Y11 Science Revision 2023
Guidance and Revision Timetable

You should aim to do Science revision 3 times a week, e.g. a 1 hour session for each of Biology, Chemistry and Physics (3 hr a week is plenty).

The suggested revision timetables on the tabs/pages below are based on using the CGP revision resources. If you do not already have these, then they can be purchased via the links below that direct you to the CGP bundle packs containing: a revision guide, exam practice workbook and a pack of revision cards.

On the last 2 tabs/pages there is a **How Science Works Crossword and Answer sheet**. This covers the definitions for words like, **accuracy, resolution, repeatability etc**. If you don't like crosswords you could use the answer sheet to make revision cards to help you learn these terms.

Links to purchasing CGP resources
Combined Science - Foundation
Combined Science - Higher
Separate Biology
Separate Chemistry
Separate Physics

Other online resources
senecalearning.com
physicsandmathstutor.com
bbcbitesize.co.uk

Read the section from **CGP revision guide & complete practice Qs from the CGP workbook**. Follow the embedded links to **watch clips about the required practicals** and download **past papers and mark schemes**. Be careful to filter for Paper 1/2 and Foundation/Higher tier. **Exam dates marked in bold font.**

w/c	Separate Biology		Separate Chemistry		Separate Physics	
6th Feb	Cell Biology + RP (Microscopy)		Atomic Structure and Periodic Table		Energy + RP (Measuring specific heat capacity)	
13th Feb	Cell Biology + RP (Osmosis)		Atomic Structure and Periodic Table		Energy + RP (Thermal Insulation)	
20th Feb	Organisation + RP (Enzymes)		Bonding Structure and Properties of Matter		Electricity + RP (Resistance)	
27th Feb	Organisation + RP (Food Tests)		Bonding Structure and Properties of Matter		Electricity + RP (Current-Potential characteristics)	
6th March	Infection and Response + RP (Microbiology)		Quantitative Chemistry + RP (Neutralisation)		Particle Model of Matter + RP (Density)	
13th March	Infection and Response		Quantitative Chemistry		Atomic Structure (Radioactivity)	
20th March	Bioenergetics + RP (Photosynthesis)		Chemical Changes RP (Making salt crystals from acid plus metal carbonate or metal oxide)		Atomic Structure (Radioactivity)	
27th March	Homeostasis and Response + RP (Reaction Times)		Chemical Changes + RP (Electrolysis)		Phys Paper 1 topics/Past paper	
3rd April	Homeostasis and Response		Energy Changes + RP (Measuring temperature changes)		Forces	
10th April	Homeostasis and Response + RP (Plant Responses)		Chem Paper 1 topics/Past paper		Forces + RP (Elasticity)	
17th April	Inheritance, Variation and Evolution		Rate and Extent of Chemical Change + RP (Measuring the rate of reaction)		Forces + RP (Acceleration)	
24th April	Inheritance, Variation and Evolution		Rate and Extent of Chemical Change/Organic Chemistry		Waves + RP (Waves)	
1st May	Bio Paper 1 topics/Past paper		Organic Chemistry		Waves + RP (Radiation and Absorption)	
8th May	Bio Paper 1 topics/Past paper		Chemical Analysis + RP (Chromatography) Chemical Analysis + Separate Chem RP (Identifying Ions)		Light + RP (Reflection and Refraction)	
15th May	Ecology + RP (Sampling)	**Bio Paper 1 (16th May)**	Chem Paper 1 topics/Past paper		Phys Paper 1 topics/Past paper	
22nd May	Ecology + RP (Decay)		Chemistry of the Atmosphere	**Chem Paper 1 (22nd May)**	Magnetism and Electromagnetism	**Phys Paper 1 (25th May)**
29th May	Bio Paper 2 topics/Past paper		The Earth's Resources + RP (Water Purification)		Space	
5th June	Bio Paper 2 topics/Past paper	**Bio Paper 2 (9th June)**	Using our Resources/Chem Paper 2 topics/Past paper		Phys Paper 2 topics/Past paper	
12th June			Chem Paper 2 topics/Past paper	**Chem Paper 2 (13th June)**	Phys Paper 2 topics/Past paper	**Phys Paper 2 (16th June)**

