

## CHAPTER 6

# Building, Inventing, and Making for the Civic Good with AI

### ISTE Standard 1.4: Innovative Designer

Students who are innovative designers know how to “use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions” (ISTE, 2025). They seek out open-ended problems and generate solutions; use technology to build, test, and refine prototypes and innovative artifacts; and act as imaginative thinkers and problem solvers who analyze issues and design solutions at personal, family, societal, and global levels.

*“The lessons in this chapter are straightforward and adaptable to various classes. The activities empower students to use AI to develop ideas that can produce positive change in the world.”*

–Nathaniel Woodruff, High School Science Teacher and  
Engineering Department Head

There is no shortage of local, national, or global issues needing to be addressed or solved. At the same time, teens today report feeling less engaged and interested in schoolwork, that their schoolwork does not feel important, and that their

schoolwork does not challenge them in a good way (Turner, 2024). Engaging students in building, inventing, and making for civic good can address both of these challenges.

Education, as many teachers know very well, is not a passive endeavor. All of us, younger and older, learn more deeply and more lastingly when we can invent, design, create, make, and build. Seymour Papert said this so clearly decades ago when he described the “child as builder” who can “learn to speak, learn the intuitive geometry needed to get around in space, and learn enough of logic and rhetorics to get around parents—all this without being ‘taught’ (1993). Papert envisioned students actively engaged with technology, noting how “the computer can be a mathematics-speaking and an alphabetic-speaking entity” (1993). What is needed in education are hands-on, minds-on, action-oriented experiences that avoid students being held back by boredom (learning seen as too easy) or anxiety (learning seen as too hard).

In classrooms and schools, educational makerspaces and maker education, where students act as problem posers and problem solvers who explore, analyze, and understand through building, inventing, and making, have the potential to revolutionize the way we approach teaching and learning. The maker movement in education “is built upon the foundation of constructionism, which is the philosophy of hands-on learning through building things” (Kurti et al., 2014).

Inviting students to be innovative designers to develop solutions to problems is not just a part of STEM education, nor are makerspaces limited to hands-on building activities in labs. Students can be empowered as innovative designers and creative makers to act on civic issues, too, when they build, make, and invent for the civic good.

GenAI tools can be used to build, make, and invent for the civic good. They can:

- Provide feedback on the designs of artifacts, products, and inventions, including how to customize them for specific audiences.
  
- Walk students step-by-step through a design process (e.g., Design Thinking Model, ADDIE Instructional Design model, Engineering Design Process, Scientific Method).

- Generate realistic renderings for initial prototypes (e.g., a 3D version of a hand drawn invention; a full-length song from a draft of lyrics).
- Offer countless ideas, revisions on ideas, and revisions on revisions on ideas.
- Support idea-forming and brainstorming processes.
- Provide information about local, national, and global issues to solve.
- Identify potential design constraints and risks for an invention or product.
- Simulate potential users of a product or invention.

## In This Chapter

This chapter features learning plans where students make voting places more accessible for all; design more inclusive and equitable everyday products and items; generate new visuals for US coins and currency; and redesign local government websites to promote greater participation by community members.

## CROSS-CURRICULAR CONNECTIONS

With the activities in this chapter:

- History and social studies teachers can engage students in envisioning and acting upon specific civic issues, including political participation; fairness and equity; and accessible environments; as well as understanding the components and roles of local, state, and national governments.
- English language arts teachers can engage students in exploring the accessibility and usability of written text on websites and how to use written language and visual designs to present their ideas and generate support for their proposals from different audiences.
- STEM teachers can engage students in design-based thinking and project-based learning where individuals and groups ask questions, define

problems, propose solutions, create and test responses, and evaluate and redesign based on results.

- Library media specialists and art teachers can engage students in high- and low-tech makerspaces that support hands-on, minds-on learning; and invite students to create media to advocate for change.

In this chapter's learning plans, students use GenAI tools to develop their talents as innovative designers. You do *not* have to follow the learning activities step-by-step like those from pre-packaged, pre-set lesson plans. We encourage you to adapt, adjust, remix, and reinvent each activity to fit the needs of your students and curriculum.

Want more learning plans? Visit the "Chapter 6: Building, Inventing, and Making for the Civic Good with AI" section of our online companion site.



Building, Inventing, and Making for the Civic Good with AI  
([bit.ly/3HPLQR3](https://bit.ly/3HPLQR3))

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## Learning Plan 6.1

### MAKING VOTING PLACES ACCESSIBLE WITH AI

#### Student Engagement Question

What are some barriers people with disabilities might face when trying to vote in person?

## Overview

Voting is a political right and civic duty in a democracy, but it is often a challenging experience for many of the 42.5 million voting-age Americans with disabilities. A report by the US Election Assistance Commission found that one in five voters with a disability either needed assistance or faced difficulties when voting in 2022, which was three times the rate of people without disabilities (Schur et al., 2023).

At present, there is no set national standard establishing the criteria every voting location must meet to assure accessibility for everyone. According to the Office for Civil Rights within the US Department of Education, “accessible” means that every person with a disability is “afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated manner, with substantially equivalent ease of use.”

In many cases, however, disabled individuals do not have the same opportunities as others to vote in an election due to inaccessible voting places. For example, if there are uneven surfaces or a lack of ramps, people using wheelchairs and walkers might find it difficult or impossible to enter a voting place. If the voting machines are not designed for individuals who are blind or who have limited dexterity, these individuals may struggle to cast their vote independently. Narrow doors and hallways, pathways cluttered with obstacles, lack of automatic door openers, voting booths too high or low, and lack of ballot information in alternative formats are just a few of the many barriers disabled individuals may face when voting. While there are laws guaranteeing voting access for all, those laws are not always fully followed at local polling locations.

Civics education focuses on teaching every student to act with fairness, justice, and respect for other people. Fairness in voting does not mean everyone receives the same supports, but rather that each person has the supports they need to access their right to vote. When students act as innovative designers researching and envisioning fully accessible places to vote, they are immersed in inclusive and lasting civic learning.

## Learning Goal

Students will act as innovative designers who seek to make voting places fully accessible for individuals with disabilities.

### ACTIVITY 1

#### AI-Assisted Design Thinking to Create Accessible Voting Places

1. Invite students to use the ADA Checklist for Polling Places (US Department of Justice, 2020) to research the accessibility of a local voting place and then share their findings.
2. Then, prompt a GenAI tool to walk students step-by-step through the design thinking model (which is an essential design process that emphasizes understanding the needs of people) to design a more accessible voting place for their community.

**Example prompt:** “I am a student, and I have been tasked with redesigning my local voting place to make it accessible for individuals with disabilities. During my research I found the following barriers to accessibility: [insert barriers here]. Act as a tutor and walk me step-by-step through the design thinking model so that I can design an accessible voting place. Stop after each step in the design thinking model to ask me a question to consider. Wait until I respond. Then, provide detailed feedback on my response before moving on to the next step.”

3. Then, ask students to draw a sketch, or create a physical or digital 3D model, of an accessible voting place.
4. Invite students to prompt a GenAI tool to create a realistic rendering of their sketch or model.

**Example prompt:** “I uploaded a sketch of an accessible voting place. Create a realistic 3D rendering of this sketch.”

## ACTIVITY 2

### Using AI to Advocate for Change

1. Have students write a proposal to their town officials to advocate for making their local voting place accessible to people with disabilities.
2. Students could prompt a GenAI tool to prepare an outline for the proposal, provide feedback on the language and structure of their proposal, or simulate the perspective of the official reading the material to offer counterpoints to address in the proposal (see Activity 2 in Learning Plan 3.3 “Use a GenAI Chatbot to Strengthen a Holiday Proposal” for example prompts).

**BONUS:** Invite students to submit their proposal to their town officials.

### Reflection Questions

- What would be your number one recommendation for expanding accessibility in voting places to ensure everyone who wanted to vote could do so as independently as possible?
- Have you ever voted in an election or accompanied a family member or friend when they voted? How would you describe your experience?
- How would you evaluate the accessibility of public places in your community, such as your school, restaurants, movie theaters, sports stadiums, malls, supermarkets, and more?

### AI Literacy Questions

- In June 2024 (more than eighteen months after ChatGPT became public), a user posted in the OpenAI Developer Forum that the web interface of ChatGPT was not accessible to blind users because the buttons were unlabeled, and this was affecting their work productivity (Endarion, 2024).

Many GenAI tools, including ChatGPT, are not fully accessible to disabled individuals. Why might that be?

### ISTE Standards Addressed

1.4.a Design Process. Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

1.4.b Design Constraints. Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

1.4.c Prototypes. Students develop, test and refine prototypes as part of a cyclical design process.

