



**Kettlethorpe**  
**HIGH SCHOOL**

Kettlethorpe High School  
Progression Steps  
Science

## 7

1. Pupils recognise that different strategies are required to investigate different kinds of scientific questions, and use scientific knowledge and understanding to select an appropriate strategy.
2. In consultation with their teacher they adapt their approach to practical work to control risk.
3. They record data that are relevant and sufficiently detailed, and choose methods that will obtain these data with the precision and reliability needed.
4. They analyse data and begin to explain, and allow for, anomalies.
5. They carry out multi-step calculations and use compound measures, such as speed, appropriately.
6. They communicate findings and arguments, showing awareness of a range of views.
7. They evaluate evidence critically and suggest how inadequacies can be remedied.
8. They make effective use of a range of quantitative relationships between variables in calculations or when using data to support evidence.
9. They communicate findings and arguments, showing their awareness of the degree of uncertainty and a range of alternative views.
10. They evaluate evidence critically and give reasoned accounts of key topic areas in Biology, Chemistry & Physics.

## 6

1. Pupils plan appropriate approaches and procedures, by synthesising information from a range of sources and identifying key factors in complex contexts and in which variables cannot readily be controlled.
2. They select and use methods to obtain reliable data, including making systematic observations and measurements with precision, using a range of apparatus.
3. They recognise the need for a risk assessment and consult appropriate sources of information, which they follow.
4. They record data in graphs, using lines of best fit.
5. They analyse findings to draw conclusions that are consistent with the evidence and use scientific knowledge and understanding to explain these conclusions and identify possible limitations in primary and secondary data.
6. They communicate effectively, using a wide range of scientific and technical conventions and terminology, including symbols and flow diagrams.
7. They begin to consider whether the data they have collected are sufficient for the conclusions they have drawn.
8. Pupils understand the key ideas in Physics such as Energy.

9. Pupils understand the key ideas within Chemistry such as the Periodic Table.

10. Pupils understand the key ideas within Biology such as Organisms.

## 5

1. Pupils identify an appropriate approach in investigatory work, selecting and using sources of information, scientific knowledge and understanding.

2. They select and use methods to collect adequate data for the task, measuring with precision, using instruments with fine scale divisions, and identify the need to repeat measurements and observations.

3. They recognise a range of familiar risks and take action to control them. They record data and features effectively, choosing scales for graphs and diagrams.

4. They analyse findings to draw conclusions that are consistent with the evidence and use scientific knowledge and understanding to explain them and account for any inconsistencies in the evidence.

5. They manipulate numerical data to make valid comparisons and draw valid conclusions.

6. They communicate qualitative and quantitative data effectively, using scientific conventions and terminology.

7. They evaluate evidence, making reasoned suggestions about how their working methods could be improved.

8. Pupils recognise the key ideas in Physics such as Energy.

9. Pupils recognise the key ideas within Chemistry such as the Periodic Table.

10. Pupils recognise the key ideas within Biology such as Organisms.

## 4

1. Pupils decide appropriate approaches to a range of tasks, including selecting sources of information and apparatus.

2. They select and use methods to obtain data systematically.

3. They recognise hazard symbols and make, and act on, simple suggestions to control obvious risks to themselves and others.

4. They use line graphs to present data, interpret numerical data and draw conclusions from them.
5. They analyse findings to draw scientific conclusions that are consistent with the evidence.
6. They communicate these using scientific and mathematical conventions and terminology.
7. They evaluate their working methods to make practical suggestions for improvements.
8. They give explanations for observations and for patterns in measurements they have made and recorded.
9. They communicate in a scientific way what they have found out and suggest improvements in their work.
10. Pupils are able to demonstrate the difference between Chemistry, Physics & Biology topics.

### 3

1. Pupils decide on an appropriate approach, including using a fair test to answer a question.
2. Pupils can select suitable equipment and information from that provided.
3. They select and use methods that are adequate for the task.
4. Following instructions, they take action to control obvious risks to themselves.
5. They make a series of observations and measurements and vary one factor while keeping others the same.
6. They record their observations, comparisons and measurements using tables and bar charts and begin to plot points to form simple graphs.
7. They interpret data containing positive and negative numbers.
8. They begin to relate their conclusions to patterns in data, including graphs, and to scientific knowledge and understanding.
9. They communicate their conclusions using appropriate scientific language.
10. They suggest improvements in their work, giving reasons.