Science Project Information- Final Project Due: December 6, 2019

ALL MEASUREMENTS USED IN YOUR SCIENCE PROJECTS SHOULD BE STATED USING THE METRIC SYSTEM: Centimeters, Meters, Liters, Grams, Seconds, Celsius, Etc. YOU MAY NOT USE FEET, INCHES, GALLONS, CUPS, OUNCES, POUNDS, ETC.

Log Book: Your logbook is a 3-Prong folder with pockets. All information related to your project will be kept in your 3-Prong folder. It is VERY important that you keep all of your documents as you will be graded on each one. These documents will be needed to complete your project. DO NOT LOSE THEM, THEY ARE PART OF YOUR FINAL GRADE.

Each of the following items will be displayed on your show board and all parts of the show board must be typed.

Everyone will test two (2) groups, a control group and a variable group. Each group will be tested 12 times each for a total of 24 measurements.

YOU MAY NOT USE THE WORDS I, ME, MY, MINE, WE, ETC. MUST BE WRITTEN IN 3rd PERSON.

A. Problem: The problem is the **question.**

- ***Example: Which potting soil will cause plants to grow taller, Miracle Gro or Sam's Choice?***

The question should state exactly what you are measuring.

***B. Purpose:* 2 sentences**: The purpose of the project is…… The project will benefit……..

- ***Example: The purpose of the project is to determine which potting soil, Miracle Gro or Sam's Choice, will cause plants to grow taller. The project will benefit gardeners.***

C. Hypothesis: A hypothesis is a clear statement of what you predict will happen and why. A prediction about what you think the outcome of your experiment and results will be. A clear hypothesis is testable.

- ***Example: Based on research, the Miracle Gro potting soil will cause plants to grow taller than the Sam's Choice potting soil.***

D. Materials: Materials will be listed in chart form and must include: material, brand, size, color and amount. You should include ALL materials that you use from beginning to end.

E. Procedures: ***You will be testing 2 groups, control group and variable group. You will have 12 measurements for each group. Must have written evidence of testing each group 12 times. YOU SHOULD HAVE AT LEAST 10 STEPS FOR THE CONTROL GROUP AND 10 STEPS FOR THE VARIABLE GROUP.***

You are required to record your experimental procedures. You will write down every step of your experiment from beginning to end. This should be a **very detailed explanation** of how you conducted your experiment, weights, measurements, etc.
We should be able to duplicate your experiment exactly by reading your write up, leaving anything out would make a huge difference.
If you build something to be used in your project then you must include this in your procedures, step-by-step- what you built and how. A handwritten copy of your procedures will be turned in. **BE SPECIFIC!!**

These step-by-step directions should be in a numbered format (1, 2, 3). Formal language should be used.
All measurements should be recorded using the metric system, centimeter, millimeter, meter, gram, liter, milliliter, Celsius, seconds etc. DO NOT USE feet, inches, yards, pounds, cups, Fahrenheit.

Even the simplest project should have very detailed procedures. You may not use "REPEAT STEPS 6-13" to describe what you did in either of the groups. You must write out exactly what you did for each group. Writing "REPEAT STEPS 6-13 for the variable group" is not acceptable.

FAILURE TO COMPLETE A DETAILED, NUMBERED PROCEDURE WILL RESULT IN A LOSS OF ½ OF THE PROCEDURE POINTS, 65 POINTS.
WHEN IN DOUBT, ASK FOR HELP!!!!!!!!

*********************PHOTOGRAPHS ARE REQUIRED!!!!!!!*******************

F. Photographs: It is extremely important that you document your project in photographs. **If your pictures do not show evidence that you tested 12 times for each group, you will lose 50 points on the procedure portion of the project.** Example: If you are testing worms I should see 24 worms and 24 worms being tested and measured. A picture of one or two worms will not be acceptable.

