**CULTURAL CAPITAL DEVELOPMENT OPPORTUNITIES**

**SUBJECT: Science**

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|  | **Spiritual** | **Moral** | **Social** | **Cultural** | **Personal Development** | **Physical Development** |
| **Year 7** | Science is using evidence to make sense of the world. It has the ability to make us feel both enormously insignificant (compared to the scale of the visible universe) and enormously significant (we are genetically unique).  Issues such as the structure of the solar system and the formulation of the Universe.  Awe of the scale of living things from the smallest microorganism to the largest tree.  The complexity of living things.  -the wonder of the extent of geological time.  -the beauty of natural objects or phenomenon – crystals, rainbows, the Earth from Space.  Within our Science department we welcome free speech and free choice without bias towards any particular creed, colour or religious affiliation.  We respect and value the opinions of others and welcome their contribution to our scientific community. | Whether it’s the ethics behind certain medical treatments, the environmental impact of industry, or how government funding is allocated to scientific projects; moral decisions are an important aspect of Science. Scientific discoveries and inventions need to be used responsibly, and decisions made based on evidence (not prejudice). As teachers, we encourage pupils to be both open minded (generating a hypothesis) and critical (demanding evidence) and to use their understanding of the world around them in a positive manner. | Social development is enhanced by students being encouraged to show respect for other people’s ideas.  Developing social skills through group and practical work.  Considering the safety of others during practical work.  The effects of Science on their lives e.g. enhancement of plant growth, use of artificial satellites, development of polymers, medicines.  How the rights of others may be affected by pollution, building wind farms, etc.  Health issues linked to smoking, poor diet, lacking exercise.  Scientists are collaborators. Sharing ideas, data, and results is a key principle of the scientific method. We encourage pupils to work together on scientific investigations and to share results (to improve reliability). | We explore and celebrate research and developments that take place in many different cultures, both past and present. We explore how scientific discoveries have shaped the beliefs, cultures and politics of the modern world. | Students following laboratory rules for the safety of all  Practical activities in science require students to engage in team work and show mutual respect for each other.  Resilience and self-esteem are developed through students building independent learning skills, experiencing | Students develop fine motor skills in the manipulation of practical apparatus.  Students calculate their speed of walking and running.  Pupils act out particle model. |
| **Year 8** | Within our Science department we welcome free speech and free choice without bias towards any particular creed, colour or religious affiliation.  We respect and value the opinions of others and welcome their contribution to our scientific community. | Scientific collaboration is inherent upon the democratic process whereby evidence and conclusions undergo peer review by fellow Scientist. | Scientists are collaborators. Sharing ideas, data, and results is a key principle of the scientific method. We encourage pupils to work together on scientific investigations and to share results (to improve reliability).  Pupils consider the social impact (both positive and negative) of science and technology upon our everyday lives e.g. x rays, vaccination, fertilisers, GM crops, renewable energy sources and stem cell research. | We explore and celebrate research and developments that take place in many different cultures, both past and present. We explore how scientific discoveries have shaped the beliefs, cultures and politics of the modern world. | Students following laboratory rules for the safety of all  Practical activities in science require students to engage in team work and show mutual respect for each other.  Resilience and self-esteem are developed through students building independent learning skills, experiencing  Studying the effect of alcohol, tobacco and illegal drugs on well being. | Students develop fine motor skills in the manipulation of practical apparatus.  Students investigate the effect of exercise on heart and breathing rate. |
| **Year 9** | Within our Science department we welcome free speech and free choice without bias towards any particular creed, colour or religious affiliation.  We respect and value the opinions of others and welcome their contribution to our scientific community. | Science works within and in support of the law e.g. forensic science, Animal research and human stem cell research.  Scientific collaboration is inherent upon the democratic process whereby evidence and conclusions undergo peer review by fellow Scientist. | Looking into the future options for the production of electricity, alternative fuels, and methods to reduce pollution with discussion of how these can improve people’s lives and the environment in general  Considering how scientific perceptions can alter across the planet; from the phases of the moon, the safety of food additives and the local importance of recycling.  Scientists are collaborators. Sharing ideas, data, and results is a key principle of the scientific method. We encourage pupils to work together on scientific investigations and to share results (to improve reliability).  Pupils consider the social impact (both positive and negative) of science and technology upon our everyday lives e.g. x rays, vaccination, fertilisers, GM crops, renewable energy sources and stem cell research. | Investigating the historical impact of scientists from around the world in numerous famous discoveries.  We explore and celebrate research and developments that take place in many different cultures, both past and present. We explore how scientific discoveries have shaped the beliefs, cultures and politics of the modern world. | Students following laboratory rules for the safety of all  Practical activities in science require students to engage in team work and show mutual respect for each other.  Resilience and self-esteem are developed through students building independent learning skills, experiencing | Students develop fine motor skills in the manipulation of practical apparatus.  Students investigate factors that effect reaction time. |
