

Group Weekly Science Masterclasses beginning Sept 2022-May 2023 (Triple Science)

For each weekly group session there will be an online course to follow via the website, which will include around an hours' work for each Science. There will be pre-recorded video lessons covering the key skills required, a quiz to complete, exam-style questions to try out (with answers), and an optional 1-hour live interactive group session. Once the live session has happened, a post-session recording of any sticking spots will be placed into the zoom call area.

Greyed out sessions have no live Zoom call component and the unit is fully complete without the live zoom.

Please check the schedule carefully: The dates and times below are of the access times when each masterclass opens online to begin study of the pre-recorded classes and the quiz activity; and then also the date of the live zoom masterclass. The work for the week needs to be completed **BEFORE** the date of the Zoom session as the time in the live zoom session denoted below is devoted to any problems that arose with the material for the preceding week and checking understanding – the items in the pre-recorded video lessons **will not** be covered again in the live call.

E.g. **Session 1.01: Access opens: Mon 6 Sept** (students will be able to get into course material from this date). **Zoom: Sun 12 Sept** (date of the optional live help call, should assistance be needed for any of that weeks' materials).

Bio: Cells & Viruses;

Chem: Atoms & Atomic structure;

Phys: Scalars & Vectors.

} The topics covered in this Masterclass session (name listed in red).

All group sessions are paid for via the website so that you get direct access to the resources. Payment must be received a minimum of 5 days before the date of the live session (before the 'Access opens' date is ideal) – as there is work to be done in the week before the live session and a student beginning late is at a disadvantage. The best advice is to pop onto the website with the student, sort out access to the sessions (in their name) for the upcoming month all at once, and then you only need to remember to do that step once a month. (1-2-1 sessions will continue to be arranged and paid for separately).

Masterclass 1.0 – Basic items; mostly Paper 1 topics Sundays 5-6pm	Masterclass 2.0 – More advanced items; mostly Paper 2 topics Sundays 6:50-7:50pm
Session 1.01: Access opens: Mon 5 Sept. Zoom: Sun 11 Sept. Bio: Cells & Viruses; Chem: Atoms & Atomic structure; Phys: Scalars & Vectors, and Physics formulae.	Session 2.01: Access opens: Mon 5 Sept. Zoom: Sun 11 Sept. Bio: Photosynthesis; Chem: Electrolysis – Molten (Prac); Phys: The National Grid.
Session 1.02: Access opens: Mon 12 Sept. Zoom: Sun 18 Sept. Bio: Microscopy (Prac); Chem: The Periodic table & its' history (&labels); Phys: Energy Conservation: Kinetic Energy and Gravitational Potential Energy.	Session 2.02: Access opens: Mon 12 Sept. Zoom: Sun 18 Sept. Bio: Leaf Structure; Chem: Electrolysis – Aqueous (Prac); Phys: Transformers.
Session 1.03: Access opens: Mon 19 Sept. Zoom: Sun 25 Sept. Bio: Enzyme action (Prac) & Enzyme graphs; Chem: Models of the Atom; Phys: Velocity-time & Distance-time graphs, and accompanying calculations.	Session 2.03: Access opens: Mon 19 Sept. Zoom: Sun 25 Sept. Bio: Effect of light intensity on photosynthesis (Prac); Chem: Electrolysis of Aluminium; Phys: Circuit Symbols.
Session 1.04: Access opens: Mon 26 Sept. Zoom: Sun 2 Oct. Bio: Transport: diffusion, osmosis & active transport (Prac); Chem: Reactions of metals and acids to form salts (Prac); Phys: Momentum and the conservation of momentum.	Session 2.04: Access opens: Mon 26 Sept. Zoom: Sun 2 Oct. Bio: Plant hormones & their uses; Chem: Half Equations; Phys: Circuits, calculations and rules of current and voltage.

