

# Rivers



Education Support Centre

# **KS3 Science Curriculum Overview**

# **2026**

## **Curriculum Overview**

Our science curriculum is designed to provide all pupils with an ambitious, engaging and inclusive education that develops scientific knowledge, practical skills and curiosity about the world around them. The curriculum is carefully sequenced to build understanding over time and support pupils in making connections across Biology, Chemistry and Physics.

We aim to foster resilience, curiosity and independence through practical investigation, discussion and problem solving. Pupils are encouraged to question, explore and evaluate scientific ideas while developing confidence in communicating their understanding.

### **Purpose of Study:**

- To encourage a lifelong passion for science by engaging pupils in practical activities and discussions.
- To encourage curiosity and awareness of the world around them.
- To give pupils a solid conceptual understanding of Biology, Chemistry and Physics as detailed in the National Curriculum for Key Stages 3.
- To ensure all pupils make progress to the best of their ability with support and challenge where needed to achieve at ks4 and provide a foundation for further study post Rivers ESC.

The Science subject area aims to inspire discussion, hypothesizing, planning, investigating, implementation and evaluation. We aim to have all pupils working towards developing a deeper understanding of the modern world around us.

We strive to, wherever possible, link work to other disciplines such as mathematics, D&T, computing, PE and art. The pupils are also given opportunities to reflect upon and evaluate their practical work with specific regard to health & safety, reliability and accuracy.

Throughout our programs of study, every attempt is made to make explicit links to careers and the world of work. In addition to subject-specific links, we aim to explicitly reinforce the skills and aptitudes which support what employers say are important in the workplace.

1. Aiming high, staying positive and resilience
2. Communication skills (listening, speaking, presenting)
3. Teamwork and problem solving,
4. Creativity and thinking skills.
5. Self-management and leadership
6. The British values of democracy, the rule of law, individual liberty, and mutual respect of those with different faiths and beliefs are taught explicitly and reinforced in the way in which the school operates.

Underpinning all the learning aims is the school ethos is the understanding and development of pupils social, emotional, and behavioural needs. Every lesson has a strong focus on the four target areas for a specific focus. – see behaviour policy for full details.

Why this subject is important:

The study of science fires pupils' curiosity about the world and helps them to find explanations. It links practical experience with scientific ideas. Pupils learn that science enhances knowledge and understanding in science is rooted in evidence. Pupils discover how science and technology affects industry, business, and medicine and how science improves the quality of life. Pupils appreciate science worldwide and discover how it relates to their own culture.

Pupils also gain confidence to question and discuss issues that may affect their own lives, their immediate community, and the world.

Half term 1

|          | Biology                                                                                                                                                                                           | Physics                                                                                                                                                                         | Chemistry                                                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Big Idea | Cells – To understand the components to both plant and animal cells as well as to be able to identify, describe and explain the similarities and differences between the different types of cells | Energy and how energy is transferred and stored in different ways. To understand that energy cannot be created or destroyed by changes form. This could be chemical to thermal. | To understand that all matter in the universe is made up of particles. The arrangement of the particles can form the state of that matter and can change as a result of pressure and temperature. |

#### Half term 2

|          | Biology                                                                                                                              | Physics                                                                                                                 | Chemistry                                                                                                                                                          |
|----------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Big Idea | Pupils will develop their understanding of how the human body works and how different organ systems rely on one another for survival | This topic pupils will develop understanding on forces and the different forces which act on our body every single day. | This topic Pupils will focus on the physical world around them looking at how materials are made through particles and the different ways particles make up matter |

#### Half term 3

|          | Biology                                                     | Physics                                                      | Chemistry                                            |
|----------|-------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------|
| Big Idea | This term the key focus will be on the digestive system and | Develop pupils understanding of physics and the world around | Pupils will have a greater understanding of chemical |

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|  | ensuring pupils know what is and is not a healthy diet with the aim of improving the pupils understanding of how to keep themselves healthy. | them with a specific focus on pressure and speed. | reactions as well as acids and alkali's. They will also be able to identify acids and alkali's in every day life. |
|--|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|

#### Half term 4

|          | Biology                                                                                                                                                                                                  | Physics                                                                                                                                      | Chemistry                                                                                                                                                                    |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Big Idea | This term pupils will learn how energy is formed through chemical reactions in both animal and plant cells. Pupils will also be able to compare the different chemical reactions to form useable energy. | Pupils will look at the waves around us and how waves interact with the world. Pupils will be able to identify the different types of waves. | Pupils will have a greater understanding of the periodic table and the different groups within the table. Pupils will also look at chemical and physical themes in the group |

#### Half term 5

|          | Biology                                                        | Physics                                                      | Chemistry                                                  |
|----------|----------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------|
| Big Idea | Develop and understanding of the food chain in the environment | Develop and understanding of electricity and how we generate | Develop a understanding of how acids can corrode different |

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|  | and how our actions can affect the food chain. | electricity to be used in homes. | materials and how they react when in contact with different materials |
|--|------------------------------------------------|----------------------------------|-----------------------------------------------------------------------|

### Half term 6

|          | Biology                                                                                                                                        | Physics                                                                                                                                                                              | Chemistry                                                                                                                                                                |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Big Idea | This topic will engage pupils in to understanding where they get some of their traits and how some features are passed on through generations. | This topic will get the pupils to ask their place in the universe and encourage a greater understanding of the size and scale of the universe to understand our place in the galaxy. | <i>Pupils will understand the layers of the earth and the importance of keeping the earth habitable. This will encourage pupils to think about the world we live in.</i> |

### Promoting British Values:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <p>Democracy -</p> <ul style="list-style-type: none"> <li>• Certain decisions on matters affecting the whole class are put to a vote</li> <li>• We use voting as a system to encourage engagement in lessons, e.g. Debates – for/against arguments, respecting views of others.</li> </ul> <p>Rule Of Law –</p> <ul style="list-style-type: none"> <li>• Whole school behaviour expectations/rules are constantly discussed, especially when they are breached, with individuals, pairs or small groups. We link behaviour issues of morality and social interactions.</li> </ul> |
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### Useful website and details of course books:

<http://www.bbc.co.uk/education/subjects/zng4d2p>

| Name               | Position            | Email Address                                                                                    | Telephone    |
|--------------------|---------------------|--------------------------------------------------------------------------------------------------|--------------|
| Mr Sean O'Sullivan | Science Teacher KS3 | <a href="mailto:Sean.osullivan@riversesc.herts.sch.uk">Sean.osullivan@riversesc.herts.sch.uk</a> | 01992 534841 |
| Mr Gerry Langan    | Science Teacher KS4 | <a href="mailto:gerry.langan@riversesc.herts.sch.uk">gerry.langan@riversesc.herts.sch.uk</a>     |              |