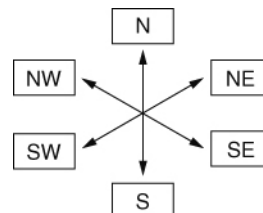


Particles in a gas are moving very quickly. Each one will move in a straight line unless it hits something, which could be the sides of the container or other gas particles.

You are going to observe how gas particles might move. You are going to shut your eyes while holding a pencil in your hand. Then wave your hand over the grid *at the bottom of this sheet* and drop the pencil. This will give you a direction, as shown by the key.

Draw a line from the central particle in this direction until you meet another line. Then repeat the process. Stop when you get to the edge of the box.

Read the questions before starting the activity.

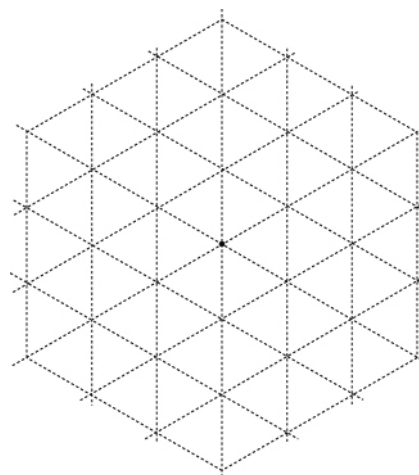


- 1 a How many goes do you think it will take for the particle to get to the edge of the box?
- b Now find out by following the instructions above.
- c Does your result match your prediction? How are they different?

- 2 a What is being modelled when your particle changes direction?
- b What is being modelled when your particle carries on moving in the same direction?

- 3 a Would it take less or more time for a gas particle to reach the sides of its container if there were more gas particles in the container? Explain your prediction.
- b What about if there were fewer particles? Explain your prediction.

- 4 a This activity relies on choosing random directions for the particle to move in. How good is the 'close your eyes and drop your pencil' method at doing this?
- b Plan a better way of choosing random directions.
- c In what way is the model grid on which your particle moves a simplification?



<b>N</b>	<b>NW</b>	<b>SW</b>	<b>N</b>	<b>S</b>	<b>NE</b>	<b>SW</b>	<b>S</b>	<b>NW</b>	<b>SE</b>
<b>E</b>	<b>W</b>	<b>S</b>	<b>E</b>	<b>NW</b>	<b>SE</b>	<b>W</b>	<b>SE</b>	<b>NE</b>	<b>S</b>
<b>N</b>	<b>SE</b>	<b>NW</b>	<b>NE</b>	<b>E</b>	<b>SW</b>	<b>NE</b>	<b>W</b>	<b>NW</b>	<b>SW</b>

**I can...**

- make a prediction using scientific ideas
- evaluate my method
- use particle theory to explain how particles move.