


| | Year: | 10 | Subject: | Triple Physics | Spring 2 | Summer 1 | Summer 2 |
|---------------|-------------------------------|----|---|--|---|---|--|
| | | | <ul style="list-style-type: none"> Physics | Atomic structure (P7) Radioactivity | Prior Knowledge: <ul style="list-style-type: none"> Name the three sub-atomic particles found in an atom (proton, neutron, and electron). Identify the mass and atomic number Describe how isotopes are atoms of the same element with different mass numbers. Takeaway Learning: <ul style="list-style-type: none"> Identify the Rutherford (nuclear) model of an atom. Identify the type of decay taking place from a nuclear equation. Rank the three types of nuclear radiation in order of their penetrating power. | (P8, P9) Forces in balance Prior Knowledge: <ul style="list-style-type: none"> Describe balanced and unbalanced forces Calculate speed Explain the difference between Mass and weight State the difference between a scalar and a vector and give examples Takeaway Learning: <ul style="list-style-type: none"> Calculate resultant forces Describe and draw a motion graph Calculate Acceleration Explain acceleration and braking | (P8, P9) Forces in balance Prior Knowledge: <ul style="list-style-type: none"> Describe balanced and unbalanced forces Calculate speed Explain the difference between Mass and weight State the difference between a scalar and a vector and give examples Takeaway Learning: <ul style="list-style-type: none"> Calculate resultant forces Describe and draw a motion graph Calculate Acceleration Explain acceleration and braking |
| | Disciplinary Knowledge | | | | <ul style="list-style-type: none"> Understand how scientific methods and theories develop over time. Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts. Explain everyday and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments. Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences. Recognise the importance of peer review of results and of communicating results to a range of audiences. | <ul style="list-style-type: none"> Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts. Explain everyday and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments. Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences. Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena. Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment. Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations Make and record observations and measurements using a range of apparatus and methods. Evaluate methods and suggest possible improvements and further investigations Presenting observations and other data using appropriate methods. Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends, making inferences and drawing conclusions. | <ul style="list-style-type: none"> Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts. Explain everyday and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments. Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences. Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena. Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment. Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations Make and record observations and measurements using a range of apparatus and methods. Evaluate methods and suggest possible improvements and further investigations Presenting observations and other data using appropriate methods. Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends, making inferences and drawing conclusions |
| Implem | Common Misconceptions | | | | Link to misconception booklet – once in school | <ul style="list-style-type: none"> Difference between mass and weight https://spark.iop.org/misconceptions https://www.physicsclassroom.com/getattachment/Physics-Video-Tutorial/Newtons-Laws/Force-and-Motion-Misconceptions/Lecture-Notes/LessonNotes.pdf?lang=en-US | <ul style="list-style-type: none"> Difference between mass and weight https://spark.iop.org/misconceptions https://www.physicsclassroom.com/getattachment/Physics-Video-Tutorial/Newtons-Laws/Force-and-Motion-Misconceptions/Lecture-Notes/LessonNotes.pdf?lang=en-US |

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| Enabling or Adapting the Curriculum | SEND Students | <ul style="list-style-type: none"> Vocabulary sheets Scaffolding – writing frames/use of booklets Writing frames (scaffolding) for long answer questions Keywords with definitions available Short sentences/not over stimulated powerpoints Paired work where possible | <ul style="list-style-type: none"> Vocabulary sheets Scaffolding – writing frames/use of booklets Writing frames (scaffolding) for long answer questions Keywords with definitions available Short sentences/not over stimulated powerpoints Paired work where possible | <ul style="list-style-type: none"> Vocabulary sheets Scaffolding – writing frames/use of booklets Writing frames (scaffolding) for long answer questions Keywords with definitions available Short sentences/not over stimulated powerpoints Paired work where possible | |
| | Disadvantaged Students | <ul style="list-style-type: none"> Bring career links into lessons (aspirational) External trips – linked with STEM co-ordinator? Access to revision guides Support with exam questions through use of displays and key terminology Support long answer questions with sentence starters Use of CGP books to support in PLC lessons | <ul style="list-style-type: none"> Bring career links into lessons (aspirational) External trips – linked with STEM co-ordinator? Access to revision guides Support with exam questions through use of displays and key terminology Support long answer questions with sentence starters Use of CGP books to support in PLC lessons | <ul style="list-style-type: none"> Bring career links into lessons (aspirational) External trips – linked with STEM co-ordinator? Access to revision guides Support with exam questions through use of displays and key terminology Support long answer questions with sentence starters Use of CGP books to support in PLC lessons | |
| | More Able Students | <ul style="list-style-type: none"> Build into lessons well-designed extension tasks promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge. Asking probing questions Encourage effective discussion between teacher and pupil open-ended tasks that do not have one right answer Set an independent task, such as a further investigation invite students to decide how they would like to demonstrate their learning to you or the rest of the class after an agreed length of time. | <ul style="list-style-type: none"> Build into lessons well-designed extension tasks promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge. Asking probing questions Encourage effective discussion between teacher and pupil open-ended tasks that do not have one right answer Set an independent task, such as a further investigation invite students to decide how they would like to demonstrate their learning to you or the rest of the class after an agreed length of time. | <ul style="list-style-type: none"> Build into lessons well-designed extension tasks promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge. Asking probing questions Encourage effective discussion between teacher and pupil open-ended tasks that do not have one right answer Set an independent task, such as a further investigation invite students to decide how they would like to demonstrate their learning to you or the rest of the class after an agreed length of time. | |
| | Literacy/Numeracy Skills  | LITERACY | <ul style="list-style-type: none"> Physics keywords Use of keywords, reading of information, interpreting information, effective use of communicating ideas | <ul style="list-style-type: none"> Physics keywords Use of keywords, reading of information, interpreting information, effective use of communicating ideas | <ul style="list-style-type: none"> Physics keywords Use of keywords, reading of information, interpreting information, effective use of communicating ideas |
| | | Reading: | <ul style="list-style-type: none"> Reading textbook, slides, questions Display keywords on slides Teach keyword vocabulary and break down ie photo – light, lysis to split | <ul style="list-style-type: none"> Reading textbook, slides, questions Display keywords on slides Teach keyword vocabulary and break down ie photo – light, lysis to split | <ul style="list-style-type: none"> Created a reading list to link with the topics. share once joined as on my area Reading textbook, slides, questions Display keywords on slides Teach keyword vocabulary and break down ie photo – light, lysis to split |
| | | Writing: | <ul style="list-style-type: none"> Answering questions – end of topic and exam style Making notes on covered topics End of topic tests Recall questions – starter activity | <ul style="list-style-type: none"> Answering questions – end of topic and exam style Making notes on covered topics End of topic tests Recall questions – starter activity | <ul style="list-style-type: none"> Answering questions – end of topic and exam style Making notes on covered topics End of topic tests Recall questions – starter activity |
| Oracy: | | <ul style="list-style-type: none"> Cold calling, answering questions in class Class discussion on topic areas being addressed Reading out loud Answering questions Feedback through discussion and debates | <ul style="list-style-type: none"> Cold calling, answering questions in class Class discussion on topic areas being addressed Reading out loud Answering questions Feedback through discussion and debates | <ul style="list-style-type: none"> Cold calling, answering questions in class Class discussion on topic areas being addressed Reading out loud Answering questions Feedback through discussion and debates | |
| NUMERACY | | <ul style="list-style-type: none"> Identify mass and atomic number Half life calculations | <ul style="list-style-type: none"> Calculations for resultant force and acceleration Calculating breaking distance | <ul style="list-style-type: none"> Calculations for resultant force and acceleration Calculating breaking distance | |

