

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: \_\_\_\_\_ Wonderful You \_\_\_\_\_

### Lesson Focus and Goals

**SUBJECT OBJECTIVE:**

1. Explain the development of different senses in a human fetus while being inside the mother’s womb

**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)

**Principles of Technology; c.4.E & c.6.B. Digital Electronics; c.6.B. Computer Science I; c.1.A, c.2.C, c.2.H, & c.6.S. Computer Science II; c.4.X. Game Programming; c.1.A.**

### 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 taken inside the womb to experience how the different senses like touch, sight, hearing, smell and taste develop for a human embryo. The application lets the user imagine that they are the unborn baby shown, Hence the name of the application is ‘Wonderful You’.
3. **Level 1** (*approx. 2 mins*)

This level gives information about how the sight, which is one of the senses forms. Students will be shown on how different parts of the eye develop like optic nerve, retina, eyelids and the weeks of pregnancy in which they are formed. At the end of this level, students can shine a bright light at the fetus and see the reaction of the fetus to that light.

4. **Level 2** (approx. 4 mins)

This level provides information about the development of touch and how certain reflexes related to touch is formed. In this immersive experience, students will be able to tickle the feet and hands of the embryo to see the reaction

5. **Level 3** (approx. 2 mins)

This level explains how the sense of smell is formed and how the fetus can differentiate smells from the food the mother eats. At the end of this level, the students can trigger the sense of smell in the fetus using different smells like curry, garlic and lemon.

6. **Level 4** (approx. 3 mins)

This level immerses the user in the development of taste. It explains how the taste buds develop and how the taste ‘bitter’ is the most sensitive taste. This level also lets the user to play around with different taste reactions of the fetus.

7. **Level 5** (approx. 3 mins)

This level explains about the development of the sense of hearing. This will show the students how the fetus can start recognizing the voices outside the womb and the language spoken by his/her mother. At the end of this level, the students can play around to see the reaction of the fetus to the different sounds.

## Learning Objective

### Content Review

*Students should know that...*

- The difference between a fetus and embryo
- The average duration of pregnancy
- The unborn baby is present inside the amniotic sac within the womb of the mother

*Students have been asked...*

1. What are the 5 different senses?
2. What are neurons and how they play a crucial role in the rapid development of the embryo?

### New Content

*Students will know...*

- How can a fetus differentiate different sounds

*Students will be able to...*

- Understand the formation of different sensory organs

- How can a fetus taste different tastes in the womb
- How different organs and sensory nerves develop
- How the fetus becomes sensitive to light from outside
- What is a grasping reflex

- Tell when different parts of the fetus' body form during different weeks of pregnancy
- Understand how the unborn baby can react to different types of changes from outside the mother's womb

### 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. 'Wonderful You' from Oculus store