

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

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