MP4-VR, Robotis & 3D Printing

Content Area: **G&T**
Course(s): **G&T 5**
Time Period: **Marking Period 4**
Length: **MP4**
Status: **Published**

Activities

VR Activities

- Students will go through Google Expedition Adventures to give them a refresher on what Virtual Reality is and how it works.
- Students will show the 4th graders their museums with the VR goggles. They will then explain to the 4th graders with this project is about, what they will be creating and what websites/apps they will be using.

Robotis Activities

- Students will be getting a Robotis Dream II kit. With these kits, they will be building one of the designs that the Dream II is capable of completing. They are to follow all the steps to have their robot properly built. They will also be able to program it to perform tasks.

3D Printing Activities

- Students will work together to discuss a design they will create with Tinkercad.com that will help benefit the school. They will sketch out the design first, go to the website and make their design, and write a presentation as to show what their design could do for the school.

Enduring Understandings

ISTE - The International Society for Technology in Education

3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

4.a. Students engage in a cyclical design process to develop prototypes and reflect on the role that trial and error plays.

4.d. Students demonstrate perseverance when working with open-ended problems.

5.c. Students break down problems into smaller parts, identify key information and propose solutions.

Empowered Learner

Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use, and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

Innovative Designer

Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

Develop, test, and refine prototypes as part of a cyclical design process.

Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

CSTA - The Computer Science Teachers Association

1B-AP-12: Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.

1B-AP-13: Use an iterative process to plan the development of a program by including other's perspectives and considering user preferences.

1B-AP-15: Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended

1B-AP-16: Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review of program development.

1B-AP-17: Describe choices made during program development using code comments, presentations, and demonstrations.

1B-IC-18: Discuss computing technologies that have changed the world and express how those technologies influence, and are influenced by, cultural practices.

1B-IC-20: Seek diverse perspectives for the purpose of improving computational artifacts.

ISTE - The International Society for Technology in Education

3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

4.a. Students engage in a cyclical design process to develop prototypes and reflect on the role that trial and error plays.

4.c. Develop, test and refine prototypes as part of a cyclical design process.

4.d. Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

6.a. Choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

6.b. Create original works or responsibly repurpose or remix digital resources into new creations.

6.c. Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

6.d. Students publish or present content that customizes the message and medium for their intended audiences.

NGSS - Next Generation Science Standards

3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2: Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.

K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

New Jersey Students Learning Standards

W.4.4 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

W.4.8. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.

W.4.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.