

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

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: Thurs 1 Sept** (students will be able to get into course material from this date). **Zoom: Weds 7 Sept** (date of the optional live lesson, for the Level 8-9 items).

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 2.0 – More advanced items; mostly Paper 2 topics

Wednesdays

6:50-7:50pm

Introduction to Masterclasses and getting to know the system:

Access opens: Mon 22 Aug.

You need to get this and the associated tasks done **BEFORE** our sessions start on 1 Sept.

Session 2.01:

Access opens: Thurs 1 Sept. Zoom: Weds 7 Sept.

Bio: Photosynthesis;

Chem: Electrolysis – Molten (Prac);

Phys: The National Grid.

Session 2.02:

Access opens: Thurs 8 Sept. Zoom: Weds 14 Sept.

Bio: Leaf Structure;

Chem: Electrolysis – Aqueous (Prac);

Phys: Transformers.

Session 2.03:

Access opens: Thurs 15 Sept. Zoom: Weds 21 Sept.

Bio: Effect of light intensity on photosynthesis (Prac);

Chem: Electrolysis of Aluminium;

Phys: Circuit Symbols.

Session 2.04:

Access opens: Thurs 22 Sept. Zoom: Weds 28 Sept.

Bio: Plant hormones & their uses;

Chem: Half Equations;

Phys: Circuits, calculations and rules of current and voltage.

Session 2.05:

Access opens: Thurs 29 Sept. Zoom: Weds 5 Oct.

Bio: Plant diseases & mineral deficiencies;

Chem: Fuel and chemical cells;

Phys: The 5 circuit components and their graphs.

Session 2.06:

Access opens: Thurs 6 Oct. Zoom: Weds 12 Oct.

Bio: Mendel & pea plants;

Chem: Extracting metals from ores by electrolysis or by carbon;

Phys: The Plug and power calculations.

Session 2.07:

Access opens: Thurs 13 Oct. Zoom: Weds 19 Oct.

Bio: Transpiration and Translocation;

Chem: Crude oil and fractional distillation;

Phys: Earthing and resistance of a wire practical.

Session 2.08:

Access opens: Thurs 20 Oct. Zoom: Weds 2 Nov.

Bio: Human immune system;

Chem: Alkanes & Alkenes, and addition polymerisation;

Phys: Left and right hand rules.

Oct 28 Skills Focus 1: How examiners mark. Access opens 25 October.

Session 2.09:

Access opens: Thurs 3 Nov. Zoom: Weds 9 Nov.

Bio: Communicable diseases: bacteria, viruses, fungi and protists;

Chem: Alcohols & carboxylic acids and condensation polymerisation;

Phys: Magnetism, Permanent magnets and electromagnets.

Session 2.10:

Access opens: Thurs 10 Nov. Zoom: Weds 16 Nov.

Bio: Non-communicable diseases: cancer, screening;

Chem: Polymers, esters;

Phys: Dynamos, alternators & electric motors.

Session 2.11:

Access opens: Thurs 17 Nov. Zoom: Weds 23 Nov.

Bio: Selective Breeding;

Chem: Amines, Amino Acids;

Phys: Loudspeakers and microphones.

Session 2.12:

Access opens: Thurs 24 Nov. Zoom: Weds 30 Nov.

Bio: Genetic Engineering;

Chem: Cracking;

Phys: The Particle Model

Session 2.13:

Access opens: Thurs 1 Dec. Zoom: Weds 7 Dec.

Bio: Food webs, food chains and energy transfers

Chem: Calculations VI: Gas volume calculations;

Phys: Atomic structure and isotopes.

Session 2.14:

Access opens: Thurs 8 Dec. Zoom: Weds 14 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.

Session 2.15:

Access opens: Thurs 15 Dec. Zoom: Weds 21 Dec.

Bio: Natural Selection;

Chem: Flame tests: potassium, sodium, lithium, calcium, strontium, copper (prac);

Phys: CMBR and BBT.

Session 2.16:

Access opens: Thurs 22 Dec. Zoom: Weds 11 Jan.

Bio: Darwin & Lamarck;

Chem: Positive ion tests: copper, iron II, iron III, calcium, magnesium, aluminium (Prac);

Phys: Static electricity and electric fields.

Christmas break – 2 weeks

Session 2.17:

Access opens: Thurs 12 Jan. Zoom: Weds 18 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.

Session 2.18:

Access opens: Thurs 19 Jan. Zoom: Weds 25 Jan.

Bio: Carl Linnaeus, classifications and domains;

Chem: Phytomining and bioleaching;
Phys: Elastic potential energy.

Session 2.19:

Access opens: Thurs 26 Jan. Zoom: Weds 1 Feb.
Bio: Adaptations, interdependence and competition;
Chem: The Haber Process;
Phys: Hooke's law (Prac).

Session 2.20:

Access opens: Thurs 2 Feb. Zoom: Weds 8 Feb.
Bio: Biotic and abiotic factors;
Chem: Reversible reactions and dynamic equilibrium (Le Chatelier's Principles);
Phys: Moments, levers and gears.

Session 2.21:

Access opens: Thurs 9 Feb. Zoom: Weds 22 Feb.
Bio: Sampling in an ecosystem (prac);
Chem: Reactions of group 1, group 7 and group 0;
Phys: Specific heat capacity (Prac).

Half Term

Session 2.22:

Access opens: Thurs 23 Feb. Zoom: Weds 1 March.
Bio: Cycling nutrients through an ecosystem: carbon cycle, nitrogen cycle & water cycle;
Chem: Soluble and insoluble salts;
Phys: Specific latent heat.

Session 2.23:

Access opens: Thurs 2 March. Zoom: Weds 8 March.
Bio: living indicators: in water (invertebrates), in air (lichen and fungi) and temp (migration);
Chem: REDOX reactions;
Phys: Black body radiation.

Session 2.24:

Access opens: Thurs 9 March. Zoom: Weds 15 March. (This will not be a live lesson).
Bio: Human influences on the environment;
Chem: Making fertilisers I;
Phys: Soundwaves (infrasound; ultrasound).

Session 2.25:

Access opens: Thurs 16 March. Zoom: Weds 22 March. (This will not be a live lesson).
Bio: Trophic levels and pyramids;
Chem: Making fertilisers II;
Phys: Earthquakes and seismic waves.

Session 2.26:

Access opens: Thurs 23 March. Zoom: Weds 29 March. (This will not be a live lesson).
Bio: Parasitism & mutualism;
Chem: Complete and incomplete combustion;
Phys: Pressure in gases and fluids.

Session 2.27:

Access opens: Thurs 30 March. Zoom: Weds 5 April.
Bio: Biotechnology and fermentation;
Chem: Protecting metals from corrosion;
Phys: $P_1 \times V_1 = P_2 \times V_2$.

Session 2.28:

Access opens: Mon 6 April. Zoom: Sun 12 April.
Bio: Food security and farming techniques;
Chem: Composites, ceramics, making glass and other polymers;
Phys: Density calculations.

Session 2.29:

Access opens: Mon 13 Apr. Zoom: Sun 19 April.
Bio: Investigating disinfectants;
Chem: Making ethanol;
Phys: Density (Prac).

Apr 26, May 3, May 10 there will be sessions on how best to tackle each of the papers. Final GCSE exams begin in the week of 8 May. **Final GCSE Exams begin the week of 8 May**