Explorer Curriculum – Building block to Formal Curriculum

- The building block before a fully formal curriculum.
- Strong focus on Early Literacy and Numeracy.
- Key skills and knowledge to understand the world around them.
- Functional Skills to apply basic knowledge.
- For children with moderate learning difficulties, autism and other learning needs. Learning takes place through tangible 'real life situations' with regular revisiting of learning.
- Students follow an Entry Level (1-3) Pathway at KS4 and KS5.

10.2 - Explorer Curriculum - *Science/3 Lessons weekly*

Year	2021 – 2022 Autumn 1 Unit 1	2021 – 2022 Autumn 2 Unit 2	2021 – 2022 Spring 1 Unit 3	2021 – 2022 Spring 2 Unit 4	2021 – 2022 Summer 1 Unit 5	2021 – 2022 Summer 2 Unit 6
	Topic: B6 Casualty C6 Sorting out P6 Nuclear Power **Suggested Key Questions:** Why is it important to check for blood flow in a casualty situation? How can we separate different types of mixtures? How is nuclear fuel used to generate electricity? **Key Skills and Knowledge:** Casualty B6 1. Understand the importance of maintaining the supply of oxygen to the body. 2. Know that the heart muscle acts	**Topic:** B7 You only have one life C7 Let's get together P7 Our electricity supply **Suggested Key Questions:** How can we take care of our health? How to atoms join together? How do we get electricity in our homes? **Key Skills and Knowledge:** You only have one life B7 1. Know that being overweight or underweight is linked to increased health risks.	**Topic:** B8 Body Wars C8 Heavy Metals P8 Attractive Forces **Suggested Key Questions:** How does our body defend itself? What are some of the properties of metals? Why are magnets useful? **Key Skills and Knowledge:** Body Wars B8 1. Describe different types of diseases (including diseases that can be caught and those that cannot be caught).	**Topic:** B9 Creepy Crawlies C9 Fuels P9 Pushes and Pull **Suggested Key Questions:** Why are smaller organisms important? What are fuels and why are they important? What are forces and what can they do? **Key Skills and Knowledge:** Creepy Crawlies B9 1. Know that animals get their food from eating plants or other animals. Know the meaning of the term habitat. Understand that	**Topic:** B10 Extinction C10 Let's get together P10 Medical rays **Suggested Key Questions:** What are the processes all living things do? How to atoms join together? What rays are used to treat patients with specific conditions? **Key Skills and Knowledge:** B10 Extinction 1. Know that fossils provide evidence of living organisms from long ago to include fossil formation.	**Topic:** Entry Level Coursework **Suggested Key Questions:** Hypothesis: How does the size of a meteorite affect the size of a crater? **Key Skills and Knowledge:** Working scientifically skills: a) Planning to collect data. b) Processing the data. c) Identify patterns/ trends in data.

