

Name _____

Class _____

Date _____

Science Fair

Guidelines and Due Dates

*This is a mandatory project that must be completed AT HOME. Students will be given SOME class time to work on the writing component of their projects, but must complete the investigation at home!

*A copy of this document can be found on contonascience.weebly.com on the "Resources page". The document is titled "Science Fair."

*(Your child will receive 5 bonus points on their project grade if this sheet is signed by you **and** handed in with the final project!)

Parent and Teacher Initials	Due Dates	Part of Project	Points Towards Final Grade
	601: 4/20 602: 4/20 603: 4/20 604: 4/20	Topic Proposal: Students will hand in a brief summary of their experiments. (see attached form)	15
	601: 5/9 602: 5/9 603: 5/9 604: 5/9 Note: if you need an extra week to work on collecting data please tell me in advance	Rough Draft of Lab Report: Title, Question, Background Information, Hypothesis, Materials, Procedure, Data table, and at least 3 text boxes must be included. <u>*The final draft of the lab report MUST be typed!</u>	15
	601: 5/20 602: 5/20 603: 5/20 604: 5/20	Final Draft of Lab Report: Must be typed and include all parts of the report AND include a minimum of 3 trials of your experiment. Make sure your rough draft is included. <i>(The final draft of the lab report will be counted a second time as a separate grade.)</i>	20
	601: 5/23 602: 5/23 603: 5/23 Presentations will begin the week of 5/23. I will need time to decide who to take to expo on June 4th so these dates are <i>not</i> flexible. <i>In order to be considered for expo you must turn in 100% of your work ON TIME.</i>	Presentation Board: Students will complete a presentation board to visually show how they followed the scientific method. (See attached format)	20
		Materials: Students will use materials used in their experiments as props during their presentations. Students are <i>NOT</i> to recreate their experiments during their presentations.	5
		Presentation: Students will speak about their projects in a 2-5 minute presentation. I will ask for volunteers first, and then we will go in alphabetical order. Students are expected to be able to explain their variables, their procedure and their data.	25

*You may work alone, with a partner, or a group of **no more than 4** people total.

Total Points = 100

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Topic Proposal

- To help you choose a topic, go to <http://www.sciencebuddies.org/>
- Click on “Take Survey!” Button
- This will take you through a series of questions that will figure out what area of science you are interested in. You can choose ANY topic you want EXCEPT volcanoes, earthquakes, anything that explodes, or the Mentos experiment.
- The experiments on the website list the cost and difficulty level of each experiment.
- You may also use an experiment book found at the library or in a bookstore.
- You must consider how this topic is related to civics in our community/the world. For example, how can your research improve our community? Is this going to make our school/community/your home or building more environmentally friendly? Is it going to make our lives easier somehow?

(Continue on the back of the page if you need more room!)

1. The IDD

Question:				
Independent Variable:				
Levels				
Trials				
Dependent Variable:				
Constant variables:				

2. What materials will you need? Make sure these materials are inexpensive and easy to find!

3. What will your procedure be? (Briefly describe how you will collect your data and how long it will take.)

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4. List the new terms and concepts you will need to research to make sure your hypothesis is informed and your discussion is thorough.

5. How will you keep track of your data? *Sketch out a data table like the one below on the last page.*

***Keep in mind-You MUST complete at least 3 trials of your experiment!!! Plan to have enough time to complete these trials before the Final Draft of the Lab Report is due!!!

For example, you are testing the effect of soil type on plant growth. You will have 4 different types of soil to test. For each type of soil, you will have 3 pots set up.

Potting soil-3 pots

Clay-3 pots

Sandy Clay-3 pots

Sand-3 pots

Your data table would look like this:

Type of Soil	Height of Plant (in cm)			
	Week 1	Week 2	Week 3	Week 4
Potting Soil	Pot 1:	Pot 1:	Pot 1:	Pot 1:
	Pot 2:	Pot 2:	Pot 2:	Pot 2:
	Pot 3:	Pot 3:	Pot 3:	Pot 3:
Clay	Pot 1:	Pot 1:	Pot 1:	Pot 1:
	Pot 2:	Pot 2:	Pot 2:	Pot 2:
	Pot 3:	Pot 3:	Pot 3:	Pot 3:
Sandy Clay	Pot 1:	Pot 1:	Pot 1:	Pot 1:
	Pot 2:	Pot 2:	Pot 2:	Pot 2:
	Pot 3:	Pot 3:	Pot 3:	Pot 3:
Sand	Pot 1:	Pot 1:	Pot 1:	Pot 1:
	Pot 2:	Pot 2:	Pot 2:	Pot 2:
	Pot 3:	Pot 3:	Pot 3:	Pot 3:

7. How could your research be used to make changes in our community/world (CIVICS!)?

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Lab Report Format

Title: The effect of _____ on _____

Question: What is the effect of _____ on _____?

Background Research: Write 2-3 paragraphs explaining the major concepts involved in understanding your experiment BEFORE you started it. Save the information about what you learned AFTER completing the experiment for the discussion and conclusion.

IDD: Every student must complete an IDD for their rough and final draft of their Lab Report.

Hypothesis: If _____ then _____ because....

Materials: List the materials you used.

Procedure: In a detailed list of sequential(in order) steps, describe how you collected your data. Make sure to account for the IV, DV, CV, and repeated trials. If you are using a Science Buddies experiment, DO NOT copy the procedure word for word.

Data: Diagrams, pictures, data tables, graphs, sample calculations, brief summary of findings.

Discussion: claim, evidence, scientific reasoning.

Conclusion: My data (supports/does not support) my hypothesis. Explain why and what it means. Discuss what you learned from doing this experiment. Also write questions for further research and experimentation.

Literature Cited/Bibliography: List the sources you used to help you do background research and write your discussion. (Fill out a text box organizer for each source you use- this will help you keep track of your sources.) NOTE: On your presentation board, list your resources in alphabetical order.

CIVICS: Write a reflection on how your project is related to civics. How could your research improve your community/world?

****SEE RESOURCES ON contonascience.weebly.com FOR A COPY OF THE LAB REPORT OUTLINES****

Presentation Board

- A display board can be purchased at Staples for around \$9.
- The display board has three sides so that it is free standing.
- Refer to the diagram below for a format for the display board. You can also “google” “sample science fair display board” for pictures of student samples.
- This board will be used a visual aid during presentations and will be displayed at the school science fair.
- **IMPORTANT NOTE:** The board will be easy to put together if the lab report is simply formatted into a larger font! (50-72+ is a good size) Cut and paste what you have already written. ***Do not have things hanging off the sides of the board-layer pages if you are running out of room.***
- Add color to make your board visually interesting, but do not make it too busy!
- Do not include any images or charts that you are not familiar with just to take up space!!
- The diagram below will be posted as a PDF below the science fair document in case you cannot read it in this document on your computer.

http://www.urbandvantagenyc.org/site_res_view_folder.aspx?id=5140c0ac-b27f-4332-ab37-4aaf87418482

Urban Advantage's Suggested Sections and Layout of the Science Investigation Poster

updated 7/18/2013



<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">Question</p> <p style="text-align: center;">How will... affect...?</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">Hypothesis</p> <p style="text-align: center;">If... then... because...</p> <p style="text-align: center;"><i>Background Information (related to the hypothesis)</i></p> <p style="text-align: center;">Use this section to explain the scientific thinking behind the hypothesis (the "because..." part of the hypothesis)</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Investigation Design</p> <p style="text-align: center;">Write the 5 components of Investigation design here (IV, levels of the IV, number of trials, DV and constants). Option: display a table or graphic organizer containing this information</p> </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">Title</p> <p style="text-align: center;">The effect of... on...</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">Student's name and School</p> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Procedure</p> <p style="text-align: center;">List materials and describe procedures step-by-step</p> </div> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Data/Results</p> <p style="text-align: center;">Got Data? Use data to answer the original question. Include:</p> <p style="text-align: center;">Tables and Graphs</p> <p style="text-align: center;">Report the data. Graph the data.</p> <p style="text-align: center;">Data Analysis</p> <p style="text-align: center;">Summarize trends or patterns in the data. For example: As the amount of... increased, the amount of... decreased.</p> </div> </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">Discussion/Conclusion</p> <p style="text-align: center;">State: Was the hypothesis supported or not? Click here for more information</p> <p style="text-align: center;">Construct a Scientific explanation: A scientific explanation connects the results of this investigation to other scientific knowledge already available on the topic. A scientific explanation consists of: (a) a claim, (b) the evidence/data that supports this claim, (c) reason(s) for these results using the scientific knowledge already available on the topic.</p> <p style="text-align: center;">Reflections: on possible sources of experimental error, on unexpected results.</p> <p style="text-align: center;">Next Steps: Suggestions for further investigations.</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Literature cited</p> </div>
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Name _____

