Career Exploration Lesson Plan

Discover Careers in Genomics

Intention
The intention of this lesson is to help expand students' knowledge of the career opportunities in the field of genomics and inspire them to think about where they could see themselves in the future.

The Illumina team created a series of career cards to highlight the diverse career opportunities in the field of genomics. These cards provide a snapshot of in-demand roles at Illumina, including education requirements, average starting salary, and essential job skills. Each card also comes with a video that highlights an Illumina employee working in that specific job function.

The following career exploration lesson plan developed by the Biocom Institute is designed to use the career cards and videos to have students explore careers in the genomic industry. This lesson can be used as a standalone lesson or combined with the Illumina Genomic Discoveries program.

Objective
Students will research a specific career in the genomic industry and understand the requirements to gain employment in that career.

Grade Range 9 -12

Time 70-90 min

Assessment SWBAT
- Research and present their selected career in genomics to the group/class
- Identify key employable skills desired by the genomic industry
- Understand the various careers involved in the genomic industry

Careers to explore in this lesson:
- Genetic Counselor
- Clinical Lab Scientist
- Artificial Intelligence/Deep Learning Engineer
- Bioinformatician
- Bioengineer
- Human Resources/Talent Acquisition Specialist
- Senior Territory Manager/Account Manager

Materials & Resources:

- Presentation materials – Analog (poster board) and/or Digital (Slides, Videos)
- Computing device and internet access
- Download all the genomic career cards and provide access to the Illumina videos hosted on this website: https://www.illumina.com/company/about-us/corporate-social-responsibility/empower-communities/stem-education.html
- Download the Biocom Institute 2018 Talent Integration Report – California Workforce Trends in the Life Science Industry - https://s23.q4cdn.com/595160625/files/doc_downloads/fact_sheets/2018_CA_Talent_Report.pdf
- Download the Biocom Institute 2019 California Economic Impact Report - https://s23.q4cdn.com/595160625/files/doc_downloads/fact_sheets/BiocomEconReport_Summary2019.pdf

Lesson Activities

Part 1: Background information

Total Activity Time: 15-20

1. Send digitally or print out the Biocom Institute 2019 California Economic Impact Report for the Life Science Industry.

2. Have students study the infographic and discuss the following questions in small groups or in the whole class:
    a. What are the key takeaways after reviewing the infographic?
    b. Do you think that the Life Science/Biotech industry is going to grow in the future? Why or why not?
    c. Are you familiar with any of the sub sectors on the infographic? What are examples of jobs, companies, or technologies that are associated with each subsector?
    d. Do any of these subsectors sound interesting to you? Why or why not?

Part 2: Career Cards and Videos

Total Activity Time: 20-25 minutes

1. Assign students to explore one of the 7 career cards and videos on Illumina's website. You can assign the different cards in groups, pairs, or individuals.

2. Students will read the career card and watch the video.

3. Students will explore a similar career on the internet from another Life Science/Biotech company. Students will answer the following questions:
    a. What are similarities between the career presented on Illumina's career card and the one you searched on the internet? List 2-3 examples.
    b. What are differences? List 2-3 examples.

Part 3: Presentation

Total Activity Time: 25-30 minutes

1. Students will present about their selected Career. Students can use presentation materials (analog and/or digital) as instructed by the teacher. The presentation should cover the following questions:
    a. Describe the key job characteristics, skills, salary and requirements for this career
    b. Describe the day in the life for this career
    c. Why is this career important in the genomic industry?
    d. What other companies are hiring for this career? Share what was similar and different.

Part 4: Self- Reflection

Total Activity Time: 10-15 minutes

1. Assign an exit slip or homework - Students will reflect on the lesson with the following questions:
    a. If you could choose any of the careers that you learned about which one would you choose and why?
    b. How does this job work with the other careers in genomics you have learned about?
    c. How can you use this career insight to help you explore your own passion?
    d. If you could talk to someone with this job, what would you ask them?
    e. Is there anyone in your personal network you could connect with to learn more?

Extension Activities

1. Have students read the Biocom Institute 2018 Talent Integration report. Students will learn about the 5 trends that are impacting the talent needs for the Life Science/Biotech industry. Write a paper to describe how this would impact one or more of the careers you learned about in this lesson.

2. Watch the Illumina Adventure in Genomic videos to learn about the various applications in the genomic industry. https://www.illumina.com/science/education/adventures-in-genomics.html
    a. Write a paper in how one or more of the careers you learned about would be involved in the specific application of genomics.

Student Lesson Questions

Biocom Institute 2019 California Economic Impact Report

1. What are the key takeaways after reviewing the infographic?
2. Do you think that the Life Science/Biotech industry is going to grow in the future? Why or why not?
3. Are you familiar with any of the sub sectors on the infographic? What are examples of jobs, companies, or technologies that are associated with each subsector?
4. Do any of these subsectors sound interesting to you? Why or why not?

Internet Career Exploration Questions

1. What are similarities between the career presented on Illumina's career card and the one you searched on the internet? List 2-3 examples.
2. What are differences? List 2-3 examples.

Exit Slip/Homework Reflection Questions

1. If you could choose any of the careers that you learned about which one would you choose and why?
2. How does this job work with the other careers in genomics you have learned about?
3. How can you use this career insight to help you explore your own passion?
4. If you could talk to someone with this job, what would you ask them?
5. Is there anyone in your personal network you could connect with to learn more?