

Paper Folding Activity

Name: _____ **KEY** _____ Date: _____ Period/Block: _____

Experimental Question: How many times can one sheet of 21.6cm x 28cm computer paper be folded in half?

Prior to completing the activity, have your class generate a list of criteria. Make them all agree on the criteria.

1. Write your **prediction** on the line: _____ **Answers will vary** _____.
2. Compare your prediction with the person next to you. Discuss the reasons for your prediction. **Reasoning might include paper thickness, paper size, bias from folding other things in half ect.**
3. After your discussion, work together to fold the paper in half as many times as possible.
4. Record the number of folds on the line. Be prepared to show evidence of your response. **Students usually achieve between 5-7 folds depending on the class criteria. If they claim 7 folds I usually go over and have the class watch as the paper is unfolded.**
5. Compare the actual number of folds to you predicted number of folds. **Answers will vary** _____
6. Why do you think there was such a difference between the number of folds that you predicted and the number of actual folds you were able to get? **Answers will vary: Usually students say they were close or there was not much difference. You can encourage them to elaborate on how they made a prediction so close to the actual result.**

7. What factors or **properties** do you think have an effect on the number of folds?

_____ **Answers can include: size, thickness, paper composition, moisture in paper (wet/dry)**

8. Write a hypothesis. (A tentative, testable and falsifiable statement that explains some observed phenomenon in nature).

Example: Paper that is thinner will be able to be folded in have more times.

9. Test your prediction by experimenting with the various papers provided by your teacher. The factor you are changing is referred to as the **independent variable**. After changing the one factor, fold the paper as many times as possible and record the number of folds on the line. **Note the emphasis on ONE. Keep an eye on students. Many try testing two variables instead of just one.**
10. Why is “one” underlined in the previous question?
_____ **Only one variable is tested to so scientist can determine the factor that influenced what is being measured (dependent variable).**

11. With your partner, discuss the results from your experiment. Were they what you expected?
Answer will vary

12. Choose another factor to test and write it on the line. _____ **Answers will vary** _____ How many folds did you get? _____

13. Compare all of the results and discuss them with your partner.
14. The dependent variable in an experiment is something that responds or is measured or counted. What was the dependent variable in this experiment? The number of folds
15. When considering your experimentation, how could your results become more **valid**?
 By conducting many trails scientist can increase the validity of the experiment.

16. In class we will watch a short [video clip](#) that will show the experiment you just performed. Why was the video not play at the beginning of class? The video was not show because it would have introduced bias into the experimentations. _The bias could have then influence students to throw out good data or even ignore data that was not in-line with what they saw in the video.

17. Define bias in your own words: Making a judgement based on prior knowledge.

Define these words in your own words:

1. Prediction- **A statement that forecast what will happen in the future**

2. Properties- **An attribute, quality or characteristic of something.**

3. Independent Variable- **The factor of interest. The variable/factor that scientists change to determine the effect of that change on the outcome.**

4. Valid- **a reasonable or logical**