

# **Community Walk**

## **Project Packet**

Math 9<sup>th</sup> Grade Edition

Mr. Dave & Ms. Kat

Maria Montessori Academy

Dear Families,

During this first cycle your child will engage in a community observation math project of his or her own choice, which we will call “Community Walk” or CW. Your child has copy of the guidelines in his/her CW folder (or entry log). Your student is expected to complete a self-guided math project this quarter in the form of an observational experiment that can be quite data heavy as they observe change in their community and relate it back to our theme this cycle. Much of the work will take place at home or by walking around the student’s neighborhood community.

It is important for you to be involved in this area of their math study for your child’s success and safety. The students have been told to think about their safety first when doing these observations in the community by being aware of their surroundings. Please, do not allow the students to go anywhere that could be considered dangerous for this project.

Also, you may be needed as a subject, chauffer, or supervisor for these observations. I appreciate the roles that you will play. Observation, investigation, and problem solving are usually topics discussed in the science class, but a lot of the data compiling and data analysis is done in the math class. As such, the student’s project packet will be their guide to this project to help them through their observations without needing additional science knowledge. The reflection questions that follow the student’s observations and journal entriees will help them take the scientific method into the world around them!

CW grading is based on (a) the thoroughness of records kept in the log, (b) time spent doing the activity, (c) your signatures, and (d) the mathematical analysis of their data and presentation of their findings. Students also receive a grade for presenting their project to the class.

By Thursday, September 7th, please discuss with your child the choice of their topic and make a final decision to begin observations.

With the amount of detail that this project follows, it could be easily adapted into a science fair project, but this type of extension would not be necessary for this project. Math outside the classroom can be a fun experience for you and your child. Thank you again for your help this quarter!

Sincerely,

Mr. Dave  
School Phone Number  
[dmconkey@mariamontessoriacademy.org](mailto:dmconkey@mariamontessoriacademy.org)

Ms. Kat  
School Phone Number  
[klowe@mariamontessoriacademy.org](mailto:klowe@mariamontessoriacademy.org)

## **Brainstorm Page**

### **Answer the questions below:**

Identify two changes that you see in your community.

How do you know that these objects or events are changing? Do you know where you can observe these occurrences safely in your community?

Why do you think these objects are changing? Is there a pattern to their change?

### **Alternative Brainstorm**

Go on a practice community walk (See project packet for instructions).

Identify at least two things that you observed changing on your community walk.

How can these events or changes be documented?

Do you know why they are changing?

What do you think is the purpose of the objects or events changing?

Is there a pattern to the way the objects or events are changing?  
If there is no pattern, how do you know there is no pattern?

What events occurred on your walk that you are curious about?

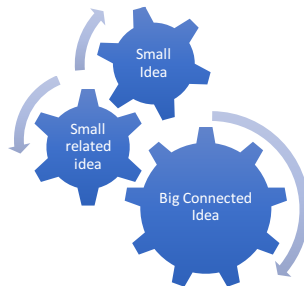
Was there anything that happened that confused you or you would like to know more about?

# CW: Community Walk

Name: \_\_\_\_\_

## **Background and Guidelines**

CW stands for “Community Walk”. It is a real-world math observation project that is carried out by you. I will provide you with a guide to your mathematical analysis of your data, but you must take the initiative to plan, complete, and document your efforts and data. To find inspiration, take a walk around your neighborhood. If you’re still struggling with a topic, the first pages of the project packet have a page to help you brainstorm.



## **Safety**

Please observe all local laws and property boundaries during your community walk. Be aware of your surroundings as you are walking. Avoid doing this walk at night time or in places that it is hard to see pedestrians.



## **CW Folder**

1. Use a 3-prong folder with pockets. Write “Community Walk”, your name, and “Math 7” on the front in a high contrast marker.
2. In the center section, put this handout followed by the CW forms and work.
3. Each time you complete more work on your project, fill in your log sheet and have an adult sign it. Log your time when you do your community walks, not when calculating or data logging.

