



HEALTHCARE SCIENCE

PATHWAY: Biotechnology Research & Development

COURSE: Introduction to Biotechnology

UNIT 12: Career Plans

INTRODUCTION

Annotation:

This unit contains lessons on analyzing careers that utilize biotechnology, understanding the career development process, and developing a career portfolio.

Grade(s):

X	9 th
X	10 th
X	11 th
X	12 th

Time:

12 hours

Author:

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Students with Disabilities:

For students with disabilities, the instructor should refer to the student's IEP to be sure that the accommodations specified are being provided. Instructors should also familiarize themselves with the provisions of Behavior Intervention Plans that may be part of a student's IEP. Frequent consultation with a student's special education instructor will be beneficial in providing appropriate differentiation.

FOCUS STANDARDS

GPS Focus Standards:

- HS-IBT-3** Students will analyze careers in research and development, human health and diagnostics, bio-manufacturing, environmental applications, and agriculture that utilize biotechnology.
- c) Develop a portfolio documenting education, experiences, and acquired skills for specific careers.
 - d) Demonstrate understanding of the career development planning process and the process of life-long learning.

GPS Academic Standards:

- ELA10RC2** The student participates in discussions related to curricular learning in all subject areas. The student
- c) Relates messages and themes from one subject area to those in another area.
- ELA10RL4** The student employs a variety of writing genres to demonstrate a comprehensive grasp of significant ideas in selected literary works. The student composes essays, narratives, poems, or technical documents. The student
- d) Includes a formal works cited or bibliography when applicable.

UNDERSTANDINGS & GOALS

Enduring Understandings:

- Developing a career in the biotechnology field requires careful research and planning. Knowing how to prepare for a career is essential for accomplishing career goals and for future success.

Essential Questions:

- What is the importance of careful planning and preparing for a career in biotechnology?
- What information is contained in a career portfolio?
- What is the process involved in developing a career portfolio?

Knowledge from this Unit:

Students will be able to:

- Describe the steps needed to plan and prepare for a career in biotechnology.
- List the career choices available in the biotechnology field.
- Discuss the information that is included in a career portfolio.

Skills from this Unit:

Students will:

- Prepare and Present a Career Portfolio

ASSESSMENTS

Assessment Method Type:

- ☐ Pre-test
- ☐ Objective assessment - multiple-choice, true- false, etc.
 - ☐ Quizzes/Tests
 - ☐ Unit test
- ☐ Group project
- ☒ Individual project
- ☒ Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
 - ☐ Self-check rubrics
 - ☒ Self-check during writing/planning process
 - ☐ Journal reflections on concepts, personal experiences and impact on one's life
 - ☐ Reflect on evaluations of work from teachers, business partners, and competition judges
 - ☐ Academic prompts
 - ☐ Practice quizzes/tests
- ☒ Subjective assessment/Informal observations
 - ☐ Essay tests
 - ☐ Observe students working with partners
 - ☐ Observe students role playing
- ☐ Peer-assessment
 - ☐ Peer editing & commentary of products/projects/presentations using rubrics
 - ☐ Peer editing and/or critiquing
- ☒ Dialogue and Discussion
 - ☐ Student/teacher conferences
 - ☐ Partner and small group discussions
 - ☐ Whole group discussions
 - ☐ Interaction with/feedback from community members/speakers and business partners
- ☐ Constructed Responses
 - ☐ Chart good reading/writing/listening/speaking habits
 - ☐ Application of skills to real-life situations/scenarios
- ☐ Post-test

Assessment Attachments and / or Directions:

Career Portfolio Rubric

LESSON PLANS

• LESSON 1: BIOTECHNOLOGY CAREER OPPORTUNITIES

1. Identify the standards. Standards should be posted in the classroom.

- HS-IBT-3** **Students will analyze careers in research and development, human health and diagnostics, bio-manufacturing, environmental applications, and agriculture that utilize biotechnology.**
- c) Develop a portfolio documenting education, experiences, and acquired skills for specific careers.
 - d) Demonstrate understanding of the career development planning process and the process of life-long learning.

2. Review Essential Question(s). Post Essential Questions in the classroom.
 - What is the importance of careful planning and preparing for a career in biotechnology?
3. Identify and review the unit vocabulary. Terms may be posted on word wall.

Career Portfolio	Cover Letter	References
Electronic Portfolio	Resume	Work Experience

4. Interest approach – Mental set

Ask the following questions to begin the discussion and to create interest:

- What careers are available in the biotechnology field?
 - Which careers interest you the most? Why are you interested in this one?
 - What is a career portfolio?
 - What things must be included in your career portfolio?
 - What is an electronic portfolio?
5. View the **Career Opportunities in Biotechnology PowerPoint** and discuss the career options available in the biotechnology field. Remind students of the career categories and the careers available within each category. Work with students to help them develop a career objective, which will provide direction for their individual career plans. At this point in the course, the student should have narrowed down their career choice and should be concentrating on one or a few specific careers that interests them most. Provide as much research assistance and student self-evaluation opportunities as needed to accomplish this objective before moving on to the next lesson.

