

Careers in Science

Grade Level: 7 - 8

Objectives:

- Expose students to a variety of careers in science.
- Draw students' attention to the high school classes needed for each career.

National Board Standard:

Early Adolescence/Science

- Accomplished science teachers create opportunities for students to examine a variety of contexts of science, including its history, reciprocal relationship with technology, ties to mathematics and impacts on society, so students make connections across the disciplines of science and into other subject areas.

Suggested Schedule:

Day 1	45 minutes	Classified Ads (Engage)
Day 2-3	90 minutes	My Future (Explore)
Day 4	45 minutes	Prior to Webcast or Guest Speaker (Explore)
Day 5	60 minutes	Webcast or Guest Speaker (Explain)
Day 6	30 minutes	After the Webcast or Guest Speaker (Extend)
Day 7	30 minutes	Introduction to Project (Extend)
Day 8	45 minutes	Researching a Career (Extend)
Day 9 -11	135 minutes	Preparing the Project (Extend)
Day 12-13	90 minutes	Presentations of the Projects (Evaluate)
Day 14	45 minutes	Wrapping Up (Evaluate)

Materials:

- Classified ads from newspaper
- Class set of [My Future Worksheet](#)
- Bio of scientist or guest speaker
- Class set of 4 x 6 Index cards
- [Example Career Index Card](#)

Equipment:

- Blackboard, dry erase board, or overhead projector
- Computers with internet browser and connection

Facilities:

- Classroom
- Computer Lab (optional)

Preparation:

- Look at [NASA Quest's Calendar of Events](http://quest.arc.nasa.gov/calendar/index.html) to choose a webcast that you and your students would like to attend. (<http://quest.arc.nasa.gov/calendar/index.html>)
- Find a guest speaker who is in a career in science that the students would find interesting. If possible, invite a guest speaker whose occupation correlates with the science curriculum
- Make contact with the guest speaker. Ask them to provide a short bio about who they are, what they do, and how they got to where they are today. If the guest speaker does not have time to prepare a bio, ask them to provide you with the basic information. You can then type up a short bio for the students to read prior to the guest speaker's visit.

Engage

Day 1: Classified Ads (45 minutes)

1. Have students find a partner and give each pair a set of classified ads from the local newspaper.
2. Have the students look through the ads and become familiar with how they are set up. Then have the students find jobs that they would be interested in pursuing.
3. Ask each pair of students to find one or two jobs that they are most interested in.
4. Have each pair share with the class the classified ad(s) for the job(s) they found most interesting.
5. As students read these ads out loud, ask the students listening to think about what skills a person wanting this job would need.
6. Once the students are done sharing their ads, discuss the jobs described as well as the skills people wanting these jobs would need.
7. Explain to the students that they are going to be asked to think about their skills and qualities and what jobs they would be best suited for based on these. Also explain to the students that they will be learning about a variety of careers in science and what they can do now and in high school to prepare for these careers.

Explore

Day 2-3: My Future (90 minutes)

1. Give the students the worksheet titled [My Future](#).
2. Send students individually to the computers . At the computers, have the students visit <http://www.ncsu.edu/careerkey/>. At this website, the students will complete a quiz that will tell them what jobs they would be good at based on their interests and abilities.

3. Once the students get to the website, they should click on "you" and then choose "sign-in to begin". They should then enter the basic information and hit continue. Next the students should choose "take the Career Key measure" and follow the directions on the website to continue.
4. When the students get to the career key test scores, they should record the scores on their [My Future](#) worksheet and then continue to the next step of the website.
5. Once they get to the personal job options list, the students should record at least 4 - 6 jobs that are on their list for the top 2 categories on their worksheet. Have the students include the category that the jobs are under.
For example: Investigative - Microbiologist, Pharmacist, Environmental Technician, and Conservation Scientist.
6. Have the students place a star next to each job written down from the list that they are interested in learning more about.
7. Once the students have completed this activity, the student should let the next student know that the computer is available.
8. Have the students who are not at the computer answer the questions on the back of the worksheet. If they complete this activity early, have information on careers available for the students to read or browse through.
9. Once all students have completed the [My Future](#) worksheet, have the students break up into small groups and discuss the information they recorded on their worksheet.
10. Have the class come back together and lead a discussion on the activity using the following questions:
 - Were you surprised with the information provided by the computer?
 - Were the jobs that came up on your personal job options list jobs that you had thought about before?
 - Are you interested in learning more about these jobs?
 - What do you think might affect what career you pursue? Why?
 - Will you choose a career because your parents/family member/friend is in that career?
 - Will you choose a career based on the salary? Skills needed? Education needed?
11. At this point, it is important to discuss with the students that you don't expect that they know what they are going to do after high school. Explain that the purpose is to get the students thinking about what careers they find interesting, expose them to a variety of science careers, and help them see what classes they need to take at the high school level in order to be prepared for the career. *Note to teacher: You may want to discuss with students the fact that some jobs and careers have yet to be discovered.*

12. Discuss with the students the importance of learning as much as they can and taking a variety of classes so that they leave their options open for whatever career they choose to pursue after high school.

