Build your Brand: Coding with AI

Target Grade: 6th – 12th, Computer Science or Marketing

Time Required: 60 minutes

Standards

CCSS.ELA-LITERACY.W.9-10.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

NGSS:HS-ETS1-2: Design a solution to a complex real-world problem by breaking it down into smaller, manageable problems that can be solved through engineering.

ISTE: 1.4: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

Lesson Objectives

Students will:

- Explore how artificial intelligence (AI) tools can assist in web development.
- Use AI to generate basic code for a functional website.

Central Focus

This lesson empowers students to design and develop a functional website for a fictional business by using AI chatbot technology to generate HTML/CSS code. Through collaborative planning, creative problem-solving, and hands-on coding, students will learn how to translate business concepts into digital content while exploring the practical applications of artificial intelligence in web development. This lesson emphasizes teamwork, creativity, and reflective thinking, focusing on both technical skills and insights into the role of AI in modern technology.

Key terms: Claude.ai, ChatGPT, STEM, project-based learning, computer science

Note on Digital Citizenship and Responsible AI Use

As AI tools become more common in education and everyday life, it's important for both teachers and students to understand responsible and ethical use of these technologies. Teachers should guide students in practicing good digital citizenship by discussing topics such as:

- **Privacy and Security:** Remind students never to share personal information or sensitive data when using AI chatbots or any online tools.

- **Intellectual Property:** Encourage students to use AI-generated content as a starting point and to credit original sources when applicable. They should also learn to critically evaluate AI outputs rather than accepting them blindly.
- **Ethical Use:** Teach students to consider the fairness and biases in AI responses and the impact of their prompts and generated content. This awareness supports responsible AI interaction and thoughtful technology use.
- **Transparency:** Encourage honesty about when AI has been used in their work, helping build integrity and trust in digital spaces.

For teachers, modeling responsible AI use and incorporating discussions around these topics throughout the lesson helps students develop critical thinking skills and a healthy relationship with emerging technologies. Integrating digital citizenship with AI prepares students not only to be creators but also thoughtful users of AI tools in their academic and personal lives.

Materials

- Computers
- Coding platform: https://codepen.io or something similar
- Access to Claude.ai or something similar
- Build Your Brand: Coding with AI handout
- Rubric
- Feedback Form

Instructions

Day 1

Introduction (10 minutes)

- Place students in groups of two or three and assign each group a business. Examples of businesses could include a restaurant, a clothing store, a bakery, a pet-sitting service, a lawn mowing company, a tutoring service, etc.
    - Groups may divide roles based on interest or strength. For example, one student can lead prompting, another can organize the code, and a third can focus on visuals or presentation.
- Explain to the students they are tasked with coding a website for promoting their new business.
    - Remind students to never put their personal information into an AI.
    - Students are not expected to write code from scratch but should use AI-generated examples as a starting point. They will be encouraged to tweak, reorganize, or expand on the code to better fit their project vision.
- Screenshare the website https://codepen.io and Claude.ai.
- Model for the students how to generate code and copy and paste it into CodePen.
    - Ask the AI the following prompts:

        - Give me ideas for a dog-walking business name.
        - Remember the name "[X]". (*Note: Some AI tools may not retain earlier information unless you include it in the prompt again)*
        - Create a list of services and prices for the business.
        - Create a complete, simple HTML code for my dog-walking company website. Use the name, colors, copy, and services we've developed.
    - Copy and paste the HTML code the AI generates into CodePen to see the developed website.
    - Show students how to revise their code by asking the AI the following prompts:
        - Update the HTML code so that the colors of my website are blue and green.
        - Where in my code do I need to make this change?
        - Regenerate my full code with this change.
    - Copy and paste the new HTML code the AI generates into CodePen to see the updated website.

Challenge (40 minutes)

- Provide students with the Build Your Brand: Coding with AI handout.
- The handout will have students complete the planning worksheet with the following sections:
    - Business Name
    - Description of Services
    - Target Audience
    - Color Scheme
    - Three key features (pricing, contact, FAQ)
- Once students have completed their planning, they will begin to code their website with HTML/CSS using the AI chatbot to generate coding.
    - If students finish early, encourage them to add more features to their website. If they're stuck, encourage them to ask the AI!
    - Example expansion prompts to ask AI:
        - How do I add multiple pages to a website on CodePen?
        - Write HTML code to add a search bar.
        - Write HTML code for a contact form with fields for name, email, and message.
        - Write HTML code to embed a YouTube video on my website.

