



Science

Progression of Scientific Skills/Enquiry

Year 1-Year 6



EYFS Reception

Informed by new Development Matters (2020) publication

| | Communication and Language | Understanding the World |
|-----------------------|--|--|
| Year Reception | <ul style="list-style-type: none"> • Learn new vocabulary. • Ask questions to find out more and to check they understand what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities. • Explain how things work and why they might happen. • Engage in non-fiction books. • Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary. | <ul style="list-style-type: none"> • Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them. |
| ELG | <ul style="list-style-type: none"> • Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions. • Make comments about what they have heard and ask questions to clarify their understanding. • Hold conversation when engaged in back-and-forth exchanges with their teacher and peers. • Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. • Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, nonfiction, rhymes and poems when appropriate. • Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher. | <ul style="list-style-type: none"> • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. |



Key Stage 1 Year 1

Pupils in years 1 and 2 should explore the world around them and raise their own questions.

They should experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. They should use simple features to compare objects, materials and living things and, with help, decide how to sort and group them, observe changes over time, and, with guidance, they should begin to notice patterns and relationships.

They should ask people questions and use simple secondary sources to find answers.

They should use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language.

| | Gathering and Presenting Evidence | Interpreting Results/Evidence | Explaining |
|---------------|--|--|--|
| Year 1 | <ul style="list-style-type: none"> • Use simple equipment provided. • Use a simple source to find answers. • Investigate key concepts. • Present findings using drawings and simple sentences. | <ul style="list-style-type: none"> • Talk about the investigation/enquiry being carried out and discuss what they have found out. • Make comparisons using simple scientific vocabulary. • Use photographs/diagrams to record answers to how/why questions. | <ul style="list-style-type: none"> • Write a simple sentence to describe what they observed/compared. • Use scientific vocabulary to make comparisons. • Link classroom experience to outside world. • Discuss and compare with peers what happened and what they found out. |



Key Stage 1 Year 2

Pupils in years 1 and 2 should explore the world around them and raise their own questions.

They should experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. They should use simple features to compare objects, materials and living things and, with help, decide how to sort and group them, observe changes over time, and, with guidance, they should begin to notice patterns and relationships.

They should ask people questions and use simple secondary sources to find answers.

They should use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language.

| | Gathering and Presenting Evidence | Interpreting Results/Evidence | Explaining |
|---------------|--|--|--|
| Year 2 | <ul style="list-style-type: none"> • Sort things into groups according to own criteria and choose a title for sorting. • Record observations over time. • Talk about different drawings and charts. • Perform a simple test. • Ask a simple question and consider how that question could be answered. • Make simple measurements. • Identify similarities and differences. | <ul style="list-style-type: none"> • Discuss/talk about their investigations. • Make comparisons in the data/ observations. • Use scientific vocabulary when making comparisons. • Explain whether what happened was what they expected and if not why not. • Collect data on templates provided. | <ul style="list-style-type: none"> • Talk about their findings using the science vocabulary related to the key concept. • Use diagrams, photos, pictures to show findings in a simple form. • Use own observations to suggest why something happened. |



Key Stage 2 Year 3

Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys.

They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.

They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.

| | Gathering and Presenting Evidence | Interpreting Results/Evidence | Explaining |
|---------------|---|---|---|
| Year 3 | <ul style="list-style-type: none">• Begin to raise their own questions about the world around them.• Begin to make some decisions about which types of enquiry will be the best way of answering questions.• Plan how to carry out a simple investigation.• Begin to make systematic and careful observations.• Decide what to observe and how long to collect observations.• Measure accurately using equipment with which they are familiar.• Record measurements on simple tables.• Begin to help decide which variables to keep the same and which to change.• Use simple keys.• Decide upon criteria for sorting and classifying. | <ul style="list-style-type: none">• Begin to collect data in a variety of ways, including labelled diagrams, bar charts and tables.• Record findings using simple scientific vocabulary.• Begin to communicate findings using simple scientific language.• Suggest improvements to their test. | <ul style="list-style-type: none">• Begin to draw simple conclusions based on the results of my enquiry.• Answer my questions using the results of my enquiry.• Begin to use my findings to make new predictions, suggest improvements and think of new questions.• Begin to think of cause and effect in my explanations. |



Key Stage 2 Year 4

Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys.