Class _____

Date _____

Materials

- In addition to the display board, each student should bring materials from the experiment to use as props during the presentation. Students **will not** be performing their experiments in front of the class.
- It is strongly recommended that students take pictures of the experiment as they are doing it. If pictures cannot be taken, the student should draw detailed diagrams.

Presentation

- The presentation should be 2-5 minutes long.
- During the presentation, the student should briefly introduce the topic of the experiment, summarize the procedure for the experiment, and summarize their discussion and conclusion.
- Everything needed to complete the presentation should be in the lab report and on the board. However, note cards may also be used as a presentation aide.
- **If ANY student is not acting respectfully during a classmate's presentation, that student will receive a 0 on their presentation and will automatically be disqualified from attending the UA Expo on June 4th.**

Rubrics and Evaluation Forms

Pages beyond this one contain rubrics and evaluation forms for you to use. If it says to attach it to something, follow directions and make sure it is ripped off and attached to what it is asking for!!

Please email me with any questions, comments or concerns!!

Parents can also leave a message in the main office: (718) 428-0587

acontona@thebellacademy.com

- Extra help can be provided during lunch at a student's request on Mondays or Wednesdays.

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Text Box Organizer #2

TOPIC OR QUESTION these concepts or facts will answer or support:

This is a quote from:

These are PARAPHRASED notes from:

This is a quote from:

These are PARAPHRASED notes from:

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Variables

Question:

Independent Variable:

Levels				
Trials				

Dependent Variable:

Constant variables:

Hypothesis

Make an educated prediction from your research. BE SURE TO INCLUDE A QUOTE FROM A TEXT!

If (IV) _____

then (DV) _____

because _____

Materials List

Procedure

In a DETAILED list of steps, describe how you will collect data using the materials you have listed above. Make sure you have a NUMBERED LIST, it contains your IV, DV, CV's, and you explain how to collected data for REPEATED TRIALS.

Name _____

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Data Table

Record your data in an organized data table below. Use any empty space you have to show calculations. Make sure you include a graph of your data.