Closure (10 minutes)

- Ask the following reflection questions:
    - What is one feature you are struggling to add to your website?
        - Has anyone been successful in adding this feature? If so, how?
    - What is an example of a prompt you had to adapt to get the output you needed?
    - What are your next steps for your website?

Day 2

Challenge continued (25 minutes)

- Explain to students that they will share the website they developed in a behind-the-scenes tour style. Their showcase will need to include information on the following:
    - Your business name and what your business offers.
    - What the website looked like with their first prompt response from AI.
    - What parts you tweaked or built yourself.
    - One feature you're proud of on your website.
    - One thing you'd improve on your website with more time.
- Allow students to finish up their website design to share with the class.
- (Optional extensions for early finishers) If students complete their website before time is up, encourage them to go further with one of these creative extension activities:
    - Create a second webpage (e.g., "About Us" or "Contact") and use HTML to link it to the homepage.
    - Use AI to write an "About Us" blurb describing their business story or team background and add it to the site.
    - Use an AI, like Suno or MagicSchool, to record a short voice-over ad or jingle for their business and share it with the class.
    - Give feedback to another group using a peer review checklist (teacher can provide a simple template with prompts like: What do you like? What could be improved? What's one idea they should try next?).

Website Share (25 minutes)

- Allow each group to share the website they developed.
- While each group is presenting, encourage students to fill out the feedback form.

Reflection (10 minutes)

- Prompt students to answer the reflection questions on their handouts. Select students to share their responses.
- The reflection questions include:
    - What part of building your website did you enjoy most?
    - What is one new thing you learned about coding or design?
    - How did using AI help your group?
    - What's something you'd like to learn next in web design or AI tools?

Differentiation

Beginner Coding Experience:

- Offer a handout with example prompts students can use to ask AI to generate website code.
- Use step-by-step modeling to show how to copy and paste code from the AI chatbot into CodePen.

- Assign simpler businesses (e.g., lemonade stand or bakery) so students can focus on fewer features.

Advanced Coding Experience:

- Encourage students to customize their websites further by adding CSS styling.
- Assign prompts that require students to experiment with layout designs (e.g., "Create a grid layout for showcasing products").
- Challenge them to create responsive designs that work on both desktop and mobile devices.
- Encourage the use of JavaScript for interactive elements, such as a search bar or animations.
- Assign more complex businesses (e.g., tutoring service or e-commerce store) that require multiple pages or advanced features.

Differentiation for Learning Styles:

- Use diagrams or screenshots to explain the structure of a webpage (e.g., header, navigation, main content, footer).
- Provide examples of visually appealing websites to inspire design choices.
- Pre-record and share a step-by-step video tutorial for coding a simple website.
- Encourage group discussions during the planning phase to brainstorm ideas collaboratively.
- Allow students to physically sketch out their website layouts on paper before coding.
- Provide opportunities for students to interact with peers and share feedback.

Mixed Ability Groups:

- Pair students with varying skill levels so advanced students can mentor beginners.
- Assign roles within groups.

Differentiation for Engagement

- Allow students to choose their own business idea to increase personal investment in the activity.
- Offer a list of unique business types (e.g., gaming café, eco-friendly clothing store, or dog training service) for inspiration or let students brainstorm their own.

Assessment

Formative Assessments:

- Group Discussions During Planning: Evaluate students' brainstorming ideas for business and website features. Observe collaboration and communication within groups to ensure active participation.
- Completion of the Planning Worksheet: Review students' articulation of business ideas, target audience, and website features. Check worksheets for thoughtful completion and provide constructive feedback.

- Use of AI Chatbot: Monitor students' ability to craft effective prompts and apply the generated code correctly. Offer guidance on refining prompts or resolving coding issues as needed.

Summative Assessments:

- Final Website Design: Review the completed website to ensure it includes the business name, description, color scheme, features, creativity, and functionality.
- Group Presentation: Evaluate how well students explain their design choices, challenges, and use of AI. Observe presentations to gauge their ability to articulate their thought process and showcase their website.
- Reflection Questions: Examine students' reflections on their learning experience, challenges faced, use of AI, and ideas for improvement. Collect and analyze responses for meaningful insights.

