Unit 4: Prototyping

Content Area: **Business**
Course(s): **Foundations of Creative Design**
Time Period: **Semester 1**
Length: **4-5 Weeks**
Status: **Published**

Standards

VA.9-12.1.5.12prof.Cr2b	Explain how traditional and non-traditional materials may impact human health and the environment, and demonstrate safe handling of materials, tools and equipment.
	Reflect, Refine, Continue
CS.9-12.8.2.12.ED.1	Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
CS.9-12.8.2.12.ED.3	Evaluate several models of the same type of product and make recommendations for a new design based on a cost benefit analysis.
CS.9-12.8.2.12.ED.4	Design a product or system that addresses a global problem and document decisions made based on research, constraints, trade-offs, and aesthetic and ethical considerations and share this information with an appropriate audience.
CS.9-12.8.2.12.ED.5	Evaluate the effectiveness of a product or system based on factors that are related to its requirements, specifications, and constraints (e.g., safety, reliability, economic considerations, quality control, environmental concerns, manufacturability, maintenance and repair, ergonomics).
CS.9-12.8.2.12.ITH.1	Analyze a product to determine the impact that economic, political, social, and/or cultural factors have had on its design, including its design constraints.
CS.9-12.8.2.12.ITH.2	Propose an innovation to meet future demands supported by an analysis of the potential costs, benefits, trade-offs, and risks related to the use of the innovation.

Enduring Understandings

- Prototypes allow designers to test and refine ideas before final development.
- Low-fidelity prototypes are valuable tools for exploring and communicating ideas quickly.
- Iteration based on user feedback leads to more effective, user-centered designs.

Essential Questions

- Why is prototyping a critical step in the design process?
- What are the benefits of low-fidelity prototyping?
- How can we use feedback to improve our designs?

Knowledge and Skills

- Differentiate between types of prototypes
- Construct low-fidelity paper prototypes to simulate app or website functionality.
- Build physical models using accessible materials such as cardboard, foam, and tape.
- Conduct peer-based user testing with early-stage prototypes and document user reactions.
- Source and use materials sustainably and ethically
- Use feedback loops to improve design clarity, usability, and user experience.
- Communicate design intent and prototype function through informal presentations and critiques.

Transfer Goals

- Students will independently apply prototyping as a flexible, problem-solving strategy for testing and refining ideas.
- Students will recognize iteration as a necessary and valuable part of any design or creative process in academic, personal, and professional contexts.