

Name: _____ Date: _____ Period: _____

Lab: Moving Colors

Problem/Question: In which plate of water will the M&M color to spread the fastest?

Hypothesis (use if-then-because format):

If _____

Then _____

Because _____

Materials:

-3 foam plates, labeled hot, cold and room

-3 same-color M&M's

-hot water

-room temperature water

-ipad

-stop watch

-crayons/colored pencils

-cold water

-paper towels

Procedure:

___ 1. Pour _____ mL of each temperature of water into the matching plate.

___ 2. Make sure your time manger is ready to use the stopwatch when M & M's are placed onto the plate.

___ 3. At the same time, place an M&M onto each plate of water and start your stopwatch.

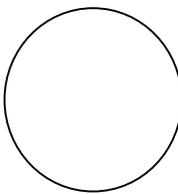
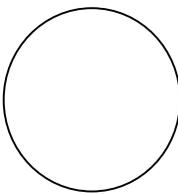
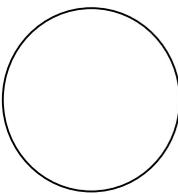
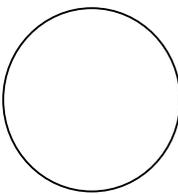
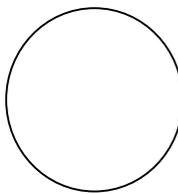
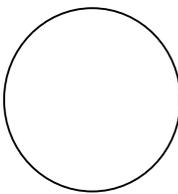
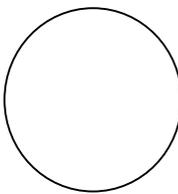
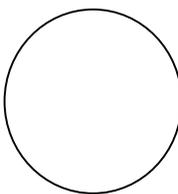
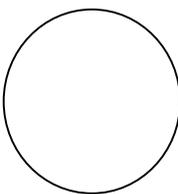
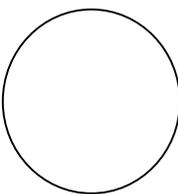
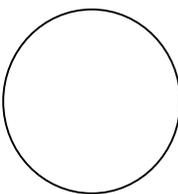
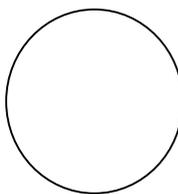
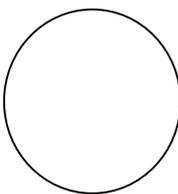
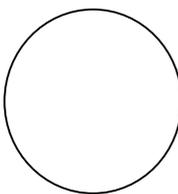
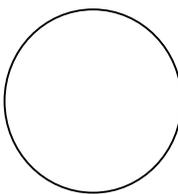
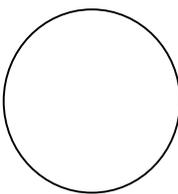
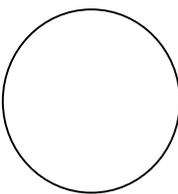
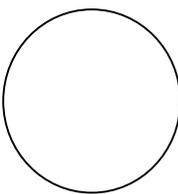
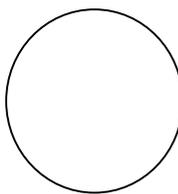
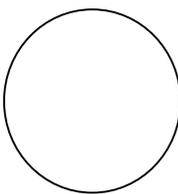
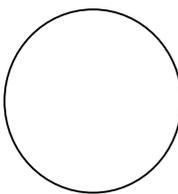
___ 4. When M&M's are first dropped, immediately take your first picture.

___ 5. Carefully observe what happens to each M&M that is placed on the plate.

___ 6. Every 10 seconds for the next 2 minutes, take a picture of the three plates. Discuss your observations of the activity in each plate.

___ 7. Use the pictures as a reference to draw your observations of the changes that occurred with each M&M.

Drawings of M&M's: Refer to your pictures and use color to add your observations to the data chart below. Remember your drawing should accurately show the changes that occurred. Your drawings should match your pictures from the ipad.

Temp.	Initial	10 sec.	20 sec.	30 sec.	40 sec.	50 sec.	60 sec.
Hot							
Cold							
Room							

Data Analysis/Conclusion: Answer each question on your paper.

1) Through which plate of water did the M&M coloring spread the fastest?

2) Which plate of water took the longest for the M&M coloring to spread?

3) Which temperature of water seemed to have the most energy? Explain your reason.

4) Where do you think the heat energy from the hot water goes as the temperature dropped? _____

5) Write a conclusion that compares your results to your hypothesis (ie does your data support or refute your hypothesis). Were there any errors that affected your results? Would you make changes to the procedure if you were to repeat the lab? What did you learn about how heat affects molecules? Write your paragraph on the notebook page where this will be glued.

Answer Key

Data Analysis/Conclusion: Answer each question on your paper.

- 1) Through which plate of water did the M&M coloring spread the fastest? _____ based on data, but expected results should be that the hot water spread the color fastest.
- 2) Which plate of water took the longest for the M&M coloring to spread? _____ based on data, but expected results should be that the cold water spread the color the slowest. _____
- 3) Which temperature of water seemed to have the most energy? Explain your reason. _____ The hot water because the color spread faster, which means the water molecules, are moving more.
- 4) Where do you think the heat energy from the hot water goes as the temperature dropped? _____ It diffuses into the air _____