- You should have **30** photographs total that document your project. **6 photos should not include any humans, you or anyone else**. These 6 will go on your show board. The other 24 photos should show you testing, 12 control and 12 variable.
- **24 photos must be of your face and body. If you are doing a project that requires you to sit down, then waist up phots are acceptable.**
- **In each photograph, you must have an index card or post-it note that states the group and test # (24 photos).**
- **A caption must be written under each of the 30 photos describing what is happening. YOU MUST WRITE IN COMPLETE SENTENCES.**
- **EXAMPLE: Control- Test 1, Control-Test 2, Variable- Test 1, Variable-Test 2. This should be in all 24 testing photos.**
- **All photographs should be taped or glued into folder on paper, in order. 12 control photos, 12 variable photos and 6 without you in them.**
- **You should be performing an action required for the experiment.**
- **You MUST have actual printed photographs, pictures on a cell phone, camera, or other device are unacceptable**.
- **Wal-**Mart can process pictures in an hour. They are about 9 cents each. Upload to www.walmart.com and place your order online. Walgreens has the same service.
- **Printer problems are NOT an excuse for Not having your pictures**. Don't wait until the last minute!!
- **Pictures can also be printed in the library or computer lab.**

G. Table: Data Collection: Collecting and recording data important. You will be given a table to use with your particular project and all you have to do is fill in the measurements. Be sure to include the measurement you are using (cm, m, mL, seconds, etc.)You will use this data later to create tables and graphs using Excel, so they should be neat and precise.

H. Results/Graph: Your results should consist of **two graphs**, **one bar graph and one line graph**.
The results of your experiment come from your log sheet and document the measurements you obtained from your experiment. Your final graphs will be completed using the Excel program and will be computer generated. These computer generated graphs will go your show board. Your graphs should have a title at the top**. The graphs should be labeled on both the X and Y axis.**

I. Results Paragraph: Your results will be written on a fill-in-the-blank handout provided by your teacher. We will go over the proper way to complete this form.

J. Conclusion Paragraph: The conclusion should be based on your results. It will also be a fill-in-the-blank handout. It should state whether or not the results support the hypothesis.

EX: The results did/did not support the hypothesis. ……. (Restate the hypothesis.)……

K. Abstract: The abstract is a summary of your project that MUST be displayed on your show board. It should be no more than one page in length. The abstract does not need to include specific details about your project, (numbers, weights, measurements). It **MUST** include:

1. Purpose: restate exactly- 2 sentences
2. Hypothesis: restate exactly- 1 sentence
3. Procedure: summarize
4. Results: restate exactly
5. Conclusion: restate exactly- 2 sentences

L. Acknowledgement: (Bottom right corner of show board.)

All photos taken by_____.

All parts of the show board must be typed/computer generated. NO HANDWRITING ON THE BOARD.

IT IS EXTREMELY IMPORTANT THAT YOU STAY UP-TO-DATE WITH YOUR CHILD'S PROGRESS REGARDING THEIR SCIENCE PROJECT. IF YOU HAVE ANY QUESTIONS, PLEASE DO NOT HESITATE TO CONTACT ME.

I UNDERSTAND THAT THIS MAY BE YOUR CHILD'S FIRST SCIENCE PROJECT AND YOURS AS WELL. MAKE SURE THAT YOU AND YOUR CHILD ARE AWARE OF THE DUE DATES FOR EACH PART OF THE PROJECT. EACH PART WILL BE EXPLAINED AND EACH PART WILL BE GRADED THROUGHOUT FIRST AND SECOND QUARTER.

THE COMPLETED SHOWBOARD WILL BE TURNED IN AT THE END OF SECOND QUARTER IN DECEMBER. THE PROJECT WILL BE THREE (3) 100 POINT TEST GARDES. SHOWBOARDS AND LABELS WILL BE SOLD AT SCHOOL.

PLEASE DO NOT HESITATE TO CALL, TEXT OR EMAIL IF YOU HAVE ANY QUESTIONS AT ALL.

I AM ALWAYS AVAILABLE TO HELP YOU AND YOUR CHILD.

All of the science project forms/handouts can be downloaded and printed for my website. Go to www.phillipsprep.com , find my name under "School Staff" and click on "Important Forms".