	as a double pump and has a beat that is a force. 3. Know the blood vessels and their functions. . 4. Understand that during exercise muscles need to be supplied with more oxygen and be able to relate this to an increase in heart rate. 5. Know the equation for respiration. 6. Know that the risk of heart disease is increased by some factors. Sorting out C6 1. Explain what is meant by the purity of a substance, distinguishing between the scientific and everyday use of the term '*pure'.* 2. Know that a mixture contains two or more uncombined substances. 3. Know that mixtures contain substances that can be separated from each other. 4. Know how chromatography is used to separate	2. Understand that exercise is important for a healthy lifestyle. 3. Understand, in simple terms, the processes of digestion and absorption and where these events occur. 4. Know that there are different enzymes that speed up digestion in the mouth, stomach and intestines, each of which digests a different type of food. 5. Know that a drug is a chemical that has an effect on the mind or the body beneficial or harmful. 6. Know the effects of alcohol and alcohol abuse, drink driving accounts for more deaths, crime than any other drug. Let's get together C7 1. Know that when sodium loses an electron it becomes positive and when chlorine gains an electron it becomes negative and that these charges hold the two together as salt (sodium chloride). Using	2. Recall that harmful microbes (pathogens) are bacteria, fungi, protists and viruses. Recall that the skin, chemicals in tears, sweat, and stomach acid stop microbes getting in. 3. Describe a minimum of one common human infection plus a sexually transmitted infection in humans, including HIV/AIDS. Know that white blood cells are part of the immune system. 4. Know that once you are immune you are protected from a particular disease. 5. Know that antibiotics are chemicals that kill bacteria and fungi, but not viruses. 6. Know that vaccines can make people immune to a disease. Heavy Metals C8 1. Describe the properties of metals on the basis of their characteristic physical and	organisms are adapted to live in their habitat. 2. Explain the importance of the carbon cycle and the water cycle to living organisms are involved in the cycling of materials through an ecosystem.. 3. Understand how some animals are adapted as successful predators. 4. Be able to construct a simple food chain with a plant, a herbivore and a carnivore. 5. Understand how a change affecting one species in a food web can affect another species in the same food web. 6. Describe that DNA is now used to help classify organisms. Fuels C9 1. Know that crude oil is a toxic, dark, sticky liquid, hydrocarbons in chains of varying length. hydrocarbons are made of hydrogen and carbon. 2. Know that crude oil can be separated into	2. Understand the term species, habitat. 3. Know that living things have been changing through evolution.Know that all variations in a species arise from mutations. 4. Understand that living things compete for shelter, food and mates in order to survive. 5. Know that the better adapted individuals will survive and can breed and pass on their features to the next generation. that a species may become extinct if their habitat changes or another species is better adapted to survive. 6. Understand how human beings have caused some species to become endangered or extinct, habitat destruction, hunting, pollution. C10 Let's get together 1. Use the names and symbols of the first 20 elements. 2. Using sodium and chlorine show how atoms	d) Interpret data. e) Review the method.

	mixtures into their constituents. 5. Suggest how chromatography can be used to test pure from impure substances. 6. Understand that distillation is used to separate liquids with different boiling points. Nuclear Power P6 1. Describe the atom as a nucleus surrounded by electrons. 2. Recall that atomic nuclei are composed of both protons and neutrons. 3. Explain that isotopes are different forms of the same atom. 4. Know that changes in an atoms nucleus can generate radiation. 5. Know that uranium is a non-renewable resource. 6. Know that a nuclear power station produces harmful radioactive waste. contamination and irradiation	sodium and chlorine show how atoms can donate electrons. 2. Use chemical symbols to write the formulae of elements and simple compounds limited to sodium chloride, magnesium oxide, sodium hydroxide, hydrochloric acid, hydrogen and carbon dioxide. 3. From a model or a diagram work out the proportion of sodium and chlorine atoms in a molecule of sodium chloride. 4. Use the names and symbols of the first 20 elements from a supplied Periodic Table. 5. Know the names of other chemical bonds limited to covalent and metallic bonds. 6. Describe what electrolysis is. Our electricity supply P7 1. Explain the difference between direct (D.C) and alternating voltage (A.C). 2. Know the main stages in the production of	chemical properties. 2. Know how that some metals (e.g. iron and copper) can be extracted by heating its ore with carbon. 3. Explain reduction and oxidation in terms of loss or gain of oxygen, identifying if iron is being reduced or oxidised when rusting. 4. Know that paints are used to decorate or protect surfaces and protect from rusting. Know that rusting needs iron, water and oxygen. 5. Recall one advantage and one disadvantage of making cars from aluminium. 6. Understand why metals are worth recycling (metals are a finite resource and recycling metal is cheaper than making it from the ore and that it saves resources and energy). Attractive Forces P8 1. Know that iron and steel are magnetic. Know how to induce magnetism in a pin.	more useful parts at an oil refinery. 3. Know that in an oil refinery crude oil is separated into fractions based on the boiling point of the hydrocarbon. 4. Know that petroleum gases, petrol, kerosene and diesel are all hydrocarbons that come from crude oil. 5. Know the uses of these fuels: petroleum gases, such as propane, in portable gas cylinders; petrol in cars; kerosene in airplanes; diesel in lorries, buses, trains and cars. 6. Know that burning fuels produces energy for heating, transport and making electricity in power stations. Pushes and Pulls P9 1. Know that forces can be pulls, pushes, twists or bends which are measured in Newtons. 2. Understand that unbalanced forces change the motion of an object. 3. Know that gravity is a force pulling	can donate electrons. Know that when sodium loses an electron it becomes positive and when chlorine gains an electron it becomes negative. 3. Recognise and construct representations of atomic models limited to dot and cross diagrams. 4. Use chemical symbols to write the formulae of elements and simple compounds. 5. Describe how to get the sodium and chlorine back by electrolysis with the positive sodium being attracted to the negative electrode. 6. Know the names of other chemical bonds limited to covalent and metallic bonds. P10 Medical rays 1. Recall some benefits of a doctor being able to see inside a patients body. Know that all surgical procedures have risks.	

