

Profile of a Research Scientist

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Audience: Introductory biology students (9th and 10th grade)

- Objectives:**
- 1) to develop students awareness of research scientist as a career in biology.**
 - 2) Students should be able to describe aspects of working in a research setting.**
 - 3) Students should be able to relate how scientists use various methods to conduct research.**
 - 4) Students will be able to describe the multidimensional nature of a research scientist.**

National Science Standards addressed: “Understandings About Scientific Inquiry”

Scope of Lesson: 1) **Lead-in questions:** Students will answer these at the beginning of the lesson before viewing DVD or reading passages. This can be done as a group assignment then shared with the class. Similarities and novel aspects from each group can be discussed.

- a) **What types of people do research?**
 - b) **What does it take to be a “good” scientist?**
 - c) **What types of activities do scientists do?**
 - d) **How do scientists go about conducting research?**
- 2) **Students read short passages describing a scientist and some aspects of his/her research. They answer a short list of questions for each. This part can be within groups, also, depending on the number of readings. The readings and answers can then be shared with other group members, or with the class as a whole. A good reference is Miller and Levine, Biology, 1993. Each unit has a “Breakthroughs” section, short readings about scientific discoveries. I use, “The Odd Couple” (pg 20), “Yellow Fever” (pg 39), ‘If At First You Don’t Succeed...’ (Pg122)**
- 3) **Students view video clips from “Infectious Diseases, 2000 and Beyond” DVD from HHMI Holiday Lecture Series.**

- a) Dr. Ganem, Lecture 1, “Microbe Hunters: Tracking Infectious Diseases”. Chapter 3 is an introductory biography of Dr. Ganem. Lecture 4: “Emerging Infections: How Epidemics Arise”. Chapter 3 is a continuation of Dr. Ganem’s biography.

- b) Dr. Finlay, Lecture 2: “The Microbes Strike Back”. Chapter 3 is a biography of Dr. Finlay. Lecture 3: “Outwitting Bacteria’s Wily Ways”. Chapter 3 is a continuation of Dr. Finlay’s biography.

After viewing students are asked to write a short paragraph about each scientist and include the following:

1. Information about the nature of each scientist’s current research.
2. The level of enthusiasm and of commitment to the process of discovery.
3. The academic/professional background of the scientist.
4. Aspects of the lab setting- people, equipment, activity.

Assessment: 1) Students are asked to look at original questions (part 1) and compare them with information in part 2. The focus of this should be:

- a) find information from readings and DVD video clips that support their original ideas about scientists and the nature of their work.
- b) Find information that challenges their original assumptions about scientists and the nature of their work. What ideas did you originally have that are modified now? What new things can you add to your overall idea of what scientists do and how they work?

Student Feedback on DVD usage:

- 1) exit questions: on 3 x 5 card write down how seeing the segments from the DVD videos helped you understand more clearly the *multidimensional nature* of a scientist and his/her work.

