

The Structure And Motion of Matter (SAMM) Survey

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1. Imagine that someone breaks a glass of perfume on one side of a room and that you are standing on the other side of the room. You begin to smell it after a short while because the perfume molecules get from the spill to your nose.
 - a. Draw a picture to explain how the molecules move from the spill to your nose.

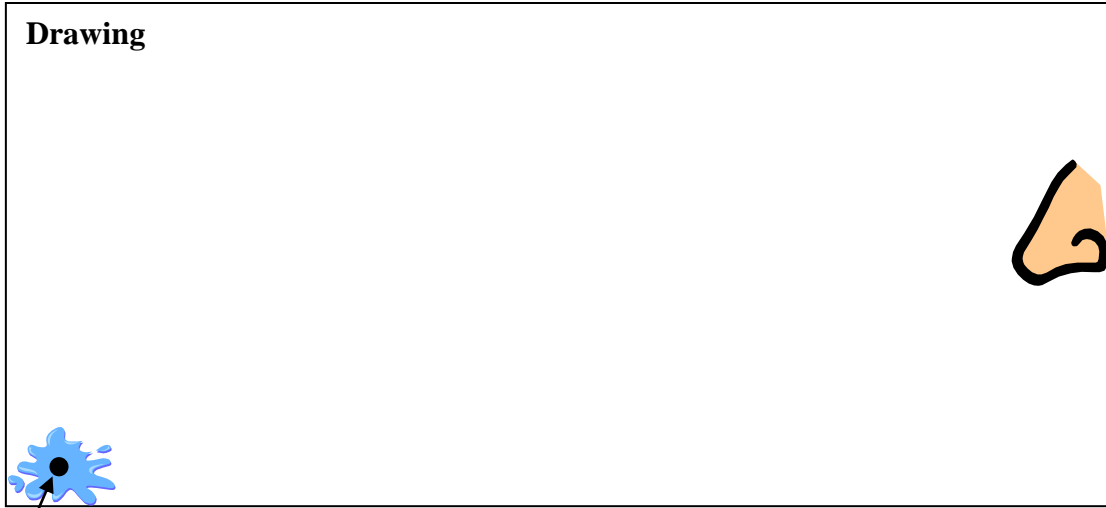


- b. Use words to explain how the molecules move from the spill to your nose.

- c. Use words to explain where the molecules' ability to move comes from.

- d. Draw a picture to explain the movement of ONE perfume molecule going from the spill to your nose.

Please make sure to also represent the AIR in the room.



One perfume molecule (not drawn to scale)

- e. Explain why the molecule of perfume has the specific movements that you just drew in part d.

2. Now, imagine that we have two identical balloons containing an identical amount of a scented gas. One balloon is placed in Room 1 and the other in Room 2. The two rooms are identical except that Room 2 is hotter than Room 1. You are standing in each room at the same distance away from the balloon.



a. If the balloon were popped, would the smell be stronger in one of the rooms?

- Yes; **Which one?** _____
- No, the strength of smell will be the same in both rooms.
- Other; **Please specify:** _____

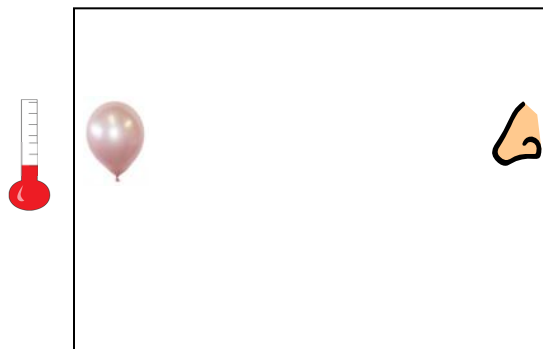
b. If the balloon were popped, would you smell the perfume faster in one of the rooms?

- Yes; **Which one?** _____
- No, you will smell the perfume at the same time in both rooms.
- Other; **Please specify:** _____

c. Draw the perfume molecules and their movements in the cold room and in the hotter room, soon after the balloons with the gases are popped, to explain your answers to part a and part b. Use the lines below each picture to explain your drawings.

Please make sure to also represent the AIR in the room.

Cold room



Hotter room