<p>Session 1.05: Access opens: Mon 3 Oct. Zoom: Sun 9 Oct. Bio: Aerobic Respiration (Prac); Chem: Strong & Weak acids; Phys: Forces & Resultant Forces.</p>	<p>Session 2.05: Access opens: Mon 3 Oct. Zoom: Sun 9 Oct. Bio: Plant diseases & mineral deficiencies; Chem: Fuel and chemical cells; Phys: The 5 circuit components and their graphs.</p>
<p>Session 1.06: Access opens: Mon 10 Oct. Zoom: Sun 16 Oct. Bio: Anaerobic Respiration; Chem: Separating substances: filtration, evaporation, crystallisation, simple distillation, fractional distillation, separating funnel, chromatography; Phys: Terminal Velocity & falling objects.</p>	<p>Session 2.06: Access opens: Mon 10 Oct. Zoom: Sun 16 Oct. Bio: Mendel & pea plants; Chem: Extracting metals from ores by electrolysis or by carbon; Phys: The Plug and power calculations.</p>
<p>Session 1.07: Access opens: Mon 17 Oct. Zoom: Sun 23 Oct. Bio: Surface Area; Chem: Chromatography and Rf calculations (Prac); Phys: Newton's three laws of motion.</p>	<p>Session 2.07: Access opens: Mon 17 Oct. Zoom: Sun 23 Oct. Bio: Transpiration and Translocation; Chem: Crude oil and fractional distillation; Phys: Earthing and resistance of a wire practical.</p>
<p>Oct 25 (Half term)</p>	<p>Oct 28 Skills Focus 1: How examiners mark. Access opens 25 October.</p>
<p>Session 1.08: Access opens: Mon 31 Oct. Zoom: Sun 6 Nov. Bio: Cell division: Mitosis; Chem: Bonding I: Covalent; Phys: Acceleration and the trolley practical.</p>	<p>Session 2.08: Access opens: Mon 31 Oct. Zoom: Sun 6 Nov. Bio: Human immune system; Chem: Alkanes & Alkenes, and addition polymerisation; Phys: Left and right hand rules.</p>
<p>Session 1.09: Access opens: Mon 7 Nov. Zoom: Sun 13 Nov. Bio: Cell division: Meiosis; Chem: Bonding II: Ionic; Phys: Motion and Forces and stopping distances.</p>	<p>Session 2.09: Access opens: Mon 7 Nov. Zoom: Sun 13 Nov. Bio: Communicable diseases: bacteria, viruses, fungi and protists; Chem: Alcohols & carboxylic acids and condensation polymerisation; Phys: Magnetism, Permanent magnets and electromagnets.</p>
<p>Session 1.10: Access opens: Mon 14 Nov. Zoom: Sun 20 Nov. Bio: Stem cells & differentiation; Chem: Bonding III: Metallic & alloys; Phys: Energy Efficiency.</p>	<p>Session 2.10: Access opens: Mon 14 Nov. Zoom: Sun 20 Nov. Bio: Non-communicable diseases: cancer, screening; Chem: Polymers, esters; Phys: Dynamos, alternators & electric motors.</p>
<p>Session 1.11: Access opens: Mon 21 Nov. Zoom: Sun 27 Nov. Bio: Circulatory system: vessels & blood; Chem: Factors affecting the rates of reactions; Phys: Renewable and non-renewable resources.</p>	<p>Session 2.11: Access opens: Mon 21 Nov. Zoom: Sun 27 Nov. Bio: Selective Breeding; Chem: Amines, Amino Acids; Phys: Loudspeakers and microphones.</p>

