Grade 6 Digital Literacy Skills – Design Detective: Innovating with Technology

Inquiry question: "What does it mean to be digitally literate in today's world?"

LEARNING OBJECTIVES:

- Understand the basics of design thinking.
- Develop skills in using PowerPoint to create interactive prototypes.
- Apply problem-solving and critical thinking skills.
- Collaborate effectively in groups.

TECH SKILLS

- Use selection tools to copy, paste, move and modify work.
- Upload/download/retrieve files to and from the cloud.
- Use technology responsibly and make safe choices.
- Use speech to text or text to speech as an alternative to keyboard to express ideas.
- Use the menu/toolbar functions to format, edit and interact with documents.
- Use drawing tools to add content to my project.
- Be respectful in all communications and collaborations using technological tools.
- Set up, share and use collaborative workspaces, documents, or other digital tools.
- Understand copyright & plagiarism and appropriately use images in my project.

ADST CURRICULAR COMPETENCIES

- **Ideating:** Generate ideas and add to others' ideas to create possibilities and prioritize ideas for prototyping.
- **Prototyping:** Construct a first version of the product or a prototype, as appropriate, making changes to tools, materials, and procedures as needed (App Wireframe
- **Testing:** Test the product, make changes, and iterate to improve the design.
- **Sharing:** Share progress while creating the product (prototype) and reflect on the process and outcomes (feedback received from classmates).
- **Reflecting:** Reflect on the design process and the final product, considering feedback and self-assessment. (final reflection sheet)

- Applied Skills: Identify and evaluate the skills and skill levels needed, individually or as a group, in relation to a specific task, and develop them as needed
- Applied Technologies: Select, and as needed learn about, appropriate tools and technologies to extend their capability to complete a task.

COMMUNICATION / COLLABORATION CORE COMPETENCIES

Connecting and engaging with others	**Acquiring and presenting information**	**Working collectively**	**Determining common purposes**
Students engage in informal and structured conversations in which	Students communicate by receiving and presenting information. They acquire	Students combine their efforts with those of others to effectively accomplish learning and tasks. As members of a group, they	Students develop shared understandings of information, issues, situations, and problems in

they listen, contribute, develop understanding and relationships, and learn to consider diverse perspectives.	information from a variety of sources, including people, print materials, and media; this may involve listening, viewing, or reading, and requires understanding of how to interpret information.	appreciate interdependence and cooperation, commit to needed roles and responsibilities, and are conscientious about contributing.	pursuit of common purposes and goals. They honour various group processes and proactively support movement forward, including refocusing on intended goals as needed. They revise plans according to mutual deliberations and strive for consensus.

MATERIALS:

- Design Thinking Image
- Design Thinking Brainstorming Worksheet
- Clickable Wireframe App Prototype Workflow
- Clickable Wireframe App Prototype Handout
- Computers with PowerPoint installed
- Link to video: Creating A Clickable Wireframe in PowerPoint
- Clickable Wireframe App Prototype Video Link
- Feedback Handout

TEACHER PREPRATION:

1. Print “Design Thinking Brainstorming Worksheet
2. Print “App Wireframe Design” Handout
3. Print “Feedback Handout”

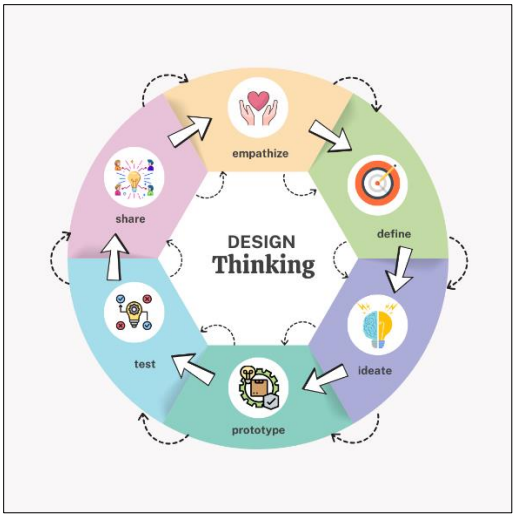
INSTRUCTIONS:

Part A : Introduction to Design Thinking and Prototyping

(*Completion time: ~1 – 1 ½ hours)*

Introduction:

1. Introduce the design thinking process (Empathize, Define, Ideate, Prototype, Test). Show the students the diagram of the cycle with the breakdown of each step. *Emphasize that it is circular because many of the steps are revisited until the final “copy” has been completed.*



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2. Discuss with the students how this process will be used to design a **prototype** of an app that would help people become digitally literate. Provide the definition of prototype:

> ***Prototyping*** *is making a basic model of a new product. It helps designers see what works and what needs fixing. They use simple drawings and materials to test their ideas before making the final product.*

4. Quickly brainstorm why prototypes would be important in the design process.
5. Let the students know they will be creating the **Clickable Wireframe** prototype for their app. This is: Basic interactive versions of a website or app that allow users to test navigation and flow

Activity:

1. Break the students into groups of three.
2. Introduce the project: "***Creating an Interactive App prototype in PowerPoint to help students become digitally literate."***
3. Display the "Clickable Wireframe App Prototype Workflow" to the students. This could be printed or just projected as a digital representation.

Clickable Wireframe App Prototype Workflow

4. Handout the "Design Thinking Brainstorming Worksheet" to all students so they have their own copies.

Design Thinking Brainstorming Worksheet

5. As a class, **DEFINE** what the "problem" is. Record this on the sheet. (*students needing help to become digitally literate)*

6. Then, brainstorm ideas for ways this could be done AND what that might look like in an app.

Some ideas are: AI Tutor for appropriate online interaction with others; App that tracks the amount of screen time that is being used; Typing Tutor; Internet Safety Quiz; Code Learning Game that teaches how to code in a fun and interactive way; Digital Storytelling with branches so student can create own path; Research Helper that guides students to searching safely online and cite their sources.

NOTE: This might be a perfect opportunity AFTER the students have generated a list for the teacher to use the Microsoft CoPilot AI chat to ask for other options.

Open Edge -> click on Co-pilot icon -> type in prompt in the chat space.

A prompt for this could be: "What are some cool apps a grade 6 student could create a prototype for that would help their peers become digitally literate?"

7. Have the students record these options on their brainstorming worksheet.
8. Then as a group, select one idea from this list OR use an idea of their own and describe what it would do - how would it help others become digitally literate.
9. Hand out the "App Wireframe Design" worksheet. *This should be printed on 11" x 17" paper to provide students with adequate drawing space.*

App Wireframe Design Worksheet

10. Have students sketch out the design for each screen. Use shapes, text, links and buttons to imitate what these would be in the app itself. Although there are *five* screens on the handout, not all five need to be used.

Collect the completed Designs as they will be used in Part Two of this lesson.

Ticket out the door

Turn and Talk: Why is prototyping so important in the design process. Provide 3 reasons.

Part B : Create Clickable Wireframe Prototype in PowerPoint

(Completion time: ~ 2 hours – 1 hour to create & 1 hour to share/revise/present)

Introduction:

1. Play the video on how to create a clickable wireframe prototype in PowerPoint.

Creating a Clickable Wireframe App Prototype Video

2. Show the completed PowerPoint Clickable Wireframe App Prototype

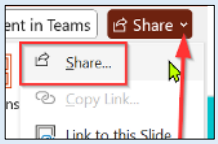
PowerPoint Clickable Wireframe App Prototype

3. Using the link to the PowerPoint from the website, have the ONE student from each group download a copy of the template to their own devices.

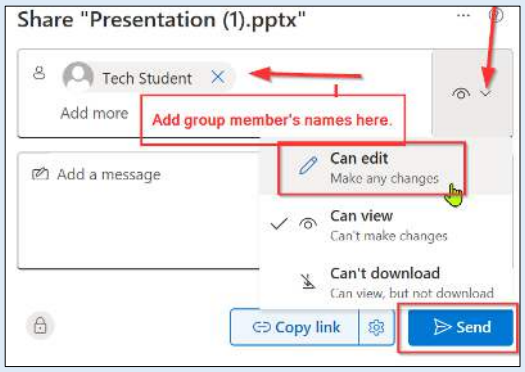
Link to Clickable Wireframe Template

4. Have the students SAVE the PowerPoint in their OneDrive renaming it as the App Prototype name.
5. The students will then share this copy with the other group members.