• LESSON 2: CAREER PLANNING & DEVELOPMENT

1. Review Essential Questions. Post Essential Questions in the classroom.
 - What is the importance of careful planning and preparing for a career in biotechnology?
2. Distribute copies of **Career Portfolio Checklist** to students and discuss each of the components (resume, cover letter, references, awards, achievements, work and leadership experiences, etc.). Describe each of these components as you view the **Career Portfolio Development PowerPoint**. Give examples of each component and discuss the appearance of the finished product so the students will know best how to successfully complete their career portfolio.
3. Students will have previously begun organizing and developing some of the components of the career portfolio, and the instructor will monitor their progress individually as needed. Progress checks or a flow chart might work best for monitoring individual student progress. Some students will need more direction and assistance than others. Assign deadlines for the completion of the each component of the career portfolio so that the student is able to complete the entire project in a timely manner.

• LESSON 3: CAREER PORTFOLIO DEVELOPMENT

1. Review Essential Questions. Post Essential Questions in the classroom.
 - What information is contained in a career portfolio?
 - What is the process involved in developing a career portfolio?

2. Schedule the media center/computer lab for student research and to provide students access to computers. Allow students adequate time for the research, development, and completion of their career portfolio. Even though this has been an on going project since the beginning of the course, students may need extra help along the way to produce a successful project. List the websites (see “Website Resources”) so students have access to portfolio developing sites and material to aid in their career portfolio development. Some of the components may pose more of an obstacle to complete than other components. Ideally, students should save their career portfolio on a thumb drive (jump drive) where they may continue to update and revise it as they add to their educational experiences and job skills. This career portfolio could follow the student throughout their career/professional life and serve as an employment aid and resource. However, they will need to update and revise the information to keep it current and accurate. Stress the importance of doing that to get the most benefit out of this experience, and to aid in the process of life-long learning and career development.
3. Provide the student with a copy of the **Career Portfolio Rubric** as a self check so they are able to produce a successful portfolio which meets all the criteria. Again, provide adequate research time and individualized assistance as needed by the students/class.

• **LESSON 4: CAREER PORTFOLIO PRESENTATION**

1. Review Essential Questions. Post Essential Questions in the classroom.
 - What information is contained in a career portfolio?
 - What is the process involved in developing a career portfolio?
2. An Electronic Portfolio may be produced in addition to the hard copy (notebook) that will aid in the career portfolio presentation if the instructor chooses. Presenting an electronic portfolio will provide the student practice for a job interview that will hopefully follow at some point in the future. Provide an example of an electronic portfolio so students are able to view the finished product and are prepared to present it in the manner in which you expect.
3. Distribute copies of **Portfolio Presentation Guidelines** to enable students to prepare for their electronic portfolio evaluation. Again, provide adequate computer time for the students and schedule date(s) for the presentations after completion of the portfolios. Evaluate student success using the criteria on the **Portfolio Presentation Guidelines** and the **Career Portfolio Rubric**.

• **ATTACHMENTS FOR LESSON PLANS**

Career Opportunities in Biotechnology PowerPoint
Career Portfolio Checklist
Career Portfolio Development PowerPoint
Career Portfolios Rubric
Portfolio Presentation Guidelines

• **NOTES & REFLECTION:**

One of the most important steps in this unit is that the students have been able to research and work on various components of the career portfolio since the beginning of the course in Unit 2. At this point in the course, the instructor should monitor their progress and provide assistance as needed for completion of the project. The instructor may choose to have the students prepare an electronic portfolio in addition to

a hard copy and present it to the class for practice. Also, the student should be aware that they may save and use their career portfolio for future career needs as well.

CULMINATING PERFORMANCE TASK

Culminating Unit Performance Task Title:

Complete Career Portfolio & Presentation

Culminating Unit Performance Task Description/Directions/Differentiated Instruction:

Students will develop their Career Portfolio & Present it to the class via electronic portfolio

Attachments for Culminating Performance Task:

- [Rubric for Scoring Career Portfolios](#)
- [Portfolio Presentation Guidelines](#)

UNIT RESOURCES

Web Resources:

- <http://www.electronicportfolios.org>

Examples of electronic portfolios can be found here:

- <http://www.cust.educ.ubc.ca/wstudents/TSED/Students03/McIntyre/Portfolio/index.html>
- <http://www.career.fsu.edu/careerportfolio/enter/output/main.html>

Materials & Equipment:

Computer with Internet Access
Multimedia Presentation Equipment
Thumb / Thumb Drive (INDIVIDUAL)

21st Century Technology Used:

<input checked="" type="checkbox"/>	Slide Show Software	<input type="checkbox"/>	Graphing Software	<input type="checkbox"/>	Audio File(s)
<input type="checkbox"/>	Interactive Whiteboard	<input type="checkbox"/>	Calculator	<input type="checkbox"/>	Graphic Organizer
<input type="checkbox"/>	Student Response System	<input type="checkbox"/>	Desktop Publishing	<input type="checkbox"/>	Image File(s)
<input type="checkbox"/>	Web Design Software	<input type="checkbox"/>	Blog	<input type="checkbox"/>	Video
<input type="checkbox"/>	Animation Software	<input type="checkbox"/>	Wiki	<input type="checkbox"/>	Electronic Game or Puzzle Maker
<input type="checkbox"/>	Email	<input checked="" type="checkbox"/>	Website		