Sally Ride Science/NSTA Web Seminar:

From Astrobiology to Zoology: Igniting Students’ Interests in Science Careers

Dr. Karen Flammer, Sally Ride Science

Thursday, November 1, 2007
Encouraging interest in science has never been more important

- In the 4th grade, two thirds of boys and girls like science.

- Too many students do not know what scientists do or who they are.

- Many students do not see the relevance of science, or connect it to the real world.
Encouraging interest in science has never been more important

- Science plays a greater role in our lives than ever before.
- Students who have a solid background in science are prepared for a wide variety of opportunities.
- Science improves and grows only through the contributions of diverse perspectives.
Sally Ride Science
http://sallyridescience.com
Getting Students Excited About Careers In:

- Environmental Sciences
- Space Sciences
- Health Sciences
- Earth Sciences
Possible Careers in Environmental Sciences

- Climate Scientist
- Marine Biologist
- Forest Ecologist
- Building Physicist
- Geologist
- Environmental Mapper
- Materials Scientist
- Environmental Reporter
- Wildlife Officer
- Microbiologist
- Environmental Policy Expert

What Are Other Careers in Environmental Sciences?
What Are Other Careers in Environmental Sciences?

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A marine biologist studies the plants, animals, and microbes that live in water ecosystems. Sylvia dives and documents life undersea, and shares her research through books, lectures, and films. Other marine biologists

• track whales from Alaska to Hawaii.
• examine bacteria under microscopes.
• work at aquariums.
• protect coral reefs from destruction.

About You

As a girl, Sylvia loved playing with horseshoe crabs on the beach, even though adults told her they were dangerous. “That gave me self-confidence about trusting my own observations. And that’s one of the first marks of being a scientist.” What makes you a good scientist?
<table>
<thead>
<tr>
<th>Statement</th>
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<tbody>
<tr>
<td>Paper, toothpaste, and ice cream contain seaweed.</td>
<td>TRUE</td>
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<tr>
<td>The ocean contains 90 percent of all living species.</td>
<td>TRUE</td>
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<tr>
<td>Ocean plants produce most of the oxygen in the air.</td>
<td>TRUE</td>
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<tr>
<td>Some fish can change their sex.</td>
<td>TRUE</td>
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Careers in Environmental Sciences
About Me…

*I would like to study the environment using*

<table>
<thead>
<tr>
<th>Microscopes</th>
<th>Computers</th>
<th>Binoculars</th>
<th>Satellites</th>
<th>Submersibles</th>
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Careers in Environmental Sciences

About Me…

*I would like to visit*

| The jungle | The ocean floor | The North Pole | The eye of a typhoon | India |
Careers in Environmental Sciences

About Me…

I would like a job where I can

<table>
<thead>
<tr>
<th>Protect animals</th>
<th>Report for a newspaper</th>
<th>Explore the world</th>
<th>Design efficient cars and buildings</th>
<th>Teach people to protect Earth</th>
</tr>
</thead>
</table>
Possible Careers in Space Sciences

- Astrobiologist
- Astronaut
- Astronomer
- Astrophysicist
- Communications Engineer
- Geologist
- Planetarium Director
- Plant Physiologist
- Space Reporter
- Systems Engineer
- Volcanologist

What Are Other Careers in Space Sciences?
## What Are Other Careers in Space Sciences?

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</table>
An astrophysicist investigates the Universe and tries to understand how it works. Geoff searches for planets orbiting other stars. Other astrophysicists
★ study how stars are born.
★ use computers to simulate the origins of the Universe.
★ observe faraway galaxies.
★ hunt for comets and large asteroids.

About You
As a kid, Geoff searched the night sky for constellations. Which constellations have you seen?
What aspect of being an astrophysicist would you most like?

A. Using powerful telescopes to look at stars and planets

B. Learning about how the Universe works

C. Discovering new galaxies

D. Searching for life on other planets in our solar system
Possible Careers in Health Sciences

• Biochemist
• Epidemiologist
• Medical Illustrator
• Medical Reporter
• Neurobiologist
• Nutritionist
• Obstetrician
• Orthotist
• Pediatric Neurosurgeon
• Physical Therapist
• Professor of Public Heath

What Are Other Careers in Health Sciences?
What Are Other Careers in Health Sciences?

1.

2.

3.

4.

5.

6.
An orthotist builds braces and other supportive equipment for the body. Ralph helps injured soldiers to move more easily. Orthotists also

* design braces for people with neck or wrist injuries, including carpal tunnel syndrome.
* build footwear for people with foot injuries or deformities.
* outfit children with cerebral palsy or scoliosis with spinal braces.

About You

Growing up, Ralph liked to fix and build things. He took after his dad who was an airplane mechanic. He also took after his mother, who helped others as a nurse. What are some of the things you like to do? Whom do you like to help?

