

West Moors Middle School - Curriculum Component Profile

Subject: Science	Year: 8
<p>Description of learning Year 8 is about ensuring that pupils are GCSE ready in terms of their science knowledge and skills. Therefore we revisit some important areas of physics, chemistry and biology, reviewing ‘good enough models’ of abstract concepts and updating them so that pupils will be better able to make progress within KS4 courses. For example, updating the pupils’ understanding that a particle or even an atom is the smallest particle. Also, updating the wave model to explain how light and sound are transmitted. Furthermore, revisiting the variety of living things by relating to genetic information and how an understanding of this has influenced much of modern biology. The following topics are studied in approximately 4 week units, interwoven with developing scientific enquiry skills that will support pupils within GCSE courses. For example, gaining a greater ability to evaluate evidence according to precision, repeatability and validity. Also, encouraging pupils to plan and carry out practical work in a more independent way, being mindful of risk and taking action to minimise it.</p> <ul style="list-style-type: none"> • Plants and photosynthesis • Patterns in chemistry • Heating and cooling • Forces • Light • Sound • Variation • Electromagnetism • Rocks • Gravity and Space 	
<p>Important questions:</p> <ul style="list-style-type: none"> - Should JB Priestly have experimented with animals? - How small is the smallest particle known to man? - How does the mosquito anti-social prevention device work? Is it fair? - Where has all the CO₂ gone from the early atmosphere? - Are GM crops ethical? - What is deep time? 	<p>Bigger picture and linking: Vital to ensure that contexts for learning use up-to-date science news stories. Throughout the whole of this year, it will be important to make links with all areas of study which will have been studied at previous age groups. Important also to make links with local, national and international science studies and vocational opportunities.</p>
<p>Overlearning required:</p> <ul style="list-style-type: none"> - Selected periodic table elements - Selected chemical equations - Selection equations for speed and acceleration, electricity and forces - Key diagrams such as atomic models, EMS and plant and human physiology. 	<p>WoW factor:</p> <ul style="list-style-type: none"> - Reactions of Group 1 metals in water. - Van de Graf generator during electromagnetism topic. - Drdaq Oscilloscope traces to analyse sound. - Variation of moth species during Leeson House biological field trip. - STEM events.
<p>How will our learning values be developed?</p> <ul style="list-style-type: none"> - Resilience - to have patience and perseverance when working practically to gather evidence - Reflectiveness - when evaluating the evidence gained through investigations - Creativity - using models and seeing their limitations - Independence - selection and safe use of practical equipment 	<p>How will our community values be developed?</p> <ul style="list-style-type: none"> - Inclusivity - the role of women and BME scientists (sometimes overlooked) in the history of scientific research and development: Neil deGrasse Tyson and Rosalind Franklin - Respect - the need for the science community to respect views of the community when considering scientific advances - Fairness - the issues surrounding animal experimentation - Honesty - evaluating the limitations of evidence
<p>How will pupils’ numeracy be developed?</p> <ul style="list-style-type: none"> - Valid use of best-fit lines to describe patterns - Use of error bars when plotting best-fit or trend lines - Greater fluency with exponentiation of large or small numbers - Improved accuracy in use of scales for measuring 	<p>How will pupils’ literacy be developed?</p> <ul style="list-style-type: none"> - Explanation texts within predictions, conclusions, evaluations and other scientific writing. - Non chronological reports linked to research topics - Shared reading of certain studied texts such as Bill Bryson’s ‘A short history of nearly everything’