Unit 2: Minecraft: A Safe Place for the Scientists

Content Area: **Technology**
Course(s): **Technology**
Time Period: **Marking Period 3**
Length: **Weeks**
Status: **Published**

Unit Overview

Students will build their skills from the previous unit. Students will be in a pre-made environment with items that are not working and need fixing. The premise is that a team of scientists is about to enter a dangerous jungle to study the ecosystem. Decades ago, a previous mission to the jungle was aborted, some of the equipment and structures remain, in a depleted state. The students are a group of elite explorers and builders. In teams, they must go ahead to make a safe, equipped, sustainable base from which the scientists can work. In-game assignments explain the details. Students will read Ada Twist, Scientist.

Standards

TECH.8.2.5.C.1	Collaborate with peers to illustrate components of a designed system.
TECH.8.2.5.C.3	Research how design modifications have lead to new products.
TECH.8.2.5.C.5	Explain the functions of a system and subsystems.
TECH.8.2.5.C.7	Work with peers to redesign an existing product for a different purpose.
TECH.8.2.5.C.CS1	The attributes of design.
TECH.8.2.5.C.CS2	The application of engineering design.
TECH.8.2.5.D.1	Identify and collect information about a problem that can be solved by technology, generate ideas to solve the problem, and identify constraints and trade-offs to be considered.
TECH.8.2.5.D.2	Evaluate and test alternative solutions to a problem using the constraints and trade-offs identified in the design process to evaluate potential solutions.
TECH.8.2.5.D.3	Follow step by step directions to assemble a product or solve a problem.
TECH.8.2.5.D.4	Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.
TECH.8.2.5.D.5	Describe how resources such as material, energy, information, time, tools, people and capital are used in products or systems.
TECH.8.2.5.D.6	Explain the positive and negative effect of products and systems on humans, other species and the environment, and when the product or system should be used.
TECH.8.2.5.D.7	Explain the impact that resources such as energy and materials used in a process to produce products or system have on the environment.
TECH.8.2.5.D.CS1	Apply the design process.
TECH.8.2.5.D.CS2	Use and maintain technological products and systems.
TECH.8.2.5.D.CS3	Assess the impact of products and systems.
TECH.8.2.5.E.2	Demonstrate an understanding of how a computer takes input of data, processes and stores the data through a series of commands, and outputs information.

TECH.8.2.5.E.3	Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output.
TECH.8.2.5.E.4	Use appropriate terms in conversation (e.g., algorithm, program, debug, loop, events, procedures, memory, storage, processing, software, coding, procedure, and data).
TECH.8.2.5.E.CS1	Computational thinking and computer programming as tools used in design and engineering.

Essential Questions

- How can I collaborate with peers to illustrate components of a design system?
- How can computer programming be used as a tool in the design and engineering process?
- Can you design a sturdy structure that will withstand various weather changes?
- What is a scientists and why are they important?
- How do scientist find out about objects, living things, events, and phenomena?

Application of Knowledge: Students will know that...

- Engineers have an impact on the world they live in and their daily lives.
- Real-life scientist use the Scientific Method to solve problems
- There are functions of a system and design system

Application of Skills: Students will be able to...

- Manipulate objects in a virtual space in a way that helps create dynamic structures
- communicate using digital media

Assessments

The teacher will informally assess students throughout the unit by observing their natural usage of the following skills:

- Functions of a system and design system
- Manipulate objects in a virtual space in a way that helps create dynamic structures

Suggested Activities

- Students will start each class by navigating to Google Classroom and responding to a writing prompt. In responding to the writing prompt, students will be collaboratively conversing with each other and their teacher digitally, using their schema of keyboarding and mouse skills.
- Engineer of the Week: Each week, a new engineer will be briefly introduced to the class, highlighting

their impact on their current world.
- Students begin Tutorial World. Collaborate and communicate in order to complete the various targeted challenges in each zone.
- Students will fix/create structures in 2D world and print out one of their structures using 3D printer

Activities to Differentiate Instruction

- Handout will be given for visual instructions
- Preferential seating
- Students start in a tutorial world

Enrichment Opportunities:

- Students will be given various blocks and tools to complete different tasks

Integrated/Cross-Disciplinary Instruction

- Science- In this particular MineCraft world the students will have to identify different biomes and where animals should be placed.
- Language Arts- Students will be able to create a cause and effect scenario using the basis of the Minecraft World. They will be presented with different situations and have to figure out what the effect will be.
- Reading -As students travel further in this land they will come across the history of the island. They will have to read and decipher what went wrong and how to correct past history.
- Citizenship/Civics- Being that this land is unmanned they will have to establish leadership roles as well as laws of the land

Resources

- Minecraftedu
- 3D Printer