<p>Session 1.12: Access opens: Mon 28 Nov. Zoom: Sun 4 Dec. Bio: Circulatory system: heart; Chem: The reactivity series; Phys: Power and work done.</p>	<p>Session 2.12: Access opens: Mon 28 Nov. Zoom: Sun 4 Dec. Bio: Genetic Engineering; Chem: Cracking; Phys: The Particle Model</p>
<p>Session 1.13: Access opens: Mon 5 Dec. Zoom: Sun 11 Dec. Bio: Food tests (Prac); Chem: Calculations I: Combining power, RAM, RFM; Phys: Conserving energy in the home and payback time.</p>	<p>Session 2.13: Access opens: Mon 5 Dec. Zoom: Sun 11 Dec. Bio: Food webs, food chains and energy transfers Chem: Calculations VI: Gas volume calculations; Phys: Atomic structure and isotopes.</p>
<p>Session 1.14: Access opens: Mon 12 Dec. Zoom: Sun 18 Dec. Bio: DNA Structure and genes; Chem: Calculations II: Mass/Mr Mole, Empirical formulae & percentage composition; Phys: Simple Circuit Ideas and Electricity Basics.</p>	<p>Session 2.14: Access opens: Mon 12 Dec. Zoom: Sun 18 Dec. Bio: Coronary heart disease and other problems; Chem: Gas identification: oxygen, carbon dioxide, hydrogen, chlorine, ammonia, test for alkenes; Phys: Red shift and the Doppler effect.</p>
Dec 20	Dec 20
Dec 27	Dec 27
<p>Session 1.15: Access opens: Mon 2 Jan. Zoom: Sun 8 Jan. Bio: Inheritance; Chem: Calculations III: Mass of reactants & products and yield; Phys: Wave Investigations (Prac).</p>	<p>Session 2.15: Access opens: Mon 2 Jan. Zoom: Sun 8 Jan. Bio: Natural Selection; Chem: Flame tests: potassium, sodium, lithium, calcium, strontium, copper (prac); Phys: CMBR and BBT.</p>
<p>Session 1.16: Access opens: Mon 9 Jan. Zoom: Sun 15 Jan. Bio: Mutations and variations; Chem: Calculations IV: Bond Enthalpy; Phys: Wave calculations.</p>	<p>Session 2.16: Access opens: Mon 9 Jan. Zoom: Sun 15 Jan. Bio: Darwin & Lamarck; Chem: Positive ion tests: copper, iron II, iron III, calcium, magnesium, aluminium (Prac); Phys: Static electricity and electric fields.</p>
<p>Session 1.17: Access opens: Mon 16 Jan. Zoom: Sun 22 Jan. Bio: The endocrine system; Chem: Calculations V: Titrations; Phys: Ray diagrams.</p>	<p>Session 2.17: Access opens: Mon 16 Jan. Zoom: Sun 22 Jan. Bio: Evidence for evolution, and extinction (and Edexcel Human Evolution); Chem: Negative ion tests: carbonate, sulphate, chloride, bromide, iodide (Prac); Phys: Spring constant and associated calculations.</p>
<p>Session 1.18: Access opens: Mon 23 Jan. Zoom: Sun 29 Jan. Bio: Thermoregulation; Chem: Balancing Equations I: Beginner skills; Phys: Refraction in blocks (prac).</p>	<p>Session 2.18: Access opens: Mon 23 Jan. Zoom: Sun 29 Jan. Bio: Carl Linnaeus, classifications and domains; Chem: Phytomining and bioleaching; Phys: Elastic potential energy.</p>
<p>Session 1.19: Access opens: Mon 30 Jan. Zoom: Sun 5 Feb. Bio: Blood Glucose regulation & diabetes; Chem: Balancing Equations II: Advanced skills; Phys: The EM Spectrum.</p>	<p>Session 2.19: Access opens: Mon 30 Jan. Zoom: Sun 5 Feb. Bio: Adaptations, interdependence and competition; Chem: The Haber Process; Phys: Hooke's law (Prac).</p>