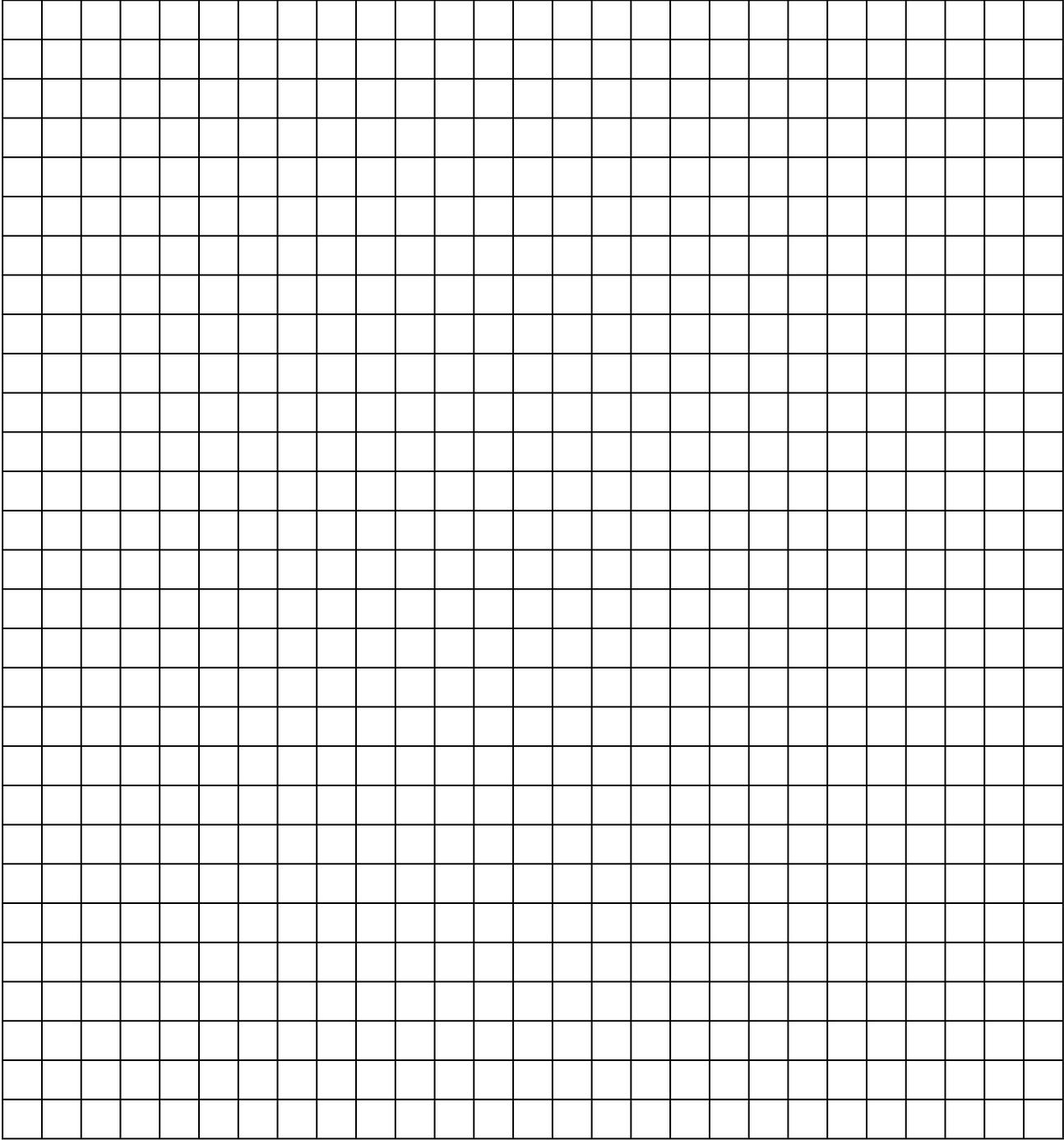
Name _____

Class _____

Date _____

Graph

Title: (See IDD!) _____



Name _____

Class _____

Date _____

Discussion

Claim: A 1-2 sentence statement that describes a pattern or trend you see in your data.

A pattern I see in my (data table, graph) is _____

Evidence: A list of at least 3 pieces of data you have collected that support your claim.

According to my data

According to my data

According to my data

Reasoning: A scientific explanation of why this data happened using at least 2 quotes from your text boxes.

According to _____, “

This means

According to _____, “

This means

Name _____

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Date _____

Conclusion

Restate your hypothesis:

My hypothesis (is, is not) supported by my data. I know this because

Discussion of possible sources of error OR why you believe you did not have sources of error.

Discussion of what you learned from doing this experiment.

Questions you have for further consideration.

Suggestions for others who may want to repeat this experiment.

Name _____

Class _____

Date _____

Literature Cited/Bibliography

Provide a list of resources you used while doing your research. THIS IS NOT OPTIONAL!

-
-
-
-
-
-
-

Name _____

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Presentation Evaluation Form

During the presentation, students should have materials present, speak clearly, make eye contact, and be knowledgeable about their topic.

Name: _____

Teacher: Ms. Contona

Title of Experiment: _____

<u>Criteria</u>	<u>Score</u>
Board is complete with all parts present.	0, 3, 5
Student is able to fully explain the scientific explanation for their results.	0, 5, 10
Student speaks clearly and not too quickly. He or she is easily heard in the back of the room. Student makes eye contact while he or she speaks and does not read directly off the board during the whole presentation.	0, 3, 5
Presentation board is colorful, neat, and attractive.	0, 3, 5
Materials are present for use as props for the presentation.	0, 5
Total points earned = Presentation grade----->	_____

Teacher Comments:
