

## Objectives

Students will understand the following:

- Proficient language skills are developed through effectively communicating, writing, reading, and presenting.
- Writing, reading, and communicating can be fun and very useful in exploring science.
- Their mission in the simulator has many aspects—both interpersonal and scientific. Understanding these aspects will help them enjoy their mission more.

The simulation is a stage and they are the actors. Although the simulations are set in science fiction and therefore not currently possible (but theoretical in many instances) with enough diligence, effort, education, and imagination, they can make science fiction a reality.

## AN INTRODUCTION TO THE SPACE CENTER

1. Ask class members:

- a. Has anyone ever heard of The Christa McAuliffe Space Education Center (or just the Space Center)? What do you know about it?

In addition to class members' answers, you may want to suggest the following:

- It was named after a teacher who wanted all students to know how exciting science is. She was one of the astronauts that died in the space shuttle Challenger explosion. The center is built in her honor and designed to make science and learning fun and exciting. (For more information on Christa McAuliffe see her biography at: [http://spaceadventures.org/aboutus/christa\\_mcauliffe.html](http://spaceadventures.org/aboutus/christa_mcauliffe.html))
- They will be going onto a set that looks like a space ship and into a setting/story that may remind them of science fiction movies or shows like Star Trek. They will be like actors on a stage with roles and costumes. They will not be asked to memorize parts; instead, each student will be trained to do one job on the ship. If everyone does their jobs well, they could have a successful mission.
- Each student will be given a different job to help the ship run and the story progress. Each job is important and requires special skills since each one of them will help determine what happens in the story.

## Preparation and Materials

For Lesson

- Read the Field Trip Planning Guide for a basic understanding of the simulators and what will be happening on the field trip.

1. Ask class members:

- a. Has anyone ever imagined that we were living in the future? What kinds of things can you imagine? Do we still have cars? Do we travel in space very often? Do we still have wars?
  - Get students to share what they've imagined and feel comfortable imagining what the future might be like.
- b. What if, in the future, school field trips were like going to the movies? Or, what if school field trips were like being in the movies? There is a place called iWorlds that also thinks school field trips should be like that.
- c. We are going to start getting ready for that field trip today. As you can imagine, getting ready to be in a movie would take some preparation; so we are going to start getting ready.
- d. You will be going onto a set that looks like a space ship and into a setting/story that may remind you of science fiction movies or shows. You will be like actors on a stage with roles and costumes. But you will not be asked to memorize parts; instead, each of you will be trained to do one job on the space ship. If everyone does their jobs well, you will have a successful mission.
  - Only the best officers are being called to go on this rescue mission because it is so dangerous. That means that Command thinks highly of you all. You must be problem solvers that can work well as a team under pressure. What kind of mistakes can people make when they are under pressure? (You may also want to explore how extreme pressure can cause a team to break apart.)
  - Command knows that good teams of officers know the situation and then when a problem arises, they use what they know, and their imaginations to figure out a solution. To be successful on this mission, we'll need to have knowledge of science and technology, but since it is a dangerous situation, you'll have to use your imagination to think of good solutions.

### Discussion Questions

1. The simulations use imaginary ships to take students into deep space. To build real ships to take humans to the stars, what kinds of problems do we need to solve? Can you think of some ways scientists can overcome these problems?
2. What might space flight be like in the future?
3. Good science and imagination will build these ships in the future. What kinds of skills does a person need to be a good scientist?
4. What kinds of skills would someone need to go on a spaceship in the future?
5. Why is it important to keep a record of your scientific thoughts and ideas?

## Extensions

### **Flight to the Future**

Have your students track their progress as they prepare to go to the Space Center simulation over the next few days. Have your students pretend they are taking a journey to the New Earth Border where their simulation will begin. Track their progress on a bulletin board. Set up a bulletin board using black paper as background. Have several students paint white dots to represent stars. In the bottom left corner place our Solar System with the planets and asteroid belt. In the top Right corner place an area of space labeled “New Earth Border.” Each day the students’ ship should get closer to the Border and the morning of their mission, the students should reach the Border. During their voyage to New Earth’s Border, students will learn more about their destination and you can add pictures to the bulletin board as needed.

### **Tales of the Future**

The stories that students enjoy at the simulators take place in the future. The future isn’t always what we think it will be. Have the students read and discuss stories about what people thought today would be like. Discuss how different today is from what some people imagined it would be only a few years ago. Following the discussion, have the students choose from one of the following activities:

- Read an old story about today (the future) or collect several examples of short stories based on what people thought the future might be like. Compare the stories with regard to scientific accuracy and what today is really like. Tell the rest of the class about it in a presentation or report.
- Watch an old movie about today (the future) or collect several examples of movies based on what people thought the future might be like. Compare them with regard to scientific accuracy and what today is really like. Tell the rest of the class about it in a presentation or report.
- Write an original short story, narrative, poem, song, script, or news article about what the future might be like in regards to space travel, technology or science.