<p>Session 1.20: Access opens: Mon 6 Feb. Zoom: Sun 12 Feb. Bio: The Menstrual Cycle and Pregnancy; Chem: Displacement reactions and ionic equations; Phys: Investigating radiation (Prac).</p>	<p>Session 2.20: Access opens: Mon 6 Feb. Zoom: Sun 12 Feb. Bio: Biotic and abiotic factors; Chem: Reversible reactions and dynamic equilibrium (Le Chatelier's Principles); Phys: Moments, levers and gears.</p>
<i>Half Term</i>	<i>Half Term</i>
<p>Session 1.21: Access opens: Mon 20 Feb. Zoom: Sun 26 Feb. Bio: Osmoregulation; Chem: Precipitate reactions and ionic equations; Phys: Generating EM Waves, Uses and Hazards of EM waves.</p>	<p>Session 2.21: Access opens: Mon 20 Feb. Zoom: Sun 26 Feb. Bio: Sampling in an ecosystem (prac); Chem: Reactions of group 1, group 7 and group 0; Phys: Specific heat capacity (Prac).</p>
<p>Session 1.22: Access opens: Mon 27 Feb. Zoom Sun 5 March. Bio: The Kidneys; Chem: Nanoparticles and some composites; Phys: Alpha, Beta & Gamma Radiation.</p>	<p>Session 2.22: Access opens: Mon 27 Feb. Zoom Sun 5 March. Bio: Cycling nutrients through an ecosystem: carbon cycle, nitrogen cycle & water cycle; Chem: Soluble and insoluble salts; Phys: Specific latent heat.</p>
<p>Session 1.23: Access opens: Mon 6 March. Zoom Sun 12 March. Bio: Contraception; Chem: Allotropes of Carbon; Phys: Penetrating and Ionising powers of alpha, beta and gamma radiation.</p>	<p>Session 2.23: Access opens: Mon 6 March. Zoom Sun 12 March. Bio: living indicators: in water (invertebrates), in air (lichen and fungi) and temp (migration); Chem: REDOX reactions; Phys: Black body radiation.</p>
<p>Session 1.24: (this week will not have a live lesson) Access opens: Mon 13 March. Zoom Sun 19 March. Bio: IVF; Chem: Endothermic and exothermic reaction profiles; Phys: Half-life.</p>	<p>Session 2.24: (this week will not have a live lesson) Access opens: Mon 13 March. Zoom Sun 19 March. Bio: Human influences on the environment; Chem: Making fertilisers I; Phys: Soundwaves (infrasound; ultrasound).</p>
<p>Session 1.25: (this week will not have a live lesson) Access opens: Mon 20 Mar. Zoom: Sun 26 March. Bio: Monoclonal Antibodies; Chem: Making pure, dry samples; Phys: Fission and nuclear power stations</p>	<p>Session 2.25: (this week will not have a live lesson) Access opens: Mon 20 Mar. Zoom: Sun 26 March. Bio: Trophic levels and pyramids; Chem: Making fertilisers II; Phys: Earthquakes and seismic waves.</p>
<p>Session 1.26: (this week will not have a live lesson) Access opens: Mon 27 Mar. Zoom Sun 2 Apr. Bio: Digestive system; Chem: Types of reactions, hazard symbols & titrations (Prac); Phys: Fusion.</p>	<p>Session 2.26: (this week will not have a live lesson) Access opens: Mon 27 Mar. Zoom Sun 2 Apr. Bio: Parasitism & mutualism; Chem: Complete and incomplete combustion; Phys: Pressure in gases and fluids.</p>
<i>Easter Break</i>	<i>Easter Break No lesson on Easter Sunday – 9 April</i>

	<p>Session 2.27: (this live lesson will be on the final day of the Easter break) Access opens: Mon 3 April. Zoom: Sun 16 April. Bio: Biotechnology and fermentation; Chem: Protecting metals from corrosion; Phys: $P_1 \times V_1 = P_2 \times V_2$.</p>
<p>Session 1.27: Access opens: Mon 17 April. Zoom: Sun 23 April. Bio: Protein synthesis; Chem: The atmosphere past and present; Phys: Lifecycle of stars.</p>	<p>Session 2.28: Access opens: Mon 17 April. Zoom: Sun 23 April. Bio: Food security and farming techniques; Chem: Composites, ceramics, making glass and other polymers; Phys: Density calculations.</p>
<p>Session 1.28: Access opens: Mon 24 April. Zoom: Sun 30 April. Bio: The brain, nervous system and the reflex arc; Chem: Greenhouse gases and global warming; Phys: Nuclear equations.</p>	<p>Session 2.29: Access opens: Mon 24 April. Zoom: Sun 30 April. Bio: Investigating disinfectants; Chem: Making ethanol; Phys: Density (Prac).</p>
<p>Session 1.29: Access opens: Mon 1 May. Zoom: Sun 7 May. Bio: The eye; Chem: LCAs and sustainability; Phys: Lenses and Lens diagrams.</p>	
<p>Session 1.30: Access opens: Mon 8 May. Zoom: Sun 14 May. Bio: Long and short-sightedness; Chem: Producing potable water (Prac); Phys: The solar system, comets, satellites, asteroids, orbits, and the origins of the universe (models of Copernicus & Galileo).</p>	<p>Final GCSE Exams begin the week of 8 May – so we finish in good time ahead of then.</p> <p>Sun May 7-May 21: Drop-in sessions for specific exam support questions will be at the same times on May 7, May 14, and May 21. I will be going over the Top Tips for what to study for the coming exams.</p>
<p>May 16 – June 5; Drop-in sessions for specific exam support questions will be at the same times on May 22, May 29 and June 5. Email in advance for the link, bring your questions for support.</p>	