Writing a Scientific Poster by C. Kohn, Waterford WI

Name: Hour Date:

Scientific posters are incredibly valuable to scientists because they almost always follow the same format. This consistency is critical when presenting your work. Writing a scientific poster may seem complicated at first, but really it is a very simply process if you understand the individual steps. Answer the questions below and be sure to strictly follow the format described.

1. What is your study subject (thing living thing that you are studying)?
*This could be a plant like a radish, an animal like a chicken, or even a person such as a student.*
2. What is your independent variable?

*The independent variable is the thing you are purposely changing; for example, if you added Gatorade mix to chicken feed to measure growth “addition of Gatorade powder” would be your independent variable. You should have only one!*
3. What is your dependent variable?

*You dependent variable is the thing you are measuring. For example if you added Gatorade mix to chicken feed to measure growth, “the weight of the chickens as an indicator of growth” would be your dependent variable. You can have multiple dependent variables but you only need one.* Note: *your dependent variable NEEDS to be specific! Notice how “growth” was not enough – we had to specify that ‘growth’ meant ‘weight’.*
4. What happened? What was the outcome?

*Expected results are what you think will happen as a result of your experiment. For example, if you thought chickens would gain weight as a result of Gatorade mix, you would say “chickens on Gatorade will weigh more than chickens in the control group at the end of the experiment. Again, you need to be specific! Make sure that there is no doubt as to what you mean!*
5. Write your **Title** below. Your Title should include **four** things: 1) The study subject, or the thing you are studying; 2) the independent variable, or the one thing you are changing; 3) the dependent variable, or the thing(s) that you are measuring; and 4) the results, or outcome of your experiment.

***For example, examples of good titles include:****-Radish plants that were given Skittles grew taller on average than the control radishes.
-Broiler Chickens On Gatorade Mix Treatment Weighed 10% More Than Chickens In The Control Group At The End Of The 4 Week Experiment.
-Addition Of 10 Mg Of Caffeine Powder To Water Increases Heart Rate Of Students By An Average Of 10 Beats Per Minute In Comparison To The Control.
-Organic Fertilizer Shows A Statistically Significant Increase In Rate Of Growth Of Radishes In Comparison To The Control

Remember – be specific; no one should have to wonder what you mean.* ***Your message should be clear and straightforward*** *without any need for guessing or interpretation. It is a good idea to also reference your* ***control population*** *(the group that did not receive the treatment). For example, an increase in height of 10% means nothing if the control also increased 10% in height.*
6. **Introduction: Background Information** – in the spaces below, provide at least three key facts that relate to your experiment and would help a reader to understand the nature of the phenomenon that you are studying. Then list the source of the information; your sources should be credible (.edu or .gov *only* for websites!).

	1. Fact:

	Author(s):

	Name of Document:

	Date: Website/Publisher:
	2. Fact:

	Author(s):

	Name of Document:

	Date: Website/Publisher:
	3. Fact:

	Author(s):

	Name of Document:

	Date: Website/Publisher:
7. **Introduction: Hypothesis & Rationale –** in the space below, respond to the following questions:

	1. What was your **research question**? A research question is the unknown ‘thing’ that you were trying to determine.

	We wondered/We were unsure if

	*e.g. We were unsure what impact pure caffeine would have on heart rate.*
	2. What was your **hypothesis**? A hypothesis is what you thought would happen in your experiment.

	We hypothesized that

	*e.g. We hypothesized that the addition of caffeine to pure water would cause a slight increase in the heart rate of participants compared to the control group.*
	3. What is your **rationale**? A rationale is why you think or thought your hypothesis might be right.

	We think/thought this because

	*e.g. We thought this would be true largely because of personal experience. For example, when we would have coffee or soda, it seemed like our own heart rate increased. Research, particularly that of Folgers, et. al., also supports the idea that caffeine raises the heart rate (Folgers, 2009)*
8. **Methods** - List the steps to your experiment below. Be sure to be specific – someone who was not a part of your experiment would have to be able to re-do your experiment just be reading this! Write it just like a recipe, with specific steps, materials, and actions. Use as many steps as you can to include all procedures involved.

	1. Step 1:
	2. Step 2:
	3. Step 3:
	4. Step 4:
	5. Step 5:
	6. Step 6:
	7. Step 7:
	8. Step 8:
9. **Results** – show your results below. A good results section should always include 1) a pictorial depiction of your data (such as a graph, chart, or table), 2) A caption for that table that explains the data in way that a blindfolded person could picture your graph or chart without even seeing it; 3) a description of the trends and meaning of the data

	1. Make a rough draft of a graph, chart, or table of your data below. Label everything
	2. Write a caption for your graph or chart above that explains everything in enough detail that a blindfolded person listening to it could picture your work without ever seeing it.

* 1. Describe the trends in your data below. What does this all mean? What does the data indicate?
1. **Discussion** – The discussion explains the relevance of your results to your experiment and hypothesis.

	1. Re-state your hypothesis:
	2. Explain whether or not your hypothesis was supported by the data you collected:
	3. Explain the significance of b); is your hypothesis right or wrong? Is the data incomplete? Are more experiments needed to make a decision?
	4. Final stance – is your hypothesis right, wrong, or inconclusive and how do you know?
	5. Could your data have been skewed by anything (human error, too small populations, etc)? Explain
	6. What’s next? What is the most logical next step for your work? For example, would it be best to repeat your experiment with some changes? If so, what would you change? Or are you in a place where you could do another related experiment to confirm your work? If so, what would this experiment entail?

**Research Poster Checklist:**

1. Title: Does your title have…
	1. The study subject (the plant, animal, organism, or whatever it is that you worked with)
	2. The independent variable and the dependent variable(s)
	3. The expected results
	4. Your names, class, hour, and school
2. Introduction: does your introduction include…
	1. Relevant background information
	2. The experimental (research) question
	3. The hypothesis
	4. The rationale, or reason for your hypothesis
3. Methods: does your methods section include…
	1. A cook-book recipe-style description of how you will conduct this experiment?
	2. A diagram or flow chart describing your work in a visually simpler way?
4. Results: does this section include…
	1. A graph/chart/table with the anticipated results with…
		1. A legend explaining all symbols or abbreviations
		2. Labeled x axis and y axis
		3. A caption with a description that allows it to stand alone and also includes the important trends in the data
5. Discussion: does this section include…
	1. Your hypothesis, restated
	2. Whether or not your hypothesis was supported by your data (*whether it was right or wrong*)
	3. The significance of the right-ness or wrong-ness of your hypothesis (*is there more to the story? Was there something else that might have affected the results? Could it turn out differently if we performed this experiment in another way? Is there another dependent variable that might be more meaningful*?)
	4. Your final stance – is this hypothesis right or wrong, or do we need more info or time to determine this?
	5. What’s next? Where do we go from here? (*Another experiment? The same experiment with some modification? How can we wrap up this question?*)
6. Bibliography: does this section include…
	1. All major sources, listing the…
		1. Author’s name (last name first, first name last)
		2. Date of publication
		3. Name of document
		4. Publishing agency
		5. Website and date accessed (*if from online*)
	2. Alphabetized listing by author’s last name (e.g. Arthur, J. would precede Baker, T.)
7. General
	1. Would the reader get a complete picture of what you intend to do?
	2. Could the reader repeat your experiment based on this paper without asking questions?
	3. Is it obvious and clear that you know what you expected to find and is this stated in the paper?
	4. Does the discussion present possible results based on evidence and not “hunches”?
	5. Have you plagiarized material? Are you stealing ideas or giving proper credit?