

## Year 9 Summer Term Curriculum Plan

Year 9 students will begin studying GCSE content in this term. As some groups are taught by more than one teacher, the order of topics may vary between classes. Each class will cover a topic from each of the three sciences. It will be made clear to students which topics are set by which teachers. Below is an outline of each topic and is not an exhaustive list of content taught.

If there are any questions regarding the work set for Year 9 students, please do not hesitate to contact Miss Clayton (Assistant Faculty Leader) at [kay.clayton@jmhs.hereford.sch.uk](mailto:kay.clayton@jmhs.hereford.sch.uk).

### **Overview for Biology topic – Ecosystems and Material Cycles**

*To describe the interaction between organisms and their environments and how essential nutrients like carbon and nitrogen are recycled*

| Key Content  |
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| <ul style="list-style-type: none"><li>Recall food chains and food webs and describe the information they provide about an ecosystem</li><li>To understand what is meant by biotic and abiotic factors and how they affect the growth and distribution of organisms</li><li>To describe some techniques that can be used to estimate a population</li></ul> |
| <ul style="list-style-type: none"><li>Define and describe what is meant by biodiversity and why it is important</li><li>Describe a range of strategies used in the conservation of species</li><li>Describe how water is cycled through an environment and how drinking water can be made from other sources of water</li></ul>                            |
| <ul style="list-style-type: none"><li>Explain the role of fractional distillation and make comparisons to simple distillation</li><li>Recall the process of chromatography and its uses</li><li>Calculate R<sub>f</sub> values and use this data to identify substances</li></ul>  |

### **Overview for Chemistry topic – States of Matter and Separating Mixtures**

*To describe the processes involved in changing between states of matter. To describe how different kinds of mixtures can be separated using a range of practical methods.*

| Key Content  |
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| <ul style="list-style-type: none"><li>Describe the arrangement of particles in a solid, liquid and gas</li><li>Recall the changes of state and explain the changes in arrangement, movement and energy of particles during the changes of state</li><li>Recall the differences between elements, mixtures and compounds and identify them using their formula.</li></ul>                       |
| <ul style="list-style-type: none"><li>Explain how techniques such as filtration, crystallisation and distillation can be used to separate mixtures</li><li>Be able to describe the type of mixture that can be separated by each technique and the equipment that would be used to carry this out practically</li><li>Apply knowledge of this to the process of making potable water</li></ul> |
| <ul style="list-style-type: none"><li>Describe reactions of metals oxides and acids</li><li>Define precipitation and give some examples</li></ul>  |

### **Overview for Physics topic – Waves**

*To describe the properties of waves including calculations of speed, frequency and wavelength*

| Key Content   |
|---|
| <ul style="list-style-type: none"><li>Describe the properties of longitudinal and transverse waves</li><li>State some examples of different types of wave</li><li>Describe how to measure the speed of sound in air</li></ul>   |
| <ul style="list-style-type: none"><li>Use mathematical formulae to make calculations in relation to properties of waves (speed, frequency, wavelength)</li><li>Explain how a ripple tank can be used to measure properties of waves</li><li>Describe the effect of refraction</li></ul> |