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# How to:

## *Science Education and Outreach*

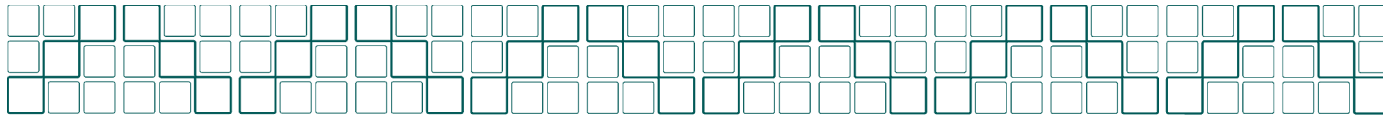
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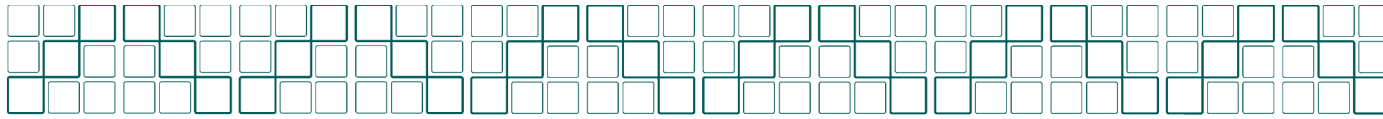


NATIONAL INSTITUTES OF HEALTH



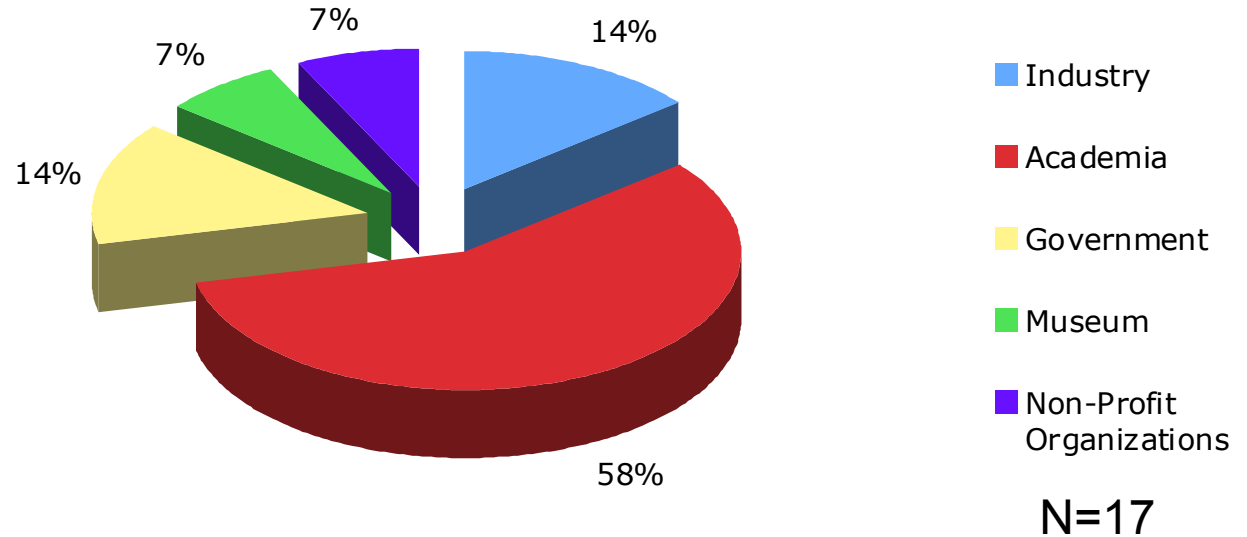
# What does this entail?