		electricity: heat from the energy source changes water into steam, the steam is used to rotate turbines, turbines turn a generator, and the generator produces electricity. 3. Understand that transformers are required at either end of the transmission lines to increase or decrease voltage. 4. Know that electricity in the home is conducted by wires. Know ways of reducing energy loss from the home. Understand the terms *insulator* and *conductor*. 5. Know the differences in function between the live, neutral and earth mains wires. 6. Describe the difference between series and parallel circuits.	2. Know that like poles repel and unlike poles attract. Know that a freely swinging magnet comes to rest in a N-S direction because the earth has a magnetic field. 3. Understand how a compass works and why it is so useful. 4. Know how to construct an electromagnet. Understand that the core of an electromagnet is made of iron because iron is a temporary magnet. 5. Know that the strength of the field depends on the current and the distance from the conductor. 6. Understand how the strength of an electromagnet depends on: the number of turns on the coil, the current in the coil.	things towards the Earth. Understand that weight is due to the force of gravity. 4. Know that an objects gravitational potential energy is composed of its mass, height and gravity. Know that falling objects are acted on by gravity and drag. 5. Understand the effect of air resistance on falling objects. Know that falling objects can reach a maximum speed. 6. Apply the relationship between work done = force × distance moved.	2. Recall some medical uses of UV radiation. Know that exposure to UV radiation can cause suntan, sunburn and skin cancer. Recall some ways of reducing the risk of exposure to UV radiation. Interpret data on the use of sunscreens. 3. Understand that the use of X-rays and so produces shadow pictures. 4. Know that gamma radiation is very penetrating. 5. Know that a gamma camera can detect gamma radiation and that a computer linked to it can make pictures. 6. Know that UV radiation, X-rays and gamma rays are part of a family called the electromagnetic spectrum.	
Links to Gatsby Benchmarks:	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the	Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student

	student and * - Personal Guidance Students to consider what skills are needed to be a police officer or a detective… lead onto looking at what skills are needed for different roles they are interested in and what qualifications.	student and * - Personal Guidance Benchmark 4 – Linking Curriculum to learning Benchmark 8 – Personal Guidance Students to consider what skills are needed to access the opportunities they are interested in. Going into work places/remote visits. Research. Writing C.Vs and cover letters.	student and * - Personal Guidance Benchmark 5- Encounters with employers and employees Students to consider what skills are needed to access the opportunities they are interested in. Research.	student and * - Personal Guidance Benchmark 5- Encounters with employers and employees Students to consider what skills are needed to access the opportunities they are interested in. Research.	student and * - Personal Guidance Benchmark 6 – Experience of Work places Students to consider what skills are needed to access the opportunities they are interested in. Looking at careers in sports and researching sports.	and * - Personal Guidance Benchmark 6 – Experience of Work places Students to consider what skills are needed to access the opportunities they are interested in. Looking at careers in sports and researching sports.