Physics **SOW** & **Required Practical** (2023-2024)**: Y10**

 AQA GCSE: 8463

 QAN code: 601/8751/7

**Year 10:** (*green=covered*)

**1. Energy**

**2. Electricity…**

**3. Particle model of matter**

**4. Atomic structure**

**Year 11:**

*5. Forces*

*6. Waves*

*7. Magnetism and electromagnetism*

*8. Space physics (physics only)*

**Curriculum Intent, Implementation and Impact Intent**

 **Aims and purpose:** We aim to create the very best Physicists. We challenge students to think, act and speak like those working in the field would. We do this by quality first teaching, which ensures that students understand the fundamental concepts of Physics and can articulate them with precise use of technical terminology> Furthermore, students can apply them to a variety of familiar and unfamiliar contexts. Students develop working scientific skills so that they understand how experiments can provide evidence, can critically evaluate data and link this to theory. Our curriculum at Brook Sixth Form & Academy goes far beyond what is taught in lessons, for whilst we want students to achieve the very best examination results possible, we believe our curriculum goes beyond what is examinable. As a department, we bring the subject to life through demonstrations, experiments and real world concepts. Students are nurtured to have an enquiring approach to understanding how the universe works. Enthusiasm is modelled by our staff and praised in our students who are engaged and motivated to do well. As a knowledge engaged curriculum we believe that knowledge underpins and enables the application of skills; both are entwined. As a department, we define the powerful knowledge our students need and help them recall it with topic checklists and increasingly, knowledge organisers. Most lessons start with a low stakes assessment, which provides students with regular spaced retrieval practice. Half-termly, formative diagnostic assessments further support this. In addition to all their paper resources, students have access to all these and further resources through the TEAM, which directs students to other additional resources that they can access. In addition, students have access to the online kerboodle resource, which includes self-marking quizzes that give the students instant feedback. We build the Cultural Capital of our students by exploring with the students links to the curriculum of current scientific issues. Through our curriculum we introduce students to the narrative of some of the most influential Physicists throughout history, their discoveries and the impact their work has had on the world in which we live.

**Implementation:**

 **Collaborative curriculum planning lies at the heart of what we do in the department**. From 2020 we are working on KS4 schemes of work. These are focussed on embedding challenge, metacognition, memory techniques and literacy into our departmental curriculum. **We implement our curriculum through a variety of teaching approaches** and tasks such spiralling back low stakes quizzes, **formative diagnostic assessments**, **demonstrations and discussions of key experiments** and applications of concepts to the real world**, pupil experiments, worked examples**, problem practice, questioning, **summative assessments** **and discussions leading to extended writing** **(BIG write).**

**Impact:**

We know our curriculum is working in the Science department through last years (and indeed previous years) exam results. At GCSE Science, we had student scoring 9’s. **Numbers of students studying A-Level Physics are rising and a significant proportional of our A-level Physics students go onto undergraduate study in physics or closely related subjects such as engineering**. Almost all our GCSE students reach their destination and Sixth form students like to give back to the department by helping to mentor and support students lower down the school years.

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| **Week** | **Date** | **Topic** | **Cross-curricular** | **Additional notes/spec code** |
|  W1 | 04-09-23 | * N/A
* Introduction to GCSE Physics
 |  | **Monday (4th ) INSET day** |
|  W2 | 11-09-23 | * 1.1 Changes in energy store
* 1.2 Conservation of energy
 |  | 1. **Energy**

**Spec\_code: 4.1.1.1 to 4.1.3***And 4.6.3.1* |
|  W3 | 18-09-23 | * 1.3 Energy and work
* 1.4 Gravitational potential energy stores
 |  |  |
|  W4 | 25-09-23 | * 1.5 Kinetic energy and elastic stores
* 1.6 Energy dissipation
 |  |  |
|  W5 | 02-10-23 | * 1.7 Energy and efficiency
* 1.8 Electrical appliances
 |  |  |
|  W6 | 09-10-23 | * 1.9 Energy and power
* Summary and review
 |  | Blended learning: Friday 13th |
|  W7 | 16-11-23 | * EUT
* Feedbacks & review
 |  |  |
|  W8 | HT(23-10-23) |  |  |  |
|  W9 | HT(30-10-23) |  |  |  |
|  W10 | 06-11-23 | * 2.1 Energy transfer by conduction
* 2.2 Infrared radiation
 | **GCSE Chemistry**Energy transfer:4.5.1.1 | Spec\_code: 4.6.3.1 |
|  W11 | 13-11-23 | * 2.3 More IR
* 2.4 Specific heat capacity
* RP1:Determining specific heat capacity
 | **GCSE Chemistry**Greenhouse gases:4.9.2.1 | **✓** |
|  W12 | 20-11-23 | * 2.5 Measurement of specific heat capacity
* 2.6 Heating and insulating buildings
* RP2: Investigating thermal insulators
 |  |  **✓** |
|  W13 | 27-11-23 | * Summary and review
* Recap of P1 &P2
 |  |  |
|  W14 | 04-12-23 | * 3.1 Energy demands
* 3.2 Energy from wind and water
 | **GCSE Engineering**Energy production methods: **3.1.3** | Blended learning: Friday 8thIn Engineering, students also learn different methods of power generation: wind, solar, tidal, nuclear, fossil fuels, biomass. |
|  W15 | 11-12-23 | * 3.3 Power from sun and earth
* 3.4 Energy and the environment
 |  |  |
|  W16 | 18-12-23 | * 3.5 Big energy issue
* **Buffer**
 |  | ***School breaks on Thursday 21st*** |
|  W17 | HT(25-12-23) |   |  | **Winter break:**BANK holiday Monday 25th and Tuesday 26th |
|  W18 | HT(01-01-24) |  |  | BANK holiday Monday 1st |
|  |   |  |  | **Schools opens Tuesday 4th of Jan** |
|  W19 | 08-01-24 | * 3.5 Big energy issue
* Buffer
 |  |  |
|  W20 | 15-01-24 | * Summary and review
* EOU Test
 |  |  |
|  W21 | 22-01-24 | * FD & Review
* 4.1 Electrical charges and fields
 | **GCSE Chemistry**Cells and batteries4.5.2.1 | 1. **Electricity**