Day 4: Prior to the Webcast (45 minutes)

1. Before participating in the webcast, have the students review the bio(s) of the scientist(s) they will be talking to. See [NASA Quest's Calendar of Events](#) for links to the scientists' bios.
2. Once the students are knowledgeable about the scientist(s), discuss with the students the main goal for the webcast is to learn about different jobs in science, a typical day at work for a scientist, why he/she chose the career, scientist's educational background, and skills needed to pursue this career. *Note to teacher: It would be beneficial to write this goal on the board for students to refer to as they brainstorm questions.*
3. After students understand the main goal of the webcast, have the students work in groups of three to four students to brainstorm questions for the scientists. Have the students record the questions on notebook paper or chart paper. Then have them decide the five best questions for their group. *Note to teacher: Providing each group with large paper such as chart paper to write their questions on would help when the students are sharing their questions with the class.*
4. Have the students share the questions their group developed with the class. If possible, combine questions from different groups. This will shorten the list of questions.
5. Post these questions and have the students read them. Determine the top 5 questions that the class wants to ask during the webcast. *Note to teacher: Keep the other questions handy in case there is time during the webcast for more questions to be asked.*
6. Have students prepare index cards for information to be recorded during the webcast/guest speaker. Give each student a 4 x 6 index card. *Note to teacher: Lined or unlined index cards can be used. Colored index cards are recommended so that they stand out.*
7. On the board, draw the [Example Career Index Card](#) and then have the students fill out their index card exactly as you have drawn it. *Note to teacher: The information on the index card may change depending on the webcast/guest speaker. Review the information for the index card and make any necessary changes.*

OR Prior to the Guest Speaker (45 minutes)

1. Before the guest speaker visits, have the students review the speaker's bio that he/she has provided.
2. Once the students are knowledgeable about the speaker, discuss with the students the main goal of guest speaker's visit. The guest speaker will describe a typical day at work, why he/she chose the career, educational background, and skills needed to pursue the career. *Note to teacher: It would be beneficial to write this goal on the board for students to refer to as they brainstorm questions.*
3. After students understand the main goal of the guest speaker, have the students work individually to brainstorm questions that they would like to ask the speaker. The students should record these questions on notebook paper.
4. Once the students have developed their own questions, have them break up into groups of 3-4 students. In these groups, each student should share his/her questions. The group should listen and help modify the questions if needed.
5. Have the students then share some of their questions with the class. Once the students have had time to share, have each student number the questions on their paper in order of importance. Have the students hold onto their list of questions until the next day.
6. Have students prepare index cards for information to be recorded during the webcast/guest speaker. Give each student a 4 x 6 index card. *Note to teacher: Lined or unlined index cards can be used. Colored index cards are recommended so that they stand out.*
7. On the board, draw the [Example Career Index Card](#) and then have the students fill out their index card exactly as you have drawn it. *Note to teacher: The information on the index card may change depending on the webcast/guest speaker. Review the information for the index card and make any necessary changes.*
8. Choose one student to introduce the guest speaker and provide a brief summary of his/her work. This student should review the bio of the speaker and write a few sentences about highlights of the speaker's bio for the next day.

Explain

Day 5: Attending a Webcast (60 minutes)

1. Discuss with students the rules for participating in a webcast. Be sure to discuss the fact that the students should be courteous and keep their questions focused on the topics related to the scientist's background.
2. Divide the students into groups of 3-4 students. Have each group go to a computer and get on to [NASA Quest's website](#).

Note to teacher: If you have one computer available with LCD or TV monitor connection, the have the students take turns submitting questions.

3. Choose one person in each group to make a brief introduction and submit the questions.
4. Attend the webcast on _____. See [NASA Quest's Calendar of Events](http://quest.arc.nasa.gov/calendar/year/index.html) at <http://quest.arc.nasa.gov/calendar/year/index.html>.
5. To keep students engaged during the webcast, have the students prepare follow-up questions that relate to an answer given by the scientist. Also have the students fill in the information for their Career Index Card.
6. At the end of the chat, have the students thank the expert and acknowledge the moderator.