Background Information

Teacher background information:

The teacher does not need to have a strong coding background to teach this lesson. The purpose of this lesson is to use prompt writing skills for the AI to develop code for you. When developing code, suggested prompts to ask the AI are:

1. What is the difference between HTML and CSS?
2. Where do I need to make this change in my code?
3. Can you explain what "X" function does in my code?

<u>Basic Understanding of HTML/CSS:</u>
HTML (HyperText Markup Language) and CSS (Cascading Style Sheets) are the foundational technologies for building websites. HTML provides the structure and content of a webpage, while CSS is used to control the appearance and layout of that content.

<u>Key Concepts for Teaching HTML</u>

- What is HTML?
    - HTML is a markup language used to structure content on the web. It uses tags to define elements, such as text, images, links, and more. Tags are written in angle brackets (< >) and typically come in pairs: an opening tag and a closing tag (e.g., and for a paragraph).

<u>Basic Structure of an HTML Document</u>
Every HTML document follows a basic structure:

```
<!DOCTYPE html>
<html>
  <head>
```

```
  <title>Page Title</title>
 </head>
 <body>
  <h1>Welcome to HTML</h1>
  <p>This is a paragraph.</p>
 </body>
</html>
```

- <!DOCTYPE html>: Declares the document type.
- <html>: The root element of the HTML document.
- <head>: Contains metadata (information about the page) like the title and links to CSS files.
- <body>: Contains the visible content of the webpage.

Tags and Attributes

- Tags: Define elements (e.g., <h1>, , <img>).
- Attributes: Provide additional information about elements (e.g., src for images, href for links).
    - Example:<img src="image.jpg" alt="Description of image">
        - Src specifies the image file location, and alt provides alternative text.

Common HTML Elements

- Headings: <h1> to <h6> for different levels of headings.
- Paragraphs: for text content.
- Links: Link Text for navigation.
- Images: <img src="image.jpg" alt="Description"> for visuals.
- Lists: <ul> (unordered list) and <ol> (ordered list) with <li> (list items).

Key Concepts for Teaching CSS

- What is CSS?
    - CSS is a style sheet language used to control the visual presentation of HTML elements. It allows you to specify colors, fonts, layouts, and more.
- How CSS Works:
    - CSS can be applied to HTML in three ways:
        - Inline CSS: Directly within an HTML element using the style attribute.
            - Example: This is blue text.
        - Internal CSS: Inside a <style> element in the <head> section of the HTML document.
            - Example: <style> p {color: blue;} </style>
        - External CSS: Linked to an HTML document using a <link> element.
            - Example: <link rel="stylesheet" href="styles.css">
        - CSS Syntax: CSS uses selectors to target HTML elements and applies styles using properties and values.

    - Example: p {color: blue; font-size: 16px;}
- Selector: p targets all paragraph elements.
- Property: color and font-size define styles.
- Value: blue and 16px specify the appearance.

Common CSS Properties

- Color: color, background-color
- Font: font-family, font-size, font-weight
- Spacing: margin, padding
- Layout: display, position, flexbox, grid

CSS Use in lesson plan:

While the modeling on Day 1 focuses on generating and editing basic HTML, students will also be using AI to generate CSS styling for their websites. They are not expected to write CSS from scratch; instead, they'll prompt the AI to help with design elements like color schemes, fonts, and layout. Encourage students to include style-related requests in their prompts. For example, "Make the background light blue and the text dark green" or "Add a border around each section." This keeps the focus on experimenting with design while learning how HTML and CSS work together.

Proficiency with CodePen

- Knowledge of how to use CodePen, including creating a new project, pasting code, and previewing website designs.
- Ability to troubleshoot common issues within CodePen.

Experience with AI Chatbots

- Familiarity with using AI tools like Claude.ai to generate text and code.
- Understanding of how to write effective prompts to get useful outputs from the AI.
- Ability to guide students on refining prompts and interpreting AI-generated code.

