Place Value Used in Real Life: Part 2

By: Dr. Johnson and Dr. Stiff
School: Edstar Analytics Math

What Student Will Need:
Computer, phone, or any device with internet access An account in the self-directed learning resource, connected to me as the teacher An account in the communication resource, connected to me as the teacher

Lesson Objective:
The students will understand place value, numbers in different bases and how that relates to place value, The students will also learn the history of place value and bases. Students will select from a list of topics to research and report on.

Details:
Students will use the pdf created by this lesson plan form to go through the lessons. I will provide feedback via flipgrid and monitor their self-directed learning. I'll provide feedback on the assessments. I will select a few of the recorded reports to share in Flipgrid.

Review:
Review Content Review this video that explains about patterns in binary numbers. We noted these patterns in Part 1.

Lesson Flow:
Lesson Content This is part 2 of the lesson. It explains how base 2 is used for the keyboard, screen, and devices to communicate. Youtube Version **Instructions for Student:** Watch this video to learn how computers use base 2, or binary numbers to communicate. Eight place values is called a BIT, which stands for BInary uniT. Note the vocabulary words: Pixel, Resolution, ASCII, Bitmap, Bit, and Binary. Then complete the worksheet on ASCII.
Self-Directed Resource The first worksheet has students interpret ASCII and the second has them read and write simple bitmap code, just to reinforce the ideas. Bitmap Worksheet **Instructions for Student:** Complete the ASCII and Bitmap worksheets.
Communication With Student Students will answer the prompt: Explain the relationship between the base number and place values? For example, could you have place value without having a base number? **Instructions for Student:** Go to the Flipgrid prompt. Use your Flipgrid ID, and respond to the prompt: Explain the relationship between the base number and place values? For example, could you have place value without having a base number? If you don't have an ID, use 12345.

Additional Support
Instructions for Student:
Deep Dive/Challenge **Instructions for Student:** Part 1 of this lesson included a youtube video called Binary! We pointed out that the video referred to a binary number as "one hundred" and we said this was a mistake. The author of that video had researched how to read binary numbers and there was no official consensuses. View this video to see what he learned.

Collaborate with Teachers:
Collaboration with Teachers
Assessment Tool:
Assessment Tool This is the same Khan Academy exercises practiced earlier.
Additional Links:
History of Bases and Place Value: Part 1 History of Bases and Place Value: Part 2 This is the second part of Dr. Lee Stiff's History of Place value and Number Bases. At the end he sings a parody he wrote about number bases.

Edstar Analytics