## Suggested Readings

Christa McAuliffe’s biography at [http://spaceadventures.org/aboutus/christa\\_mcauliffe.html](http://spaceadventures.org/aboutus/christa_mcauliffe.html)

*Pale Blue Dot: a Vision of the Human Future in Space* by Carl Sagan. Although this book discusses much of human past, it also is a great introduction to what scientists currently know about the Solar System and speculations on what might be in our future from a great scientist.

## Links

Kids and the future of space [http://www.kidsastronomy.com/future\\_space\\_craft.htm](http://www.kidsastronomy.com/future_space_craft.htm)

The future of space flight <http://www.space.com/futureofflight/>

## Vocabulary

Astronaut -- a person who travels in space

Space Shuttle -- a vehicle used in space

Starbase -- a science space station in orbit of a star

Scientist -- a person who learns through a process of setting goals (hypotheses) and conducting tests to reach them (experimentation)

### Vocabulary the students will use at the simulator

Warp Engines -- a fictional way to travel through space. The word is put together with numbers 1-9 to increase speed, with 9 being the fastest. For example your student may say “We will go to warp speed. Go to warp 6”

Impulse Engines -- a fictional way to travel through Solar Systems. The speed is measured in fractional increments. For example your student may say “Go to one half impulse speed.”

Tractor Beam -- a futuristic way for space shuttles to tow objects around in space. A beam of energy shoots out of the ship and latches onto the object (like another space ship) that the space ship wants to tow. “Lock a tractor beam onto that ship.”

Phasers -- a futuristic energy gun. There is a small hand-held version that security officers use, and there is a large version attached to the space ship so students can defend themselves, and destroy asteroids that may be in their way. “Fire phasers at that asteroid.”

Photon Torpedoes -- a futuristic bomb used to destroy larger asteroids, or bigger enemies. “Fire Torpedoes.”

Transporter -- a futuristic way to transport from one place to another. The object to be transported stands in a special place and an energy beam takes their particles and moves them to a new place. This is the way students get on board the star ships, and the way they can get intruders off their star ship.

## Other Standards Also Covered

### 6<sup>th</sup> Grade Language Arts

**Standard 1**— Oral Language-Students develop language for the purpose of effectively communicating through listening, speaking, viewing, and presenting.

Objective 1—Develop language through listening and speaking

Objective 2—Develop language through viewing media and presenting

**Standard 2**—Concepts of Print-Students develop an understanding of how printed language works

**Standard 3**—Phonological and Phonemic Awareness-Students develop phonological and phonemic awareness.

**Standard 4**—Phonics and Spelling-Students use phonics and other strategies to decode and spell unfamiliar words while reading and writing.

Objective 1—Demonstrate an understanding of the relationship between letters and sounds.

Objective 2—Use knowledge of structural analysis to decode words.

Objective 3—Spell words correctly

Objective 4—Use spelling strategies to achieve accuracy (e.g., prediction, visualization, association.)

**Standard 5**—Fluency-Students develop reading fluency to read aloud grade level text effortlessly without hesitation.

Objective 1—Read aloud grade level text with appropriate speed and accuracy

Objective 2—Read aloud grade level text effortlessly.

**Standard 6**—Vocabulary-Students learn and use grade level vocabulary to increase understanding and read fluently.

Objective 1—Learn new words through listening and reading widely.

Objective 2—Use resources to learn new words by relating them to known words and/or concepts.

Objective 3—Use structural analysis and context clues to determine meanings of words.

**Standard 7**—Comprehension-Students understand, interpret, and analyze narrative and informational grade level text.

Objective 1—Identify purposes of text.

Objective 2—Apply strategies to comprehend text.

Objective 3—Recognize and use features of narrative and informational text.

**Standard 8**—Writing-Students write daily to communicate effectively for a variety of purposes and audiences.

Objective 1—Prepare to write by gathering and organizing information and ideas (pre-writing).

Objective 2—Compose a written draft.

Objective 3—Revise by elaborating and clarifying a written draft

Objective 4—Edit written draft for conventions.

Objective 5—Use fluent and legible handwriting to communicate.

Objective 6—Write in different forms and genres.

6<sup>th</sup> Grade Health Education

Standard 3: The students will understand and respect self and others related to human development and relationships.

Objective 1: Practice ways of showing respect for self and others