Please sign below to acknowledge that you have read and understand the instructions and what is expected.

EMAIL: PREWITT: cprewitt@mcpss.com PHONE/TEXT: 401-0926
CASTELIN: dcastelin@mcpss.com

Parent Signature: _____

Parent Email: Please Print:

_____

Student Signature: _____

Student Name(Print Please) _____

SCIENCE PROJECT LOGBOOK PACKET IS ON MRS. PREWITT'S WEBSITE.

GO TO PPS WEBSITE, CLICK SCHOOL INFORMATION, CLICK SCHOOL STAFF AND CLICK MRS. PREWITT'S NAME.

CLICK FORMS AT THE TOP OF THE PAGE. ALL FORMS CAN BE DOWNLOADED AND PRINTED.

FORM IS TITLED "SCIENCE PROJECT LOGBOOK.

SCIENCE PROJECT CONTRACT

THIS HANDOUT WILL REMAIN IN YOUR LOGBOOK/ PROJECT FOLDER.

- **THIS PROJECT IS A 300 POINT TEST GRADE**. It will be a 3rd Quarter grade.
- The various parts of the project will be graded as they are collected throughout the semester.
- Please refer to the **TIMELINE** to make sure your student is meeting deadlines and completing what is due. The **TIMELIN**E also has the point value of each item. Late work will receive a zero.
- Please see project **RUBRIC** for the breakdown of the project and the points associated with each part.
- If your **PHOTOGRAPHS** do not prove that you did your project you will not receive full credit for procedures. You will lose 50 points. Photographic evidence is VERY IMPORTANT.
- Students lose the most points on the **PROCEDURE** portion by not explaining EVERY SINGLE THING THEY DID. This is very important. Failure to properly document your testing in writing will result in a loss of half of the Procedure points. Please see sample for the correct way to write your procedures.
- A sample of the correct way to complete the various parts of the project have been given to students. You will notice that the materials list is very specific. The **PROCEDURES** are very specific. Even the simplest of projects should have detailed procedures.
- Any project that is **NOT APPROVED** by your child's teacher will lose 75 points. Teachers will sign off on the projects to let you know they have permission and that their project is safe.
- **LATE Projects** will lose points. After 8:00 am on the due date, your grade begins at a 210/300 points (70%). Any points deducted will be deducted from 210 points. Projects turned in on the day after the due date, your grade will begin at 180/300 (60%), second day after the due date- 50%, third day after the due date-40%, etc.
- If you are absent on the due date, your project must be delivered to the school. If you know you are going to be absent, **your project must be turned in early.**
- If you are absent on the due date, YOU MUST have a letter from your DOCTOR explaining your absence. A generic excuse with a signature is unacceptable. Your doctor must document your illness. Only serious health matters and true emergencies will be accepted as valid reasons for being absent. A parent letter is not an acceptable excuse for an illness.
- Failure to follow the instructions on the **SCIENCE PROJECT INFORMATION SHEET** will result in a loss of points.
- Please sign below to acknowledge that you have read and understand the requirements for the science project.
- EMAIL: PREWITT: cprewitt@mcpss.com PHONE/TEXT: 401-0926
- EMAIL: CASTELIN: dcastelin@mcpss.com

Parent Signature: _____

Student Signature: _____

Student Name (Print Please)_____

SCIENCE PROJECT TIMELINE/GRADING PROCEDURES: HOME COPY
Dates subject to change. Advanced notice will be given.
(Points in parentheses.)

Grade counted in 1st Quarter:

Due Date	**Assignment**
Aug. 30	Project Idea (15)
Sept. 20	Project topic/procedure summary (16)
Sept. 27.	Research Facts and Hypothesis (20)

Grades counted in 2nd Quarter

Due Date	**Assignment**
Nov. 1	Photos (30)
Nov. 6	Handwritten Procedures (20)
Nov. 18	Data Table (10), Results (10) and Conclusion (10)
Nov. 22	Abstract due (10)

Grade counted in 3rd Quarter

Due Date	**Assignment**
Dec. 5	Logbook (20)
Dec. 6 (2nd quarter)	Project Show board (300)

Please sign below to acknowledge that have read the timeline and grading procedures form.