## **Academic Standards Addressed**

7.RP.1-3: Analyze proportional relationships and use them to solve real-world and mathematical problems.

<b>How to complete the Community Walk Project</b>
<i>For an A (between 90 and 100 points) you will need to complete the following guidelines:</i>
<b>Summary:</b> Makes observations of a neighborhood and document the observations with quantitative or qualitative data to find direct and indirect proportionality in our natural environment through the point of view of change occurring around us.
<b>Components:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify an event or object that you can observe changing or not changing in your community or environment.</li> <li><input type="checkbox"/> Decide if you are going to collect quantitative or qualitative data.</li> <li><input type="checkbox"/> Collect and record your data (6 entries minimum)</li> <li><input type="checkbox"/> Journal about your data collection and your observations of your community (This is independent of the reflection questions).</li> <li><input type="checkbox"/> Analyze your findings using charts and graphs.</li> <li><input type="checkbox"/> Final reflection on your findings</li> <li><input type="checkbox"/> State the proportionality relationship your event or topic has shown. (Direct, Indirect, Neither)</li> <li><input type="checkbox"/> Display data on a tri-fold.</li> <li><input type="checkbox"/> Present data to the class.</li> </ul>
<b>Grading:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Work must be on time for credit</li> <li><input type="checkbox"/> Time logged for community walk observations (This is doing the observations, not the writing entries, data calculating, or presentation making)</li> <li><input type="checkbox"/> Observation journals need to be typed for board</li> <li><input type="checkbox"/> Data needs to be presented on board. <ul style="list-style-type: none"> <li><input type="checkbox"/> Pictures if Qualitative</li> <li><input type="checkbox"/> Chart or Graph if Quantitative</li> </ul> </li> <li><input type="checkbox"/> Logs are completed and signed</li> <li><input type="checkbox"/> Observation logs and notes should be checked in on progress days and turned in on final due date.</li> <li><input type="checkbox"/> If sources are used, a Bibliography should be made in APA format to accompany the presentation.</li> </ul>

## Teacher Check-In Dates

Tasks to be Completed	Check-In Date
Step 1 – 3 in Packet (2 Observations Total)	Friday, September 15 <sup>th</sup> , 2017
Step 4 in Packet (4 Observations Total)	Thursday, September, 21 <sup>st</sup> , 2017
Step 5 in Packet (6 Observations Total)	Friday, September 29 <sup>th</sup> , 2017
Step 6 & Step 7 (Final Analysis & Summary)	Wednesday, October 11 <sup>th</sup> , 2017
Display for Presentation	Friday, October 13 <sup>th</sup> , 2017
Class Presentation	Tuesday, October 17 <sup>th</sup> , 2017

Observation Work Log Sheet			
Date	Time	Summary of Activity	Parent Signature

# Step 1

## Topic Selection Page

**Return a copy to Mr. Dave and Ms. Kat.**

Observation Topic: \_\_\_\_\_

Data Type: \_\_\_\_\_

Back-up Observation Topic: \_\_\_\_\_

Data Type: \_\_\_\_\_

Parent Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Teacher Approval: \_\_\_\_\_ Date: \_\_\_\_\_

**Teacher Comments:**

# Step 2

Complete Entry By: \_\_\_\_\_

## Data Types

### Quantitative vs Qualitative

There are two types of data that can be collected. There is quantitative which is number based and there is qualitative which is image based.

### Definition:

**Quantitative Data:** *Data* expressing a certain quantity, amount or range.

Examples: 2 *in*, 3 *cm* , 5 *ft*, 6°C, *lightyears*, etc.

**Qualitative Data:** *Data* that approximates or characterizes but does not measure the attributes, characteristics, properties, etc., of a thing or phenomenon.

Examples: hot, cold, *red*, *blue*, heavy

### What type of Data will you collect?

- Quantitative
  - Can I count the occurrences of the event?
  - Is it something that can be measured?
- Qualitative
  - Can I describe the occurrences without using numbers?
  - Is it something that is abstract or non-concrete?

