

Fortismere: Science Grade Descriptors

| Grade | KS3 | Physics | Chemistry | Biology |
|--------------|--|--|---|---|
| 1 | Pupils can use their knowledge to recognise forces, some common materials and organisms. They are able to describe their observations. | Pupils can use their knowledge related to energy, forces and space to describe some changes in light, sound or movement, that result from actions. They recognise that light and sound come from a variety of sources, such as the Sun or a musical instrument. | Pupils can use their knowledge related to materials, their properties and the Earth, to recognise, and describe some common materials, and their sensory properties. They communicate their descriptions and observations in terms of these properties. | Pupils can use their knowledge related to organisms, their behaviour and the environment to recognise, identify and describe a range of common plants, animals and natural events. They name and describe external parts or features of plants and animals. They use that evidence to identify plants or animals. |
| 2 | Pupils can use their knowledge to recognise and describe energy, forces, some common materials and their properties as well as a range of organisms. They are able to describe similarities and differences and can suggest simple explanations. | Pupils can use their knowledge related to energy, forces and space to recognise, describe and compare a range of properties and effects of light, sound, forces, and electricity. They suggest answers to questions such as which sound is loudest based on their own ideas and evidence. | Pupils can use their knowledge related to materials, their properties and the Earth to identify a range of common materials and some of their properties. They recognise, and describe similarities and differences between the materials they observe, using these to sort them into groups. They recognise and describe ways in which some materials are changed by heating or cooling or by processes such as bending or stretching. They suggest answers to questions, based on their own ideas and evidence. | Pupils can use their knowledge related to organisms, their behaviour and the environment to describe plants and animals, the places they are found and the basic conditions they need in order to survive. They recognise and describe similarities and differences between the plants, humans and other animals they observe, using these to sort them into groups. They use questions based on their own ideas and evidence such as finding different types of plants and animals in different places. |
| 3 | Pupils can apply their knowledge of energy, forces, some common materials and their properties as well as a range of organisms to a new situation. They are able to link different aspects of knowledge together. | Pupils can use their knowledge and understanding of energy, forces and space to link cause and effect in their observations of the properties and effects of light, sound, forces, and electricity. Pupils can make generalisations such as sounds getting fainter the further the listener is from the source. They use simple scientific ideas with evidence they have collected to give explanations of their observations, linking cause and effect, for example using a switch to turn off a light bulb in an electrical circuit. | Pupils use knowledge and understanding of materials, their properties and the Earth to sort materials into groups in a variety of ways, according to their properties. They explain the ways in which some materials are suited to specific purposes. They classify changes in materials as reversible. They use simple scientific ideas with evidence they have collected to give explanations of their observations, linking cause and effect, for example the evaporation of water. | Pupils use knowledge and understanding of organisms, their behaviour and the environment, such as the basic life processes of growth and reproduction, to describe similarities, differences and changes in the plants, animals, and non-living things they observe. They use simple scientific ideas with evidence they have collected to give explanations of their observations, linking cause and effect, for example lack of light or water affecting plant growth and the ways in which animals or plants are suited to their environments. |

Fortismere: Science Grade Descriptors

| | | | | |
|---|---|--|--|--|
| 4 | Pupils can use their knowledge of energy, forces, some common materials and their properties as well as a range of organisms to compare, evaluate and make predictions. They are able to evaluate different scientific theories and draw their own conclusions. | Pupils can describe some processes and phenomena related to energy, forces and space, drawing on scientific knowledge and understanding and using appropriate terminology. They recognise that evidence can support or refute scientific ideas, such as sounds being heard through a variety of materials. They recognise some applications and implications of science, such as the use of electrical components to make electrical devices. | Pupils describe some processes and phenomena related to materials, their properties and the Earth, drawing on scientific knowledge and understanding and using appropriate terminology. They recognise that evidence can support or refute scientific ideas, such as the classification of reactions as reversible and irreversible. | Pupils describe some processes and phenomena related to organisms, their behaviour and the environment, drawing on scientific knowledge and understanding and using appropriate terminology. They recognise that evidence can support or refute scientific ideas, such as in the identification and grouping of living things. |
| 5 | | Pupils can describe processes and phenomena related to energy, forces and space, drawing on abstract ideas and using appropriate terminology. They explain processes and phenomena, in more than one step or using a model. They apply and use knowledge and understanding in familiar contexts. Pupils can recognise that both evidence and creative thinking contribute to the development of scientific ideas. They describe applications and implications of science, such as the ways sound can be produced and controlled. | Pupils can describe processes and phenomena related to materials, their properties and the Earth, drawing on abstract ideas and using appropriate terminology. They explain processes and phenomena, in more than one step or using a model. They apply and use knowledge and understanding in familiar contexts, such as identifying changes of state. They recognise that both evidence and creative thinking contribute to the development of scientific ideas. They describe applications and implications of science. | Pupils can describe processes and phenomena related to organisms, their behaviour and the environment, drawing on abstract ideas and using appropriate terminology. They explain processes and phenomena, in more than one step or using a model, such as the main stages of the life cycles of humans and flowering plants. They apply and use knowledge and understanding in familiar contexts, such as different organisms being found in different habitats because of differences in environmental factors. They recognise that both evidence and creative thinking contribute to the development of scientific ideas, such as the classification of living things. |
| 6 | | Pupils describe processes and phenomena related to energy, forces and space, using abstract ideas and appropriate terminology. They take account of a number of factors in their explanations of processes and phenomena. They can also use abstract ideas or models. They apply and use knowledge and understanding in unfamiliar contexts. They describe some evidence for some accepted scientific ideas. They explain the importance of some applications and implications of science, such as the responsible use of unsustainable sources of energy. | Pupils describe processes and phenomena related to materials, their properties and the Earth, using abstract ideas and appropriate terminology, for example the particle model applied to solids, liquids and gases. They take account of a number of factors or use abstract ideas or models in their explanations of processes and phenomena. They apply and use knowledge and understanding in unfamiliar contexts. They describe some evidence for some accepted scientific ideas. | Pupils describe processes and phenomena related to organisms, their behaviour and the environment, using abstract ideas and appropriate terminology. They take account of a number of factors or use abstract ideas or models in their explanations of processes and phenomena, such as environmental factors affecting the distribution of organisms in habitats. They apply and use knowledge and understanding in unfamiliar contexts, such as a food web in a habitat. They describe some evidence for some accepted scientific ideas, such as the causes of variation between living things. |

