Black Boxes’ Lab Report

1. What is a model?

2. List 2 reasons why models are used to explain something.

3. A ________________ is when everyone or mostly everyone in the group agrees on a solution to a problem.

4. A representation, replica or explanation of something to show how it looks or works is known as a ____________.

5. Scientists are constantly working together to solve problems this is called ____________________.

6. Draw a picture of one-way Scientists collaborate. Please include labels with the picture.

7. How did we analyze the data for all of the Black Boxes and come to consensus?
8. What two (2) senses did we use to develop our 2D-model of what was inside Black Box?

9. Define Black Boxes: _________________________________________________________________
   _________________________________________________________________
   _________________________________________________________________

10. Explain what a controlled experiment is? ___________________________________________
    _________________________________________________________________
    _________________________________________________________________
    _________________________________________________________________

11. Answer the following questions after reading about the science experiment below.

   Billy forgot to eat his ice cream while he was watching television and it melted. He thought the ice cream melted because it was in the light. Billy decided to do an experiment to find out. Here’s what he did.
   As soon as it got dark, Billy put into each of two (2) identical bowls one (1) scoop of chocolate chip ice cream. He took one bowl outside where it was dark and the other he put in the kitchen where a light would shine all night. Billy got up at dawn and discovered that the ice cream outside was still solid but the ice cream in the kitchen had melted. “Aha,” said Billy, “light makes ice cream melt!”

   ❖ If you think Billy did a good experiment please indicate that there wasn’t anything wrong with it.
   ❖ If you think Billy did NOT design his experiment very well, explain what was wrong and how the experiment could be done better.

11. Name 1 constant for experiment above: ____________________

12. Name 1 variable for experiment above: ____________________
13. Mary wanted to find out what kind of cloth dries after it gets wet. She got a cotton scarf, a wool mitten, and a nylon shirt. She poured some water on all three and then put them out to dry. The next day she felt the three pieces of clothing and they felt dry. She concluded that all kinds of clothing dry at the same rate. Leslie thought Mary’s experiment didn’t prove that all kinds of material dry at the same rate. Describe at least two (2) things Mary could improve her experiment.

14. Name something that was a black box but is now known.

15. List 1 example of something that is a black box in everyday life.

16. Remember the Amazing Drought Stopper? Explain how a siphon system works? (Draw a picture with at least 3 labels)
Black Box Design

We have just finished the Black Box experiment and now is the chance for you to create a Black Box to test your friends and Mrs. Printz. The design won’t cost you anything but a little bit of time and effort. The project will be worth 30 points.

**Part A:** (15 points) Create a Black Box with one (1) household container and one (1) common object found inside. Container should be small in size (no larger than a milk jug) and there should be no way to see into the Black Box container. Which means you can tape or paint the outside of the container. **Bonus for original designs**

*Container:* 5 pts
Examples of containers to use could include but are not limited to: Parmesan cheese container, pill bottle, ketchup bottle, soup can etc.

I will use __________________________ for my container.

*Object:* 5 pts
Examples of household objects to place inside could include but are not limited to: coin, button, ping-pong ball, nail etc.

I will use this object: __________________________

*Outside Design/Creativity:* 5 pts
Add some pizzazz to outside or add some creativity to inside of Black Box with a shape on inside.

To add some creativity to my box, I will: __________________________

_____________________________________________________

*NOTE: Please tape over or paint openings into Black Box so no one can see into your design!*
**Part B: (part of lab report)** (15 points) Since we are practicing with the Scientific Method/Black Boxes the 2nd part of this project will be the explanation of the your ideas behind creating this black box. This write-up should be neatly and spell-check it!

**Observations:** 3 pts (3 observations – sounds like, feels like observations)
1. ________________________________________________
2. ________________________________________________
3. ________________________________________________

**Hypotheses of object:** 3 pts (3 possible guesses for the object)

Guess 1: ________________________________________________

Guess 2: ________________________________________________

Guess 3: ________________________________________________

**Explanation of your Black Box:** 3 pts (Well-written 3-4 sentence explanation describing the process of making this Black Box including why you chose object/container for the design and any struggles you may have had.)

_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________

**Black Box Examples:** 6 pts (List examples of things we will never be able to see how they work – i.e. Center of Earth, Television, Atoms reacting. Then, check which category it is from: everyday or technological.

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<thead>
<tr>
<th>Black Box Example</th>
<th>Everyday Black Box</th>
<th>Technological Black Box</th>
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