

St Benedict's Catholic School: Key Stage 3 Grade Descriptors – Science Y8



Year 8 Expectations	Biology	Chemistry	Physics	Science Investigation
Mastered	• I am able to explain the importance of plants. • I know the difference between photosynthesis and chemosynthesis. • I can explain how the characteristics of a living organism are influenced by its genome and its interaction with the environment. • I can explain bioaccumulation in food chains and some effects of this.	• I recognise the Periodic Table as a means of arranging elements and can describe the physical and chemical properties of elements in terms of their position. • I can explain the differences between mixtures and compounds in terms of their physical and chemical properties. • I can explain the trend in reactivity of Group 1 • I can use the reactivity series to make predictions about reactions of metals. • I can explain trends and patterns in the periodic table. • I can describe the physical and chemical properties of metals and non-metals and their compounds. • I can apply my knowledge of patterns in a chemical reaction to suggest how substances, such as salts, could be made.	• Can describe what happens when waves superpose. • Can compare the eye with a camera. • I can find speed and acceleration from graphs. • I can give detailed interpretations of graphs, such as speed/time graphs. • I can apply my knowledge and understanding to a range of contexts including unfamiliar situations.	• Can apply my knowledge and understanding to a range of contexts including unfamiliar situations. • Can produce (unaided) precise plans for my investigations. • Can evaluate my investigations and produce structured reports. • I can decide on the observations and measurements that need to be taken and the degree of accuracy that is required. • I can set up and use a range of scientific apparatus with precision and skill.
Extended	• I understand that genetic information is carried in the form of chromosomes and genes. • I can describe the important stages in evolution by natural selection. • I can describe the effects drugs have on the body.	• I can describe some methods of separation to obtain pure substances from mixtures. • I can explain the differences between elements, compounds and mixtures. • I can relate the properties and uses of everyday materials. • I can explain the differences between mixtures and compounds in terms of their physical and chemical properties. • Can write balanced symbol equations for common reactions.	• Can explain why the speed or direction of motion of objects can change. • Can compare human hearing range with other animals. • Can explain uses of ultrasound. • Can compare specular reflection and diffuse scattering. • Can explain how surfaces appear coloured. I can plan (with guidance) investigations. Identifying key factors that need to be considered. • I can present my data clearly and concisely using graphs with lines of best fit. • I can use the principle of moments in practical situations. • I can explain the process of energy transfer by conduction, convection and radiation. • I can describe, in simple terms, the relationship between the angle of incidence and the angle of reflection.	• I can plan (with guidance) investigations. Identifying key factors that need to be considered. • I can present my data clearly and concisely using graphs with lines of best fit. • Can apply my knowledge and understanding to a range of contexts including unfamiliar situations
Secure	• I understand that organisms compete for resources. • I know that living organisms show variation. • I am able to explain what causes variation. • I know where genes are found inside a cell.	• I am able to describe the trend in the acidity of metal oxides and use this to make predictions. • I can describe the composition of the atmosphere. • Can write and interpret chemical formulae. • Can write symbol equations for common reactions.	• Can contrast the speed of sound with speed of light. • Can describe the link between frequency and pitch. • Can analyse ways hearing can be damaged. • Can describe what ultrasound is. • Can explain how images are formed in a mirror. • Can explain what refraction is. • Can explain how the eye works. • Can describe how primary colours of light combine to make secondary colours. • Can make predictions using my scientific knowledge. • I can calculate mean speed from measurements made of distance and time. • I understand how light is reflected from plane surfaces and that white light can be dispersed to give a range of colours.	• I can apply my scientific knowledge from other investigations to plan an investigation. • I can explain my conclusions using the evidence collected and my knowledge and understanding of science. • I can interpret my data and begin to explain these using my scientific knowledge and understanding.

Approaching	• I can name the main resources that plants and animals need to survive. • I can give examples of genetic and environmental variation. • I can recall the names of some illegal recreational drugs. • I understand the ways by which human activity, such as deforestation, can change the environment.	• I can use the terms mixture and compound accurately. • I can describe some methods for separating compounds. • I can describe how repeating patterns in the elements led to the development of the Periodic Table. • I can interpret my data and begin to explain these using my scientific knowledge and understanding. • Can match an element to its correct symbol. • Can compare the properties of one atom of an element to the properties of many atoms. • Can identify reactants and products in word equations.	• Can describe transverse and longitudinal waves. • Can explain why speed of sound changes in different materials. • Can describe link between loudness and amplitude. • Can describe the functions of the parts of the ear. • Can describe what an echo is. • Can describe the parts of the eye. • I can explain the relationship between loudness and amplitude, and pitch and frequency of a sound.	• I can use a range of apparatus with appropriate precision and safety. • I can use my knowledge to make predictions about what they think will happen. • I can draw conclusions and relate it to my knowledge and understanding.
Developing	• I can use my knowledge of basic life processes, such as growing, feeding, moving or using their senses, to describe similarities and differences between living things. • I know the conditions necessary to keep healthy. • I can provide simple explanations for changes affecting animal and plant behaviour.	• I can recognise key areas of the Periodic Table, namely metals and non-metals, the noble gases and groups 1, 2 and 7. • I am able to state that temperature, catalysts surface area and concentration may affect the rate of a chemical reaction. • I can carry out a fair test and say which factors need to be kept constant. • I can draw conclusions and relate it to my knowledge and understanding. • Can describe what elements and compounds are. • I can sort materials into groups according to their properties.	• Can name the two main types of waves. • Can describe how sound waves travel. • Can name the parts of the ear. • I know how shadows are formed. • I can carry out a fair test and say which factors need to be kept constant. • I can draw conclusions and relate it to my knowledge and understanding.	• I can carry out a fair test and say which factors need to be kept constant. • I can draw conclusions based on the available evidence. • I can suggest how ideas can be investigated and make predictions about what might happen.
Beginning	• I know what is required to keep healthy and safe.	• I can describe a variety of ways of sorting materials into groups according to their properties. • Can name an element. • I can compare familiar objects, materials and living things and predict what might happen. • I can sort materials into groups.	• Can state that a wave carries energy. • Can simply state how the ear works. • I can explain that sounds are produced by vibrations. • I know some colours are more easily seen in the dark. • I can explain that sounds are produced by vibrations. • I know that light does not pass through all materials and when this happens shadows are formed.	• I can use appropriate instruments to make measurements and know when a test is fair. • I can make a simple record of my observations and conclusions.