

FASHION POLICE: TEACHER GUIDE

Subject: High School Biology

Grade Level: 9th grade

Case Summary

Your fashion business is finally starting to obtain notoriety: you've just attracted your first celebrity client! However, this client's demands require some research and scientific knowledge. You will use scientific techniques to determine what fabrics to piece together for the superstar. Remember to create appropriate instructions so that your employees will not destroy your work of fashion art.

Credits

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Learning Objectives

1. Differentiate between plant, animal and man-made fibers using prior knowledge of the differences between plant and animal cells.
2. Create a rubric for their employees to be able to identify the fibers for the outfit/Develop a procedure in order to identify fibers using a microscope.
3. Utilize a microscope to identify the differences between plant, animal, and man-made fibers.
4. Design a project outfit that adheres to the standards presented in the rubric.

Georgia Performance Standards

SCSh2. Students will use standard safety practices for all classroom laboratory and field investigations.

- a. Follow correct procedures for use of scientific apparatus.
- b. Demonstrate appropriate technique in all laboratory situations.
- c. Follow correct protocol for identifying and reporting safety problems and violations.

SCSh3. Students will identify and investigate problems scientifically.

- a. Suggest reasonable hypotheses for identified problems.
- b. Develop procedures for solving scientific problems.
- c. Collect, organize and record appropriate data.
- d. Graphically compare and analyze data points and/or summary statistics.
- e. Develop reasonable conclusions based on data collected.
- f. Evaluate whether conclusions are reasonable by reviewing the process and checking against other available information.

SCSh4. Students use tools and instruments for observing, measuring, and manipulating scientific equipment and materials.

- a. Develop and use systematic procedures for recording and organizing information.
- b. Use technology to produce tables and graphs.
- c. Use technology to develop, test, and revise experimental or mathematical models.

SCSh6. Students will communicate scientific investigations and information clearly.

- a. Write clear, coherent laboratory reports related to scientific investigations.
- b. Write clear, coherent accounts of current scientific issues, including possible alternative interpretations of the data.
- a. Use data as evidence to support scientific arguments and claims in written or oral presentations.
- b. Participate in group discussions of scientific investigation and current scientific issues.

SB3. Students will derive the relationship between single-celled and multi-celled organisms and the increasing complexity of systems.

- c. Compare how structures and function vary between the six kingdoms (Archaeobacteria, Eubacteria, Protists, Fungi, Plants, and Animals).

Assessment

- Assessment piece one: assessing students' proficiency with microscope based on their step-by-step use (which they will fill out).
- Assessment piece two: fiber identification lab (instructions, materials listed on fiber identification lab document). For the purposes of this lab, students will also be given slides of plant and animal cells. Students will turn in their conclusions about each fiber sample, including data on how they knew whether it was plant, animal, or man-made material.
- Assessment piece three: students will create a rubric for their "employees" which will develop a strategy for determining characteristics of fibers based on microscopic techniques and prior knowledge of plant vs. animal fibers.
- Assessment piece four: Students will turn in their fashion art project complete with a writing component in which they address: how microscopes and scientific method were used in their fashion project to address the star's needs, what scientific knowledge of plants and animal cells and fibers they used, how these techniques could be useful for an art conservator preserving their work in the future (what would they want a conservator to determine about their work?). Rubric in folder)
- Assessment piece 5: Presentation of project. Rubric in folder

Implementation Strategy

This is a 90 minute lesson plan.

Day 1:

- Microscope mini lesson (20 minutes)
- Introduction to the Fashion Case PBL (20)
- Students are placed into collaborative groups (10)
- Begin Microscope Lab Identifying Fibers (30)
- Wrap Up/Review: Students will turn in assessment 1 and 2(10)

Day 2:

- Microscope Bell Ringer (10)
- Return Assessment 2 to students (5)
- Students are introduced to Assessment 3 (10)
- Students will begin conducting research at research stations (30)
- Students complete Assessment 3, in which they design a rubric for their employees to work from. (35)
- Students turn in Assessment 3 (5)

Day 3:

- Bellringer
- Students will be given rubric for assessment 4 (10)
- Students will choose stations in order to complete assessment 4; stations include research station, art work station, fashion textile conservation research station (websites such as the Met, Michael C. Carlos), and microscope station. (70)
- Wrap up (10).

Day 4:

- Final Project 4 due date.
- Group presentations (rubric in folder)

Facilitator Guide

- Facilitation questions
 - a. Can you make a distinction between plant and animal fibers?
 - b. What tools might a scientist or textile conservator use to distinguish between plant and animal fibers?
 - c. How could you prove to Beyonce and Jay-Z that their outfits are not made of any animal products? What details would you use to support this?
 - d. What way would you design and experiment to determine which fibers are animal based and which are plant based or synthetic?
 - e. How would you solve the problem of Beyonce and Jay-Z's clothes based on what you have learned about animal and plant fibers and their cells?
- Rubrics included in folder

Resources

www.studentrubric.com (rubric for student project)

www.introductiontorubrics.com (resource for students to use to help them make their "employee rubric")

Fashion Police: Scene 1

You are a fashion designer who is finally beginning to get famous! The rich and famous are coming to you for your cutting edge designs. Finally, the moment you have been waiting for has arrived. Beyonce and Jay-Z have come to you to request your services. They need a show-stopping outfit in which to attend the Grammy's. They trust your creativity totally; however, they have one very, very important request. Beyonce is an animal lover and absolutely refuses to wear any fabrics made from animal products. In order to make sure Beyonce and Jay-Z look amazing but also feel amazing, you know you must test all the fabrics you intend to use, to make absolutely sure no animal products touch the skin of your star-client. This outfit could make or break your career...so be sure to make something amazing, but without any animal fibers.

Beyonce: I refuse to wear any type of animal products on my special night! Jay-Z, darling, find me someone who can design an animal product free dress for me to wear to the Grammy's...and for your outfit too. You know I have to look fabulous."

Jay-Z: Okay, Babe, I heard of a new designer who once worked at the Michael C. Carlos museum in Atlanta, GA who is pretty A1. And you know the, "black card go hard when I'm shopping," so money isn't an issue.

Beyonce: After looking at their past designs, I absolutely love their style. I'll love whatever they design, as long as it is totally animal friendly.

Jay-Z: I'll send them a text right now.

When you check your messages, you discover a text message from Jay-Z!

Jay-Z: Look, man, we need someone and something special to look amazing when we go out to the Grammy's. Can you handle that?

You: Of course! Stick with me, and you'll be the talk of the red carpet.

Jay-Z: The only problem is: Beyonce absolutely hates animal cruelty. She will turn up if she thinks there are ANY animal products in her clothes. Whatever you do, make sure that there are no animal fibers. Other than that, we are excited to see what you design to make us look fly.

You've accepted the challenge: Make hip-hops most glamorous couple perfect outfits for their big night on the red carpet without using any animal textiles...good luck!

What approach will you use to solve this problem?

What questions would you ask in an interview with Beyonce and Jay-Z?

What questions would you ask in an interview with a textile expert?

Box Chart: The Case of the Fashion Police

Big Idea: What is the topic all about? What must I know and be able to communicate to others? What are the key concepts I need to know, understand, and apply?

Essential Question: What questions do I need to answer to help me understand the big idea and make connections to the real world? What questions will get me thinking about key concepts and big idea of the lesson? How can I use my prior knowledge to answer questions?

Problem: What is the questions you need to answer? What is the problem you want to solve? What are you trying to find out?

Hypothesis: What is your prediction about the problem? What do you think is going to happen?