Bite Mark Lab  PART 1

ALL STUDENTS MUST USE HAND SANITIZER BEFORE TOUCHING THE PLAY DOUGH!

Step 1
Find a new page in your notebook. Label it "Bite Mark Lab"

Step 2:
Divide the teeth casts and the play dough evenly among your team. Every student needs one tooth cast and one piece of play dough.
*If there are more people on your team than tooth casts, two students may share the tooth cast, but ALL students will need their own play dough.

Step 3:
In your notebook, write down the number written on your tooth cast. This is the suspect number.

Step 4:
Be sure there is newspaper or some other protective layer on your work area. Then, make a bite mold of the teeth! (Refer to the example shown by Ms. LaSovage.)

Step 5:
Make a sketch of your tooth mold in your notebook. (Draw the indentations you have in the play dough.)

Step 6:
Measure at least 4 distances on your tooth mold. Record these in your sketch. *More would be better! (See example for possible ideas.)

Step 7:
Write at least 2 additional observations about the teeth that might be unique features or that might help you identify the bite.

Make sure ALL members of your team do a job that you consider good. Your team will not have your teeth casts or impressions tomorrow, only your sketches!
PART 2

Your team has been given a sample of “bite evidence.”

Using your data from your known suspects (the sketches and observations in your notebook)

1) Determine which of the suspects could have left the bite impression and which could not.

Then

2) Prepare a way to communicate your claim and supporting evidence to the teacher and the rest of the class.

What you will present to the class:

- Which suspect could have left the bite mark
  - At least three reasons why you believe this suspect is guilty
- Which suspect(s) didn’t leave the bite mark
  - Reasons why you believe other suspects are not guilty (at least one reason for each exonerated suspect)

Your argument must be based on the evidence and measurements in your sketches! Remember to use “Fact ➔ What it means” in your reasoning!

**A good argument does not leave the reader (hearer) with questions!**

You will

Record your information on a team paper to turn in and prepare a short presentation. You will need to create a useful visual aid to assist in your presentation (you may use a whiteboard for this). (Listen in class for any additional directions or changes to these directions.)

Scoring

Your grade will be determined based on the quality of your evidence used, on your communication, AND on whether you have correct answers.

Individual component

When you are finished, answer the individual questions that have been provided to you. Answer the questions in your notebook. Attach the question sheet in your notebook near or over the questions.
Background:
We had TOOTH CASTS # _____ _____ _____ _____

We had EVIDENCE BITEMARK Letter _____

CLAIM (suspect still suspected)
We believe that suspect #_____ could have left the bite impression.

EVIDENCE/REASONING (minimum 3 specific must be used)
*Remember: Quantitative data is usually better than qualitative!

CLAIM (exonerated suspects)
We believe that suspect #_____ did NOT leave the bite impression
BECAUSE (one evidential support required):

We believe that suspect #_____ did NOT leave the bite impression
BECAUSE (one evidential support required):

We believe that suspect #_____ did NOT leave the bite impression
BECAUSE (one evidential support required):
Bite Mark Lab Individual Questions
Answer in your notebook. Attach this sheet to the page.

1) Did you identify the correct suspect?
2) What evidence in your notebook was helpful?
3) What did you wish you had done differently?
4) What else might investigators do when dealing with bite marks?
5) What are two challenges with bite mark evidence on human flesh?
(This page is for reference only; I do not provide this to students although I did allow students who requested to do so to research the names of teeth for use in their presentations.)

**Adult Teeth Diagram**

**Upper Teeth**
- Central Incisor
- Lateral Incisor
- Canine (Cuspid)
- First Premolar (First Bicuspid)
- Second Premolar (Second Bicuspid)
- First Molar
- Second Molar
- Third Molar (Wisdom Tooth)

**Erupt**
- 7-8 yrs
- 8-9 yrs
- 11-12 yrs
- 10-11 yrs
- 10-12 yrs
- 6-7 yrs
- 12-13 yrs
- 17-21 yrs

**Lower Teeth**
- Third Molar (Wisdom Tooth)
- Second Molar
- First Molar
- Second Premolar (Second Bicuspid)
- First Premolar (First Bicuspid)
- Canine (Cuspid)
- Lateral Incisor
- Central Incisor

**Erupt**
- 17-21 yrs
- 12-13 yrs
- 6-7 yrs
- 10-12 yrs
- 10-11 yrs
- 11-12 yrs
- 8-9 yrs
- 7-8 yrs

Take measurements on your wax impression of the distances between specific teeth in your upper dental arch.

A. 2nd Left Molar to 2nd Right Molar: ___________
B. 2nd Left Molar to 1st Right Premolar: ___________
C. 2nd Left Molar to Central Right Incisor: ___________
D. Right Cuspid to Left Cuspid: ___________
PLAYDOUGH RECIPE

Ingredients
- 1 cup flour
- 1 cup water
- 2 teaspoons cream of tartar
- ⅓ cup salt
- 1 tablespoon vegetable oil
- (gel or other food coloring)

Instructions
1. Mix together all the ingredients, except the food coloring, in a 2 quart saucepan.
2. Cook over low/medium heat, stirring. Once it begins to thicken, add the food coloring or scent (if using color).
3. Continue stirring until the mixture is much thicker and begins to gather around the spoon.
4. Remove the dough onto wax paper or a plate to cool.
5. Store in airtight container in refrigerator.

I used Crayola Air Dry Clay to make the evidence molds but there are likely other products that will work as well. Be careful to make sure whatever substance you use does not shrink when it dries as this will cause measurements to be off.