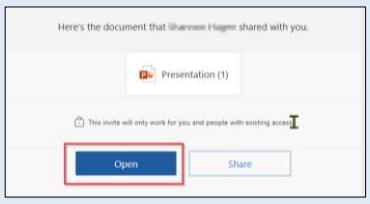
Click on the “Share icon” located on the top right of the PowerPoint window -> “Share”



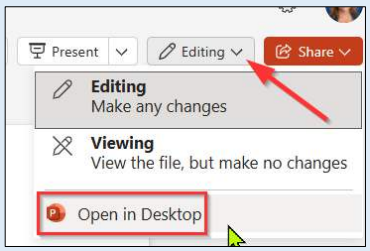
Type in the names of the group members -> Change the editing permission from “View” to “Edit” by clicking on the dropdown arrow next to the eye icon and selecting “Edit” -> Click “Send”.



The group members will then open their Outlook and access the email that has been sent to them with the link.



Clicking “Open” will open the project in the online version of PowerPoint. To open it in the desktop version, click on the “Editing drop down” on the top right -> “Open in Desktop”.



Students will now be able to collaborate all on the same project using individual devices.

Activity :

Using the template provided, students can now design their screens, add interactivity and test the prototype.

1. **Designing Screens:**

a. Design screens in PowerPoint using shapes, text boxes, and images. Think about what each screen would need in order for a user to use it.
    i. *Navigation bar, buttons for navigation, text for information, icons, images*
b. Complete the design for ***all*** of the screens before adding any hyperlinks or interactivity.

2. **Adding Interactivity:**
    a. Adding navigation links -> link "home", "next", "previous" buttons so user can navigate screens easily.
    b. Add hyperlinks to the action buttons -> where is the user going to be directed when the "Start" button is clicked, etc
3. **Test:**
    a. Using the "Present now" feature in PowerPoint, test the interactivity of the prototype. Are steps missing, is it functional. This can now be shared with another group to receive feedback.
    b. Handout the "Feedback Worksheet". This is two sided. The one side has suggestions on how to provide constructive feedback. Please review this with students prior to the feedback step.
    c. Classmates will provide feedback on the design and functionality. This will be recorded on the sheet.
    d. Groups make necessary changes and improvements to their prototypes according to the feedback they received.
4. **Share:**
    a. Groups present their final prototypes to the class.
    b. Discuss what worked well and what could be improved.

REFLECTION:

Here are three written response questions that students can answer as part of their self-reflection on the Clickable Wireframe Prototype project. These can be done as a group, or individually.

1. **Describe a challenge you faced during the project and explain how you overcame it.**
    - What was the challenge?
    - How did you approach solving it?
    - What did you learn from this experience?
2. **Reflect on your collaboration with your group members.**
    - How did you contribute to the group's success?
    - What strategies did you use to communicate effectively with your group?
    - How did you handle any disagreements or conflicts that arose?
3. **Evaluate the final prototype you created.**
    - What aspects of the prototype are you most proud of and why?
    - If you had more time, what improvements or additional features would you add to the prototype?

EXTENSION ACTIVITIES:

Here are some extension activities that students can do at school or at home:

At School:

1. **Advanced Prototyping**:
    - Encourage students to add more complex interactions to their prototypes, such as animations, transitions, and multimedia elements such as audio or video clips.
2. **App Creation:**
3. Use an application such as Microsoft MakeCode Arcade to make a working copy of an app or game.
4. **Cross-Curricular Integration**:
    - Integrate the project with other subjects, such as English (writing content for the app), Math (creating quizzes with math problems), or Science (developing lessons on scientific topics).
5. **Reflection Journals**:
    - Have students keep a reflection journal where they document their learning experiences, challenges, and achievements throughout the project. This can help them develop self-awareness and critical thinking skills.

At Home:

1. **Family Involvement**:
    - Have students present their prototypes to family members and explain the design process. Family members can provide feedback and suggestions for improvement.
2. **Personal Projects**:
    - Encourage students to create their own interactive prototypes on topics of personal interest, such as a virtual tour of their neighborhood, a digital storybook, or an educational game. Have them create them in a variety of applications – not just PowerPoint.