Parent Signature_____

Student Signature_____

SCIENCE PROJECT IDEA SHEET (30 pts)

Name_____Period_____

Science Project Idea Sheet- Write down 3 ideas that you feel would make a good science project. Remember, a model of a volcano is not a science project. You must be able to measure and test something: height, weight, distance, time, length. **No firearms, explosives, mold, bacteria, vertebrates, or dangerous chemicals.**

EXAMPLES:

Which type of potting soil, Miracle-Grow or Peter's, will grow the tallest plants? (height, cm)

Which brand of paper towel, Bounty or Sparkle, will hold the most water without dripping? (amount of water, mL)

YOU MAY NOT USE THE ABOVE EXAMPLES!!

State your idea in the form of a QUESTION.

1)_____

_____

_____

_____

_____

2)_____

_____

_____

_____

_____

3)_____

_____

_____

_____

Circled Project Approved by Mrs. Prewitt_____

Name_____Period_____

A check mark next to a project means your project ideas do not meet PPS criteria. You will do the project chosen below.

_____**Which parachute, round or rectangular, will fall the quickest?** Drop each parachute 12 times and record the time it takes for each to fall. **You will only make 2 parachutes**, one of each shape. Must use same materials for both. Both parachutes will be dropped from the same height. Record the time in seconds for all 24 trials.

_____**Which color candle, white or red, will burn the longest?** 12 red candles and 12 white candles. **Birthday candles** work best. Record time it takes to burn completely, from a solid to a puddle of wax. **Burn one at a time**. DO NOT LIGHT THEM ALL AT ONCE!!!!!
You must have adult supervision and **parent signature here:_____**

_____**Does the temperature of a tennis ball, room temperature or frozen, affect the bounce of the tennis ball?** You will only need two tennis balls. Place ball in freezer for 10 minutes after each bounce to keep the temperature consistent. **You will not bounce it.** You will **drop** it from the same height each time.

_____**Does the temperature of a candle, frozen or room temperature, affect how long a candle will burn?** 12 candles in the freezer and 12 candles at room temperature. **Birthday candles** work best. Record time it takes to burn **completely**, from solid to a puddle of wax. **Burn one at a time**. DO NOT LIGHT THEM ALL AT THE SAME TIME!!! Time will be recorded in seconds.
You must have adult supervision and **parent signature here:_____**

_____**Will aspirin dissolve faster in water or Sprite?** 12 aspirin dissolved in water, 12 aspirin dissolved in Sprite. Use the same amount of liquid for each trial. DO ONE ASPRIRIN AT A TIME!!! Record the time in seconds. The aspirin will not disappear, it will simply break down and become a pile of white material.

SCIENCE PROJECT TOPIC SHEET (50 Points)

Name_____Period_____

1) Project Name:_____(5 pts)

2) Problem: **ALWAYS A QUESTION**!!!!!!!!What do you want to find out through your experimentation? Be specific!! **COPY FROM IDEA SHEET.**

_____

_____(5 pts)

For your show board you will need to come up with a catchy title**. DO NOT USE THE PROJECT NAME!!**

3) Control Group

_____(5 pts)

4) Variable Group (1)

_____5pts)

5) Number of Trials or Measurements for each GROUP above:
12 control and 12 variable (all projects, unless you have permission to change)

6) ***You must use the metric system: What will you measure?*** Check one (1)!!!!!!!! (5 pts)**

Length in centimeters or meters (cm or m)_____

Distance in centimeters or meters (cm or m)_____

Height in centimeters or meters (cm or m)_____

Time in seconds_____

Temperature in Celsius (C◦)_____

Weight in grams (gm)_____

Volume (or liquid amounts) or milliliters (L, mL)_____

7) Purpose: There should be a valid reason for performing this experiment. Must be 2 sentences.

