NSTA Web Seminar:

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

Dr. Karen Flammer, Sally Ride Science

Thursday, October 25, 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.
Is this statement TRUE or FALSE?

Of the 20 fastest growing professions, 17 are health- and science-related.
What does a scientist look like?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
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</thead>
</table>
What does a scientist look like?

Stephanie C.

By Nicole W.
What does a scientist look like?

By Serena M.

By Maddy B.
What does a scientist look like?

By Sarah G-H.

By Taylor J.
What does a scientist look like?

By Caroline S.
What does a scientist look like?

Young people have an image of scientists as eccentric old men with wild hair, smoking cigars, deep in thought, alone. Basically, they think of Einstein.

We need to change that image and give our children a much richer, nuanced view of who scientists are, what scientists do, and how they work.

Jacqueline Eccles, 2005
Sally Ride Science
http://sallyridescience.com
Who could they be drawing?

Susan Solomon
atmospheric chemist
led the team that
discovered the ozone hole

Oksana Wall
civil engineer
designs amusement rides
How do we get students from

By Nicole Y.
WHAT DO YOU WANT TO BE?

Here are just a few of the science careers you could choose from.

Aerodynamicist  Geophysicist  Limnologist
Aerospace Biomedical Engineer  Marine Biologist
Aerospace Engineer  Marine Geophysicist
Astrobiologist  Materials Engineer
Astronaut  Materials Scientist
Astronomer  Mechanical Engineer
Astrophysicist  Medical Illustrator
Atmospheric Chemist  Meteorologist
Aviation Safety Engineer  Microbiologist
Behavioral Biologist  Mission Designer
Biochemist  Navigation Engineer
Botanist  Neurobiologist
Building Physicist  Neuroengineer
Chemical Engineer  Nutritionist
Civil Engineer  Obstetrician
Civil Systems Engineer  Oceanographer
Climate Scientist  Orthotist
Communications Engineer  Paleoclimatologist
Computational Physicist  Pediatric Neurosurgeon
Computer Graphics Engineer  Physical Therapist
Design Engineer  Planetarium Director
Earthquake Seismologist  Planetary Scientist
Ecologist  Plant Physiologist
Electrical Engineer  Professor of Public Health
Entomologist  Psychologist
Environmental Engineer  Robotics Engineer
Environmental Mapper  Science Writer
Environmental Reporter  Software Engineer
Epidemiologist  Soil Engineer
Flavor Chemist  Space Historian
Food Scientist  Space Reporter
Forensic Pathologist  Systems Engineer
Forest Ecologist  Transportation Engineer
Inventor  Veterinarian
Geneticist  Veterinary Geneticist
Geochemist  Volcanologist
Geographer  Wildlife Officer
Geologist

Add to the list:

1.

2.

3.

4.

5.

6.
IGNITING INTEREST IN SCIENCE

MAP OUT YOUR FUTURE

UNDERSTAND THE WIDE VARIETY OF SCIENCE CAREERS

KNOW YOURSELF

ACQUAINT YOURSELF WITH SCIENTISTS
• all kinds of careers
• all levels of education (2-year to Ph.D.)
• combine interests (art and biology)
• all kinds of careers
• all levels of education (2-year to Ph.D.)
• combine interests (art and biology)

• all walks of life
• many paths
• interesting, vibrant, normal people
IGNITING INTEREST IN SCIENCE

- all kinds of careers
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• interests
• strengths
• values
• dreams

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ACQUAINT YOURSELF WITH SCIENTISTS
• all kinds of careers
• all levels of education (2-year to Ph.D.)
• combine interests (art and biology)

• what’s your goal?
• what classes prepare you?
• what college major matches your goal?

• interests
• strengths
• values
• dreams

• all walks of life
• many paths
• interesting, vibrant, normal people

UNDERSTAND THE WIDE VARIETY OF SCIENCE CAREERS

IGNITING INTEREST IN SCIENCE

MAP OUT YOUR FUTURE

KNOW YOURSELF

ACQUAINT YOURSELF WITH SCIENTISTS
Know yourself

What can educators do?