OR Having a Guest Speaker Visit (60 minutes)

1. Discuss with the students the need to be attentive listeners. Remind students of the goal and to ask questions that are related to the goal.
2. Once the guest speaker arrives, ask the student volunteer to come to the front of the classroom. He/she will then introduce the guest speaker and provide a few highlights of information from the speaker's bio.
3. The format for the guest speaker will be that he/she spends the first 15-20 minutes describing a typical day at work, why he/she chose the career, high school and college classes needed in preparation for his/her career, and what degree(s) he/she has.
4. The last 15-20 minutes will be the students asking the questions they prepared as well as others that they develop during the presentation.
5. To keep students engaged during the presentation, have the students fill in their Career Index Card.
6. At the end of the presentation, have the students thank the speaker. *Note to teacher: If possible, have the speaker stay for lunch with the students. This would allow the students to have more personal contact with a scientist and ask questions they may have come up with as a result of the presentation.*

Extend

Day 6: After the Webcast/Guest Speaker (30 minutes)

1. Have the students discuss the information they recorded on their Career Index Card. After this discussion, all students should have their card filled out completely.

Note to teacher: If a speaker did not cover one of the topics written on the Career Index Card, as a class modify the beginning statement and add in other information.

2. Have a discussion with the students about the activity on the previous day whether it was a webcast or guest speaker. Ask the students :
 - what new information they learned
 - what they found to be most interesting
 - what connections they saw between school subjects and work in the real world
 - what steps one needs to take to prepare for this job
 - what skills or abilities one might need to do this job
 - whether they would like to have a career in this field
 - what ways they were like the scientist.

Day 7: Introduction to Project (30 minutes)

1. Once students have attended a webcast and/or had one guest speaker, have the students prepare a project on the skills needed to pursue a career in science. Their final project will be in the form of a brochure, storybook, or PowerPoint presentation.
2. Have the students break up into pairs. *Note to teacher: Breaking the students up into pairs based on common interests in careers would be very helpful for this project.*
3. Explain to students that they are going to choose a career in science that they are interested in. One of the students in the pair should have some real interest in the career chosen.

Day 8: Researching a Career (45 minutes)

1. After the students choose a career, have them spend time researching the career using books, magazines, the internet, and people around them. This research should focus on what a person in the career chosen does, what their educational background is, and what skills are needed in this career.

Day 9 - 11: Preparing the Project (135 minutes)

1. Once the students have spent time researching, they should decide whether their project will be a brochure, storybook, or PowerPoint. The students will then need to choose which grade they would like to pursue based on the amount of work they would like to do. *Note to teacher: Modify the projects listed below as you see fit for your students.*

- Brochure
 - A = 4 pages with 3 illustrations
 - B = 3 pages with 2 illustrations
 - C = 2 pages with 1 illustration
- Storybook
 - A = 4 page story with 3 illustrations
 - B = 3 page story with 2 illustrations

C = 2 page story with 1 illustration

- PowerPoint Presentation
 - A = 5 slide presentation with text and picture
 - B = 4 slide presentation with text
 - C = 3 slide presentation with text

2. Students should then prepare their projects. For their projects, the students should explain briefly what a person in the career they have chosen does and what education is needed. Explain to students that they should focus on what skills a person in the career would need. Ask the students to think about basic skills needed such as good communication skills as well as very specific skills needed such as using a microscope.
3. The students should spend time first brainstorming how they would like to set up their project, and they should then sketch out how they want the project to look and what information will be presented and where.
4. After this has been decided, it would be a great idea to have the students share their ideas with you. You could make it a requirement that they have to get their idea approved before moving on to make the final project.
5. The students should then work on their final project. Explain to them that they should keep in mind the requirements of the project they have chosen as well as including good information, using correct grammar, and being neat and creative.

Evaluate

Day 12-13: Presentations (90 minutes)

1. Have students perform/present their projects to the class and then turn in their projects.
2. Evaluate the students' presentations. In order to receive the grade that the students decided to pursue at the beginning of the project, the project should meet or exceed the requirements, include good information, use correct grammar, and be neat and creative.

Day 14: Wrapping Up (45 minutes)

1. Have the students put all of their Career Index Cards together. It is a great idea to put a hole in the top left-hand corner of all of the cards, and then tie these cards together with string/yarn. This way the students have all of the career information they learned in one place.
2. At the end of the year, lead a discussion with the students on what they learned during the year about careers, what they found most beneficial, and what could be improved for next year.