The purpose of the project is to determine__________

_____

_____(5 pts)

It will benefit _____

_____(5 pts)

8)Materials: List should include materials you think you might need. This list will change when you do your actual project. Materials may be added and deleted .(5 pts)

EXAMPLES
1. Aluminum Cola cans
2. Scotch tape
3. Styrofoam cups
4. Potting soil
5. Uncoated aspirin

MATERIALS:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

HOW WILL YOU TEST? WHAT WILL YOU TEST? WHAT INSTRUMENT WILL YOU USE TO TEST?

_____

_____

_____

_____

_____

_____

_____

_____

RESEARCH- 20 points

Name_____Period_____

KEY WORDS TO RESEARCH: _____

_____ _____

_____ _____

RESEARCH: Where did you find the information? If you searched google.com, DO NOT put www.google.com as your source. Google is a search engine. Write the exact website where you found the information, every character. EX: http://www.sciencebuddies.org/science-fair-projects/project_ideas.shtml

YOU MUST HAVE 3 FACTS PER SOURCE!!

Research: Source:_____5

Fact 1:_____

_____

_____ 5 pts.

Fact 2:_____

_____

_____5 pts.

Fact 3:_____

_____

_____5 pts.

Research: Source:_____5

Fact 1:_____

_____

_____5 pts.

Fact 2:_____

_____

_____5 pts.

Fact 3:_____

_____

_____5 pts.

Research: Source:_____5

Fact 1:_____

_____

_____5 pts.

Fact 2:_____

_____

_____5 pts.

Fact 3:_____

_____

_____5 pts.

HYPOTHESIS: Based on research, _____

_____

_____

_____

_____

_____15 pts.

Research Paper Title (10 Points)

_____

_____

_____

Name_____

Date_____

Period_____

Grade_____**/70**_____

The problem being investigated is_____

_____

_____(5 Points).

This investigation is important because it will benefit_____

_____

_____(5 points).

After researching the problem, the following information that helped shape the hypothesis and experiment.

Based on research,_____

_____

_____(5 points).

Source one stated_____

_____

_____

_____

_____

_____

_____

(15 points).

Source two stated_____

_____

_____

_____

_____

_____(15 points)

Source three stated_____

_____

_____

_____

_____

_____

_____

_____(15 points).

All of these facts provided information that is important to anyone to know prior to testing the previously stated hypothesis.

SOURCES (5 points each)

1._____

_____

2._____

_____

3._____

_____

Name_____Period_____Due Date_____

PROCEDURES RUBRIC- Handwritten or Typed. If there is a check by an item, it needs to be corrected.

_____NO DATA SHOULD BE MENTIONED IN PROCEDURES. Data goes on data table.

_____2 separate sets of steps, Control and Variable

_____At least 10 steps for EACH GROUP. 10 Control, 10 Variable COMPLETE SENTENCES!!!

_____Steps not numbered

_____Needs punctuation

_____Needs capital letters

_____Needs more details/does not fully describe testing

_____Didn't state that each group was tested 12 times each

_____May not use "REPEAT STEPS ____-_____" for an entire group, control or variable

_____Did not describe construction of objects used in project

_____Metric system only- no inches, feet, pounds, cups

_____Did not use exact measurements in description

_____Procedures not organized/Procedures do not flow from one step to the next

_____Confusing- Control and variable group not clear, not clear what was tested or how it was tested.

_____ Less than 10 steps per group- 70%

Remarks:

_____

_____

Parent Signature_____

Student Signature_____

By signing this rubric I am acknowledging that corrections need to be made and I will make necessary changes to ensure that the procedures are done accurately and in great detail. Corrected procedures should be placed on final board. Failure to make corrections will result in a loss of points on final board

NAME: _____ Period_____

PROCEDURES: ONE set of steps for CONTROL GROUP and ONE set of steps for the VARIABLE GROUP. NUMBER EACH STEP.

CONTROL: NUMBERED STEPS.

VARIABLE: NUMBERED STEPS

DATA TABLE- SHOW BOARD TABLE MUST BE TYPED.

