

# [Earth and space reflection](https://assignbuster.com/earth-and-space-reflection/)

Reflecting on our class these past few weeks, makes me realize the inadequacies of my scientific knowledge. In order to help students learn science content, teachers must have a firm grasp of the important ideas in the discipline. I fall short of my content knowledge. In part, my lack of science knowledge might be a result of my college degree plan. I took the basic sciences in high school and in college. At the time of my undergraduate degree, elementary teachers had less extensive college coursework in sciences than did my intermediate or high school counterparts. For this reflection, I am challenging myself by choosing TEK 8. 8A and 8. 8B. These two TEKS reflect new information I have processed from our class discussions and investigations.

TEK Breakdown

TEK8. 8A is a readiness standard and uses the verb “ describe” to communicate to students. The student’s expectations are to use models for classification of universal components including by not limiting stars, nebulae, and galaxies (“ Lead 4ward,” 2017). Teachers and students might also include planets, Galilean moons, asteroids, meteors, and comets. There are various ways to compare and describe these components of the universe. Some possible comparisons might be relative mass, relative size, orbiting objects that the components orbit, and objects that orbit the component (“ TEKS Resources,” 2016). In this TEK, the students will be exposed to the Hertzsprung-Russell diagram for the first time. This model will allow students to examine and investigate the relationship between brightness, surface temperature and color of the stars.

TEK 8. 8 B is a supporting standard. I chose this TEK because although I thought I had some knowledge of the Sun, I lacked important knowledge and understanding to convey to students. The verb “ recognize” will communicate that students’ expectations are to identify the Sun but also include recognizable attributes such as a medium sized star, near the edge of a disc-shaped galaxy, and many thousand miles closer to the Earth than any other star “(Lead 4ward,” 2017).

Future Learning/Past Learning

Eight grade students were exposed to TEK 6. 11A during sixth grade with an introduction to the physical properties, locations, and movements of the components of our solar system. Students also had TEK 7. 9A in seventh grade. In seventh grade students analyzed the characteristics of objects in our solar system that allowed life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere (“ Lead 4ward,” 2017). Both TEKS helps eight graders to better comprehend the present school year science TEK 8. 8A. However, students leaving eighth grade should know the universe is comprised of billions of galaxies. Each of these galaxies are comprised of billions of stars. Although these galaxies seem nothing more than fuzzy, dim spots seen through the lens of our eyes, they exist (“ TEKS Resource,” 2016). Students should also comprehend that some of these galaxies are so remote that their light takes several billion years to reach the Earth. The understanding that people on Earth see these galaxies as they existed long ago.

Types of Instruction

Students should be allowed to work in small group of 3-5 participants. This allows a safe learning environment for reflection, reasoning, discussions, and explaining. A “ graffiti writing” wall could be established at the beginning of the content study. Each day students could add new evidence of learning, and use this wall as a reference for reviewing information.

Eighth grade students have many challenging vocabulary words. Therefore, instruction is a must. Some words to consider; Universe, stars, nebulae, galaxies, Hertzsprung Russell, (HR) diagram, asteroid belt, nuclear fusion, blue giant, main sequence, luminosity, super nova, milky way, spiral, elliptical, irregular, telescope, big band theory, Hubble, etc. These words could be incorporated in a journal. Student could generate definitions and picture sketches. Also, vocabulary card sorts could be created to reinforce vocabulary acquisition.

Using a PowerPoint along with realia pictures of the universe should be shown with information pertaining to the content. PowerPoints provide great note taking opportunities for students. Students could research information such as definitions of components of the universe (stars, nebulae, galaxies) and recognize and explain the types of galaxies. This type of information could be integrated into a group PowerPoint to present to the classmates.

Using Discovery Education for videos on space, the universe, and the night sky will assist students in making connections with the content. Using provoking questions throughout the days of study would provide great student discussions about video information and content learning. A few questions to consider might be; “ What can observing stars tell us?” or “ When we look into the night sky we are actually looking in the past. How do we explain that?” Sentence stems should be used to assist students with their thinking and writing. Graphic organizers could be used for taking notes from the videos.

Scaffold Instruction

Differentiation for all whether ELLs, special education, or regular education students should be identified and specific. The incorporation of additional resources and teaching tools must be considered. One idea to be considered would be pacing. Slowing down a lesson may take longer to teach, but the end product is greater quality and the experience for the learner is much more rewarding. In small groups, reviewing standards should always be considered and individualized intervention as well. All students but especially our ELLs, should receive sheltered instructional strategies. Students should have the opportunity to incorporate their prior knowledge before beginning any lesson. Prior knowledge sets the foundation for new ideas and concepts. Pre-teaching vocabulary and using visual aids sets the students up for success. Throughout the lesson, teachers should always pause, ask questions, pause for responses, and finally a review of information. These scaffolding practices assures student’s achievement.

Personal Growth

When we started this unit of study I had many questions about the origin of theuniverseand the age of the earth. I had many questions about the components of space. As we studied these topics, I was reminded that the questions that scientists ask must be testable. Scientists have provided answers to testable questions that have helped us calculate the age of the universe, the distance of certain stars, and how fast they are receding from us. Whether we can get a definitive answer, we can be confident in theprocessby which the explanations were developed. These explanations allow us to rely on the knowledge that is produced through the process of science. I’ve come to understand that many of these scientific questions can be answered by science investigations and calculations.

Reference

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