

Project Outline

Math curriculum project: Elevation of UAE Sea Life

Internet resources: In small groups of 2-3, students researched sea life in the UAE and approximate elevation levels making sense in relation to their habitat living above and below sea level. Each student was responsible to research at least one noun (person, place, or thing) related to sea life such as an animal or plant native to the UAE. Students did their research at home and brought their findings (citing the websites used) to their group for the start of the visual piece of the project. Students needed to complete their research as homework as they do not have access to extra computer lab time at school beyond their IT class, due to the large volume of upper grade high school students who have priority to the lab and library on campus.

Mathematical skill emphasis: Students used elevation of UAE sea life to graph positive and negative integers on a vertical number line. They created a visual poster display of their graph showing a day at the beach and explained in writing, and then presented briefly to the teacher.

Integration into other subject areas: Science, Art, Culture, Geography, Technology, Research, Reading, Writing, and Speaking.

Lessons are attached separately using the required Um Al Arab school lesson plan template.

Project Description

We returned from our winter holiday break to complete Unit 2 of The Number System in our grade 6 math textbook by McGraw-Hill, by introducing integers and how to represent data with graphing for Chapter 5: Integers and the Coordinate Plane.

The main objective of the project was to show they understood positive and negative integers and could graph them on a vertical number line using real life examples in a fun and creative way.

The procedures for the project began with an introduction to integers from Lesson 1: Integers and Graphing, in our math text. Students reviewed the video for the lesson at bit.ly/mrscystal. This is the site we use for grade 6 math at our school created by my colleague, Crystal Rushing. I also showed a brief interactive activity with integers from Go Math online. My sister uses this curriculum as well as a friend of mine who teaches at a private school in the UAE, so I was able to explore these resources over break. I found the online resources to be very kid-friendly, hands-on, and engaging. Students then applied what they learned from the videos and direct instruction teacher modeling to the lesson in their text, practicing graphing sets of integers on number lines. At the end of the lesson, students were arranged into mixed-ability groups of 2-3 students with whom I felt they could work well enough with. They were given the project overview with the directions for research at home and shown an example anchor chart for the visual poster. In the next stage of the project in class, students worked through the investigative Inquiry Lab in their textbook related to the theme for graphing integers and transferring information to the visual poster. The anchor chart was revisited for students to be clear about the final stage of the project in creating their poster. For example, on the anchor chart poster sea level is

represented at zero in the middle of the vertical number line where the sea meets the land. This shows a girl standing at 0 and flying a kite, but her kite is flying above at positive 5 meters. Negative numbers displayed below sea level shows a scuba diver swimming at -7 meters. Other sea life is represented on the poster such as a falcon flying above sea level at 100 meters. For the final phase of the project, students brought in their researched elevation of UAE sea life to chart and graph on their own group poster. They could use the core examples on the anchor chart to help guide them, but they needed to add their own findings to make their poster unique for their group. For example, a few groups plotted the Hawksbill Turtle on their poster graph as it is native to the UAE. They needed a minimum of 2-3 of their own findings as a group, as it was assigned for each student to find at least one on their own researching at home. All groups displayed four or more examples of sea life on their poster graph representing both positive and negative elevations. Some groups chose to paste computer printed graphics to their poster and other groups enjoyed drawing and coloring their day at the beach. To culminate the project, students briefly presented their finished poster graph to the teacher. The reason why I chose to present this way was strictly due to the time factor with our pacing schedule. As students completed their project, the group came to me and explained their graph. Projects will be displayed in the classroom for all to enjoy.

For evaluation the project needed to include an accurate account of sea life in relation to elevation that made sense. For example, a falcon should be above sea level graphed as a positive integer and the Hawksbill Turtle should be graphed below sea level as a negative integer. Graphs needed to display both positive and negative integers. Sea life should be colorful and relay a day at the beach and relate to the UAE according to their research. Students needed to make a table, and chart their sea life with elevation using the words above or below sea level and positive or negative numbers that made sense. The vertical number line needed to be to scale according to the elevation numbers in their table. Most chose their scale to count by 5 or 10 so they would have enough room on their poster as well. They could draw a line from the sea life to the dot they plotted on the number line representing the positive or negative elevation in meters. The poster needed to include a title and a paragraph of writing explaining with a sentence about each sea life representation on their graph, as well as what zero represented. The back of their poster needed to cite websites used. Ten total points could be awarded for the poster graph. I also awarded points for the investigative Inquiry Lab done in their small group prior to creating their visual poster. The Inquiry Lab will be used as one the required writing tasks worth 15 points implemented by MOE, but can be teacher-chosen.

Commentary

Many parts of the project worked very well. I liked how we began with this project after returning from our winter holiday break as it was a nice way to ease students back into school routine with something motivating, creative, and fun. This was an activity for visual, kinesthetic, and second language learners to feel a level of excitement and success about math. Students enjoyed working together and being creative. Their final products were artistic, colorful, and thorough. I noticed that many of my students were really good at drawing! They liked adding extra to their poster to make it stand out. I even had groups ask to come in at lunch to work on it! They felt proud of their final product. All groups scored a 9 or 10 on their visual poster graph. Even the investigative Inquiry Lab was well done earning passing or higher marks.

The areas I would improve are providing a challenge for higher-level students or at least an enrichment piece to extend to groups who completed the task early and were eager

to do more. An idea that comes to mind is extending the graphing using the Coordinate Plane, which we will practice in lessons 6 and 7 of chapter 5. Students could also be given the opportunity to create their own theme that is something different than sea life. Students wanted to put in the most effort to their posters, thus taking more class time than anticipated. Students who still needed more time, I allowed them to finish during the warm-up time before the lesson as needed for the rest of the week.

Student feedback was positive. They enjoyed creating their poster graph and are looking forward to the classroom display.