

Best Practices of Technology Integration

Title: *"To Go Where No Student Has Gone Before"*

Subject(s): ELA, Careers, Science

Intended Grade Level(s): 8th grade. This activity can be adjusted for language arts, science, technology, and careers.

Narrative:

As our community becomes more global, choosing a career becomes more challenging. In this lesson, students participate in an interactive video teleconference with the NASA Johnson Space Center. Students visit the inside of a space station module, take a video tour of Russian-built Service Module by Astronaut Bill Shepherd, visit the training facility where astronauts actually train for their missions, learn about astronaut food and eating in space, and interactively ask questions during the teleconference. Students evaluate the various career opportunities associated with NASA by pursuing questions such as, "What careers are available at NASA besides being an astronaut?"

This lesson is practical and applicable for students. Bringing the space center to the students using video conferencing quickly engages them and creates a desire to learn. This unit promotes higher-order thinking because the students are asked to gather and manipulate data to help them decide on a career choice. Using video conferencing, Internet, word processing, and finally presentation of their findings through the use of Power Point, students demonstrate their mastery of technology integration.

NOTE: Other video teleconferences are available. Guidelines for teachers are available.

Curriculum Benchmarks:

[MI.ELA.3.MS.1](#)

Integrate listening, viewing, speaking, reading, and writing skills for multiple purposes and in varied contexts. An example is using all the language arts to prepare and present a unit project on career exploration.

[MI.ELA.3.MS.3](#)

Read and write fluently, speak confidently, listen and interact appropriately, view critically, and represent creatively. Examples include reporting formally to an audience, debating issues, and interviewing

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members of the public.

Detailed Timeline:

Teachers set up the video teleconference and copy the two handouts for students. Students will need less than an hour to fill in the first handout, but once they get onto the NASA websites they may want more time. The Video Teleconference lasts about an hour. The second handout takes less than 30 minutes. Depending on your goals, you might want to have students write about their experience, as well as create a PowerPoint® presentation.

Materials/Hardware/Software :

- Video teleconference equipment,
- Power Point
- Word

Teacher Preparation:

Teachers need to:

- make arrangements for the VTC (our ISD sets it up)
- copy and distribute the handouts
- prepare students for VTC
- grade the writing
- PowerPoint® presentations (optional).

Prerequisite Student Skills :

- Before participating in the VTC, students will search on the Internet for the answers to the questions on the handout (websites are given in the teacher guidelines). This activity will be helpful because it will give students some prior knowledge about NASA before the virtual visit.

- Discuss with students what careers they think they could pursue related to the space program.

- If you want the students to do PowerPoint® presentations, they will need to know how to do PowerPoint® and have access to the computers.

Activities/Procedures:

1. It will be helpful if teachers and students are prepared for the video teleconference (VTC). A handout was provided by our ISD from NASA Johnson Space Center with hints and objectives/guidelines for teachers and study guides for students. The study guide includes research about NASA done on the Internet before the video teleconference. Before the video teleconference, prepare students by:

- a. Completing the ISS Virtual Visit Student Work Sheet provided by NASA Johnson Space Center (this will involve Internet use)
- b. Discussing VTC Guidelines (this information is provided in the materials provided by the space center - see below)

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c. Explaining how the inter-active teleconference works, emphasizing that the presenters can see the students and vice versa.

d. Establishing a list of questions students want to ask the presenter

e. Determining who will ask questions.

2. After the video teleconference, students get into career-type teams and write papers, which will be published on the Berrien County Intermediate School District website. Students will describe careers that appeal to them and respond to the challenges of the careers associated with the Johnson Space Center. Additionally, students will write about his/her VTC experience and possible career opportunities. Finally, students will make Power Point presentations relating to the VTC, career opportunities, and what they learned during the VTC.

SPECIFIC STEPS:

1. Schedule the video teleconference (VTC) and obtain the two handouts (see #2 and #4 below). In my district, this is done through our ISD.

2. Give students time before the VTC to search on the Internet for the answers to the questions on the handout. Questions include: What is NASA and what does the term "NASA" stand for? When was NASA created and what describes how NASA is supposed to operate? Each NASA center has a primary role in America's Space Program. What is the role of the Johnson Space Center? Name the seven human space flight projects that have been controlled from the Johnson Space Center. Name the sixteen countries involved with the International Space Station.

3. Prepare students for asking questions during the VTC. It might be helpful to brainstorm questions ahead of time. Decide if all students will be allowed to answer questions, or only specific students.

4. After the VTC, give students the second handout. These questions are: When completed, the International Space Station will be larger than _____. Research done on the International Space Station will determine if humans can _____. From the International Space Station, astronauts can look out into _____ and look back down on _____. The main difference between scientific research on the ground and in Earth orbit is that in orbit the pull of _____ is very small. The Neutral Buoyancy Laboratory is a large swimming pool where astronauts practice _____.

5. After participating in the VTC, give students time to get into groups to discuss all the new career opportunities they discovered. After group discussions, give students time to write about their experience and discoveries.

6. A PowerPoint® presentation may be desired; if so, allow students time to prepare and present.

Assessment/Evaluation:

- Handouts: 25 points each
- Participation points
- Publish comments and writing on website
- Writing: See chart below

WRITING

- Mature 4
- Capable 3
- Developing 2
- Emerging 1

4-Central Idea Clear and focused Creative;
3-insightful details Clear and focused
2-Basic details somewhat developed Includes some detail
Focus may shift Extraneous details
1-Little or no development
Too limited in length to show proficiency

Organization

4-Unifies the piece, reader moves easily through text
3-Organization is apparent
2-Too obviously structured, Extraneous detail Ideas lack a sense of wholeness
1-Organization is lacking or arbitrary

Use of Language/Voice

4- Word Choice Rich and precise word choice, Varied sentence structure
3-Varied sentence structure appropriate word choices, Engaging vocab
2-Limited or inappropriate vocabulary Simple sentence structure
1-Limited vocab Sentences are choppy, incomplete, or rambling

Spelling and Mechanics

4- Varied use of standard writing conventions
3-Few errors Errors may distract, but do not interfere with understanding
2-Errors make understanding difficult
1- Numerous errors, severely interferes
with understanding

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Follow-up Activities:

- Show the movie "October Sky" (rated PG).

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