Note on AI Tools:

While this lesson references Claude.ai as the example AI chatbot, other tools like **ChatGPT, Microsoft Copilot,** and **Google Gemini** can work just as well. The main goal is for students to practice writing prompts and interpreting AI-generated code, so the specific chatbot isn't as important as its ability to understand natural language and generate HTML/CSS. Choose a tool that aligns with your school's technology policies and accessibility options.

Student background information:

Introduction to coding with AI

- A foundational understanding of how to write strong AI prompt to generate code.

- No advanced coding knowledge is required, but students should be comfortable learning through examples and experimentation.

Basic Computer Skills:

- Ability to copy and paste text/code into a web-based platform like CodePen.
- Familiarity with navigating websites and using online tools.

Build your Brand: Coding with AI

Group Members:

Using AI to Help You Code

AI tools (like Claude.ai) can help you **generate HTML and CSS code** quickly. You'll give the AI a clear request, and it will give you sample code you can copy and paste into CodePen. You can then customize it to fit your business.

HTML (HyperText Markup Language) and CSS (Cascading Style Sheets) are the foundational technologies for building websites. HTML provides the structure and content of a webpage, while CSS is used to control the appearance and layout of that content.

Example Prompt to Ask the AI:

"Create an HTML and CSS homepage for a bakery. Include a header, navigation bar, about us section, and contact form. Use soft pastel colors."

Your Task

Step 1: Plan for Your Business Website

Fill in the blanks below with your group.

Business Name:

Type of Business (What do you do?):

Services Offered (List 2–3):

1.
2.
3.

Website Color Scheme (e.g., red/black, pastel pink/blue, etc...):

Website Features (Choose 2–3):

☐ Search bar
☐ Contact us form
☐ About us section
☐ Image gallery
☐ Customer reviews
☐ Navigation bar
☐ Social media links

Logo Ideas (Optional):

Step 2: Start Building with CodePen

Tip: Work as a team! One person can write ideas, another can talk to the AI, and another can paste/edit the code.

1. Open https://codepen.io
2. Create a new Pen.
3. Use AI to help generate your HTML and CSS. Copy/paste it into CodePen.
4. Take a screenshot of your first website iteration and paste below:

5. Test your site and make edits as needed.
6. Take a screenshot of your final version of your website and paste below:

Step 3: Share Your Work

Be ready to present your website, including:

1. Your business name and what you offer
2. What the website looked like with your first prompt response from AI
3. What parts did you tweak or build
4. One feature you're proud of on your website
5. One thing you'd improve on your website with more time

Reflection

Answer the following questions:

1. What was the most fun part of building your website?

2. What's one new thing you learned about coding or design?

3. How did using AI help your group?

Category	4 – Excellent	3 – Good	2 – Developing	1 – Needs Improvement
Planning & Idea Development	Business idea is clear, creative, and well thought out; all planning sections are completed in detail	Business idea is clear; most planning sections are completed	Business idea is somewhat unclear; some planning sections are missing or vague	Business idea is incomplete or confusing; little to no planning shown
Use of AI for Coding	Group gave clear, detailed prompts to AI and effectively used the code	Group used AI well with mostly clear prompts and made good use of the code	Group used AI with some help but relied heavily on copying without much understanding	Group struggled to use AI or did not use it meaningfully
HTML & CSS Functionality	Website works well, includes multiple sections and thoughtful structure and styling	Website mostly works; some structure or styling may need improvement	Website has errors or missing parts; limited structure or styling	Website is incomplete or not functional
Customization & Creativity	Website is highly customized to the business idea; colors, layout, and features show creativity	Website is customized and reflects the business idea	Some customization is shown, but the site feels generic	Minimal or no customization; does not reflect business idea well
Visual Design & Polish	Site is polished, easy to read, and visually appealing; fonts, colors, and layout are consistent	Site looks good and is mostly clear and readable	Site has visual issues (e.g., poor color contrast or font size)	Site is hard to read or visually unorganized

Category	4 – Excellent	3 – Good	2 – Developing	1 – Needs Improvement
Presentation & Communication	Group confidently explains site, highlights features, and shares thoughtful reflection	Group explains site clearly and shares some reflection	Group gives a brief or unclear presentation; reflection is minimal	Group does not present clearly or reflection is missing
Reflection Questions	Thoughtful and detailed answers showing insight and learning	Clear answers that show understanding	Basic answers with limited detail	Incomplete or vague answers