Virtual Reality

Spark your imagination as you adventure through alternative realities, games, and life-like simulations. Explore the technology, design, and programming behind virtual reality experiences.

TEKS:

TECH K-2.2D: The student is expected to select, store, and deliver products using a variety of media, formats, devices, and virtual environments.

TECH 3-5.6D: The student is expected to navigate systems and applications accessing peripherals both locally and remotely.

TECH 6.4F: The student is expected to transfer current knowledge to the learning of newly encountered technologies.

Materials:

- Smartphone
- Virtual Reality Viewers (can be purchased here)

How To:

1. Follow the manufacturer's instructions to assemble your VR viewers.
2. Prepare your smartphone to explore some virtual reality simulations using different smartphone apps.

App Option #1: Google Cardboard

1. Download the Google Cardboard app from the App Store or the Cardboard by Google app from Google Play on your smartphone.
2. Once the app is opened, Cardboard brings you through a tutorial using your viewers. Begin by scanning your viewer's barcode with your smartphone camera and following the app instructions.
3. Cardboard will then bring you on a few practice-expeditions automatically.
4. After the VR practice expeditions, the app launches its menu. The menu spans left to right, which allows you to choose functions while using your viewers. You can play games, explore more exhibits, or even launch other apps that Google suggests by choosing menu options. Have fun!

App Option #2: New York Times VR

1. Download the NYT VR – New York Times app from the App Store or the NYT VR – Virtual Reality app from Google Play on your smartphone.
2. In the app, scroll down to find the expedition titled "Seeking Pluto's Frigid Heart."
3. Press the PLAY icon then choose "Cardboard."
4. Insert your phone into your VR Viewer with the screen facing towards you.
5. After your phone is in position, the expedition on Pluto will automatically begin. (ATTENTION: The video has a narrative audio, so you may want to use headphones or turn up your volume.)
6. This app has many different virtual reality simulations so explore and have fun!

App Option #3: Expeditions by Google

1. For this expedition, you will need at least two smartphones. One phone acts as the leader (adult) without a VR viewer, and one or more phones with VR viewers can follow along.
2. Make sure all phones are connected to the same Wi-Fi.
3. Download the Expeditions by Google app from the App Store or Google Play on your smartphone. You may take the classroom tutorial if you want, or press "Skip" to continue to the expedition options.
4. LEADER PHONE: Choose the LEAD button under "Be a guide." In the search menu, type "NASA" and download the expedition titled "NASA's Modern Figures" by tapping on it.
5. FOLLOWER PHONE(S): After the leader has chosen an expedition, open the app on the second (or multiple follower phones) and select FOLLOW button under "Be an explorer." Once the "NASA's Modern Figures" expedition appears, click "join" on the expedition to view. The phone is now ready to be put into the VR viewer.
6. LEADER PHONE: You can now control what the follower phone(s) views in his/her VR viewer. To play each scene, tap the play button in the top right corner of each scene description. You can read along the information as the follower phone(s) explores the scene. Also, each menu choice in the scene description points the followers in a new direction if you tap on them. If you need to take breaks, you can always press the "pause" button in the top right corner. When you are ready to advance to a new scene, simply swipe right on your description and the next scene will appear to play.
7. Enjoy this expedition and explore others provided in the app. You can follow these instructions to view other expeditions of interest. Have fun!

STEM Explanation:

Virtual Reality is a computer-generated simulation or life-like recreational setting. The user immerses his/her senses, often with VR viewers and audio, to feel as if they are experiencing the artificial reality firsthand. VR can be used recreationally to create and explore in gaming or entertainment, or it can be used in training simulations to practice real-life scenarios, such as flight simulation for pilots. Virtual Reality uses VRML coding language to program the interaction of multiple virtual images.

Career Connection:

Computer programmers write the instructions for software programs on computers. Once software developers and engineers create design specifications for a particular program, like an app or a game, computer programmers create directions for the program that the computer can understand. They will write code (the computer language), solve problems, debug, test, and rewrite code until the program works effectively and efficiently. Some of the most common computer languages in existence include VRML, C++, and Python.

Resources:

http://www.augment.com/blog/virtual-reality-vs-augmented-reality/
https://vr.google.com/cardboard/get-cardboard/