• Help students match their interests to careers

• Help students get to know themselves better
  Strengths
  Values
  Interests
  Dreams
What are you like?

- Attitude
- Personal Style
- Social Style
- Work Habits
### WHAT ARE YOU LIKE?

*Circle 5-7 of your personal qualities.*

<table>
<thead>
<tr>
<th><strong>Attitude</strong></th>
<th><strong>Social Style</strong></th>
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<tr>
<td>Positive</td>
<td>Humorous</td>
</tr>
<tr>
<td>Doer</td>
<td>Tactful</td>
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<tr>
<td>Straight forward</td>
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<td>Competitive</td>
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<th><strong>Personal Style</strong></th>
<th><strong>Work Habits</strong></th>
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<tr>
<td>Motivated</td>
<td>Dependable</td>
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<tr>
<td>Energetic</td>
<td>Resourceful</td>
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<tr>
<td>Independent</td>
<td>Detail oriented</td>
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<tr>
<td>Responsible</td>
<td>Take initiative</td>
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<tr>
<td>Persevering</td>
<td>Decisive</td>
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<tr>
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<td>Risk taking</td>
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<tr>
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What are you like?

**Attitude**

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WHAT ARE YOUR STRENGTHS?

Many skills that you use every day are important skills for many different careers.

Underline your skills. Then circle the top 10 underlined skills you would most enjoy using.

<table>
<thead>
<tr>
<th>Communication</th>
<th>Teamwork</th>
<th>Investigate</th>
<th>Service to Others</th>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write</td>
<td>Solve problems</td>
<td>Communicate ideas</td>
<td>Social skills</td>
<td>Build</td>
</tr>
<tr>
<td>Edit</td>
<td>Time management</td>
<td>Analyze ideas</td>
<td>Listening</td>
<td>Construct</td>
</tr>
<tr>
<td>Summarize</td>
<td>Make decisions</td>
<td>Analyze data</td>
<td>Working in a group</td>
<td>Invent</td>
</tr>
<tr>
<td>Verbal communication</td>
<td>Meet deadlines</td>
<td>Research</td>
<td>Sensitivity to others</td>
<td>Operate equipment</td>
</tr>
<tr>
<td>Listen</td>
<td>Motivate</td>
<td>Read for information</td>
<td>Empathize</td>
<td>Repair</td>
</tr>
<tr>
<td>Lead discussion</td>
<td>Recruit</td>
<td>Interview for information</td>
<td>Social activism</td>
<td>Use physical coordination</td>
</tr>
<tr>
<td>Teach</td>
<td>Resolve conflicts</td>
<td>Gather data</td>
<td>Use intuition</td>
<td>Participate in sports</td>
</tr>
<tr>
<td>Train</td>
<td>Initiate projects</td>
<td>Evaluate</td>
<td>Coach</td>
<td>Dance</td>
</tr>
<tr>
<td>Sell</td>
<td>Organize</td>
<td>Summarize information</td>
<td>Provide care</td>
<td></td>
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<tr>
<td>Promote</td>
<td>Coordinate</td>
<td>Observe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use languages</td>
<td>Handle logistics</td>
<td>Outline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview</td>
<td>Put theory into practice</td>
<td>Formulate hypotheses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ask questions</td>
<td>Delegate</td>
<td>Develop theory</td>
<td></td>
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</tr>
<tr>
<td>Make presentations</td>
<td>Give directions</td>
<td>Calculate/compare</td>
<td></td>
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<tr>
<td>Debate</td>
<td>Assume responsibility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Think on your feet</td>
<td>Determine rules</td>
<td></td>
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</tr>
<tr>
<td>Carry on conversations</td>
<td>Set priorities</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Entertain, perform</td>
<td>Strategize</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deal with public</td>
<td>Planning and Design</td>
<td></td>
<td></td>
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<tr>
<td>Public speaking</td>
<td>Anticipate problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create art</td>
<td>Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humor</td>
<td>Display</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing Information</td>
<td>Layout/format</td>
<td></td>
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<tr>
<td>Using the Computer</td>
<td>Design programs</td>
<td></td>
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<tr>
<td>Math skills</td>
<td>Anticipate consequences</td>
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<tr>
<td>Organize information</td>
<td>Brainstorm new ideas</td>
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<tr>
<td>Manage information</td>
<td>Think visually</td>
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<tr>
<td>Keep records</td>
<td>Improvise</td>
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<tr>
<td>Attend to details</td>
<td>Compose</td>
<td></td>
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<tr>
<td>Logical ability</td>
<td>Create images</td>
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<td>Categorize</td>
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NSTA WEB SEMINARS
WHAT’S MOST IMPORTANT TO YOU?