Fortismere: Science Grade Descriptors

| | | | | |
|---|--|--|---|---|
| 7 | | <p>Pupils describe a wide range of processes and phenomena related to energy, forces and space, using abstract ideas and appropriate terminology and sequencing a number of points. They make links between different areas of science in their explanations. They apply and use more abstract knowledge and understanding in a range of contexts. They explain how evidence supports some accepted scientific ideas and can explain, using abstract ideas where appropriate, the importance of some applications and implications of science.</p> | <p>Pupils describe a wide range of processes and phenomena related to materials, their properties and the Earth. They make links between different areas of science in their explanations, such as between the nature and behaviour of materials and their particles. They apply and use more abstract knowledge and understanding, in a range of contexts, such as the particle model of matter, and symbols and formulae for elements and compounds. They explain how evidence supports some accepted scientific ideas, such as the reactivity series of metals. They explain, using abstract ideas where appropriate, the importance of some applications and implications of science in the production of energy and materials.</p> | <p>Pupils describe a wide range of processes and phenomena related to organisms, their behaviour and the environment, using abstract ideas and appropriate terminology and sequencing a number of points, for example respiration and photosynthesis, or pyramids of biomass. They make links between different areas of science in their explanations. They apply and use more abstract knowledge and understanding, in a range of contexts, such as inherited and environmental variation. They explain how evidence supports some accepted scientific ideas, such as the structure and function of cells. They explain, using abstract ideas where appropriate, the importance of some applications and implications of science.</p> |
| 8 | | <p>Pupils demonstrate extensive knowledge and understanding related to energy, forces and space, for example the passage of sound waves through a medium. They use and apply this effectively in their descriptions and explanations, identifying links between topics. They interpret, evaluate and synthesise data from a range of sources and in a range of contexts. They show they understand the relationship between evidence and scientific ideas, and why scientific ideas may need to be changed, such as the developing understanding of the structure of the solar system. They describe and explain the importance of a wide range of applications and implications of science, such as relating the dissipation of energy during energy transfer to the need to conserve limited energy resources.</p> | <p>Pupils demonstrate extensive knowledge and understanding related to materials, their properties and the Earth. They use and apply this effectively in their descriptions and explanations, identifying links between topics. They represent common compounds by chemical formulae and use these formulae to form balanced symbol equations for reactions. They interpret, evaluate and synthesise data from a range of sources and in a range of contexts. They show they understand the relationship between evidence and scientific ideas, and why scientific ideas may need to be changed. They describe and explain the importance of a wide range of applications and implications of science.</p> | <p>Pupils demonstrate extensive knowledge and understanding related to organisms, their behaviour and the environment. They use and apply this effectively in their descriptions and explanations, identifying links between topic. They interpret, evaluate and synthesise data from a range of sources and in a range of contexts, for example environmental data from fieldwork. They show they understand the relationship between evidence and scientific ideas, and why scientific ideas may need to be changed, for example the short-term and long-term effects of environmental change on ecosystems. They describe and explain the importance of a wide range of applications and implications of science.</p> |

Fortismere: Science Grade Descriptors

| | | | | |
|---|--|--|---|--|
| 9 | | <p>Pupils can demonstrate both breadth and depth of knowledge and understanding of energy, forces and space. They apply this effectively in their descriptions and explanations, identifying links and patterns within and between topics. They interpret, evaluate and synthesise data from a range of sources in a range of contexts and apply their understanding to a wide range of data on energy efficient physical systems. They demonstrate an understanding of how scientific knowledge and understanding changes, building on processes such as questioning, investigating and evidence gathering, for example through the role of artificial satellites and probes in communications and space exploration. They describe and explain the importance of a wide range of applications and implications of science in familiar and unfamiliar contexts.</p> | <p>Pupils can demonstrate both breadth and depth of knowledge and understanding of materials, their properties and the Earth. They apply this effectively in their descriptions and explanations, identifying links and patterns within and between topics. They interpret, evaluate and synthesise data from a range of sources in a range of contexts, and apply their understanding to a wide range of chemical systems. They demonstrate an understanding of how scientific knowledge and understanding changes, building on processes such as questioning, investigating and evidence-gathering. They describe and explain the importance of a wide range of applications and implications of science in familiar and unfamiliar contexts.</p> | <p>Pupils can demonstrate both breadth and depth of knowledge and understanding of organisms, their behaviour and the environment. They apply this effectively in their descriptions and explanations, identifying links and patterns within and between topics. They interpret, evaluate and synthesise data, from a range of sources in a range of contexts, and apply their understanding to a wide range of biological systems. They demonstrate an understanding of how scientific knowledge and understanding changes, building on processes such as questioning, investigating and evidence-gathering, for example in the study of global climate change. They describe and explain the importance of a wide range of applications and implications of science in familiar and unfamiliar contexts.</p> |
|---|--|--|---|--|