3D School Store
UNIT OVERVIEW

The 3D School Store Unit is an online, project-based learning curriculum designed by CompTIA Spark. Each of the included lessons asks students to learn and actively apply digital skills to help them solve real-world problems. Each of these lessons is connected by a shared theme: You are designing and selling 3D printed items for a school store!

This unit is designed with a unique structure of phases that both exposes students to a variety of technology, applications, careers, and CTE clusters while also giving each student an opportunity to specialize and develop relative expertise (expertise as compared to the skill level of their classmates) in the areas that are most interesting to them.

UNIT DETAILS

- Grade level: 5th-8th grade
- Length: 10-15 hours of class time
- Cost to implement: Free

MATERIALS

- Enough computers for 1:1 ratio during class
- Internet connection strong enough to stream videos from multiple devices at the same time.
- 3D School Store introduction slides (Google Slides)

HIGH-LEVEL LEARNING OBJECTIVES

By the end of this unit students will:

- Learn how to use everyday digital tools to stay organized, share work, and complete tasks.
- Be able to use a variety of applications to accomplish tasks including Tinkercad, Sheets/Excel, Canva, Forms, MakeCode Arcade, and Kiri:Moto
- Demonstrate and identify interests in a tech or career pathway
- Understand the role that data, marketing, software development, and 3D modeling play in a company
- Have developed 21st century skills

STANDARDS ALIGNMENT

- [ISTE](#)

HOW THE CURRICULUM WORKS

Project-based learning in web creativity and productivity apps

- Each lesson will ask students to create a project in a popular web-based creativity or productivity app.
- Each project is designed to be highly engaging, rigorous, and expose students to a variety of important tools and functions in the application.
- Projects are all based in real- world work that happens within these applications.

Self-paced online instruction

- Each lesson includes a series of steps and instructional videos that help students build a project from scratch.
- Students will access these help resources through the CompTIA Spark learning application where they can choose to watch and rewatch the videos at their own pace.

Student choice to build a community of engaged learners

- Throughout the unit, students are offered many choices about the products they create. They will decide the questions to put on their survey, the product they will design, the selling price, how their game will look, what their advertisement will look like, etc.
- Student choice and project- based learning increases student engagement   https://docs.lib.purdue.edu/ijpbl/vol11/iss2/9/

Facilitation: your critical role

- This unit is designed to be taught by anyone with little to no prep.
- Teachers do not need to be experts (or even familiar) with the technologies used in the projects.
- It is recommended that students work in pairs to help each other, but submit their own individual products and assignments.

- Students should learn to rely on themselves and their peers for help and expertise instead of their teachers.
- Instead of providing instruction, teachers play the critical role of facilitator and coach and should spend the bulk of their time in class circulating among the students and providing 1:1 support and coaching as needed.

UNIT PLAN

LESSONS:

Lesson #	Lesson name and details	Resources
1	**Market Research** *Students will create a form in Google fForms/Microsoft Forms to determine interest in 3D printed items.*	[Lesson plan with assessment and rubrics](#)
2	**3D Product Design** *Students will design a 3D printable keychain (or item of their choice) in Tinkercad*	[Lesson plan with assessment and rubrics](#)
3	**3D Slicing and Printing** *Students will slice atheir .STL file in the online slicer Kiri:Moto and learn about infill, support, and 3D print time.*	[Lesson plan with assessment and rubrics](#)
4	**Determine Selling Price** *Students will use Sheets/Excel to estimate the cost of one item and determine the profit based on the selling price.*	[Lesson plan with assessment and rubrics](#)
5	**Coding Profit Game** *Students will use Microsoft Makecode Arcade to code a fun game that will help students see the relationship between costs, selling price, and profit.*	[Lesson plan with assessment and rubrics](#)
6	**Advertising** *Students will use Canva to design a print advertisement promoting their new school store items.*	[Lesson plan with assessment and rubrics](#)
7	**Extension Activities (Coming Soon)** *Students will connect the interests they have developed with potential careers and identify next steps that may interest them.*	
8	**Career Connections (Coming Soon)** *Students will connect with several careers based on their favorite lessons and activities within the unit.*	
9	✦ Show wWhat Yyou Kknow (Coming Soon)	

	Students will make a presentation to highlight what they created/learned and applicable careers	

Assessment

Each lesson has several opportunities for assessment, including:
- A short, auto-graded multiple-choice assessment after each lesson
- A reflection question after each lesson to highlight 21st century skills
- A product rubric to assess the artifact that was created with the lesson.
- A process rubric to assess 21st century skills demonstrated with the lesson.

Differentiation

- Each lesson contains robust extension activities for students who finish early or need more of a challenge.
- Each lesson contains self-paced videos with closed captioning to help students who are more visual/auditory learners, and learners who may need to replay the videos more than once.
- The unit can be spread out over a longer period for students who need more time, or for students who wish to explore all the extension activities.
- Student choice is embedded throughout the unit to appeal to a variety of interests.

Websites/Aapps used in this unit

- Google fEorms or Microsoft fEorms
- Google Drive or One Drive
- Tinkercad (web-based 3D design) www.tinkercad.com or Onshape (coming soon!) www.onshape.com
- Kiri:Moto (web-based 3D slicing) https://grid.space/kiri/
- PicSVG (web-based file conversion from .PNG to .SVG) https://picsvg.com/
- Google Sheets or Microsoft Excel
- Microsoft Makecode Arcade (web-based block programming) arcade.makecode.com
- Canva (web-based graphic design) canva.com