

NOTE: Today is a computer lab day. Make sure you have signed up for the computer lab in advance.

TITLE OF LESSON

Science 2 Unit 1 Lesson 45 – Final Project #1: DNA Murder Mystery, Solving the Mystery
How does what is on the inside help us identify something found on the outside?

TIME ESTIMATE FOR THIS LESSON

One class period

MATERIALS

Adobe Photoshop
DNA Murder Mystery Requirements – Student Page
Group Photoshop Page Rubric – Student Page
Graphic Organizer (created by students)
Graphic Organizer Rubric – Student Page

ALIGNMENT WITH STANDARDS

California – Biol CB 1; G5c-d; IE 1a-c & 1

LESSON OBJECTIVES

- To demonstrate mastery of the scientific method used to create and execute an experiment
 - To use the graphic organizer the student created to solve the mystery
 - To analyze another group’s Photoshop page containing their crime scenario and DNA fingerprint in order to solve the mystery and determine who the murderer is
 - To hand in completed binders
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EXPLANATION OF LESSON

First, students will be working as individuals to conduct their investigation of one of the suspects in the group they have been assigned in order to determine from the group’s Photoshop page if their suspect is the murderer. Then they will work as a group to analyze the DNA fingerprint, look at their notes on the crime scenario, and figure out who the murderer is. Decide before class which groups will be trying to solve which group’s DNA Murder Mystery. Write the names of the groups (and each group member’s name underneath the group name) that will be working together on the board. At the end of the class have the students hand in their binders to be graded.

FOCUS AND MOTIVATE STUDENTS – WARM-UP ACTIVITY

- 1) **Groups** – Have all students sit next to their group members on the computers. Ask the groups to open their Group Photoshop Page on their computers.
 - 2) **Assign Crime Scenarios to View** – Ask students to look at the front board. Tell them these are the groups they have been assigned to solve the murder mystery. Have them write down the group on their graphic organizer. Then ask them to sit in front of the computers that have their assigned group’s Group Photoshop Page (or crime scenario) open. This means you should see all students moving around.
 - 3) **Instructions** – When students are seated and before they begin, remind them that this process of determining the murderer in a crime scenario is a part of their final exam. You should not see any copying today. Nor should there be any talking except when you expressly instruct them to talk.
 - 4) **One View Only** – Have students take out the Graphic Organizer they created yesterday. Tell them they will be viewing the crime scenario one time only during the period. Once you ask them to turn off the computer, they may not turn it on again.
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ACTIVITIES – INDIVIDUAL AND GROUP



1. View Group Photoshop Page – Tell students they should first view the Group Photoshop Page of their assigned group’s murder scenario. Then they should follow the steps in the Graphic Organizer they created, filling it in step by step as they go along. Tell them they must work individually to complete the steps in their graphic organizer, while viewing the Group Photoshop Page. They will have 20 minutes to view the Group Photoshop page and fill in their Graphic Organizer. Ask if there are any questions. Then tell them to begin.
 2. Decide Suspects to Interview – At the end of 20 minutes, call time. Ask students to shut down their computers. Tell them to meet with their group members and decide which suspect/s they will interview. In some cases where one group has more students than another, a student may have to interview more than one suspect in order for their group to make sure they have thoroughly investigated the crime scenario. If this is the case, you may need to play with the timing of the interviews. Have them write the name/s of the person/s they will be interviewing on their graphic organizer (although they should already have built this into their graphic organizer).
 3. Interviews – Then they should interview the person they have chosen to investigate, making sure to confer with their group members so that they interview all of the suspects. They should fill in their graphic organizer as they go along. Tell them they will have 5 minutes to complete their interviews. Since groups will be interviewing each other, first half the students will interview a suspect for 5 minutes, then they will switch and be interviewed.
 4. Information Exchange – At the end of 5 minutes, call time. Tell students the next portion of the assignment is to work with group members to share information in order to solve the mystery. They should exchange information, fill in the rest of their graphic organizer, discuss all the evidence and come to a consensus as to who the murderer is. Tell them they will have 20 minutes to finish.
 5. Filling in the Organizer – Students should know to write the name of the murderer on their graphic organizer sheet (as that should be their conclusion) along with their evidence (as those will be the steps they conducted to come up with their conclusion). You do not need to tell them this, however you may want to walk around the room and check to see that students are writing down their whole scientific process. Their grade will suffer if they do not.
 6. STEP 8: Final Project – At the end of 20 minutes, call time. Students should have completed their graphic organizer and solved the mystery. Ask them to follow the instructions in STEP 8 of their **DNA Murder Mystery Requirements** sheet and turn in their completed DNA Murder Mystery.
 7. **Binders** – Collect all student binders.
 8. Debrief – Finally, if there is time. Allow each group to tell who the actual murderer in their group was. Students love to know if they are right. Or you can have each group tell who they thought the murderer was and why before you have the creators tell the real murderer.
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HOMEWORK

None

GROUP ROLES

None

DOCUMENTATION FOR PORTFOLIO

Lab Report #1
Method – Photoshop Image
Lab Report #2
Evaluation Essay #1
Method 2 – Photoshop Image
Final Project #1: DNA Murder Mystery