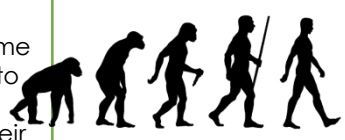
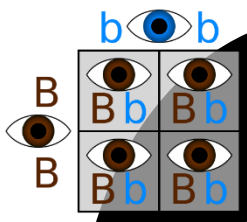
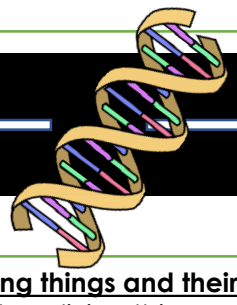
The Talentum LEARNING TRUST

Learning journey map
Key stage 2 Science

Evolution and inheritance
-recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
-recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
-identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution







Year 7

KS3 Science curriculum intents:
Students will experience transition from KS2 into KS3 through a spiral based curriculum which is based on the 15 Big Ideas in Science. We also being preparing the students for transition to KS4 by our discriminating use of scientific language and embedding key techniques and processes which underpin the Scientific Method.

Biological Concepts

Students will explore the foundations of life, from the sub-cellular level through to the interdependence of Ecosystems and human impacts on these.

Chemical Processes

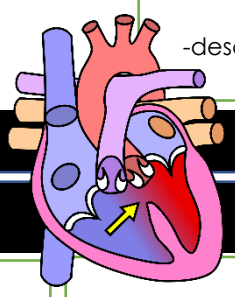
The basics of Atomic structure, bonding and reactions are visited and phenomena explained through the study of the Periodic Table. Students are taught to critically select and use key separation techniques to solve problems and will begin to use and predict chemical names and formulae.

Physics Phenomena

Students will study the concept of energy, and how this is conserved and transferred through changes of state to astronomical scales and also explore the forces which may cause or influence these transfers. They will learn about the Electromagnetic field for the first time in detail and draw links between the spectrum and the phenomena rising from electrical current.

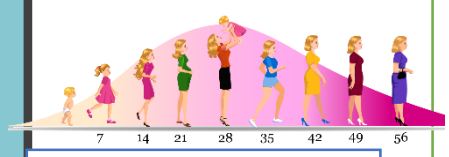
Living things and their habitats
-describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
-give reasons for classifying plants and animals based on specific characteristics

Animals including humans
-identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
-recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
-describe the ways in which nutrients and water are transported within animals, including humans

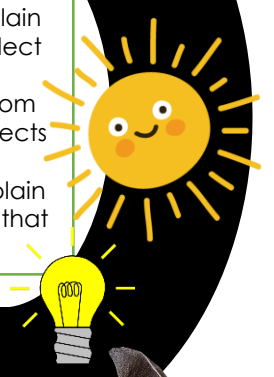


Electricity
-associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
-compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
-use recognised symbols when representing a simple circuit in a diagram

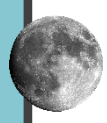
Light
-recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
-explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
-use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them



Animals, including humans
-describe the changes as humans develop to old age



Year 6

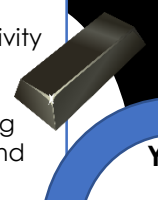


Earth and space
-describe the movement of the Earth and other planets relative to the sun in the solar system
-describe the movement of the moon relative to the Earth
describe the sun, Earth and moon as approximately spherical bodies
-use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

Forces
-explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
-identify the effects of air resistance, water resistance and friction, that act between moving surfaces
-recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect

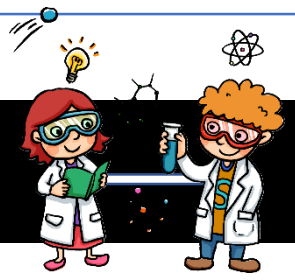
Living things and their habitats
-describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
-describe the life process of reproduction in some plants and animals

Properties and changes of materials
-compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
-know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
-give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
-demonstrate that dissolving, mixing and changes of state are reversible changes
-explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda



Year 5

Year 4



welcome

Our Science curriculum will give students the opportunity to:

- Develop practical skills by working scientifically;
- Discuss and explain scientific concepts clearly and precisely;
- Unpick and remedy misconceptions;
- Understand the uses and implications of Science historically, today and for the future;
- Accurately read and interpret scientific vocabulary;
- Challenge what they see or hear in the world by taking into account new evidence and ideas;
- See connections between subject areas and become aware of the 15 big ideas underpinning scientific knowledge and understanding;
- To use problem solving and numeracy skills to solve scientific problems

Churnet View's Science curriculum:
The vision of the Science Team at Churnet View Middle School is to continually strive for development of excellent teaching and learning in Science, incorporating a wide range of approaches to ensure pupils enjoy and succeed in Science and appreciate the universe around them. A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics.

We believe that students deserve a broad and ambitious Science curriculum, rich in skills and knowledge, which ignites curiosity and prepares them well for future learning or employment. Through building up a body of key foundational knowledge and concepts, pupils will be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They will be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

KS2 Science curriculum intents:
Teaching and learning of the upper KS2 curriculum focuses on building students' foundational knowledge and understanding of the 15 Big Ideas in Science. To enable this we continually use questioning to identify and then address misconceptions that students may have about the world of Science.

Biological Concepts

During Years 5 and 6, students will learn about how their body works, new life is formed and how all life forms are classified. Through the study of Evolution and Adaptation, they will also begin to understand the fundamentals of how life on Earth began.

Physical and Chemical Processes

Students will begin to study the world we live in from the magnitude of the Universe down to the size of an atom, and how and why these interact with one another. They are introduced to the interactions of matter using both concrete and abstract examples.