1.4.d Open-Ended Problems. Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

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## Learning Plan 6.2

### DESIGNING FOR EQUITY WITH AI

#### Student Engagement Question

What is an example of a product you bought or an experience you had that made you feel that you and your identity were really seen and valued?

#### Overview

**Inclusive design** means creating things that everyone can readily access, experience, and fully use. It is about making products that “understand and enable people of all backgrounds and abilities” (Kendrick, 2022). Coca-Cola and Kellogg, for example, added an optical smart code to their products that, when scanned with a smartphone, reads aloud product information and nutritional information. Accessible packaging makes grocery shopping more inclusive for blind and visually-impaired individuals.

Inclusive designers seek to reduce barriers and combat discrimination based on race, gender, language, dis/ability, age, identity, socioeconomic status, and other dimensions of diversity. There are many products and experiences whose design excludes different groups of people. The lack of representation of dark skin tones in cosmetic products, band-aids, and even Crayola colors has left many individuals feeling like they are not seen or included. Hostile architecture, including timed sprinklers, under-road spikes, sidewalk boulders, and benches with armrests positioned to prevent people from lying down are all examples of designs that exclude people who do not have housing or who need to lie down or rest.

Sports fan clothing is another example of design that excludes. Women often have limited choices for sports fan clothing, despite women and girls making up a large percentage of the overall fanbase of North American professional sports teams—averaging 37 to 45 percent of the fans of the NHL, NASCAR, MLS, NBA, MLB, and NFL leagues (Newland & Hayduk, 2020). At the college level, while men buy two-thirds of the tickets to football and basketball games, women are nearly half (48%) of the followers of collegiate sports teams.

Female fans, like male fans, express their loyalty and support by wearing clothing featuring team colors, logos, names, and styles; however, women often find their fan clothing choices severely limited by product options and styles. Most sports clothing choices for women fans are highly feminized, predominantly “pink, bedazzled, sequined, low-cut, or too fitted” (Sveinson, 2019). Women often find themselves purchasing ill-fitting items from the men or youth sections of stores. With fan clothing styles designed and marketed based on traditional views of feminine gender and attractiveness rather than just expressing oneself as a fan, many women want to “show their fandom without having to put their gender first” (Sveinson, 2019).

Inclusive design requires designing, or redesigning, products and experiences to ensure everyone feels seen, heard, and included. For example, Fenty Beauty—the Rihanna-created cosmetic products company—came out with a line of products that offer a wide range of color cosmetics, including

not formerly available darker shades. Bakline came out with the first line of unisex clothing, and other fitness companies are taking notice.

Inclusive design is an important concept not only for product creators, manufacturers, and advertisers, but also for civic learners to understand the fundamental principles of American political and civic life, including equality, liberty, and justice for all. Having students engage in designing inclusive products and experiences or redesigning everyday items points the way toward thinking about larger redesigns of systems and organizations to ensure equitable experiences for everyone.

### Learning Goal

Students will build, make, and invent for the civic good by designing, or redesigning, a product or experience to be more inclusive.

## ACTIVITY 1

### Identifying Design Fails with AI

1. Have students conduct internet research to identify examples of “design fails”—products or experiences that are not inclusive (they might try “accessibility fails” and “hostile architecture” to begin their search).
2. Then, prompt a GenAI tool to search the internet to provide local examples.

**Example prompt:** “Give me ten examples of products or experiences in [insert town and state] that are not inclusive or accessible for everyone.”

3. Using the list generated by the GenAI tool, as well as their own knowledge of their community, ask students to research and collect evidence of different design fails in their community (e.g., photographs of sidewalks without curb cuts, a flyer for an event without a sensory-friendly option, screenshot of a Yelp review of a restaurant without accessible menus, photographs of non-inclusive clothing or medical products).

## ACTIVITY 2

### Evaluating AI-Generated Suggestions for Inclusive Design

1. Invite students to upload their evidence from Activity 1 to a GenAI tool, one example at a time, and prompt it to provide suggestions for how to improve the product or experience based on inclusive design principles.

**Example prompt:** “Review the attached photo and tell me how you would improve this [insert name of object, product, or event] based on inclusive design principles?”

2. Have students research inclusive design principles and evaluate how well the GenAI’s suggestions reflect those principles.

