Python-based calculator.

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Week 7: Interactive Games with Scratch
- Analyze popular games and discuss how they're coded.
- Design and code a simple game in Scratch (e.g., maze or racing game).
- Peer review: Test each other's games and suggest improvements.

Week 8: Introduction to HTML and CSS
- Discuss the role of HTML and CSS in web development.
- Activity: Create a simple webpage with basic HTML tags.
- Styling exercise: Use CSS to change fonts, colors, and layout.

Week 9: Robotics and Coding
- Discuss the relationship between robotics and coding.
- Hands-on activity: Program a simple robot (real or simulator) to perform tasks.
- Group challenge: Create a robotic sequence to complete an obstacle course.

Week 10: Show-and-Tell & Future Pathways
- Prepare presentations of projects developed over the course.
- Host a coding fair where kids demonstrate what they've built.
- Discuss future pathways in computer science and coding careers.

For additional support, reference this experience outline template which includes tips and prompts to help you develop and lead an excellent Grasshopper Kids experience.

Note: This lesson plan outline was drafted by Hopper. If you would like to see different results, you can submit another idea, or text us with feedback so we can work to make the algorithm better. We built this tool to help save you time in bringing more kids enrichment experience ideas to life!