Writing about science

**Command words**

- **Calculate** — use the numbers given to work out the answer
- **Compare** — write about the similarities and/or differences between things
- **Define** — give the meaning of a word or phrase
- **Describe** — write about a thing, event, or process, without giving reasons why it happens
- **Determine** — use information or data given to find the answer
- **Evaluate** — consider the evidence for and against something, use your knowledge and information given to you
- **Explain** — state the reasons why something happens
- **Give** — a short answer, which is not an explanation or a description
- **Identify** — name the correct answer
- **Justify** — support your answer with evidence from the information provided
- **Label** — add names to a diagram or picture
- **Name** — a short answer which might only be one word
- **Plan** — write a method
- **Plot** — mark the data on a graph
- **Predict** — say what you think will happen
- **Sketch** — draw a rough version of a graph showing the overall shape or pattern
- **Suggest** — apply your knowledge to a new situation to come up with an answer
- **Use** — your answer must be based on the information given to you in the question

**Check your work**

- Have you:
  - read through and checked your work?
  - started each sentence with a capital letter?
  - ended each sentence with a full stop?
  - checked your spellings – particularly key words?
  - used a new paragraph for each new idea?
  - used connectives to connect ideas and sentences?

**Prefixes and suffixes**

Prefixes are found at the start of words and suffixes at the end. You can use them to work out the meaning of new words.

**Prefixes**
- Anti- against e.g. antigravity
- Bio- living e.g. biodiversity
- Micro- small e.g. microorganism
- Milli- thousandth e.g. millimetre
- Photo- light e.g. photograph
- Therm- heat e.g. thermometer

**Suffixes**
- -sphere round/ball e.g. atmosphere
- -metro measurement e.g. millimetre
- -logy study of e.g. biology
- -scope seeing e.g. telescope
- -cycle ring/circular e.g. bicycle
- -ase an enzyme e.g. lipase

**Writing about experiments**

**Variables**

- **Identify factors to change, measure, or control**
  - **Independent** — the factor that you change.
  - **Dependent** — the thing you measure. You want to find out how this changes when you change your independent variable.
  - **Control** — other variables that might affect the results. You should try to keep these the same throughout your experiment.

**Hypothesis**

Write a prediction about what you think will happen, and explain it using your scientific knowledge.

**Risk assessment**

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Risk</th>
<th>Control</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is the thing that is potentially dangerous</td>
<td>What might go wrong?</td>
<td>What can you do to reduce the chance of the risk happening?</td>
<td>What should you do if something goes wrong?</td>
</tr>
<tr>
<td>e.g. a glass test tube could break and cut a student</td>
<td>e.g. The test tube could break and cut a student</td>
<td>e.g. Store the test tube in a rack, away from the edge of the bench</td>
<td>e.g. Inform the teacher immediately</td>
</tr>
</tbody>
</table>

**Equipment and method**

- **Equipment** — list all of the apparatus and chemicals that you will use in the experiment.
- **Method** — write step-by-step instructions describing exactly how to carry out the experiment.

**Results**

- **Show your data in tables and draw graphs or charts**
  - **Continuous** — can have any value
  - **Discrete** — can only have whole number values
  - **Categoric** — the value is a word or name of a category

**Conclusion**

1. **Describe your results in words** — is there a correlation? If there is a correlation, identify whether it is:
   - **Positive** — as one variable increases, the other increases.
   - **Negative** — as one variable increases, the other decreases.
2. **Explain your results using your scientific knowledge.

**Evaluation**

- **Describe any problems you found with the experiment.**
- **Suggest how the experiment could be improved.**

**Useful vocabulary**

- **Accurate** — close to the true value.
- **Precise** — repeat measurements that are close together.
- **Repeatable** — when different people carry out the same experiment and get similar results.
- **Spread** — difference between the highest and lowest values in a set of repeat measurements.
- **Range** — difference between the highest and lowest values a variable can have.