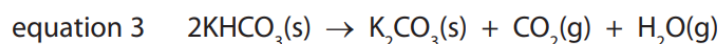
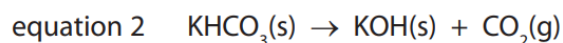
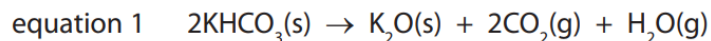


## Investigation into the decomposition of potassium hydrogencarbonate

Potassium hydrogencarbonate decomposes on heating. The three possible equations for the decomposition are:



You are going to carry out an experiment to determine which equation for the decomposition is correct. You will need to write up your investigation and results in full.

You have access to the following apparatus:

Bunsen burner

Tripod

Pipe clay triangle

Crucible and lid

Tongs

Heat proof mat

Balance

Your write up will need to include the following:

- An aim for your investigation
- A suitable method for your investigation
- An explanation of any risks encountered during the experiment and strategies for minimising the hazards
- An explanation of how you have ensure that your results are accurate and reliable
- A results table
- Clear analysis of your results, using mole calculations as appropriate and any graphs as necessary, to identify the products formed
- A discussion of any errors which may have impacted your results and suggestions for improvements

## Support sheet

1. Choose an appropriate mass of potassium hydrogencarbonate to start with (you may wish to measure some out to help you identify a suitable mass).
2. Determine the number of moles of potassium hydrogencarbonate.
3. Determine the mass of solid remaining after the thermal decomposition.
4. Complete the following table:

| Solid     | $M_r$ of solid | Mass of solid after decomposition | Moles of solid |
|-----------|----------------|-----------------------------------|----------------|
| $K_2O$    |                |                                   |                |
| KOH       |                |                                   |                |
| $K_2CO_3$ |                |                                   |                |

5. Compare your answers to the table above to determine which equation is the most plausible for the decomposition of potassium hydrogencarbonate.