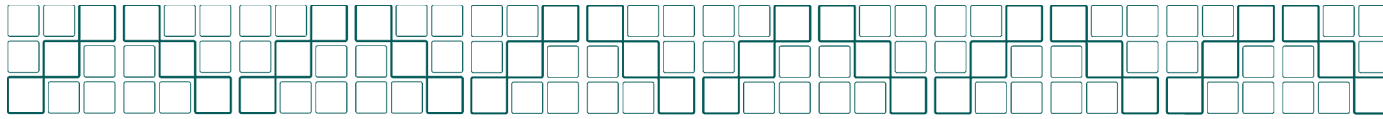
- Teaching
- Curriculum development
- Demonstrations
- Educational materials
- Leveraging diversity
- Program management (science fair)
- Student advising
- Student/postdoc services



# Where are the jobs

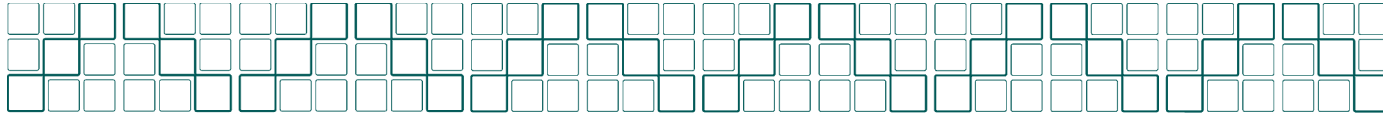
- Academia (K-16+)
- Zoos/Museums
- Industry
- Extension
- Government
- Non-profit
- Entrepreneurial





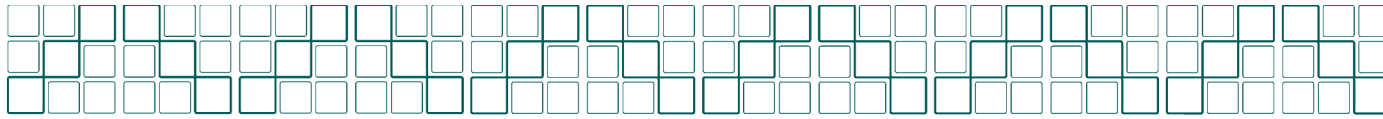
# What are the jobs called?

- Program/Projects
  - Director
  - Manager
  - Analyst
  - Coordinator
  - Specialist
- Career Development
- Outreach Specialist
- Education and Community Involvement Specialist
- Curriculum development
- Educator
- Grants program manager
- Outreach coordinator
- Teacher/Instructor



# Requirements

- Science Knowledge
- Knowledge of Education/Outreach
- People Skills
- Communication
  - Written and Verbal
- Analytical
- Project/Time Management

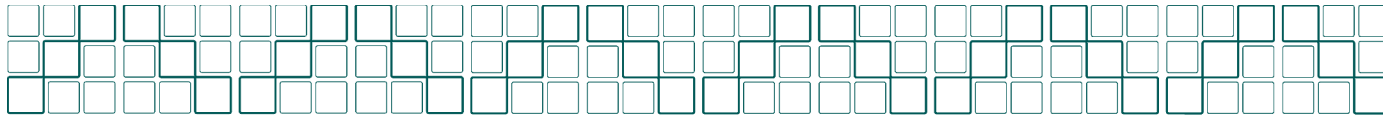


# Knowledge of science

## Broad science background

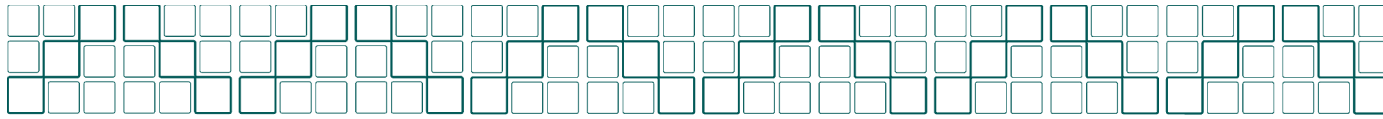
### How to prepare yourself:

- Mentor a summer student
- Give as many presentations as you can
- Read widely
- Keep abreast of the latest scientific and technological developments
- Attend seminars, journal clubs, conferences, etc.
- Know and talk to the experts in the fields
- Learn from the expertise and experience from others
  
- Note here your science will really be focused on topics interested to a BROAD audience, so the level of detail you will need is very different.