PROJECT TITLE:_____

NAME:_____

TRIALS	Control _____ Measurement (ex: height in cm) _____	Variable _____ Measurement (ex: height in cm) _____
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

Name_____Period_____

Results: You must average all of the data in each group. You know how to average!! See sample on page 2 below.

The **control group**,_____(whatever it was) measured_____(cm, meters, liters, milliliters, seconds**) on average.** The (longest, tallest, longest time, what ever you measured) being_____(cm, meters, liters, milliliters, seconds) and the (shortest, smallest least amount of) being_____ (cm, meters, liters, milliliters, seconds).

The **variable group**,_____(whatever it was), measured_____(cm, meters, liters, milliliters, seconds**) on average.** The (longest, tallest, longest time, whatever you measured) being, _____(cm, meters, liters, milliliters, seconds) and the (shortest, smallest least amount of) being_____ (cm, meters, liters, milliliters, seconds).

Conclusion: Did your results support your hypothesis? Explain why or why not! (The results did or did not support the hypothesis because……) Two sentences total, see sample.

_____

_____

_____

_____

_____

_____

_____

SAMPLE RESULTS

The **control group**, seeds planted in Miracle-Gro potting soil, measured 15 cm. **on average.** The tallest plant being 20 cm and the shortest plant being 10 cm. The **variable group**, seeds planted in Sam's Choice potting soil, measured 12 cm. **on average**. The tallest plant being 17 cm. and the shortest plant being 7 cm.

SAMPLE CONCLUSION- 2 sentences

The results did support the hypothesis. It was predicted that the seeds planted in Miracle-Gro potting soil would grow taller than seeds planted in Sam's Choice potting soil.

SAMPLE ABSTRACT

The ABSTRACT should be ONE PARAGRAPH, NOT 5!!!

(PURPOSE) The purpose of this project is to determine which candle, red or white, will burn the longest. (HYPOTHESIS) Based on research, the red candle will burn longer than the white candle. (PROCEDURE SUMMARY) Twelve red candles were burned and the time was recorded for each candle in seconds. Twelve white candles were burned and the time was recorded for each candle in seconds. (RESULTS PARAGRAPH) The control group, the red candles, burned 39,000 seconds on average. The longest burn time being 40,000 seconds and the shortest burn time being 38,000 seconds. The variable group, the white candles, measured 35,000 seconds on average. The longest burn time being 36,000 seconds and the shortest burn time being 34,000 seconds. (CONCLUSION PARAGRAPH) The results did support the hypothesis. The red candles burned longer than the white candles.

INCLUDED IN THE ABSTRACT:
1. Purpose
2. Hypothesis
3. Summary of Procedures (4 or 5 sentences)
4. Results Paragraph
5. Conclusion Paragraph

THE WORDS IN PARENTHESES ARE NOT TO BE INCLUDED IN THE FINAL ABSTRACT. THEY ARE THERE TO SHOW WHAT IS INCLUDED. DO NOT PUT THESE WORDS IN PARENTHESES ON YOUR ABSTRACT. YOU WILL LOSE POINTS!!!!!

ABSTRACT

The purpose of the project is to determine which candle, red or white, will burn the longest. Based on research, the red candle will burn longer than the white candle. Twelve red candles were burned and the time was recorded for each candle in seconds. Twelve white candles were burned and the time was recorded for each candle in seconds. The control group, the red candles, burned 39,000 seconds on average. The longest burn time being 40,000 seconds and the shortest burn time being 38,000 seconds. The variable group, the white candles, measured 35,000 seconds on average. The longest burn time being 36,000 seconds and the shortest burn time being 34,000 seconds. The results did support the hypothesis. The red candles burned longer than the white candles.

ABSTRACT

Name_____Period_____

THIS IS A COPY OF WHAT YOU WILL TURN IN TO ME WITH YOUR SHOWBOARD.
10 or 12 point font, Times New Roman, black ink only
It will go in the pocket of the LOGBOOK FOLDER.

Your Name
Your Class Period

PROBLEM
How music effects the growth of an organism (red worms)?