They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.

They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.

| | Exploring and Planning | Gathering and Presenting Evidence | Interpreting Results/Evidence | Explaining |
|---------------|--|---|---|---|
| Year 4 | <ul style="list-style-type: none"> • Raise their own questions about the world around them. • Decide which different types of scientific enquiry to answer questions. • Think about what they can measure and make accurate measurements. • Plan how they will record results. | <ul style="list-style-type: none"> • With increasing independence make systematic and careful observations. • Measure accurately using new equipment. • Present results in charts or graphs. • Make systematic and careful observations over time. • Help decide which variables to keep the same and which to change. • Collect data in a variety of ways, including labelled diagrams, bar charts and tables. | <ul style="list-style-type: none"> • Look for patterns, changes, similarities and differences. • Decide how to record and analyse data by selecting from a range of taught methods. • Talk about and identify differences and similarities in the properties or behaviour of living things, materials and other scientific phenomena. • Identify new questions arising from data. • Make predictions for new values within or beyond the data they have collected. | <ul style="list-style-type: none"> • Draw simple conclusions based on the results of my enquiry. • Answer my questions using the results of my enquiry. • Use my findings to make new predictions, suggest improvements and think of new questions. • Consider cause and effect in my explanations. |



Key Stage 2 Year 5

Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.

They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment.

They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately.

They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas.

They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.

They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.

| | Exploring and Planning | Gathering and Presenting Evidence | Interpreting Results/Evidence | Explaining |
|---------------|--|--|--|--|
| Year 5 | <ul style="list-style-type: none"> • Begin to independently explore ideas and ask my own questions about scientific phenomena. • Begin to plan different types of scientific enquiry to answer questions. • Begin to decide which variables to control. | <ul style="list-style-type: none"> • Make accurate and precise measurements. • Decide what to observe, how long to observe for and whether to repeat them. • Take accurate and precise measurements using standard units • Select equipment on my own and can explain how to use it accurately. • Set up a range of comparative and fair tests. • Begin to explain which variables need to be controlled and why. • Begin to suggest improvements to my test, giving reasons. • Begin to record data and results of increasing complexity. • Begin to develop my own keys and other information records to classify and describe. | <ul style="list-style-type: none"> • Begin to draw scientific, causal conclusions using the results of an enquiry to justify my ideas. • Begin to communicate findings using detailed scientific language. | <ul style="list-style-type: none"> • Begin to explain my conclusion using scientific knowledge and understanding. • Begin to distinguish opinion and facts. • Begin to use my findings to make predictions and set up further enquiries. • Begin to use abstract models to explain my ideas. |



Key Stage 2 Year 6

Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.

They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment.

They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately.

They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas.

They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.

They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.

| | Exploring and Planning | Gathering and Presenting Evidence | Interpreting Results/Evidence | Explaining |
|---------------|---|---|---|--|
| Year 6 | <ul style="list-style-type: none"> • Plan different types of scientific enquiry to answer questions. • Decide which variables to control. | <ul style="list-style-type: none"> • Make accurate and precise measurements. • Decide what to observe, how long to observe for and whether to repeat them. • Take accurate and precise measurements using standard units - N, g, kg, mm, cm, mins, seconds, cm²V, km/h, m per sec, m/ sec. • Select equipment on my own and can explain how to use it accurately. • Record data and results of increasing complexity. • Choose how best to present data. • Communicate findings using detailed scientific language. | <ul style="list-style-type: none"> • Draw scientific, causal conclusions using the results of an enquiry to justify my ideas. • Distinguish opinion and facts. • Use my findings to make predictions and set up further enquiries. | <ul style="list-style-type: none"> • Explain my conclusion using scientific knowledge and understanding. • Begin to use abstract models to explain my ideas. • Explain my ideas with scientific reasons. • Use scientific conventions e.g. trends, rogue result, support prediction. |