# Knowledge of education/outreach

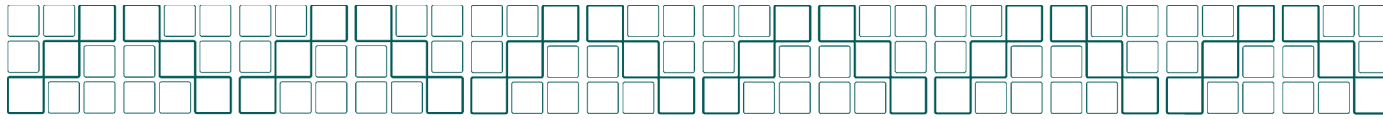
- Proven record of teaching and/or outreach
  - Develop curriculum, deliver topics, engage/control students
- Experience teaching to broad audiences
  - How to create a workshop for kindergarten vs. high school
- **How to prepare yourself:**
  - Mentor a summer student
  - Teaching coursework
  - Teach classes
    - community college, high school, undergraduate
  - Do outreach
    - judge science fairs, join National Lab Day, Schools Without Walls, zoo/museums
  - Develop educational materials
  - Get teacher certification (note programs for professionals at many universities)



# People Skills

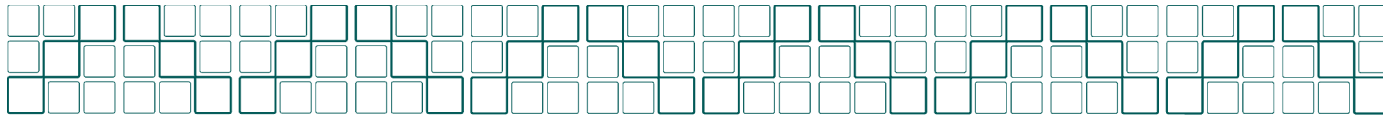
- Understand personality types
- Teamwork
- Know how to build consensus
- Manage staff and volunteers
- Network
  
- **How to prepare yourself:**
  - Committee work, volunteer work
  - Organize and lead meetings in your committees
  - Collaborate with people in own and other labs
  - Take Leadership courses





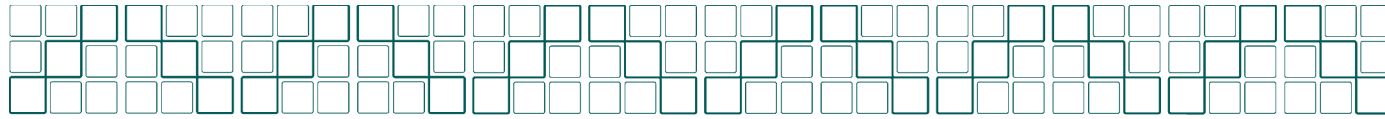
# Verbal Communication Skills

- Talk, educate, negotiate, etc. with people from various sectors, ages and educational backgrounds
  - Team members/volunteers
  - Kids/parents
  - Donors
  
- **How to prepare yourself:**
  - Speak about your research to broad audiences
  - Practice public speaking, join Toastmasters
  - Speak with folks outside of your discipline
  - Teach/volunteer