My Choice of Data: \_\_\_\_\_



## Initial Questions

1. How do these data types relate to our theme of change?

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2. How do you feel about this type of assignment and the process of observation? Does it scare you? Thrill you? Challenge you? What obstacles do you think you will face? What types of things will you need help with? Who will you call for help? What is your plan for completing all parts of the project by the given deadlines?

This image shows a full page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for handwriting practice or general writing. There are no margins, text, or other markings on the page.

# Step 3

## First Two Observations

Complete Entry By: \_\_\_\_\_

### What is a “Community Walk”

A community walk for this project will be defined as a normal paced 20-minute walk around your local neighborhood. The walk should be silent in order to make sure to collect data on all the observations around you in the community environment. Listen to the sounds. What do you hear? *What is surprising to you?* Look around you. What do you see? *What stands out to you?* Close your eyes. What do you feel? *What inspires you?* What do you smell? *What connects you?*

Make written observations on what you can sense with your five senses and make sure to document what you feel as well.

### Observation #1 Reflection Questions

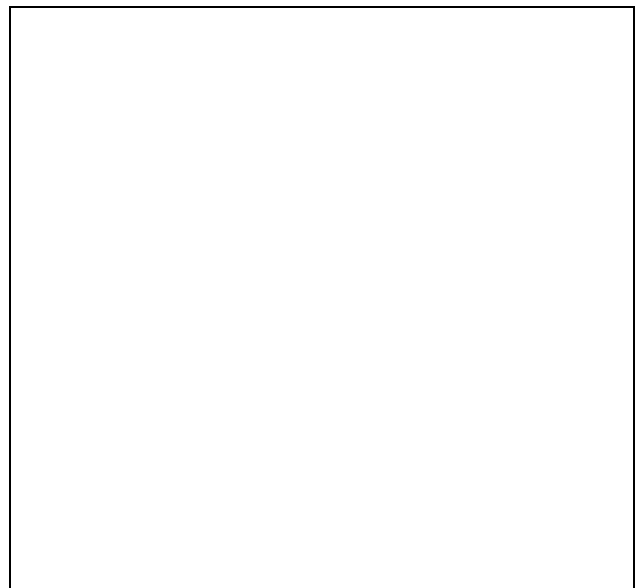
1. What events did you witness on your “community walk”?

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Record any data collected on the table provided (if quantitative) or draw a sketch of your qualitative data.

2. What ideas do you have on presenting this data?

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3. How do you think the data will change at the next observation?

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4. Why did you choose this topic to observe?

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### Observation #2 Reflection Questions

1. What events did you witness on your “community walk”? Was anything different this time? Was anything the same?

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Record any data collected on the table provided (if quantitative) or draw a sketch of your qualitative data.


2. You now have two data points or data clusters. What can you observe about the two? What is the same? What is different?

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3. Do you think your topic is best observed using quantitative data or qualitative day? Could your event or object be observed with the other type of data? Why or why not?

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4. Reflecting on your hypothesis from, question 3 on Observation #1, were you correct on how the data changed? How did it change? Could you predict how it will react on observation #3?

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## **Teacher Check-In: Friday, September 15<sup>th</sup>**

Student Signature: \_\_\_\_\_

Parent Signature: \_\_\_\_\_

Teacher Signature: \_\_\_\_\_

Teacher Comments:

# Step 4

## Next Two Observations (#3 & #4)

### Observation #3 Reflection Questions

1. What events did you witness on your “community walk”? Lists things that have not been mentioned before. Did anything different happen this time that confused you?

