

**WARNING: Food coloring will stain your clothes and skin. DO NOT use more than ONE drop when required. Failure to following these instructions will result in an F.**

## Diffusion in a Dish

Name \_\_\_\_\_ Period \_\_\_\_\_

**Introduction:** Diffusion is defined as the movement of molecules from a high concentration to a low concentration. In this activity, you will observe the movement of food coloring as it diffuses in hot and cold water.

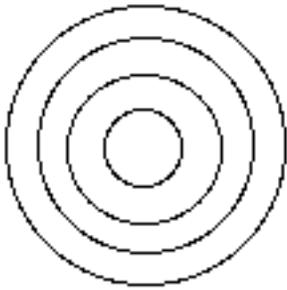
**Prediction:** Write either HOT or COLD in the blank: Diffusion will happen faster in \_\_\_\_\_ water.

**Materials:** Petri Dish, Bullseye, Beaker, Food Coloring

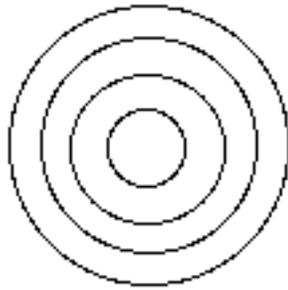
**Procedures: (Put a check mark next to each step when you do it)**

- \_\_\_ 1. Add COLD or HOT water to a beaker. It should be about  $\frac{1}{2}$  way full.
- \_\_\_ 2. \_\_\_ 3. Let the water settle so there are no ripples.
- \_\_\_ 4. One person in your group needs to get the food coloring ready and will add it to the dish  
WHEN THE TEACHER says to and sets the timer. DO NOT BUMP THE PETRI DISH.
- \_\_\_ 5. After 30 seconds (:30 mark), draw what you see in the 1st bullseye.
- \_\_\_ 6. After 1 more minute (1:30 mark) draw what you see in the 2<sup>nd</sup> circle.
- \_\_\_ 7. After 1 more minute (2:30 mark) draw what you see in the 3<sup>rd</sup> bullseye.
- \_\_\_ 8. Draw again at 4 minutes in the 4<sup>th</sup> bullseye.
- \_\_\_ 9. Clean up by pouring the water back in the beaker, then rinsing the petri dish out at the sink.
- \_\_\_ 10. Add either COLD or HOT (the opposite of what you did before) water to the petri dish. It should be nearly full.
- \_\_\_ 11. Put the petri dish on top of the bullseye on the floor and fill it almost all the full with the water.
- \_\_\_ 12. Let the water settle so there are no ripples.
- \_\_\_ 13. One person in your group needs to get the food coloring ready and will add it to the dish  
WHEN THE TEACHER says to and sets the timer.
- \_\_\_ 14. After 30 seconds (:30 mark), draw what you see in the 1st bullseye.
- \_\_\_ 15. After 1 more minute (1:30 mark) draw what you see in the 2<sup>nd</sup> circle.
- \_\_\_ 16. After 1 more minute (2:30 mark) draw what you see in the 3<sup>rd</sup> bullseye.
- \_\_\_ 17. Draw again at 4 minutes.
- \_\_\_ 18. Clean up by pouring the water back in the beaker, then rinsing the petri dish out at the sink.
- \_\_\_ 19. Put your materials back in your lab box and answer the questions.

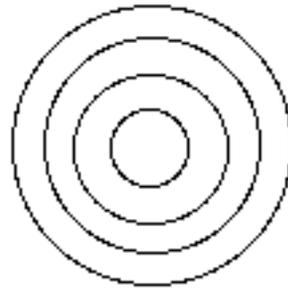
Trial #1 \_\_\_\_\_ Water



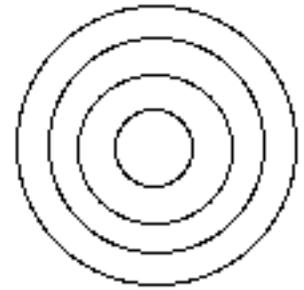
:30 sec mark



1:30 second mark

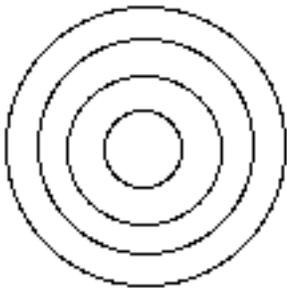


2:30 second

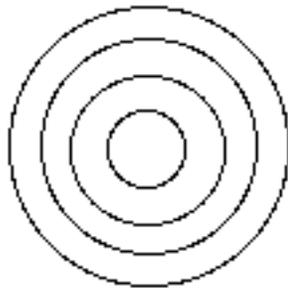


4 minutes

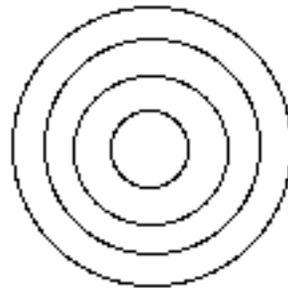
Trial #2 \_\_\_\_\_ Water



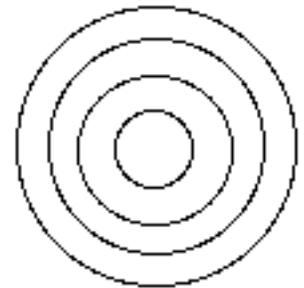
:30 sec mark



1:30 second mark



2:30 second



4 minutes

1. Describe the movement of the food coloring.
2. Why did the food coloring move?
3. What atoms and molecules always doing?
4. What is diffusion?
5. Why did we do this activity on the floor?
6. What are two ways you can make things diffuse faster?
7. Explain in great detail why the food coloring moved faster in hot water?
8. When can you observe diffusion happening in real life?