

*Teacher Subject Specialism Training (TSST)*  
*Training Schedule (September 2017 – May 2018)*

Workshop Title	Content and curriculum reference	Date
1. Motion and forces (Edexcel Topic 2) – Part 1	<ul style="list-style-type: none"> <li>Scalars and vectors</li> <li>Distance time graphs</li> <li>Calculating acceleration, <math>a = (v-u)/t</math></li> <li>Velocity time graphs</li> <li>Newton's 1<sup>st</sup> law of motion</li> <li>Newton's 2<sup>nd</sup> law of motion, <math>F = ma</math></li> <li>Newton's 3<sup>rd</sup> law of motion</li> </ul> <p><b>2.19: Core Practical (1):</b> Investigate the relationship between force, mass and acceleration by varying the masses added to trolleys</p>	Thursday 14th September 2017
2. Motion and forces (Edexcel Topic 2) – Part 2  <i>Including content from Energy – forces doing work (Edexcel Topic 8)</i>	<ul style="list-style-type: none"> <li>Momentum</li> <li>Conservation of momentum</li> <li>Stopping distances</li> <li>Work done</li> <li>Kinetic energy</li> <li>Dangers of large decelerations</li> <li>Car safety features</li> <li>Calculating stopping distances (<math>KE = \text{work done whilst braking}</math>)</li> </ul>	Wednesday 4 <sup>th</sup> Oct 2017
3. Forces and matter (Edexcel Topic 15)	<ul style="list-style-type: none"> <li>Elastic and inelastic distortion</li> <li><math>F=k \times x</math></li> <li><math>E=1/2 \times k \times x^2</math></li> </ul> <p>15.6 Core Practical (8): Investigate the extension and work done when applying forces to a spring</p>	Thursday 5 <sup>th</sup> Oct 2017
4. Radioactivity (Edexcel Topic 6)	<ul style="list-style-type: none"> <li>Structure of the atom</li> <li>Plum pudding, Rutherford scattering and Bohr model</li> <li>Alpha, beta minus, positron, gamma and neutron emission</li> <li>Background radiation</li> <li>Uses and dangers of radioactivity</li> <li>Penetration and ionisation</li> <li>Half-life</li> <li>Belt of stability</li> <li>Nuclear equations</li> </ul>	Thursday 12 <sup>th</sup> Oct 2017
5. Electricity and circuits (Edexcel Topic 10)	<ul style="list-style-type: none"> <li>Series and parallel circuits</li> <li>Voltage, current and resistance</li> <li>Ohm's law</li> <li>Resistors in series and parallel</li> <li>VI graphs (filament lamp, diode and fixed resistor)</li> <li>Electrical power</li> <li>Heating effect of an electric current</li> </ul> <p><b>10.17 Core Practical (5):</b> Construct electrical circuits to: a) investigate the relationship between potential difference, current and resistance for a resistor and a filament lamp b) test series and parallel circuits using resistors and filament lamps</p>	Wed 1 <sup>st</sup> November 2017
6. Magnetism and the motor effect (Edexcel Topic 12) & Electromagnetic induction (Edexcel Topic 13)	<ul style="list-style-type: none"> <li>Magnetic fields</li> <li>Magnetic field created by a current in a long straight conductor</li> <li>Magnetic field around a solenoid</li> <li>A current carrying conductor placed near a magnet experiences a force</li> <li>Fleming's left hand rule</li> <li><math>F= B \times I \times l</math></li> </ul>	Thursday 7 <sup>th</sup> Dec 2017

	<ul style="list-style-type: none"> <li>Force on a conductor in a magnetic field causes rotation in electric motors</li> <li>Electromagnetic induction</li> <li>How electromagnetic induction is used in alternators to generate a.c. and in dynamos to generate d.c.</li> </ul>	
8. Light and the electromagnetic spectrum (Edexcel Topic 5) – Part 1	<ul style="list-style-type: none"> <li>Law of reflection</li> <li>Refraction</li> <li>Effects of differences in velocities of electromagnetic waves in different substances</li> <li>Total internal reflection (TIR) and critical angle</li> <li>Specular and diffuse reflection</li> <li>Power of a lens</li> <li>Converging and diverging lenses</li> <li>Real and virtual images</li> </ul> <p><b>5.9 Core Practical (3):</b> Investigate refraction in rectangular glass blocks in terms of the interaction of electromagnetic waves with matter</p>	Wednesday 10 <sup>th</sup> January 2018
9. Light and the electromagnetic spectrum (Edexcel Topic 5) – Part 2  <i>Including content from Waves (Edexcel Topic 4)</i>	<ul style="list-style-type: none"> <li>Frequency and wavelength</li> <li>Sound waves</li> <li>Transverse and longitudinal waves</li> <li>Electromagnetic waves</li> <li>Effect of temperature of a black body object on its wavelength distribution graph</li> <li>Harmful effects of electromagnetic radiation</li> <li>Uses of electromagnetic radiation</li> </ul>	Wed 24 <sup>th</sup> Jan 2018
10. Heat transfer  Content from: (i) Conservation of energy (Edexcel Topic 3), (ii) Particle model (Edexcel Topic 14) (iii) Light and the electromagnetic spectrum (Edexcel Topic 5)	<ul style="list-style-type: none"> <li>Kinetic theory</li> <li>Conduction</li> <li>Convection</li> <li>Radiation</li> <li>Insulation</li> </ul> <p><b>5.19P Core Practical (4):</b> Investigate how the nature of a surface affects the amount of thermal energy radiated or absorbed</p>	Thursday 1 <sup>st</sup> Feb 2018
11. Particle model (Edexcel Topic 14)	<ul style="list-style-type: none"> <li>Kinetic theory</li> <li>Density</li> <li>Specific heat capacity</li> <li>Specific latent heat</li> </ul> <p><b>14.3 Core Practical (6):</b> Investigate the densities of solid and liquids <b>14.11 Core Practical (7):</b> Investigate the properties of water by determining the specific heat capacity of water and obtaining a temperature-time graph for melting ice</p>	Thursday 1 <sup>st</sup> March 2018
12. Astrophysics (Edexcel Topic 7)	<ul style="list-style-type: none"> <li>Solar system</li> <li>Big bang theory</li> <li>Doppler effect</li> <li>Red-shift</li> <li>Cosmic microwave background radiation (CMBR)</li> <li>Steady state theory</li> <li>Life cycle of stars</li> </ul>	Wed 14 <sup>th</sup> March 2018
13. Review session	<ul style="list-style-type: none"> <li><b>Details to be confirmed</b></li> </ul>	Wed 28 <sup>th</sup> March 2018