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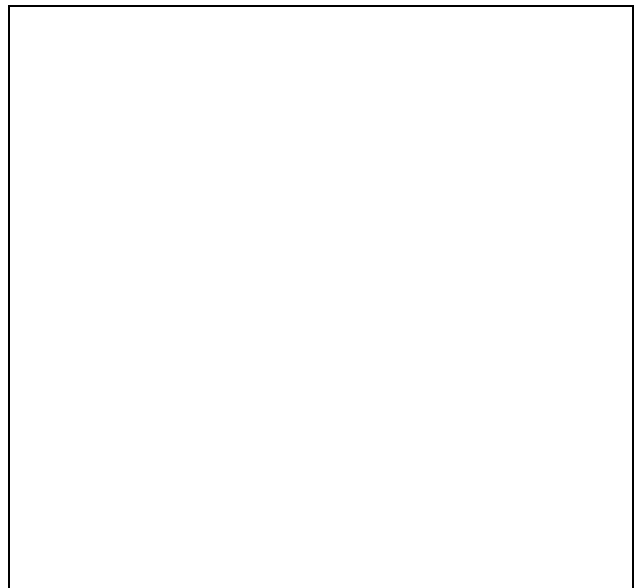
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Record any data collected on the table provided (if quantitative) or draw a sketch of your qualitative data.

2. What additional details have you noticed about your topic or events? Is something causing the event? Is it mechanical or natural?

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3. Is there a scientific topic that can describe or relate to your observed phenomena? (List Sources)

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4. Are you noticing any patterns in your data? Is anything changing?

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Observation # 4 Reflection Questions

1.What events did you witness on your “community walk”?

Record any data collected on the table provided (if quantitative) or draw a sketch of your qualitative data.


2. What additional details have you noticed about your topic that hasn’t been mentioned before?



3. German theoretical physicist, Werner Hisenberg, said, “What you study, you change?” How has your observations of your topic changed it?

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4. How has your perspective of your topic changed through your observations?

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## **Teacher Check-In:** Thursdaay, September 21<sup>st</sup>

Student Signature: \_\_\_\_\_

Parent Signature: \_\_\_\_\_

Teacher Signature: \_\_\_\_\_

Teacher Comments:

# Step 5

## Final Observations

### Observation # 5 Reflection Questions

1.What events did you witness on your “community walk”?

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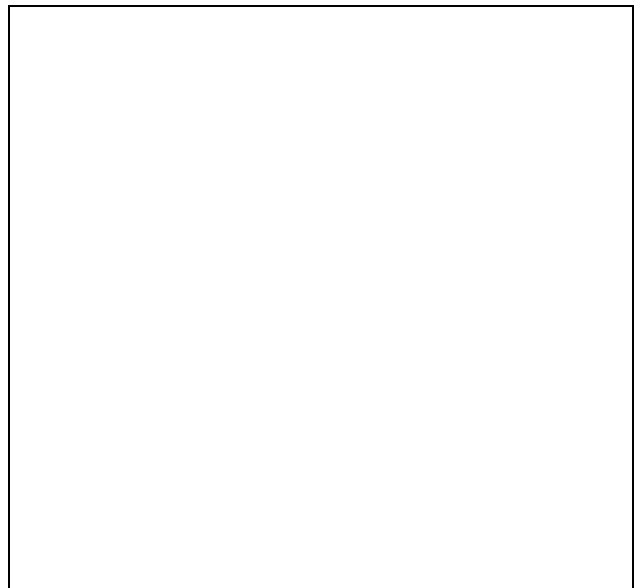
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Record any data collected on the table provided (if quantitative) or draw a sketch of your qualitative data.

2. Summarize your observations of your phenomena from your first four observations. Did you notice anything different on your fifth observation?

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3. Did you notice a pattern to your data? Is it changing in any way? What do you think is causing those changes? Describe the pattern that you notice. Is it growing/increasing or shrinking/decreasing? How do you know?

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## Observation # 6 Reflection Questions

1. What events did you witness on your “community walk”?

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Record any data collected on the table provided (if quantitative) or draw a sketch of your qualitative data.




2. How does this project relate to our theme of Change?

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**Teacher Check-In:** Friday, September 29<sup>th</sup>

Student Signature: \_\_\_\_\_

Parent Signature: \_\_\_\_\_

Teacher Signature: \_\_\_\_\_

Teacher Comments:

## Step 6

### Data Analysis

## Quantitative Data Analysis

(If Qualitative, skip this page and see Page 23)

Complete the table by combining all of your quantitative data from all 6 observations.

