Armfield Academy – Department of Science

Year 10 Physics Curriculum Overview

- ✔ Each lesson will start with a series of questions linked to both the previous lesson and topics studied previously.
- ✔ Formative assessment of skills linked to practical work will enable students to demonstrate their acquisition of new skills.
- ✔ Students are encouraged to consolidate learning at least once a week and seek tutor help if unsure on any topics.
- ✔ Within each unit, time will be allocated for consolidation and recall before assessment, this includes for mock exams.
- ✔ The following questions will be explored within the units
- ✔ Content in blue is only taught to students on the triple science route.

Half Term 1	
Date	**Topic**: Atomic structure
Week 1	Introduction to science (expectations) How small are atoms? What are isotopes?
Week 2	How has our understanding of the atom changed over time? How is radiation detected? **Application time: knowledge check 1**
Week 3	
Week 4	What are alpha, beta and gamma? What is radioactive decay?
Week 5	How do we represent radioactive decay? What is radioactive contamination? **Application time: knowledge check 2**
Week 6	What is background radiation? How do we use radiation?
Week 7	What is nuclear fission? What is nuclear fusion? **Application time: knowledge check 3** **Application time: End of topic assessment**
Half Term 2	
Date	**Topic**: Electricity
Week 8	How do we draw electrical components? What is current?
Week 9	What's the relationship between current, resistance and potential resistance? **Application time: knowledge check 1**
Week 10	How does the length of a wire affect resistance?
Week 11	How does resistance change in series and parallel circuits? **Required practical: Series and parallel resistors**
Week 12	How does resistance change with different components? **Required practical: I–V characteristics** **Application time: knowledge check 2**
Week 13	
Week 14	What's the difference between series and parallel circuits? How is electricity supplied in our homes? How do I wire a plug?
Half Term 3	
Date	**Topic**: Electricity & Forces **Application time: end of topic assessment (week 18)**
Week 15	How do we calculate the power of our electrical devices?
Week 16	How is energy transferred in our domestic appliances?
Week 17	How does electrical power get to our homes? **Application time: knowledge check 3**
Week 18	How do static charges build-up? What are electric fields? **Application time: End of topic assessment**
Week 19	What can I remember from year 7 about forces?
Week 20	What is a resultant force? How do we calculate work done? **Application time: knowledge check 1**
Half Term 4	
Date	**Topic**: Forces
Week 21	What is the relationship between force and extension? **Required practical: Force and extension** **Application time: knowledge check 2**
Week 22	
Week 23	How can I lift an elephant using the principle of moments? How do I calculate pressure? **Application time: knowledge check 3**
Week 24	
Week 25	What is atmospheric pressure? How are displacement and distance different?
Week 26	What's the difference between speed and velocity? How do we represent speed, distance and time? What happens when objects speed up/slow down? What is terminal velocity? **Application time: knowledge check 4** What is Newton's 1st Law of motion? What is Newton's 2nd Law of motion? What is Newton's 3rd Law of motion?
Half Term 5	
Date	**Topic**: Forces **Application time: end of topic assessment (week 31)**
Week 27	How do force and mass affect acceleration? **Required Practical: Investigating force and acceleration**
Week 28	How quickly can a vehicle stop? How fast can you react?
Week 29	Which factors affect braking distance?
Week 30	How does energy transfer during braking? What is momentum and how do we calculate it? **Application time: knowledge check 5**
Week 31	
Week 32	How does the change of momentum affect the force on an object? **Application time: End of topic assessment** **Year 10 Mock exams**

Half Term 6	
Date	**Topic**: Waves
Week 33	**Year 10 Mock exams**
Week 34	**Year 10 work experience**
Week 35	Mock exam feedback
Week 36	What types of waves are there? How do we represent waves?
Week 37	How suitable is apparatus to measure the frequency, wavelength and speed of waves? **Required practical: Waves**
Week 38	**Application time: knowledge check 1**
Week 39	What happens when waves hit a surface? **Required practical: Reflection**
	How do we use waves? **Application time: knowledge check 2**