Science intent to Curriculum

We have said we want learners in our subject to be:

- Self-motivated
- Knowledge rich
- Curious
- Confident
- Risk takers/happy to make mistakes
- Problem solvers
- To have a high science capital

In our Curriculum provision map we have identified specific topics we where can develop these ideas with students and in our SoLs and individual lessons there will be identified tasks. They will also be an underlying thread throughout our curriculum which will be address in how we approach what we deliver. This will include:

- Driving questions for topics and lessons to engage students and make links to the wider world.
- Using the plan, monitor and evaluate cycle when developing practical skills. This will be used to develop students' ability to design effective practicals and investigate their own questions.
- Use of open ended homework tasks to allow students to develop their curiosity.
- Developing science capital by using personal students experiences in our lessons (identifying how they are doing science in their everyday lives) and presenting examples of a range of scientists (in the curriculum but also as enrichment opportunities).
- Use of enrichment opportunities as they come up (guest speakers, competitions etc.)
- Regular use of modelling of staff thinking in lessons
- Use of knowledge tests with a "passing grade"
- Modelling self-reflection with student post-assessment so they are able to evaluate and plan for the future.
- Scaffolding of exam command words whenever they are used.

Key science knowledge

We organise our content around the Big Science Ideas [Harlen et al, 2015]:

1 All matter in the Universe is made of very small particles
2 Objects can affect other objects at a distance
3 Changing the movement of an object requires a net force to be acting on it
4 The total amount of energy in the Universe is always the same but can be transferred from one energy store to another during an event

5 The composition of the Earth and its atmosphere and the processes occurring within them shape the Earth's surface and its climate
6 Our solar system is a very small part of one of billions of galaxies in the Universe
7 Organisms are organised on a cellular basis and have a finite life span
8 Organisms require a supply of energy and materials for which they often depend on, or compete with, other organisms
9 Genetic information is passed down from one generation of organisms to another
10 The diversity of organisms, living and extinct, is the result of evolution
11 Science is about finding the cause or cause of phenomena in the natural world
12 Scientific explanations, theories and models are those that best fit the evidence available at a particular time
13 The knowledge produced by science is used in engineering and technologies to create products to serve human ends
14 Applications of science often have ethical, social, economic and political implications

These ideas are revisited throughout the five years building upon the depth and breadth as return to them.