**Spec\_code: 4.2.1.1 to 4.2.5.2** |
|  W22 | 29-01-24 | * 4.2 Current and charge
* 4.3 Potential difference and resistance
 | **GCSE Engineering**Electrical systems: 3.3.2 | **Topics in Engineering common to Physics:** Discrete components within a circuit such as resistors (fixed and variable) & diodes (signal, rectifying)  |
|  W23 | 05-02-24 | * 4.4 Component characteristics
* 4.5 Series Circuits
 |  | **INSET day Thursday 8th and Friday 9th** |
|  W24 | 12-02-24 | * 4.6 Parallel Circuits
* RP3: Investigating resistance
 |  |  |
|  W25 | HT(19-02-24) |  |  |  |
|  W26 | 26-02-24 | * RP4: Investigating electrical components
* Summary and review
 |  |  |
|  W27 | 04-03-24 | * 5.1 Alternating current
* 5.2 Cables and plugs
 |  | **INSET day Friday 8th** |
|  W28 | 11-03-24 | * 5.3 Electrical power and potential difference
* 5.4 Electrical currents and energy transfer
 |  |  |
|  W29 | 18-03-24 | * 5.5 Appliances and efficiency
* Summary and review
 |  |  |
|  W30 | 25-03-24 | * EOU Test
* Buffer
 |  | BANK holiday Friday 29th |
|  W31 | HT(01-04-24) |  |  | **Easter break:**BANK holiday Monday 1st |
|  W32 | HT(08-04-24) |  |  |  |
|  W33 | 15-04-24 | * Feedback and review
* Buffer
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|  W34 | 22-04-24 | * 6.1 Density
* 6.2/3 States of matter and changes of states
 | **GCSE Chemistry**Atoms: 4.1.1.1The development of the model of the atom (*common content with physics*) 4.1.1.3Relative electrical charges of subatomic particles: 4.1.1.4Size and mass of atoms: 4.1.1.5  | **3. Particle model of**  **Matter****Spec\_code:** 4.3.1 to 4.3.3.3 |
|  W35 | 29-04-24 | * 6.4/5 Internal energy and specific latent heat
* 6.6/7 Gas Pressure, temperature and volume
* RP5: Calculating densities
 | **GCSE Biology**Diffusion: 4.1.3.1 |  |
|  W36 | 06-05-24 | * Summary and review
* EOU test
 |  | BANK holiday Monday 6th |
|  W37 | 13-05-24 | * FD and gap analysis
* 7.1 Atoms and radiation
 |  | 1. **Atomic structure**

**Spec\_code: 4.4.1 to 4.4.4.2** |
|  W38 | 20-05-24 | * 7.2 Discovery of the nucleus
* 7.3 Changes in the nucleus I/ 7.4 Changes in the nucleus II
 |  |  |
|  W39 | HT(27-05-23) |  |  | BANK holiday Monday 27th |
|  W40 | 03-06-23 | * 7.5 Activity and half-life
* 7.6 Nuclear radiation in medicine
 |  |  |
|  W41 | 10-06-23 | * 7.7 Nuclear fusion
* 7.8 Nuclear fusion
 |  |  |
|  W42 | 17-06-23 | * Exam
* Exam
 |
|  W43 | 24-06-23 | * Exam
* Exam
 |
|  W44 | 01-07-23 | * FD
* FD
 |  |  |
|  W45 | 08-07-23 | * Y11 material
* Y11 material
 |  |  |
|  W46 | 15-07-23 | * Extra-curricular practical activities
* Extra-curricular practical activities
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|  W47-52 | 22-07-23END of the academic Year |  | **Summer break: *School breaks Friday 19th*** |