LESSON: Getting into the Role

Title: Getting into the Role
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Lesson Overview:

Today promises to be fun! Let's get excited about filling the different roles needed to launch the Space Shuttle!

- Launch Weather Officer
- Launch Director
- Flow Director
- Mission Payload Director
- Astronaut

Suggested Classroom Time: 60-120 minutes

Grade Levels: 6-10

KLASS Module: 1-Training

Topic/Console: KLASS Overview

Materials Needed:

Activity	Documents	Other Materials
1	http://www.wikipedia.com	Teacher computer and projection to show web resources on senses
2	http://www.nasa.gov/multimedia/podcasting/index.html PRES_Getting-into-Role.htm ACT_Getting-into-Role.doc	Handout and pencil for each student. Computer with speakers/audio controls

National Standards/Objectives:

Discipline	Standard	Objective
Science	C. Life Science	Students investigate structure and function in living systems.
Science	G. History and Nature of Science	Students explore science as a human endeavor.
Technology	Technology productivity tools	Students use technology tools to enhance learning, increase productivity, and promote creativity.

Desired Results:

Students will be able to answer these essential questions

- What will I need to know as a member of the Shuttle launch team?
- How can I record observations when information is being spoken to me or transmitted as audio only?

Students will know

- Some of the day-to-day tasks for which Shuttle launch team members are responsible.
- How to record observations via what they hear.

Students will be able to

- Record accurate observations while listening to a variety of job tasks as verbalized by some key Shuttle launch team members.

Learning Plan/Activities:

1. **Introducing the Lesson.**
   Discuss hearing as a sense and how audio may be the only information that scientists get in some situations. For launching the Shuttle, many of the team members will rely heavily on auditory communication.

   Some background information taken from Wikipedia is below:
   The nervous system has a specific sensory system, or organ, dedicated to each sense.
   *H**earing** (or **audition**) is one of the traditional five senses. It is the ability to perceive sound by detecting vibrations via an organ such as the ear. The inability to hear is called deafness.*

   In humans and other vertebrates, hearing is performed primarily by the auditory system: vibrations are detected by the ear and transduced into nerve impulses that are perceived by the brain. Like touch, audition requires sensitivity to the movement of molecules in the world outside the organism. Both hearing and touch are types of mechanosensation.[1]

   Hearing is the sense of sound perception. Since sound is vibrations propagating through a medium such as air, the detection of these vibrations, that is the sense of the hearing, is a mechanical sense akin to a sense of touch, albeit a very specialized one. In humans, this perception is executed by tiny hair fibres in the inner ear which detect the motion of a membrane which vibrates in response to changes in the pressure exerted by atmospheric particles within a range of 20 to 22000 Hz, with substantial variation between individuals.

2. **Observing and Recording.**
   Ask the class if it knows what a podcast is. Then, ask it the difference between an mp3 and an mp4. Follow up until everyone in the class seems to understand.

   Pass out ACT_Getting_in_Role.doc. Play a podcast from http://www.nasa.gov/multimedia/podcasting/index.html or the PRES_GettingIntoRole.htm (contains local copies of the multimedia files for your convenience). Have students record observations.

   Play a video with no sound, and see how much they can observe. Then play the same video with audio, and have the students record additional observations.

Assessment Evidence:

Performance Tasks

1. Being able to record observations based on sound alone is very important to many types of scientists. Writing accurate observations is an important skill that should be demonstrated by each student.

Extensions and Going Further Resources:

- Technology: Have the students visit the NASA podcast archive site and make an HTML page with associated graphics and media files of their favorite Shuttle podcasts and vodcasts.

- Have students diagram the sensory systems and describe which senses are used by an astronaut, engine engineer, or a weather officer.

- Have students record their own podcasts based on the roles they want to fill with the KLASS simulation.

- Be sure to check for student opportunities, additional educational resources and more at: http://www.nasa.gov/education