PURPOSE
The purpose of the project is to determine if music will affect the growth of an organism. The project will benefit farmers, fishermen or anyone that raises red worms for use in composts, as fishing bait, or for resale purposes.

HYPOTHESIS
Based on research, music will stunt the red worms' growth because constant exposure to music is very relaxing and it will cause the worms to become too relaxed and inactive.

MATERIALS
1. 24 - red worms, ordered online and shipped from Carolina Biological Supply
2. 24 - plastic Rubbermaid Take-Alongs Deep Squares containers, 1300 mL
3. 1 - Mobile Press Register newspaper shredded, 1 cm per container
4. 1 - Bag of Scott's Moisture Advantage Premium Potting Soil, 2 cm per container
5. 1-Deer Park plastic water container, 3L, for storing day old tap water
6. Tap water (day old), 5 mL per container, added every other day for period of three weeks
7. Martha White yellow corn meal, 1 mL per container, added every other day for period of three weeks
8. Pampered Chef teaspoon measurer for measuring 5 mL & 1 mL measurements
9. 1- Oven Basics glass measuring cup, 250 mL
10. 1- Flexi ruler, 30 cm
11. 1 - Black Sharpie
12. 24 - Post-It Notes, yellow & pink, 7 cm x 7 cm
13. 1 - Panasonic Lumix 16x optical zoom camera
14. 2 - sheets of copy paper, 21 cm x 27.5 cm
15. 1 - Folding table, 176 cm x 75 cm
16. 1 - Card table, 76 cm x 76 cm
17. Apple IPOD 4G

PROCEDURE
1. Place order for red worms online from Carolina Biological Supply. These can be shipped via UPS or FedEx for next day or 2nd day delivery. (Note: Worms cannot be exposed to extreme weather conditions, such as extreme cold or heat. You will need to be home when they are delivered!)
2. Fill plastic Deer Park water container with tap water ***1 day before starting experiment***.
3. Set up table for work area.
4. Gather all materials.

CONTROL GROUP- NO MUSIC
5. Take 1 sheet of copy paper and using a Sharpie, title it "Control Group- No Music."
6. Take 12 yellow 7x7cm Post-it notes and label Post-it notes C1- C12, for the control group.
7. Shred old newspaper into thin strips and dampen with water.
8. Measure and add 1 cm of shredded newspaper to each of the 12 Rubbermaid containers labeled C1-C12.
9. Measure and add 2 cm of Scott's Premium Potting Soil to each of the 24 Rubbermaid containers labeled C1-C12.
10. Measure and add 5 mL of day old tap water to each of the 24 Rubbermaid containers.
11. Place one worm in each of the plastic containers labeled C1-C12
12. Use the Flexi ruler to measure each of the 12 control worms, one at a time, in centimeters.

13. Record their individual measurements on the appropriately named yellow Post-It Notes.
14. Set up the smaller table in bedroom and move the 12 containers from the control group to a spare bedroom and leave alone, with no music.
15. Every other day, all 12 worms will need to be watered and fed. Do this by adding 5 mL of day old tap water and 1 mL of Martha White yellow corn meal to each container.
16. At the end of the three week testing period, measure each of the 12 worms from the control group again and record their ending measurements on the original 7x7cm yellow Post-It note that shows their beginning measurement.
17. Record the amount of growth for the control group on the data table

