

Combined Science GCSE Physics Course Guide February 2022

| | Year 10 | Year 11 |
|---------------|---|--|
| End of Year 9 | <p>CP13 Forces and Matter (completed at the end of Year 9)</p> <ul style="list-style-type: none"> The key concepts of bending and stretching are appropriate for students at end of Year 9 . This smaller section fits within the available lessons and allows for a test to be carried out at the end. Includes a core practical involving stretching a spring that is straightforward for Year 9 students and good for developing experimental skills. | |
| Term One | <p>CP12 Particle Model</p> <ul style="list-style-type: none"> Develops key ideas about particles that builds on KS3 understanding. 2 core practicals: density and investigating the properties of water. It is preferable to carry these out earlier in the course before the pressure of examinations and to use them to develop experimental skills. <p>CP1 Motion</p> <ul style="list-style-type: none"> Speed is needed for CP2 Forces and motion so CP1 needs to be done before CP2 Builds on Year 9 motion | <p>CP6 Radioactivity</p> <ul style="list-style-type: none"> Gamma rays were introduced in the previous topic CP5 so CP6 follows on from it. Builds on KS3 ideas and CP12 ideas about particles as well as chemistry lessons on the atom. <p>CP9 Electricity and Circuits</p> <ul style="list-style-type: none"> Builds on KS3 electricity in Year 9 and Year 7 so there are 2 years between each experience. Builds on ideas about the atom in CP6. Electrical resistance involves consideration of heating and energy transfers CP3. Conceptually appropriate for Year 11 |
| Term Two | <p>CP2 Forces and Motion</p> <ul style="list-style-type: none"> Follows logically from CP1 Motion and involves a core practical investigating acceleration so needs to be done soon after CP1 Motion. Builds on KS3 ideas about motion. <p>CP3 Conservation of Energy</p> <ul style="list-style-type: none"> Involves kinetic energy so builds on CP1 motion. | <p>CP10 Magnetism and the Motor Effect</p> <ul style="list-style-type: none"> Follows logically after electricity. Appropriate in terms of conceptual demands, towards the end of Year 11 <p>CP 11 EM Induction</p> <ul style="list-style-type: none"> Follows logically from electricity and magnetism. Some of the most demanding concepts so it is appropriate for this to be near end of the course. |
| Term Three | <p>CP4 Waves</p> <ul style="list-style-type: none"> Wavespeed requires CP1 Motion understanding of speed so needs to be done afterwards. Follows on from CP3 regarding ideas about waves transferring energy. Ideas about particles, CP12, are relevant when describing oscillations. <p>CP5 Light and the EM Spectrum</p> <ul style="list-style-type: none"> This topic follows logically on from waves CP4, since the electromagnetic spectrum consists of waves. Gamma rays are part of the EM spectrum so it is necessary to do this topic before CP6 radioactivity. <p>CP7 Energy – Forces Doing work</p> <p>CP8 Forces and their Effects</p> <ul style="list-style-type: none"> Links to CP2 forces and CP3 energy Fits into available lessons | <p>Revision</p> |

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| | Year 10 | Year 11 |
|----------------------|---|--|
| End of Year 9 | <p>SP15 Forces and Matter (completed at the end of Year 9)</p> <ul style="list-style-type: none"> The key concepts of bending and stretching are appropriate for students at end of Year 9 . This smaller section fits within the available lessons and allows for a test to be carried out at the end. Includes a core practical involving stretching a spring that is straightforward for Year 9 students and good for developing experimental skills. | |
| Term One | <p>SP14 Particle Model</p> <ul style="list-style-type: none"> Develops key ideas about particles that builds on KS3 understanding. 2 core practicals: density and investigating the properties of water. It is preferable to carry these out earlier in the course before the pressure of examinations and to use them to develop experimental skills. <p>SP1 Motion</p> <ul style="list-style-type: none"> Speed is needed for SP2 Forces and motion so SP1 needs to be done before SP2 Builds on Year 9 motion | <p>SP7 Astronomy</p> <ul style="list-style-type: none"> Needs to be done after radioactivity (fusion) <p>SP8 Energy – Forces Doing work</p> <p>SP9 Forces and their Effects</p> <ul style="list-style-type: none"> Links to SP2 forces and SP3 energy Paper 2 topic <p>SP10/SP11 Electricity and Circuits</p> <ul style="list-style-type: none"> Builds on KS3 electricity in Year 9 and Year 7 so there are 2 years between each experience. Builds on ideas about the atom in SP6. Electrical resistance involves consideration of heating and energy transfers SP3. Conceptually appropriate for Year 11 |
| Term Two | <p>SP2 Forces and Motion</p> <ul style="list-style-type: none"> Follows logically from SP1 Motion and involves a core practical investigating acceleration so needs to be done soon after SP1 Motion. Builds on KS3 ideas about motion. <p>SP3 Conservation of Energy</p> <ul style="list-style-type: none"> Involves kinetic energy so builds on SP1 motion. Triple physics includes car braking distances and the forces involved so builds on SP2. | <p>SP12 Magnetism and the Motor Effect</p> <ul style="list-style-type: none"> Follows logically after electricity. Appropriate in terms of conceptual demands, towards the end of Year 11 <p>SP13 EM Induction</p> <ul style="list-style-type: none"> Follows logically from electricity and magnetism. Some of the most demanding concepts so it is appropriate for this to be near end of the course. |
| Term Three | <p>SP4 Waves</p> <ul style="list-style-type: none"> Wavespeed requires SP1 Motion understanding of speed so needs to be done afterwards. Follows on from SP3 regarding ideas about waves transferring energy. Ideas about particles, SP14, are relevant when describing oscillations. <p>SP5 Light and the EM Spectrum</p> <ul style="list-style-type: none"> This topic follows logically on from waves SP4, since the electromagnetic spectrum consists of waves. Gamma rays are part of the EM spectrum so it is necessary to do this topic before SP6 radioactivity. <p>SP6 Radioactivity</p> <ul style="list-style-type: none"> Gamma rays were introduced in the previous topic SP5. so SP6 follows on from it. Builds on KS3 ideas and SP14 ideas about particles as well as chemistry lessons on the atom. Needs to be done before astronomy (fusion). | <p>Revision</p> |