Presenter Name: _____

Subject (Circle All That Apply): Science Technology Engineering Arts Mathematics

Grade Level (Circle All That Apply): Middle School High School Collegiate

Topic Title: HOME- A VR Spacewalk

Lesson Focus and Goals

SUBJECT OBJECTIVE:

1. Understand how an Extravehicular Activity takes place 250 miles above the surface of the planet Earth and how the robotic arms of the International Space Station (ISS) aid in the process.

JHSL OBJECTIVE:

1. Work with students to get them a hands-on experience with Virtual Reality technology in the classroom
2. Expose students to critical thinking skills in the STEM field

Texas Essential Knowledge and Skills (TEKS)

Digital Electronics: c.6.B. **Robotics:** c.4.C. **Computer Science I:** c.1.A & c.1.B.

Structure/Activity

1. **Halliburton Introduction Talk** (*approx. 5 minutes, only if not have been completed before with students*)
   Even though Halliburton is an oil and gas industry, Halliburton is also very invested in the next generation of STEM Workforce. The Javelina Halliburton STEM Labs provide the opportunities to enhance high level critical thinking and problem solving skills associated with sciences, technology, engineering, math and geosciences (STEM) to talented, first-generation, at-risk and underserved high school and undergraduate students. Halliburton provides meaningful engagement and resources for students that want to explore the engineering field.

2. **Project Introduction** (*approx. 5 minutes)*
   Students will be immersed into the 2 levels of spacewalk experience in Virtual Reality. The spacewalk experience occurs 250 miles above the earth surface, they will be able to see and experience their first Extravehicular activity to help aid the ISS in a mission.

3. **Level 1: Easy Mode** *(approx. 10 minutes)*
   This level is for beginners of the application, and the students will be asked to do a mission of capturing photograph of a damage in one of the ISS panels. This mode has less disorientation.

4. **Level 2: Astronaut mode** *(approx. 10 minutes)*
   This level has the same mission but there are high-speed movements and rotations during the mission to make the experience more intense

Learning Objective

Content Review

Students should know that…	*Students have been asked…*
● ISS performs research in space ● Astronauts are sent to aid in this research process	1. How do astronauts help the ISS in this process? 2. What is the main equipment that help astronauts in the spacewalk?

New Content

Students will know…	*Students will be able to…*
● Astronauts' vitals are monitored during Extravehicular activity ● Extra Vehicular activity can occur even without the sunlight ● Astronauts should always be tethered to a firm surface that can hold them in place in the vacuum of space ● A small debris can cause a huge impact in space	● Explain how an Extravehicular activity takes place ● Explain one of the purposes of Spacewalk ● Explain how the ISS help and guide the astronauts during a mission

Assessment

Students will be asked to complete a quick evaluation after the workshop so we can continue to improve our services.

Sources of Information:

1. HOME- A VR Spacewalk Application from Oculus Rift.