| **Year 10** | Within our Science department we welcome free speech and free choice without bias towards any particular creed, colour or religious affiliation.  We respect and value the opinions of others and welcome their contribution to our scientific community. | Learning about the future implications of the use of finite resources and landscape changes.  Gaining an insight into the chemical nature of natural changes in the lithosphere, hydrosphere, atmosphere and biosphere  Scientific collaboration is inherent upon the democratic process whereby evidence and conclusions undergo peer review by fellow Scientist. | Considering how scientific perceptions can alter across the planet; from the phases of the moon, the safety of food additives and the local importance of recycling.  Scientists are collaborators. Sharing ideas, data, and results is a key principle of the scientific method. We encourage pupils to work together on scientific investigations and to share results (to improve reliability).  Pupils consider the social impact (both positive and negative) of science and technology upon our everyday lives e.g. x rays, vaccination, fertilisers, GM crops, renewable energy sources and stem cell research. | Investigating the historical impact of scientists from around the world in numerous famous discoveries.  We explore and celebrate research and developments that take place in many different cultures, both past and present. We explore how scientific discoveries have shaped the beliefs, cultures and politics of the modern world. | Students following laboratory rules for the safety of all  Practical activities in science require students to engage in team work and show mutual respect for each other.  Resilience and self-esteem are developed through students building independent learning skills, experiencing  Understanding of the need to have speed limits (speed, force, change of momentum.  Studying the effect of alcohol, tobacco and illegal drugs on well-being.  Democracy is taught through student debates in examining issues such as whether smoking and drinking should be made illegal | Students develop fine motor skills in the manipulation of practical apparatus.  Students calculate work done and power of a physical activity |
| **Year 11** | Within our Science department we welcome free speech and free choice without bias towards any particular creed, colour or religious affiliation.  We respect and value the opinions of others and welcome their contribution to our scientific community.  Spiritual development in Science helps us understand our relationship with the world around us (how the physical world behaves, the interdependence of all living things). Making new discoveries increases our sense of awe and wonder at the complexities and elegance of the natural world. For scientists, this is a spiritual experience and drives us onwards in our search for knowledge understanding. | Debating the ethical issues surrounding current issues such as stem cell cloning to cure diseases.  Learning about theories concerning the creation of the universe and evolution of life with consideration of religious beliefs  Scientific collaboration is inherent upon the democratic process whereby evidence and conclusions undergo peer review by fellow Scientist.  Moral development is enhanced through the consideration of issues such as the effects of human activity on the planet e.g. extinction of species, global warming, pollution, genetic modification, IVF, human cloning.  Recognition that discoveries in Science can have both harmful and beneficial effects (eg. splitting of the atom). | Considering how scientific perceptions can alter across the planet; from the phases of the moon, the safety of food additives and the local importance of recycling.  Scientists are collaborators. Sharing ideas, data, and results is a key principle of the scientific method. We encourage pupils to work together on scientific investigations and to share results (to improve reliability).  Pupils consider the social impact (both positive and negative) of science and technology upon our everyday lives e.g. x rays, vaccination, fertilisers, GM crops, renewable energy sources and stem cell research. | Investigating the historical impact of scientists from around the world in numerous famous discoveries.  We explore and celebrate research and developments that take place in many different cultures, both past and present. We explore how scientific discoveries have shaped the beliefs, cultures and politics of the modern world  Consideration of the work done by various Scientists e.g. Pasteur, Darwin, Wegener etc. Drawing attention to how cultural differences can influence the extent to which scientific ideas are accepted, used and valued.  Considering the historical context that influenced the way new theories are considered e.g. motion of the Earth, evolution, plate tectonics, Big Bang theory |  | Students develop fine motor skills in the manipulation of practical apparatus.  Students investigate the effect of exercise on heart and breathing rate. |