VARIABLE GROUP- MUSIC

18. Take 1 sheet of copy paper and using a Sharpie, title it "Variable Group- Music."
19. Take 12 pink 7x7cm Post-it notes and label Post-it notes V1- V12, for the variable group.
20. Shred old newspaper into thin strips and dampen with water.
21. Measure and add 1 cm of shredded newspaper to each of the 12 Rubbermaid containers labeled V1-V12.
22. Measure and add 2 cm of Scott's Premium Potting Soil to each of the 24 Rubbermaid containers labeled V1-V12.
23. Measure and add 5 mL of day old tap water to each of the 24 Rubbermaid containers.
24. Place one worm in each of the plastic containers labeled V1-V12.
25. Use the Flexi ruler to measure each of the 12 control worms, one at a time, in centimeters.
26. Record their individual measurements on the appropriately named pink 7x7 Post-It Notes.
27. Set up table in laundry room with 12 containers.
28. Set up the IPOD on the charger, turn on and begin to play music from the selected play list. IPOD should play music nonstop.
29. Every other day, all 12 worms will need to be watered and fed. Do this by adding 5mL of day old tap water and 1 mL of Martha White yellow corn meal to each container.
30. At the end of the three week testing period, measure each of the 12 worms from the variable group again and record their ending measurements on the original 7x7cm pink Post-It note that shows their beginning measurement.
31. Record the amount of growth for the control group on your data table

RESULTS

The Control Group, red worms, grew on average 0.71 cm. The longest measured 7.0 cm and the shortest measured 5.0 cm. The Variable Group, red worms, grew 1.83 cm on average. The longest being 7.5 cm and the shortest being 5.0 cm.

CONCLUSION

The results did not support the hypothesis. Based on research, the variable group's growth would be stunted by the music, but instead it made them grow on average 1.1 cm longer than the control group.

ABSTRACT (This is copied exactly from above, with a 1 or 2 sentence summary of the procedure)

The purpose of the project is to determine if music will affect the growth of an organism. The project will benefit farmers, fishermen or anyone that raises red worms for use in composts, as fishing bait, or for resale purposes. Based on research, music will stunt the red worms' growth because constant exposure to music is very relaxing and it will cause the worms to become too relaxed and inactive. 12 red worms were exposed to music and 12 red worms to silence to see if the music affected the growth of the worms. The Control Group, red worms, grew on average 0.71 cm. The longest measured 7.0 cm and the shortest measured 5.0 cm. The Variable Group, red worms, grew 1.83 cm on average. The longest one being 7.5 cm and the shortest being 5.0 cm. The results did not support the hypothesis. Based on research, the variable group's growth would be stunted by the music, but instead it made them grow on average 1.1 cm longer than the control group.

LOGBOOK TABLE OF CONTENTS

Name_____Period_____

Date Turned in 12/____/ 2019

Logbook Points_____/20 Copies in Pocket_____/10

If you wish to use this to check your handouts, put a check √ to the RIGHT, NOT ON THE LINES. THE LINES ARE FOR ME TO CHECK YOUR WORK.

IN PRONGS OF FOLDER IN THIS ORDER: 20 points

_____Table of Contents- this page- 2 points

_____1. Idea Sheet- 2points

_____2. Topic Sheet- 2 points

_____3. Research Facts and Hypothesis- 2 points

_____4. Research Paper- 2 points

_____5. Procedures- 2 points

_____6. Data Table (typed or handwritten) 2 points

_____7. Results and Conclusion- 2 points

_____8. Abstract- 2 points

_____9. 24 photos in order, control, variable, extra 6- 2 points

IN FRONT POCKET OF FOLDER IN THIS ORDER:

_____Science Project Reminder signed by parent and student (-20 off project if not signed)

_____Science Project Rubric (-5 off project if no rubric in folder)

_____Copies- 2 pages max STAPLED- 10 points (DO NOT PUT ONE ITEM PER PAGE. I DO NOT WANT 8 PAGES, 2 PAGES MAX.)

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SCIENCE PROJECT TIMELINE/GRADING PROCEDURES
Dates subject to change. Advanced notice will be given.

Grade counted in 1st Quarter:

Due Date	**Assignment**
Aug. 30	Project Idea
Sept. 20	Project topic/procedure summary
Sept. 27.	Research Facts and Hypothesis

Grades counted in 2nd Quarter

Due Date	**Assignment**
Nov. 1	Photos
Nov. 8	Handwritten Procedures
Nov. 18	Data Table, Results and Conclusion paragraph
Nov. 22	Abstract due

Grade counted in 3rd Quarter

Due Date	**Assignment**
Dec. 5	Logbook
Dec. 6 (2nd quarter)	Project Show board