## ACTIVITY 3

### Making and Inventing for the Civic Good with AI

1. Engage students in a makerspace, where they can use low-tech materials (e.g., cardboard, construction paper, tape, glue) or high-tech materials (e.g., 3D modeling tools, virtual reality creation tools) to redesign one product or experience from Activity 1 or 2.
2. Then, ask students to create a “product pitch” slide deck to pitch their redesigned product or experience to the individual or organization that designed the original one.
3. GenAI tools can be used to aid your students’ creative thinking and innovative design throughout this activity, including by brainstorming ideas for redesigned products or experiences; presenting multiple prototypes; supporting rapid prototyping; providing feedback on students’ designs; offering suggestions for a catchy product title or pitch slogan; and generating media to go in the pitch slide deck.

## Reflection Questions

- What are some examples of inclusive design (or designing for equity) that you have seen in products you have used or experiences you have participated in?
- What are some examples of products or experiences that you feel are not inclusive? How might you change those?
- Why is inclusive design essential for the civic good?

## AI Literacy Questions

- What role should GenAI tools have during the design process so that you fully engage your own creative thinking skills (rather than offloading your thinking to GenAI)? For example, should GenAI tools be used for brainstorming? Giving feedback on your designs? Rapid prototyping? Simulating product users?
- How might GenAI tools introduce biases and stereotypes into product design (e.g., what happens if a product developer prompts ChatGPT to provide product suggestions for Black females, but its training data includes stereotypical information about Black people)?

## ISTE Standards Addressed

1.4.a Design Process. Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

1.4.b Design Constraints. Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

1.4.c Prototypes. Students develop, test and refine prototypes as part of a cyclical design process.

1.4.d Open-Ended Problems. Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

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## Learning Plan 6.3

### REDESIGNING CURRENCY WITH AI

#### Student Engagement Question

If you could redesign the five dollar bill to feature any person, who would you select and why?

#### Overview

Like most nations in the world, the United States puts images of individuals it considers historically important on its currency. In total, six American presidents and two founding fathers are on display on currency in the US in 2025. Globally, over half the world's currency features the faces of monarchs or heads of government (Pelkey, 2022).

The images on coins and currency make expansive statements about people's histories and values. As Massachusetts state senator Jo Comerford said, "symbols have weight. They have meaning. They have power" (quoted in Katzen, 2024). Looking critically at images on money lets students consider whose histories and stories are currently celebrated and honored in the US, and whose histories and stories should be celebrated and honored. In so doing, students recognize how images convey civic values while also thinking, and perhaps rethinking, what values they themselves support.

While there have been recent efforts to add images of women to quarters, other traditionally marginalized groups (Asian Americans, Pacific Islander Americans, Latino/Latina Americans, Hispanic Americans, Hmong Americans, Black Americans, Native Americans, LGBTQ+ Americans, and disabled Americans) remain underrepresented on US currency. However, the federal government has been working on expanding the representation of historical figures on currency. In 2016, the US Treasury Department announced plans

to redesign the five dollar, ten dollar, and twenty dollar bills to honor those involved in movements for civil rights and equal justice. The redesigned ten dollar bill is set to feature women's suffrage advocates Lucretia Mott, Sojourner Truth, Susan B. Anthony, Elizabeth Cady Stanton, and Alice Paul on the back of the bill, with Alexander Hamilton still on the front. The five dollar bill will feature famous seminal events that occurred at the Lincoln Memorial including Marian Anderson singing and Dr. Martin Luther King, Jr., delivering his "I Have a Dream" speech. As of 2025, a proposal to have Harriet Tubman replace Andrew Jackson on the twenty dollar bill is still awaiting action by Congress (Duster, 2025).

The US Mint's American Women Quarters Program, launched in 2022, is a four-year effort to honor women changemakers. Maya Angelou, Dr. Sally Ride, Anna May Wong, Wilma Mankiller, and Nina Otero-Warren were the first to appear on 2022 coins, while the 2023 coins recognized the achievements of Bessie Coleman, Jovita Idar, Edith Kanaka'ole, Eleanor Roosevelt, and Maria Tallchief. In 2024, the Cuban-born singer Celia Cruz became the first Afro-Latina woman on the quarter. 2025 quarters will include Ida B. Wells (NAACP co-founder), Juliette Gordon Low (Girl Scouts founder), Dr. Vera Rubin (astronomer), Stacy Park Milbern (disability activist), and Althea Gibson (multi-sport athlete who broke the color barrier at the highest level in tennis).

Exploring currency offers insight into the histories and values of a nation. Civic learners, acting as innovative designers, can reflect upon who is and who is not shown on currency, and then propose new designs for currency that celebrate the achievements and struggles of individuals and groups who have worked to realize the nation's ideals of liberty and justice.

Current US law prohibits any living person from appearing on currency.

### **Learning Goal**

Students will act as innovative designers by redesigning an existing coin or paper currency to celebrate an individual, event, or organization that advanced the ideals of liberty and justice and worked to achieve the civic good.

## ACTIVITY 1

### Analyze Images, Including AI-Generated Images, of Coins and Paper Currency

1. Ask students to explore the currencies of other countries around the world and respond to the following questions:
  - Who is featured on the currency? Artists? Scientists? Leaders? Religious Officials? Government and Military Leaders? Sports Legends?
  - What symbols, colors, and words are included on the currency? Why do they think that is?
2. Then, prompt different GenAI tools to produce images of US coins and paper currency.

**Example prompt 1:** “Generate an image of 10 different types of US paper bills, each one should feature a different person. Make all 10 bills visible (not on top of each other). Generate an image of US paper money and add some historical figures.”

**Example prompt 2:** “Create an image of 10 different types of US coins.”

3. Ask students to critically analyze the AI-generated currency. Who is on the currency? Why might that be (keep in mind that GenAI tools have been trained by scraping text and media from the internet)? What other visuals, including symbols, are included on the currency? What do those visuals represent? What words, if any, are on the currency? What do those words represent?
4. After their analysis, have students draft a list of essential design elements for US currency (e.g., text, portrait, symbols, dates) and explain why money should have them.

## ACTIVITY 2

### Use AI to Help Draft Designs for New or Alternate Images on Currency

1. Invite students to identify an individual or group who has stood up for the ideals of liberty and justice, and worked toward the civic good, to be included on US currency. If they need help identifying individuals, they can prompt GenAI to create a list to start their research.

**Example prompt:** “Generate a table featuring at least twenty-five Americans who have stood up for the ideals of liberty and justice and worked toward the civic good. Include a column detailing their contributions to liberty, justice, and the civic good; a column about why they should be represented on US currency; and a column that features links to primary sources to learn more about each individual.”

2. Have students create a prototype (e.g., hand-drawn sketch, 3D digital model) of a US coin or paper bill featuring the person they selected.
3. Invite students to use a GenAI tool to aid their prototype design process. GenAI tools can generate new prototypes; provide feedback on students’ prototypes; and recommend design features, symbols, and text to include on the coin or currency.

**Example prompt 1:** “Generate four visual prototypes of [insert person] on a US coin.”

**Example prompt 2:** “Here is my hand-drawn sketch of [insert person] on a US quarter. Provide feedback to improve the design so that it is historically accurate and representative of this person.”

**Example prompt 3:** “I would like to redesign the US quarter to feature [insert person]. What symbols and words should I include (provide a detailed explanation, with examples)? Also, provide a description of how to represent [chosen person’s] portrait.”

4. Ask students to provide details about their design process and why they selected the visuals, symbols, and text they included on their prototype.
5. Next, have students write a proposal to the US Treasury Secretary to include the person they selected on an American coin or paper currency. The Treasury Secretary has the authority to decide whose face and image can appear on all US bills and coins. Encourage students to include their prototype and/or the AI-generated prototype in their proposal.

### Reflection Questions

- What messages and values do you think current images and designs on coins and paper bills convey to people using them?
- What messages and values do these designs convey about the people shown on the currency and the nation's history?
- Whose images are not displayed on coins and currency? Why might that be?
- What messages and values will your redesigned coin or currency convey to people?

### AI Literacy Questions

- What messages about people and society are presented in AI-generated images of paper currency and coins? Why might that be?
- What role did the GenAI tools play in shaping your own creative and artistic vision when designing your prototype? If you were to do this activity again, would you change how much or how little you used GenAI tools?

### ISTE Standards Addressed

1.4.b Design Constraints. Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

1.4.c Prototypes. Students develop, test and refine prototypes as part of a cyclical design process.

1.4.d Open-Ended Problems. Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

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## **Learning Plan 6.4**

### **CREATING USABLE AND ACCESSIBLE GOVERNMENT WEBSITES WITH AI**

#### **Student Engagement Question**

Have you ever visited a government website? Did you encounter any challenges navigating the site or finding what you needed?

#### **Overview**

Governments at every level—local, state, territorial, tribal, national—use websites to share information and promote civic engagement. In the US, the federal government has fifteen Cabinet departments and more than two thousand agencies, which each have their own website (check out the A-Z index of US government departments and agencies: [usa.gov/agency-index](https://www.usa.gov/agency-index)). Each Cabinet department and agency site's homepage is just the beginning of links to more websites for hundreds of offices, agencies, and services within and across agencies. Members of Congress and all congressional committees have websites, as does the judicial branch, including one for the Supreme Court, with information about courtroom seating, live audio from oral arguments, case documents, and a calendar of arguments.

There are also websites for every state government and its agencies and branches, and for every local town, city, and county government as well. The government webpage for the town of Amherst, Massachusetts, where our university is located ([amherstma.gov](https://www.amherstma.gov)), has links to twenty-three additional sites, including the town manager, school department, police, public health, public works, and more.

In today's digital age, government websites, along with mobile apps, provide the public with access to essential information and services. Going online, people can obtain information, communicate with elected representatives and government officials, file taxes, pay fines, renew licenses, apply for benefits, register to vote, vote in elections, get copies of important records, and much more. Yet, as the US Department of Justice has found, people with disabilities often have difficulties getting information from state and local websites and mobile apps that do not have the latest built-in accessibility functions (US Department of Justice, 2024).

For civic learning, the importance of government websites providing freely available and fully accessible information to everyone cannot be overstated. Information is power; the more one knows about issues that impact their lives and the lives of their fellow community members, the better one is prepared to make decisions in a democratic system of government. Government websites provide people with vital information for organizing their daily lives around matters of health, education, entertainment, recreation, and personal finances. In fact, people's reliance on online health information, for example, means that government websites going dark for even a short period of time can cause panic and disruption.

The first US government website dates back to 1991, when the US State Department launched a bulletin board through the Government Printing Office. NASA put up its first homepage later in the 1990s. You can explore early government websites through the Internet Archive's Wayback Machine.

Even though government information is online, this does not mean it is easily accessible or readily understandable for readers and viewers. When the authors ran the Town of Amherst, Massachusetts, government website site through an accessibility evaluation tool ([wave.webaim.org](http://wave.webaim.org)) in early 2025, there were eleven errors, thirteen contrast errors, and thirty-six alerts; meaning that disabled individuals, particularly blind and visually-impaired individuals and those with cognitive disabilities, may face challenges when navigating the website.

Many government websites—especially town, city, and state ones—are not fully accessible. Even school websites have been found to lack accessibility. When examining more than 6,220 K-12 school websites, Kimmons and Smith found that, “Nearly two-thirds of schools failed at least one of the measurable Web Content Accessibility Guidelines (WCAG)” and “95.5 percent of school homepages had a detectable error of some kind, with the average site having over twenty four errors” (2019). Kimmons and Smith noted that website accessibility is a “serious civil rights concern” (2019). When attention is not paid to making websites accessible and easy to navigate, it can be “difficult or impossible for people with disabilities to access government services, like ordering mail-in ballots or getting tax information, that are quickly and easily available to other members of the public online” (ADA.gov, 2024).

In addition to accessibility, the usability of government websites is often lacking too. Many government sites have outdated designs and broken links, lack search functionality, use complex language and jargon, lack of user-friendly features, and are not optimized for viewing on mobile devices. In some cases, the poor usability of government websites can lead to dire consequences such as during the Covid-19 pandemic, when people had to use websites to sign up for a vaccine, but many sites were too dysfunctional and challenging for people to navigate (Altman, 2021). During past government shutdowns, websites have been taken down, leaving people who need to access critical services like passports, Veterans Affairs services, tax services, or small business administration loans in the dark.

Ensuring accessible, usable government websites supports the vision of what is called “open government” and “digital democracy.” Open government is defined as making government activities and decision-making more easily known to people through online portals and tools. Digital democracy is the view that computers, smartphones, and internet connectivity can provide new ways for people to participate directly in and engage with various levels of governments. The northern European nation of Estonia has claimed to have the world’s first digital government. It was the first country to declare internet access as a human right for every person, provide 99% of government services online, hold elections on the internet, and allow its citizens to vote online

from anywhere in the world. Creating fully accessible and usable government websites can be an essential step in making democracy work for everyone.

### Learning Goal

Students will design and advocate for an improved government website that is accessible and usable by all.

## ACTIVITY 1

### AI-Enhanced Evaluation of the Accessibility of a Government Website

1. Encourage students to learn about the Web Content Accessibility Guidelines (WCAG)—a set of international standards for making sure websites are accessible for people with disabilities—with the assistance of a GenAI tool.

**Example prompt:** “Provide a detailed, student-friendly overview of the Web Content Accessibility Guidelines (WCAG). Include at least four sentences about each principle in the POUR model (perceivable, operable, understandable, robust). Provide real-world examples of how to apply the WCAG when designing accessible online websites and materials. Explain why the WCAG is essential for students, not just web designers, to know. Then, create a detailed checklist that I can use when evaluating digital content.”

2. Make sure students verify the accuracy and reliability of the GenAI tool’s response against the original WCAG guidelines (use the prompts in Chapter 2’s “A Teacher and Student Guide for Evaluating GenAI Text Responses” callout box in this evaluation).
3. Then, invite students to research and identify a town, city, or county government website (look for a URL ending in .gov) that they want to evaluate for accessibility.

4. Ask students to paste the URL of the government website they selected into the WAVE Web Accessibility Evaluation Tool ([wave.webaim.org](http://wave.webaim.org)) and explore the identified accessibility issues on each page of the website.
5. Encourage students to conduct internet research and/or use a GenAI tool to learn more about each of the identified accessibility issues; then, draft a proposal to advocate for improving the accessibility of the government website.

**Example prompt:** "I am a high school student looking to ensure government websites are accessible. I used the WAVE Web Accessibility Evaluation Tool to evaluate the [insert town, city, or county name] government website. It found [insert number of errors, contrast errors, and alerts]. The main errors were [list errors here]. There were also alerts for [insert alerts here; e.g., redundant alternative text, missed first-level heading, skipped heading levels]. I'd like to write a letter to a town official to encourage them to make their website more accessible. Provide a draft letter that includes specific steps the town can take to improve its website accessibility, practical examples for improving the website's accessibility, and reasons why it's important to improve the accessibility of the website."

6. Have students revise the letter using their own words and points of emphasis (or write a new draft) and send it to the appropriate town, city, or county official.

## ACTIVITY 2

### Designing a Digital Detective Game with AI

1. Prompt a GenAI tool to design a game that will engage students in using and evaluating the usability of government websites.

**Example prompt:** "Design an interactive game that will engage students in using, and evaluating the usability of, local government websites in [insert state] (e.g., find an employment application on a

city website, search for the recycling schedule on a town website, contact a mayor in the state, identify a local government website with a language translation feature). Include at least ten tasks and two bonus tasks for students to complete. Provide a list of reflection questions to assess the usability of government websites. Include a point scale and scoring system.”

2. After students play the interactive game, engage them in a discussion about the usability of government websites. Was it easy or hard to access information or get things done? Why might that be? How might the usability of government websites affect civic engagement? How might website usability impact how people believe in government as an organization that helps them and improves their lives?
3. Then, invite students to write a proposal to a local government department to improve the usability of its website.

### ACTIVITY 3

#### AI-Supported Government Website Redesign

1. Invite students to research and identify a town, city, or county government website that they want to redesign to improve its usability and accessibility.
2. Ask students to take screenshots of each of the main pages of the website, and then upload those screenshots to a GenAI tool for feedback on improving the usability and accessibility of the site (or, if they use a GenAI tool that can search the internet, they can just insert the link to the website).

**Example prompt:** “How can I improve the usability and accessibility of this government website? [upload screenshots of, or insert link to, selected website]”

3. Then, have students use a web design tool, such as Google Sites or Wix, to create a prototype of a more accessible and usable version of the website.

**BONUS:** Have students share their redesigned website prototype with local officials for feedback.

## Reflection Questions

- What are your top three conclusions after analyzing government websites for accessibility and usability?
- Do you think redesigning government websites could promote improved information sharing, increased civic engagement, and greater democratic decision-making? Why or why not?
- What could a digital government look like in the United States in the years ahead?

## AI Literacy Questions

- Read Tanase (2023) "Is Your GenAI Ableist?" Then, discuss the following questions: When might using GenAI tools to evaluate and improve the accessibility and usability of government websites be helpful? When might it be harmful?
- How might biases in GenAI tools affect the evaluation of website accessibility and usability?

## ISTE Standards Addressed

1.4.c Prototypes. Students develop, test and refine prototypes as part of a cyclical design process.

1.4.d Open-Ended Problems. Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.