GRADE 5 – Unit 3 - 3D Design and Printing

Mission Statement
The primary goal of the Swedesboro-Woolwich School District is to prepare each student with the real life skills needed to compete in a highly competitive global economy. This will be achieved by providing a comprehensive curriculum, the integration of technology, and the professional services of a competent and dedicated faculty, administration, and support staff. Guiding this mission will be Federal mandates, including No Child Left Behind, the New Jersey Core Curriculum Content Standards, and local initiatives addressing the individual needs of our students as determined by the Board of Education. The diverse resources of the school district, which includes a caring PTO and active adult community, contribute to a quality school system. They serve an integral role in supporting positive learning experiences that motivate, challenge and inspire children to learn.

Unit/Module Overview
In unit 3, students will learn to: ● utilize problem solving skills and 3D design to achieve a specific outcome.

Standards Covered in Current Unit/Module
Related Standards and Learning Goals
CS.3-5.8.2.5.ED.1 - Explain the functions of a system and its subsystems. **CS.3-5.8.2.5.ED.2 -** Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. **CS.3-5.8.2.5.ED.3 -** Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Unit/Module Weekly Learning Activities and Pacing Guide			
Topic & # Days	**NJ Standards**	**Critical Knowledge & Skills**	**Possible Resources & Activities**

Introduction to 3D Design (1)	● **CS.3-5.8.2.5.ED.1**	**Obj. We are learning to**:
		● describe the basic functionality and capability of 3D printing.
		Suggested Formative Assessment(s):
		● 3D Pen Discussion
			● Activity
			  ○ Introduction to 3D design and printing
			● Videos
			  ○ ▶ How 3D Printers Work | How Things W…
			  ○ ▶ Incredible Things You Can Do With A 3D…
			● Materials
			  ○ 📄 3D Pen Permission Slip.pdf
			  ○ 📄 3D Pen Permission Slip Spanish

Creation of a 3D Object (1)	● **CS.3-5.8.2.5.ED.2**	**Obj. We are learning to**:
		● design a prototype of a possible 3D object in addition to explaining how the final design was arrived at.
		Suggested Formative Assessment(s):
		● Completed 3D logo design
			● Activity
			  ○ Introduction to 3d construction (3D pens)
			● Materials
			  ○ Paper
			  ○ Ruler
			  ○ Pencil
			  ○ Eraser
			  ○ 3D Pen
			  ○ USB Cable
			  ○ Chromebook

Build an object based off of a design (3)	● **CS.3-5.8.2.5.ED.3**	**Obj. We are learning to**:
		● create a physical model by utilizing a prototype.
		Suggested Summative Assessment(s):
		● 📗 Scale Tracking Sheet Gr 5 Unit 3
			● Activity
			  ○ 3D Logo Project
			● Materials
			  ○ Paper
			  ○ Ruler

			Pencil
		● 📄 3D Design Rubric	○ Pencil ○ Eraser ○ 3D Pen ○ USB Cable ○ Chromebook
Introduction to computer aided design (1)	● **CS.3-5.8.2.5.ED.3**	**Obj. We are learning to**: ● utilize an online tutorial to create a computer aided design. **Suggested Formative Assessment(s)**: ● Completed tutorials	● 3D Graphic Design ● Website ○ https://www.tinkercad.com/
CAD design of 3D object / assessment (4)	● **CS.3-5.8.2.5.ED.3** ● **CS.3-5.8.2.5.ED.4**	**Obj. We are learning to**: ● create a computer aided design based on a set of constraints. **Suggested Summative Assessment(s)**: ● Completed CAD design	● Activity ○ 3D design graphic creation ● Website ○ https://www.tinkercad.com/

Link to Additional Components including Cross Curricular Connections, Accommodations, Assessments, Etc

ELA Enduring Understanding Statements