

Assignment No. 1 – The Scientific Method. Exercise.

- **Read Chapter 1 Section 1.3 on the scientific method**

Use the scientific method to come up with a study where you measure something **quantitatively** (i.e. something you can measure with numbers). By answer the following questions you will be using the scientific methods with its elements of observation, hypothesis, setting up the experiment/data collection, data analysis (includes graph), and conclusion.

EXAMPLE

1. What is your topic

Dogs barking

2. What observations have you done

In a dog park by my house I observe that Dobbermans and German shepherds seem to bark more than Golden retrievers

3. What is your hypothesis

Golden retrievers bark less than other dogs

4. How will you set up your experiment

In an experiment you must include the following factors:

- *control group and experimental group (Groups are also called treatments)*
- *Independent variable and dependent variable*
- *No. of replicates for each treatment:*

Control group: Group 1 Golden retrievers (control)

Experimental groups: Group 2: Dobbermans; Group 3: German Shepherds

Independent variable (*this is the variable I CHOOSE to test*): breed of dog

Dependent variable: Number of times the dogs bark in a period of 1 hour (this is the variable that is dependent on the independent variable)

No. of replicates for each treatment: 10

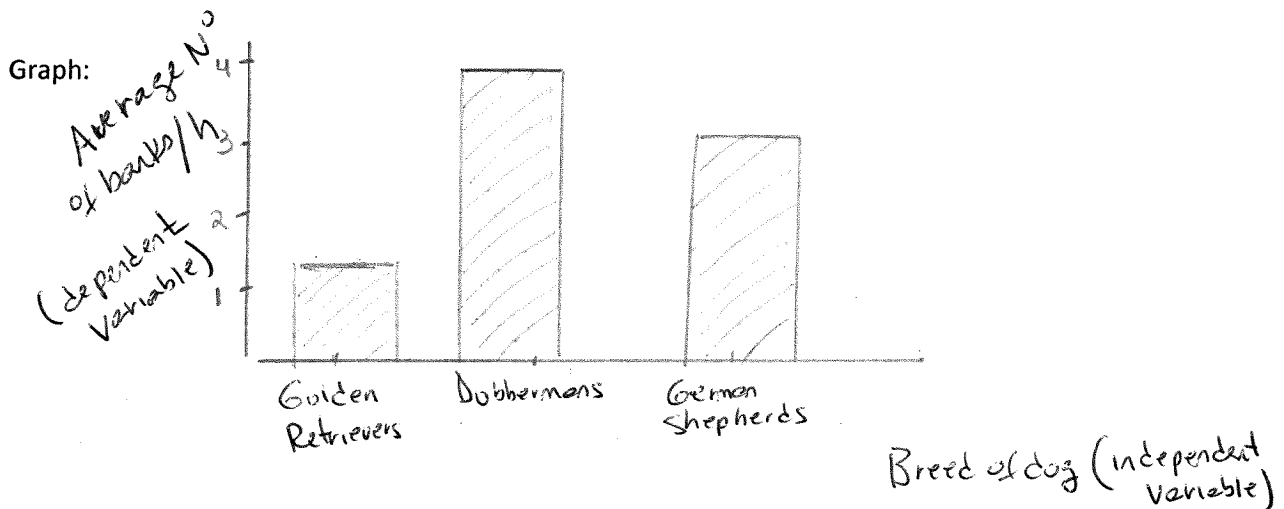
Data collection:

Make up a table of results (make up the data pretending that you took measurements. The table in this case will show

How many times do dogs bark at strangers in a period of 1 h?

Dog No.	Golden retrievers	Dobberman	German Shepherds
1	0	4	4
2	2	4	5
3	1	3	3
4	3	5	4
5	0	2	3
6	2	5	4
7	1	4	2
8	1	3	0
9	1	4	2
10	2	3	4
Average	1.3	3.7	3.1

Analyze the data to be able to reach a conclusion: I calculated the average for each group, and the comparison of average data tells me that golden retrievers have a lower number of barks per hour



Conclusion: Do you accept or reject the **hypothesis**?

Conclusion (remember the conclusion always refers to the hypothesis): I accept my hypothesis. I found enough evidence to state that Golden retrievers bark less than other dogs.

Your assignment No. 1:

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2. What observations have you done
3. What is your hypothesis

5. How will you set up your experiment

In an experiment you must include the following factors:

- *control group and experimental group (Groups are also called treatments)*
- *Independent variable and dependent variable*
- *No. of replicates for each treatment:*

Control group:

Experimental groups:

Independent variable (*this is the variable I CHOOSE to test*):

Dependent variable (this is the variable that is dependent on the independent variable):

No. of replicates for each treatment:

Data collection:

Make up a table of results (make up the data pretending that you took measurements. The table in this case will show

How many times do dogs bark at strangers in a period of 1 h?

Data collection:

Make up a table with your data (make up the data pretending that you took measurements.

Treatment			
Average			

Analyze the data to be able to reach a conclusion

Graph your data:

Conclusion: Do you accept or reject the hypothesis?

Conclusion: