Year 8 Science 2010–2011
(Physics and Geology)

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During the course of year 8, we shall be spending the autumn and summer terms looking at important topics in physics, and in the spring term we shall be exploring the science of geology. There is a brief summary of the main areas which will be covered below.

Heating and Cooling

A proper understanding of heating and cooling enabled the great developments in technology of the industrial revolution in the nineteenth century, and it is hugely important today to allow us to meet our society's energy needs in a sustainable way. Getting a handle on this topic is of great importance for grasping the difficulties and limits of much of modern technology, and even physical theory itself. In this topic, you will find out the difference between temperature and heat, and learn to use these terms correctly. We shall be looking at what heat is, how it is tranferred, and how this knowledge can enable it to be controlled and harnessed for our benefit. We shall also be learning about what temperature means and how we can measure it.

Magnets

Magnetism was known to the ancients, and is now used in many devices, particularly in computer memory. Although discovered very early, it was not understood in any meaningful way until a thousand years later, and it remains a challenging topic. You will learn about magnetic and non-magnetic materials, how magnets behave and how we can create and destroy magnetism. We shall learn about the Earth's magnetic field and its cause, and discover how sailors and other navigators have used compasses for centuries to find their way. Electricity and magnetism are closely related, and you will realize this and begin to understand the interplay between these by learning how to make a magnet using an electric current.

Rocks: Weathering and the Rock Cycle

This will be an introduction to the fascinating field of geology, which is the study of rocks and the processes by which they are formed, moved, and changed. We shall be learning about different types of rock and how they have been formed over millions of years. By the end of this topic, you will know more about how landscapes have been shaped by natural forces. This helps us to know where to find important minerals and fuels which are contained in rocks, and enables us to understand earthquakes and volcanic eruptions. It is also crucial for some parts of biology, to understand the fossil record and evolution.

Light and Sound

Light and sound are in some ways quite similar, and so these will be taken together to help us to understand them both. Although light comes in many forms, this year we shall only be looking at visible light – it's easier to see! You will find out what light is, and how it behaves (for example, by reflecting in mirrors). We shall learn about how light can be used by taking advantage of knowledge of its properties: this is done in a huge variety of items, such as CD players, glasses, binoculars and telephone cables. Sound has some similarities to light, but also some important differences, and we shall be looking at these. We will be investigating how the human ear works, and how it can be damaged, leading to hearing loss.

End of year examination

At the end of the year, you will have an exam in science on everything which you have learnt this year (including the chemistry and biology topics). Provided that you keep up-to-date with work and try quite hard during the year, it should not require much special preparation beyond jogging your memory of all that we have covered, nor prove especially difficult. We shall discuss it further nearer the time.