Unit 2: Theme Park STEM Project

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

Unit Overview

July 2015 is Disneyland's 60th birthday. As Disney Imagineers, students will be asked to create a new land in Disneyland. The Disney Company wants the new land to be a tribute to the legend of Walt Disney and Disneyland. Your land must incorporate old Disney ideas in new ways. Using the skills students have learned in Minecraft and Scratch they must create their land in Minecraft as well as animate features in Scratch. Students will read Iggy Peck, Architect.

Standards

TECH.8.2.5.B.4	Research technologies that have changed due to society's changing needs and wants.
TECH.8.2.5.B.CS1	The cultural, social, economic and political effects of technology.
TECH.8.2.5.B.CS3	The role of society in the development and use of technology.
TECH.8.2.5.B.CS4	The influence of technology on history.
TECH.8.2.5.C	Design: The design process is a systematic approach to solving problems.
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.4	Collaborate and brainstorm with peers to solve a problem evaluating all solutions to provide the best results with supporting sketches or models.
TECH.8.2.5.C.5	Explain the functions of a system and subsystems.
TECH.8.2.5.C.6	Examine a malfunctioning tool and identify the process to troubleshoot and present options to repair the tool.
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.C.CS3	The role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.

Essential Questions

- What makes a successful theme park?
- How can I work with classmates to develop a theme for an amusement park?
- How can I work with classmates to create 3D models in Minecraft?
- How can I work with classmates to create an animated short using Scratch?
- Why do engineers and designers strive to improve products used in our daily lives?
- Why do we use the engineering design process to solve design challenges?

- How can the engineering design process benefit us in solving problems in our daily lives?

Application of Knowledge: Students will know that...

- Engineers have an impact on the world they live in and their daily lives.
- Minecraft can be used to create a theme park
- Science, math and engineering are principles to design and optimize a product.
- Scratch can be used to create a short animated film

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

- evaluate the requirements of an outdoor recreational business
- communicate using digital media
- Design costumes, menus, and theme park rides.
- discuss the mental and physical benefits of a theme park
- discuss the various parklands available for recreation
- understand how all of the areas of a theme park work together as a whole
- Work in cooperative learning groups.
- Write short entertainment scripts to be produced in the theme park.

Assessments

The teacher will formally assess students throughout the unit by using rubrics for the following project or other projects determined by the teacher:

- Creating a magical land

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 will research an already established park such as Disney World and research retired attractions as well as those still operating
- Students will begin to research ride ideas using the Internet
- Students will research restaurants already in operation as well as those that have closed. They will then look at why some were successful and why some failed

- Students will research characters and what worked within the park
- Students will be creating a new theme park with all elements involved with a theme park.
- After land has been laid out students will then use Minecraft to create a visual map of their new land
- Students will use Scratch to create an animated short featuring their new land with characters that they will create in the program.
- Students can take one element from their land and using a 3D printer print out an element from their theme park to create an actual class 3D map

Activities to Differentiate Instruction

Enrichment Opportunities:

- Using the website provided in the resources section students will actually create a roller coaster using various loops and drops.
- Use KidPix to design rides and stands
- Use paper and pencils to draw rides and lands

Integrated/Cross-Disciplinary Instruction

- English- Students will be creating menus, advertistments and signs for their theme park
- Math- Students will be measuring areas to have proper porportions to other attractions

Resources

- http://www.learner.org/interactives/parkphysics/index.html
- http://wdi.disneycareers.com/en/about-walt-disney-imagineering/overview/
- Stop Motion Animation Kits
- Minecraft
- 3D Printer