Circle the 10 top values most important in your life and in a career.

**Work Environment**
- Flexibility
- Deadline pressure
- Surroundings
- Time freedom
- High earnings
- Action, fast pace
- Structure
- Relaxed pace
- Location
- Public contact

**Personal Values**
- Integrity
- Prestige
- Achievement
- Respect
- Responsibility
- Power
- Influence
- Appreciation
- Helping
- Belonging
- Equality
- Independence
- Contributing

**Work Relationships**
- Teamwork
- Trust
- Cultural identity
- Caring
- Competition
- Cooperation
- Humor
- Harmony
- Independence
- Open communication

**Work Content**
- Challenge
- Leading
- Competence
- Risk
- Leading edge
- Detail oriented
- Social activism
- Learning
- Excellence
- Creativity
- Variety
- Growth
- Knowledge
- Adventure
HOW DO YOU LIKE TO WORK?

Mark the point on each line below where you see yourself. Try to resist choosing the middle and take a stand.

on a team
- 3 - 2 - 1 - 0 - 1 - 2 - 3
by yourself, or one-on-one

reading, analyzing
information, mostly on a
computer
- 3 - 2 - 1 - 0 - 1 - 2 - 3
brainstorming or
analyzing with people

practical, concrete
problems
- 3 - 2 - 1 - 0 - 1 - 2 - 3
complex, theoretical
ones

short-term assignments
- 3 - 2 - 1 - 0 - 1 - 2 - 3
long-term projects

play it safe
- 3 - 2 - 1 - 0 - 1 - 2 - 3
take risks

NSTA WEB SEMINARS
How do you like to work?

<table>
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<tr>
<th>3</th>
<th>2</th>
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- **reading, analyzing information, mostly on a computer**
- **brainstorming or analyzing with people**
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practical, concrete problems

complex, theoretical ones

How do you like to work?
How do you like to work?

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**short-term assignments**

**long-term projects**
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play it safe

take risks
CLUES ABOUT YOU

1. What subjects fascinate you?

2. What is your dream career? You can name two or three.

3. What do you naturally do well?

4. What local, national, or world issues interest you?

5. What is the most satisfying thing you ever did?

6. If you knew you couldn’t fail, what would you most like to do?
Map out your future

What can educators do?

*Guide students as they think about their goals and map out their paths*

- classes
- extracurricular activities
- college majors
Map out your future

Map out your past and your future—in ANY way you'd like. Here are some ideas to get you started.

You might want to include:
- Hobbies
- Sports
- Math classes
- Science classes
- Personal goals
- Things you want to work on

Ways you might want to fill in your timeline:
- Write
- Draw
- Paste photos
- Use icons

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<th>WHEN I WAS YOUNGER:</th>
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<th>HIGH SCHOOL:</th>
<th>COLLEGE &amp; GRADUATE SCHOOL:</th>
<th>MY CAREER:</th>
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**Example: Carolyn Porco**

4 kids named after the Beatles

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<th>MY CAREER:</th>
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</thead>
<tbody>
<tr>
<td>4 kids named after the Beatles</td>
<td>Loved science; played the guitar</td>
<td>Saw Saturn through a telescope</td>
<td>Physics and Astronomy; studied Saturn’s rings</td>
<td>Space Science Institute</td>
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What about you?

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**NSTA WEB SEMINARS**
“It is important to help students--particularly girls--feel like they belong in science and help them connect to the scientific community.”

Sally Ride
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 than 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.

Learn More.

http://learningcenter.nsta.org
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

LIVE INTERACTIVE LEARNING @ YOUR DESKTOP