A Trek along the Great Wall of China

Author: **Rosemary Herold**

Grades: **3—8**

Coding Methods: **Color Codes, OzoBlockly**

Subjects: **Math, ELA, Art, Social Studies, Engineering/Tech, Computer Science**

Robots: **Evo, Bit**

Brief Summary

Students will research and build the Great Wall of China then code the Ozobot to traverse the wall.

Pre-Reader/ESL: **No**

Required Materials

- 1 Evo or Bit Ozobot per group

Lesson Objectives

- Students will construct knowledge, applying disciplinary concepts and tools, to build deeper understanding of the world through exploration, collaboration, and analysis.
- Students will research events, topics, ideas, or concepts through multiple media, formats, and in visual, auditory, and kinesthetic modalities.
- Students will generate data by measuring length to the nearest inch, half-inch and quarter-inch and organize the data in a line plot using a horizontal scale marked off in appropriate units.
- Students will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.
- Students will demonstrate their ability to use the skill of mapping in the study of geography, students should identify and describe the properties and functions of maps; interpret maps for understanding and problem-solving; construct maps using available technology for understanding and problem-solving.
- Students will demonstrate their ability to use the skill of models and representations in the study of geography, students should identify and describe alternative methods

of displaying geospatial data; interpret and use models and representations for understanding and problem-solving; construct models and representations for understanding and problem-solving.

- Students will demonstrate an understanding of varied human cultural and economic characteristics across Earth's surface.

Preparation

Background Knowledge

(None)

Lesson Tips

(None)

Direct Instruction (Teacher Facing Instructions):

1 Begin with a quick walk through the book You Wouldn't Want to Work on the Great Wall of China!: Defenses You'd Rather Not Build.
Compile facts and questions in a KWL chart.
Use Encyclopedia Britannica, books and other resources to research Ancient China. Use the GRAPES method to cull facts and create a shared background knowledge of this great civilization.
G Government
R Religion
A Accomplishments
P Political
E Economic
S Society

You could also create a graphic organizer based on the student's interest. Prompting with the following questions if they get stuck.
Where is it located? Why is it a wonder? How did it get there (how did it form, who built it)? How long has it been there? What is its function? Any other information you find interesting or important about your country ?

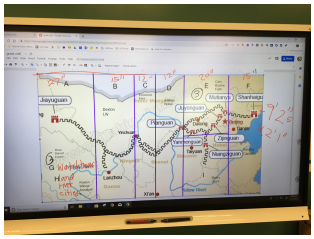
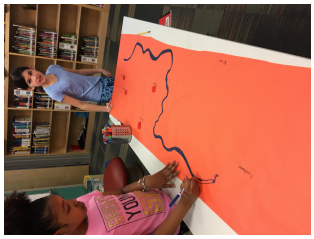
2 Invite the children to investigate further with Google Earth. The knowledge cards embedded in GEarth is another resource for fact finding. We also used google cardboard goggles to take VR trip along the Wall.
Show the children the map of the Wall. We used the image from https://www.chinahighlights.com/greatwall/map.htm to illustrate the wall, cities, landforms and distance. Students then plan for the build
Questions to pose if students get stumped might be: How many miles long is it? Are mountains present? Does it go through cities? Decide on all the landmarks you want to include in the build.
Student then create a blueprint of a rough map of the wall.

Lesson Closure (Optional)

We used flipgrid as a VLOG option throughout the entire process to gather feedback on collaboration, problems they encountered along the way, and frustration/elation. We also created a pallet called our Epic Fail Wall to encourage communication, embrace failure and crowd source solutions.

Student Practice (Student Facing Instructions):

1 Students then need to create a build of the wall. We had a limit of 9'2" length and 2'1". The children had to take the image and figure out the ratio compared to the size we were building. They then created nine teams to divide the Wall into sections to complete the team build in a timely manner. I gave them two class periods (60 min each) to do the math and complete the build. We used cardboard and glue guns as our materials. Students had to revisit the build after it was assembled into one Great Wall to troubleshoot how the ozobot would travel from section to section (level? cardboard bridging strips to connect? etc?).
Goals: Establish the wall and a solid path for the Ozobot to drive on.
Attachments:

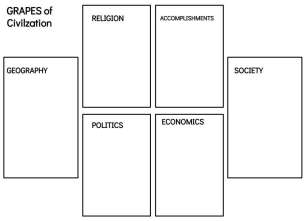




2 Once the build was complete students measured sections and used strips of paper to code the ozobot to traverse the Great Wall of China. They will have to deal with inclined plans, gravity and unlevel paths.

https://twitter.com/MsRosieLMC/status/1108442907739148293
Goals: Ozobot should be able to traverse the Great Wall

Supplements

Additional Attachments



Academic Standards

- Standard 6-2: The student will demonstrate an understanding of life in ancient civilizations and their contributions to the modern world.