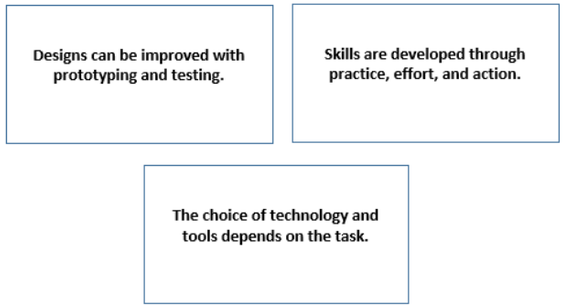
ADST Scope & Sequence

	Grades 4 & 5 Big Ideas & Learning Standards	Available District Resources	Grades 4 & 5 Content & Computational Thinking
Grades 4 & 5	 **Curricular Competencies** *Students are expected to be able to do the following:* **Applied Design** *Understanding context* • Gather information about or from potential **users** ***Defining*** • Choose a design opportunity • Identify key features or user requirements • Identify the main objective for the design and any **constraints** ***Ideating*** • Generate potential ideas and add to others' ideas • Screen ideas against the objective and constraints • Choose an idea to pursue ***Prototyping*** • Outline a general plan, identifying tools and materials • Construct a first version of the **product**, making changes to tools, materials, and procedures as needed • Record **iterations** of prototyping ***Testing*** • Test the product • Gather peer feedback and inspiration • Make changes and test again, repeating until satisfied with the product	**Available Grades 4 & 5 Resources** Elenco Snap circuits kits Spheros Edison robots Cubelets	**CONTENT** *Students are expected to use the learning standards for Curricular Competencies from Applied Design, Skills, and Technologies 4–5 in combination with grade-level content from other areas of learning in cross-curricular activities to develop foundational mindsets and skills in design thinking and making.* **Data** - Identify the variables/values of a given set of data. **Patterns** - Identify a problem the can be solved computationally. **Algorithms** - Identify syntax and logic structures. - Translate information into computational structures (logic blocks and/or code). - Modify and revise an algorithm to reach a desired outcome. **Digital Citizenship** -Proper use of the technology

Curricular Competencies (continued)

Making

- Construct the final product, incorporating planned changes

Sharing

- Decide on how and with whom to **share** their product
- Demonstrate their product and describe their process
- Determine whether their product meets the objective and contributes to the individual, family, community, and/or environment
- Reflect on their design thinking and processes, and their ability to work effectively both as individuals and collaboratively in a group, including their ability to share and maintain a co-operative work space
- Identify new design issues

Applied Skills

- Use materials, tools, and technologies in a safe manner, and with an awareness of the safety of others, in both physical and digital environments
- Identify the skills required for a task and develop those skills as needed

Applied Technologies

- Use familiar tools and **technologies** to extend their capabilities when completing a task
- Choose appropriate technologies to use for specific tasks
- Demonstrate a willingness to learn new technologies as needed

Available Grades 4 & 5 Resources

Elenco Snap circuits kits

Spheros

Edison robots

Cubelets

Curricular Competencies – Elaborations

- **users:** may include self, peers, younger children, family or community members, customers, plants, or animals
- **Defining:** setting parameters
- **constraints:** limiting factors such as task or user requirements, materials, expense, environmental impact, issues of appropriation, and knowledge that is considered sacred
- **Ideating:** forming ideas or concepts
- **product:** for example, a physical product, a process, a system, a service, or a designed environment
- **iterations:** repetitions of a process with the aim of approaching a desired result
- **share:** may include showing to others, use by others, giving away, or marketing and selling
- **technologies:** things that extend human capabilities