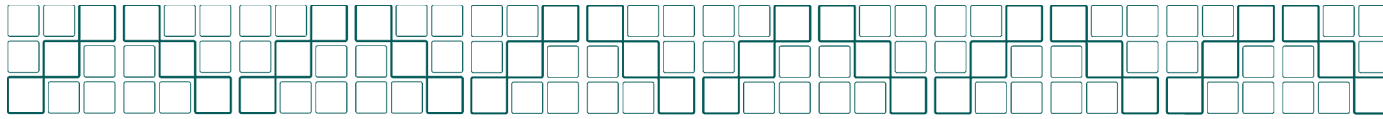
# Written Communication skills

- Experience writing varied materials for multiple audiences
  - Curriculum (handouts)
  - Marketing materials
  - Grants
- Business correspondence
  - Memos and emails
  - Clear and concise language
- **How to prepare yourself:**
  - Write papers, reviews, grants
  - Write non-technical material or other newsletter articles
  - Take Writing classes
  - Volunteer to help write promo material
  - Write a grant for a school or a teacher



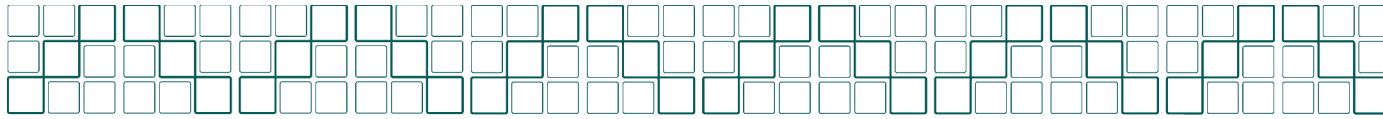
# Analytical/organizational skills

- Able to decipher, analyze and organize info
  - Set expectations and evaluations of programs
- Show attention to detail
- Able to maintain budget
  
- **How to prepare yourself:**
- Transferable skills from bench science
  - Gather, analyze and organize information
  - Find and test solutions to problems
  - Formulate plans



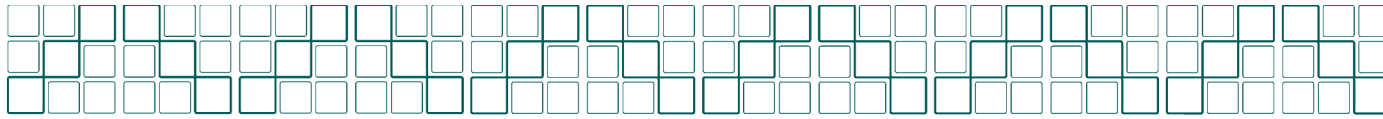
# Project and Time Management

- Plan the tasks and allocation of resources
- Manage different projects at the same time
- Complete tasks on deadline
  
- **How to prepare yourself:**
  - Manage someone else
  - Goal Setting
  - Planning, scheduling, and prioritizing
  - Organize more than just your daily experiments
  - To-do list
  - Detail oriented



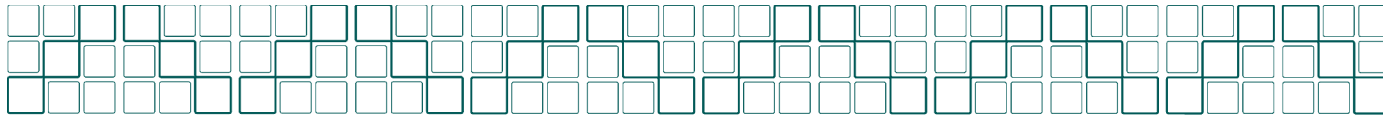
# Computer Skills

- Able to use software and databases
- Microsoft Office
- Email
- Internet
  
- **How to prepare yourself:**
  - Learn programs now



# What can I do now?

- Internship/Volunteer Opportunities at Harvard
  - National Lab Day (  
<http://science.education.nih.gov/ScientistsVolunteer>)
  - Curriculum Fellows in our HMS BCMP department
  - HMS Office for Diversity Inclusion and Community Partnership
  - [Bok Center for Teaching and Learning](#)
  - [Science in the News \(SITN\)](#)
  - [Harvard Graduate Women in Science and Engineering \(HGWISE\)](#)
  - **More information can be found on handout**



# Questions