___________________________

___________________________

___________________________
What aspect of being an **orthotist** would you most like?

A. Using high-tech equipment

B. Helping injured people to recover their ability to move again

C. Designing artificial body parts

D. Educating the public about prosthetic and orthotic devices
**Careers in Health Sciences**

**About Me…**

*I think it would be cool to work*

<table>
<thead>
<tr>
<th>In a hospital</th>
<th>At a disaster relief center</th>
<th>Inside a research lab</th>
<th>At an athletic training center</th>
<th>In an operating room</th>
</tr>
</thead>
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</tbody>
</table>
# Careers in Health Sciences

## About Me…

*I would like a job where I can*

<table>
<thead>
<tr>
<th>Perform surgeries</th>
<th>Draw pictures of the body</th>
<th>Write about medical discoveries</th>
<th>Help people to become healthier</th>
<th>Make sure that food and medicines are safe</th>
</tr>
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<tbody>
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</table>
Possible Careers in Earth Sciences

- Atmospheric Chemist
- Civil Engineer
- Computational Physicist
- Earthquake Seismologist
- Geochemist
- Geographer
- Geophysicist
- Meteorologist
- Paleoclimatologist
- Science writer
- Volcanologist

What Are Other Careers in Earth Sciences?
What Are Other Careers in Earth Sciences?

1. 
2. 
3. 
4. 
5. 
6. 
A geographer studies the locations of Earth’s features and how people affect and are affected by them. Dawn maps the ocean floor. Other geographers

★ protect wildlife by managing coastal zones.
★ plan the use of water.
★ lead outdoor expeditions.
★ help developers predict environmental impact.
★ guide toxic waste disposal.

About You

Dawn writes computer software that draws maps. What do you use computers for?
Are These Statements TRUE or FALSE?

What geographers know…

<table>
<thead>
<tr>
<th>Statement</th>
<th>True/False</th>
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</thead>
<tbody>
<tr>
<td>In the last 200 years, CO$_2$ in Earth’s atmosphere has increased 30 percent.</td>
<td>True</td>
</tr>
<tr>
<td>The largest hazardous waste landfill is in Alabama.</td>
<td>True</td>
</tr>
<tr>
<td>The city of Mendoza is in Chile.</td>
<td>True</td>
</tr>
<tr>
<td>The 1906 earthquake in San Francisco was the largest in our nation’s history.</td>
<td>False</td>
</tr>
</tbody>
</table>
Careers in Earth Sciences
About Me…

*I would like to visit*

| An active volcano | The seafloor | The eye of a hurricane | The Himalayan Mountains | Space |
Careers in Earth Sciences

About Me…

I would like a job where I can

<table>
<thead>
<tr>
<th>Dive in a submarine</th>
<th>Break open rocks</th>
<th>Take samples of the atmosphere</th>
<th>Work in faraway places</th>
<th>Work in a lab</th>
</tr>
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</table>
Link activities to careers

Create a chart of skills and add career possibilities for each skill.

<table>
<thead>
<tr>
<th>Skill/Activity</th>
<th>Career</th>
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</thead>
<tbody>
<tr>
<td>tracks whales from Alaska to Hawaii</td>
<td>marine biologist</td>
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<td>uses computers to simulate the origins of the Universe</td>
<td>astrophysicist</td>
</tr>
<tr>
<td>builds footwear for people with foot injuries</td>
<td>orthotist</td>
</tr>
<tr>
<td>helps developers predict environmental impact</td>
<td>geographer</td>
</tr>
</tbody>
</table>
Interview Scientists

Create a list of interview questions.

1. What did you want to be as a child?
2. What is the best part about your career?
3. What skills do you use?

Think of more questions.....
Interview Scientists

How to find scientists to interview?

1. Contact department of public relations at local universities, colleges or junior colleges

2. Contact local science museums, observatories, aquaria

3. Contact national science organizations (google "science organizations" to get a comprehensive list by discipline)

Other strategies?
Thank You

Sally Ride Science

http://sallyridescience.com
http://www.elluminate.com
Welcome to The NSTA Learning Center

Get the Help, When You Need It

NSTA developed the Learning Center as a professional development website to help address your classroom needs and busy schedule. Using this site, you can gain access to more than 1,200 different resources and opportunities, such as:

- Over 1,000 NSTA Journal articles (230 of them available FREE of charge)—many containing high-quality lesson plans.
- More than 35 FREE Science Objects (one- to two-hour interactive simulation-based learning experiences).
- More than 125 e-chapters from selected books and series (40 chapters FREE of charge).
- FREE weekly live Web Seminars where you can interact with experts from NASA, NOAA, FDA, NSF, and the NSDL Community.
- More then 20 SciGuides (A resource to help teachers integrate the internet into the classroom).

PLUS: NSTA has also developed a suite of practical tools called My Library, My Notepad, and My Transcript. Use these tools to organize, personalize, and document your professional growth within the Learning Center.

More...
National Science Teachers Association
Gerry Wheeler, Executive Director
Frank Owens, Associate Executive Director
Conferences and Programs
Al Byers, Assistant Executive Director e-Learning

NSTA Web Seminars
Flavio Mendez, Director
Jeff Layman, Technical Coordinator

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