2016 Mathematics and Science Key Stage 2 Interim Teacher Assessment Frameworks

Mathematics and Science have expected statements only. To demonstrate that they have met the standard, teachers will need to have evidence that a pupil demonstrates consistent attainment of **all** of the statements within the standard.

Mathematics

The pupil can:

- **demonstrate an understanding of place value, including large numbers and decimals** *(e.g. what is the value of the '7' in 276,541?; find the difference between the largest and smallest whole numbers that can be made from using three digits; 8.09 = 8 + 9 ?;*
- **calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation** *(e.g. 53 – 82 + 47 = 53 + 47 – 82 = 100 – 82 = 18; 20 × 7 × 5 = 20 × 5 × 7 = 100 × 7 = 700; 53 ÷ 7 + 3 ÷ 7 = (53 +3) ÷ 7 = 56 ÷ 7 = 8).*
- **use formal methods to solve multi-step problems** *(e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?).*
- **recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities** *(e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 1 5 or 0.2 or 20% of the whole cake).*
- **calculate using fractions, decimals or percentages** *(e.g. knowing that 7 divided by 21 is the same as $^{7}/_{21}$ and that this is equal to $^{1}/_{3}$; 15% of 60; 1 $^{1}/_{2}$ + $^{3}/_{4}$; $^{7}/_{9}$ of*
- **substitute values into a simple formula to solve problems** *(e.g. perimeter of a rectangle or area of a triangle).*
- **calculate with measures** *(e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm).*
- **use mathematical reasoning to find missing angles** *(e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles).*

Key:

Working **at** the expected standard

Science

Working scientifically: this must be taught through, and clearly related to, the teaching of substantive science content in the programme of study.

The pupil can:

- **describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources.**
- **ask their own questions about the scientific phenomena they are studying, and select and plan the most appropriate ways to answer these questions, or those of others, recognising and controlling variables where necessary - including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests, and finding things out using a wide range of secondary sources of information.**
- **use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate.**
- **record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.**
- **present findings and draw conclusions in different forms, and raise further questions that could be investigated, based on their data and observations**
- **use appropriate scientific language and ideas from the national curriculum to explain, evaluate and communicate their methods and findings**

Science content:

- **name, locate and describe the functions of the main parts of the digestive, musculoskeletal, and circulatory systems, and can describe and compare different reproductive processes and life cycles, in animals.**
- **describe the effects of diet, exercise, drugs and lifestyle on how their bodies function.**
- **name, locate and describe the functions of the main parts of plants, including those involved in reproduction and transporting water and nutrients.**
- **use the observable features of plants, animals and micro-organisms to group, classify and identify them into broad groups, using keys or in other ways.**
- **construct and interpret food chains**
- **explain how environmental changes may have an impact on living things.**
- **use the basic ideas of inheritance, variation and adaptation to describe how living things have changed over time and evolved; and describe how fossils are formed and provide evidence for evolution.**
- **group and identify materials, including rocks, in different ways according to their properties, based on first-hand observation; and justify the use of different everyday materials for different uses, based on their properties.**
- **describe the characteristics of different states of matter and group materials on this basis; and can describe how materials change state at different temperatures, using this to explain everyday phenomena, including the water cycle.**
- **identify, and describe what happens when dissolving occurs in everyday situations; and describe how to separate mixtures and solutions into their components.**
- **identify, with reasons, whether changes in materials are reversible or not.**
- **use the idea that light from light sources, or reflected light, travels in straight lines and enters our eyes to explain how we see objects, and the formation, shape and size of shadows.**
- **use the idea that sounds are associated with vibrations, and that they require a medium to travel through, to explain how sounds are made and heard.**
- **describe the relationship between the pitch of a sound and the features of its source; and between the volume of a sound, the strength of the vibrations and the distance from its source.**
- **describe the effects of simple forces that involve contact (air and water resistance, friction), and others that act at a distance (magnetic forces, including those between like and unlike magnetic poles; and gravity).**
- **identify simple mechanisms, including levers, gears and pulleys that increase the effect of a force.**
- **use simple apparatus to construct and control a series circuit, and describe how the circuit may be affected when changes are made to it; and use recognised symbols to represent simple series circuit diagrams.**
- **describe the shapes and relative movements of the sun, moon, earth and other planets in the solar system; and explain the apparent movement of the sun across the sky in terms of the earth's rotation and that this results in day and night.**