[illegible]

## Data Reflection (Quantitative Only)

1. Are you noticing any trends in the data? Is the data Directly Proportional, Indirectly Proportional or Non-Proportional? (Answer either a, b or c)

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- a. If Directly, what is the proportion or ratio?

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- b. If Indirectly, what is the proportion or ratio?

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- c. If Non-Proportional, why is it not Directly Proportional or Indirectly Proportional? Cite one example from your data as your counter example.

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2. What is your conclusion on your data?

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## Data Reflection (Qualitative Only)

1. Based on your knowledge from math class, how can you represent your data as a proportion?

a. Does something increase as another thing decrease? (Indirect Proportion)

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b. Does something increase and cause something else to increase? (Direct Proportion)

c. Does it randomly increase with no pattern? If so, cite an example from your sketches. (Non-Proportion)

Sketch your explanation below:





## Step 7

### Summarize Your Analysis

1. What type of proportionality does your topic have? (See Step 6)

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2. How do we know that? (See Step 6)

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3. How are you going to display the proportionality of your phenomena on your tri-fold board?

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### Rubric for Observations/Reflections

Packet Parts/Point Break Down	Full (Complete) [10 points]	Partial (Un-answered Questions/Missing Data) [5 points]
Steps # 1-3		
Steps # 4-5		
Step 6		
Observation Work Log (Min. 6)		
Total	/40	

## **Teacher Check-In:** Wednesday, October 11<sup>th</sup>

Student Signature: \_\_\_\_\_

Parent Signature: \_\_\_\_\_

Teacher Signature: \_\_\_\_\_

Teacher Comments:

# Step 8

## Display Board

Complete Entry By: \_\_\_\_\_

### **Overall Design**

- Should the design board have a theme?
- What 2-3 colors will you use as your background and lettering?
- How will you attach items to your board?
- How will you keep your board from becoming too cluttered or “busy”?
- How can you give your display a unique “touch” that is clearly your own?

### **Organization of the Board**

- How will you use all the space available to display the work you have done on your topic?
  - What will you place on the center of the board?
  - What will go on the two sides?
  - What parts of your journal will you reproduce to add to your display?
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### **Lettering/Captions**

- What types and sizes of lettering will you use?
- What captions do you need? Will you use a computer, stencil, or other means for lettering?

### **Table Space/Other**

- How will you display your journal?
- Are there other materials you could bring to enhance your presentation?

## **Teacher Check-In:** Friday, October 13<sup>th</sup>

Student Signature: \_\_\_\_\_

Parent Signature: \_\_\_\_\_

Teacher Signature: \_\_\_\_\_

Teacher Comments:

# Step 9

## Class Presentation

Key Components of Your Presentation:

Card #1: Self

Introduce yourself and your community

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Card #2: Topic

Introduce your topic. Explain why you chose it.

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Card #3: Observation Log

Pick one entry to share. Include why you're sharing this particular entry.

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Card #4: Display Board

Point to something relevant on your board.

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Card #5: Your Data

Describe your phenomena and its proportionality or why it doesn't have one.

Decide how to back up your claim. (Use Step 6 of Packet)

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Participation & Final Self-Assessment			
Student Score	Teacher Score	Expectation	Explanation of Student Grade
		Amount of time spent was appropriate for Project [40 pts]	
		Necessary signatures have been collected (Teacher & Parent) [10 pts]	
		Packet has 6 Journal entries or more of "Community Walks" [20]	
		Sources Sighted (Bibliography) [5 pts]	
		Work is organized in a folder. Everything is easy to find. [5 pts]	
		Total Possible [100 pts]	

\*\*\*Turn in all Journal Entries, Project Packet, Tri-fold, Research with Bibliography, and other related information for grading of your project to Mr. Dave & Ms. Kat after your presentation.\*\*\*