

Name: _____

Date: _____

Lab Partner: _____

Class Period: _____

Bone Inquiry Lab

The objectives:

- to have students develop questions about bone structure
- to have students investigate bone structure of animals and humans
- to research a bone disease
- to enable students to develop their own models for testing bone strength
- to recognize how student investigations are the same or differ from what scientists do
- to have students ask inquiry questions about bone structure
- to design and complete a experiment testing bone strength

(5pts) OBSERVING PHENOMENA

With your lab partner create a list of questions you have a bone strength and structure of mammals. Think about who, what, when where and why. Remember mammal includes humans, but is not limited to humans. Use the space below.

(6pts) ASKING QUESTIONS

Now that you have your questions please choose ONE to write on the SMART Board. Now, you should copy down all the questions that are on the SMART Board and use the following scale to label each question.

Group the questions into those that can be answered by:

Looking in a book or asking an expert (B)

Experimentation (E)

Great essential questions, but cannot be answered with a single experiment (G)

Not within the realm of science (N)

(2pts) Using these questions generate a completely new set of questions that can ONLY be answered by experimentation.

(1pt) HYPOTHESIS

Then choose one question that you can answer using the available equipment in one class period and materials you might bring from home. You can try to answer the same question as another group. Write the new question and make sure to write it as a hypothesis.

(5pts) MATERIALS

List the materials you will be using. Make sure you have access to these materials, but still think big.

(10 pts) PROCEDURE

Some things to think about when writing a procedure:

How will you record your results?

Would a table be helpful?

What titles would you use?

Would a list be better?

What safety rules must be followed?

(1 pt) STOP

You must have Mrs. Gensburg's signature to proceed pass this point.

(10 pts) DATA

Use this page to write your results. Either as a table, *chart*, etc. Also write down ways that you deviated from the lab.

(10 pts) CONCLUSION

Write a conclusion. This includes but is not limited to: summary of your results, errors that may have occurred, things you expected, things you did not expect, things to consider or change if completed again, etc.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

After the lab is completed, you will use the iPads and an app called educreations or ExplainEverything to make a presentation to the class.

In addition to grading the lab report, the items below will also be scored using the rubric.

CATEGORY	4	3	2	1
Plan	Plan is neat with clear measurements and labeling for all components.	Plan is neat with clear measurements and labeling for most components.	Plan provides clear measurements and labeling for most components.	Plan does not show measurements clearly or is otherwise inadequately labeled.
Data Collection	Data taken several times in a careful, reliable manner.	Data taken twice in a careful, reliable manner.	Data taken once in a careful, reliable manner.	Data not taken carefully OR not taken in a reliable manner.
Construction - Materials	Appropriate materials were selected and creatively modified in ways that made them even better.	Appropriate materials were selected and there was an attempt at creative modification to make them even better.	Appropriate materials were selected.	Inappropriate materials were selected and contributed to a product that performed poorly.
Focus on the task	Consistently stays focused on the task and what needs to be done. Very self-directed.	Focuses on the task and what needs to be done most of the time. Other group members can count on this person.	Focuses on the task and what needs to be done some of the time. Other group members must sometimes nag, prod, and remind to keep this person on-task.	Rarely focuses on the task and what needs to be done. Lets others do the work.
Working with Others	Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together.	Usually listens to, shares with, and supports the efforts of others. Does not cause "waves" in the group.	Often listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.	Rarely listens to, shares with, and supports the efforts of others. Often is not a good team player.
Presentation				
Enthusiasm	Facial expressions/body language and/or tone generate a strong interest and enthusiasm about the topic in others.	Facial expressions/body language and/or tone sometimes generate a strong interest and enthusiasm about the topic in others.	Facial expressions/body language and/or tone are used to try to generate enthusiasm, but seem somewhat faked.	Very little use of facial expressions/body language and/or tone. Did not generate much interest in topic being presented.

Preparedness	Student is completely prepared and has obviously rehearsed.	Student seems pretty prepared but might have needed a couple more rehearsals.	The student is somewhat prepared, but it is clear that rehearsal was lacking.	Student does not seem at all prepared to present.
Listens to Other Presentations	Listens intently. Does not make distracting noises or movements.	Listens intently but has one distracting noise or movement.	Sometimes does not appear to be listening but is not distracting.	Sometimes does not appear to be listening and has distracting noises or movements.
Vocabulary	Uses vocabulary appropriate for the audience. Extends audience vocabulary by defining words that might be new to most of the audience.	Uses vocabulary appropriate for the audience. Includes 1-2 words that might be new to most of the audience, but does not define them.	Uses vocabulary appropriate for the audience. Does not include any vocabulary that might be new to the audience.	Uses several (5 or more) words or phrases that are not understood by the audience.