LESSON: Jobs@NASA

Title: Jobs@NASA
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Lesson Overview:

This set of activities will allow your students to discover the many different types of careers at NASA. Your role is to help them visualize the variety of career choices they have in the fields of science, technology, engineering, and math (STEM). If students can align their interests and goals in the direction of a future STEM career, then they will be better able to internalize the desire to acquire STEM skills. This lesson focuses on careers at NASA and NASA's Occupational Groupings.

Suggested Classroom Time: 90 minutes

Grade Levels: 6-10

KLASS Module: 3-Career Exploration

Topic/Console: NASA Jobs

Materials Needed:

Activity	Documents	Other Materials
1	http://nasajobs.nasa.gov/jobs/occupations.htm ACT_Occupational-Groupings.doc RDG_Jobs@NASA.doc	Whiteboard/markers, writing tools, student computers with Internet connection
2	ACT_Interests-Inventory.doc ACT_Interests-Inventory.doc (completed)	Whiteboard/markers, writing tools, graph paper, rulers, or student computers with Microsoft Excel
3	AS_Scenarios.doc or MMAS_Scenario.htm KEY_Scenarios.doc	Student computers

National Standards/Objectives:

Discipline	Standard	Objective
Science	F. Science as Personal and Social Perspectives	Students learn about populations, resources, and environments.
Science	E. Science and Technology	Students develop understandings about science and technology.
Technology	Social, Ethical, and Human issues	Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.
Math	Representation	Students create and use representations to organize, record, and communicate mathematical ideas.

Desired Results:

Students will be able to answer these essential questions

- What types of jobs are filled at NASA?
- What are the qualifications for these jobs?
- Do these jobs require strong skills in math, technology, and science?
- What kinds of careers would I be good in or interested in pursuing?

Students will know

- There are many different types of jobs at NASA.
- Interests and skills can help determine the type of career, pay, and quality of life.
- While everyone has unique interests, collecting and graphing data can show group trends and differences.

Students will be able to

- Discuss many types of career paths at NASA.
- Analyze their individual skills and interests, and forecast careers at NASA they may want to pursue.
- Draw a representation of their group's interests and skills and compare the class interests with the actual distribution of NASA jobs.

Learning Plan/Activities:

1. **Introducing the Lesson.**
   Script: "Today we are going to discuss Jobs@NASA. I want everyone to close their eyes and imagine themselves in Cape Canaveral, Florida. It is 85 degrees outside with a slight breeze, but you don't notice the heat a bit. You're at the Kennedy Space Center, and you've got an important job to do! Today you will be helping to launch the Space Shuttle Endeavor. And you have seven lives in your hands. Who are you? You're part of the Mission Control, a group of highly educated and skilled men and women who safely and expertly blast 250 million tons out into orbit! What will be your part? What job will you do? And are you up to the challenge? Can the astronauts truly count on you?"

   You may need to explain what NASA is and its directorates. With the entire group, do a quick brainstorm and see how many NASA jobs the students can come up with, jotting them down on a whiteboard. After 5 minutes, break the students into several small groups (optional) and give them the *NASA Occupational Groupings* activity (ACT_Occupational-Groupings.doc). Ask the students to place each job title from your brainstormed list in the appropriate occupational grouping category. Then, have them estimate the percentage of NASA employees who fill each position.

   Script: "If there are 100 employees at NASA, how many do you think are astronauts? How many do you think are engineers? Now put an estimated percentage next to each NASA occupational grouping."

   When finished, reveal to the students the actual statistics from http://nasajobs.nasa.gov/jobs/occupations.htm and have them compare their results.

2. **Discussing Interests/Skills.**
   Have a quick discussion about careers and how some decisions students make now can help to guide them in the future. For example, a strong interest in math and science now may mean a student will pursue an advanced degree and career. Also talk about how our families can influence our career decisions. Pass

out the *Interest Inventory* activity (ACT_Interests-Inventory.doc) and request that the students fill it out quickly without their names. Collect the inventories.

Script: “I have in my hand some data, which is based on your interests and skills. How can we compile this data to show trends and projections for the types of careers you and your classmates will pursue? What types of processes can we use to tally the responses and look at our data?”

Implement the ideas by having the class help you fill in a simple chart on the whiteboard or via Excel on your presentation computer. Whether the students help you tally, or you do it for them, provide them with the data. Students should be able to chart data from items #1-3 easily, but may need help deciding where the data regarding item #4 should go. If they need a hint, remind them they can use the data from the *NASA Occupational Groupings* activity (ACT_Occupational-Groupings.doc).

The data fields could look like this:

	HS	Trade	AS or AA	Bach	Mast	PhD
Parents						
I can						
I want						

Groupings	Responses
Professional, Engineering and Scientific	
Administrative and Management	
Clerical and Administrative Support	
Technical and Medical Support	
Trades and Labor	

3. **Collecting Data and Drawing Representations.**
   Ask, “If we want to show a relationship between the data from the first 3 questions, what kind of graph can we use?” Jot down the different types of graphs the students suggest. Based on previous graphing activities/skills of your class, let them pick from a variety of graphs and ask them to use the class data to create a graph. Pass out graph paper, rulers, and any other materials they may need to continue. Those who are in a computer lab with MS Excel could use this as an Excel graphing exercise. Once the graphs have been created, have students share their graphs with the class and explain why they chose those types of graphs. Ask them to share how they applied the data from question #4. Also ask them about the relationships they found and other interpretations they can make from the data.

4. **Making Scenario-based Decisions.**
   As a self-practice or reinforcement exercise, students can either complete the scenarios as a group or as an individual quiz. Paper and multimedia versions are offered with an answer key that would allow a group discussion mediator to help the group come up with the best answers.

Assessment Evidence:

Performance Tasks

1. Collect and evaluate the *NASA Occupational Groupings* worksheets (ACT_Occupational-Groupings.doc). This shows they were actively involved with the brainstorm and they were able to categorize the jobs at NASA.
2. Assign credit for participating in the *Interest Inventory* activity (ACT_Interests-Inventory.doc), which is based on your classroom participation rubric.
3. Collect and evaluate the graphs. Give feedback on the unique ideas you heard in their informal presentations.
4. Evaluate how well students do with the Jobs@NASA scenarios in a group discussion or as individuals.

Other Evidence

1. Poll your students at the beginning of the lesson to see how many think they are NASA candidates. Ask the same question at the conclusion of the activity. If more students raise their hands after the lesson, then you have succeeded in raising the awareness and excitement for Jobs@NASA!

Extensions and Going Further Resources:

- There are several pages of information regarding NASA jobs and federal government careers at http://nasajobs.nasa.gov/jobs. Also, at http://nasa.gov, you can link directly to resources.

- Choose specific job titles and assign individuals or small groups with the task of researching the job description, requirements, salary ranges and benefits. Have students report back to the larger group with an audio/visual presentation or ask them to role play their position during a class game of “Who Am I?”

- After completing the scenarios, ask the small groups to write a few more scenarios with corresponding feedback.

- Ask the students to create a 1-year, 5-year, and 10-year plan that outlines the steps necessary for pursuing their dream Jobs@NASA.

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