The Periodic Table of the Elements

Group 1	Group 2												Group 3	Group 4	Group 5	Group 6	Group 7	Group 0
						1 **H** hydrogen 1												4 **He** helium 2
7 **Li** lithium 3	9 **Be** beryllium 4												11 **B** boron 5	12 **C** carbon 6	14 **N** nitrogen 7	16 **O** oxygen 8	19 **F** fluorine 9	20 **Ne** neon 10
23 **Na** sodium 11	24 **Mg** magnesium 12												27 **Al** aluminium 13	28 **Si** silicon 14	31 **P** phosphorus 15	32 **S** sulfur 16	35.5 **Cl** chlorine 17	40 **Ar** argon 18
39 **K** potassium 19	40 **Ca** calcium 20	45 **Sc** scandium 21	48 **Ti** titanium 22	51 **V** vanadium 23	52 **Cr** chromium 24	55 **Mn** manganese 25	56 **Fe** iron 26	59 **Co** cobalt 27	59 **Ni** nickel 28	63.5 **Cu** copper 29	65 **Zn** zinc 30		70 **Ga** gallium 31	73 **Ge** germanium 32	75 **As** arsenic 33	79 **Se** selenium 34	80 **Br** bromine 35	84 **Kr** krypton 36
85 **Rb** rubidium 37	88 **Sr** strontium 38	89 **Y** yttrium 39	91 **Zr** zirconium 40	93 **Nb** niobium 41	96 **Mo** molybdenum 42	[98] **Tc** technetium 43	101 **Ru** ruthenium 44	103 **Rh** rhodium 45	106 **Pd** palladium 46	108 **Ag** silver 47	112 **Cd** cadmium 48		115 **In** indium 49	119 **Sn** tin 50	122 **Sb** antimony 51	128 **Te** tellurium 52	127 **I** iodine 53	131 **Xe** xenon 54
133 **Cs** caesium 55	137 **Ba** barium 56	139 **La*** lanthanum 57	178 **Hf** hafnium 72	181 **Ta** tantalum 73	184 **W** tungsten 74	186 **Re** rhenium 75	190 **Os** osmium 76	192 **Ir** iridium 77	195 **Pt** platinum 78	197 **Au** gold 79	201 **Hg** mercury 80		204 **Tl** thallium 81	207 **Pb** lead 82	209 **Bi** bismuth 83	[209] **Po** polonium 84	[210] **At** astatine 85	[222] **Rn** radon 86
[223] **Fr** francium 87	[226] **Ra** radium 88	[227] **Ac*** actinium 89	[261] **Rf** rutherfordium 104	[262] **Db** dubnium 105	[266] **Sg** seaborgium 106	[264] **Bh** bohrium 107	[277] **Hs** hassium 108	[268] **Mt** meitnerium 109	[271] **Ds** darmstadtium 110	[272] **Rg** roentgenium 111	[285] **Cn** copernicium 112		[286] **Uut** ununtrium 113	[289] **Fl** flerovium 114	[289] **Uup** ununpentium 115	[293] **Lv** livermorium 116	[294] **Uus** ununseptium 117	[294] **Uuo** ununoctium 118

Key

relative atomic mass
atomic symbol
name
atomic (proton) number

1
H
hydrogen
1

* The Lanthanides (atomic numbers 58 – 71) and the Actinides (atomic numbers 90 – 103) have been omitted.

Relative atomic masses for **Cu** and **Cl** have not been rounded to the nearest whole number.

GCSE Combined Science: Trilogy (8464) and GCSE Combined Science: Synergy (8465)

FOR USE IN JUNE 2023 ONLY

HT = Higher Tier only equations

kinetic energy = 0.5 × mass × (speed)²	$E_k = \frac{1}{2} m v^2$
elastic potential energy = 0.5 × spring constant × (extension)²	$E_e = \frac{1}{2} k e^2$
gravitational potential energy = mass × gravitational field strength × height	$E_p = m g h$
change in thermal energy = mass × specific heat capacity × temperature change	$\Delta E = m c \Delta\theta$
power = $\dfrac{\text{energy transferred}}{\text{time}}$	$P = \dfrac{E}{t}$
power = $\dfrac{\text{work done}}{\text{time}}$	$P = \dfrac{W}{t}$
efficiency = $\dfrac{\text{useful output energy transfer}}{\text{total input energy transfer}}$	
efficiency = $\dfrac{\text{useful power output}}{\text{total power input}}$	
charge flow = current × time	$Q = I t$
potential difference = current × resistance	$V = I R$
power = potential difference × current	$P = V I$
power = (current)² × resistance	$P = I^2 R$
energy transferred = power × time	$E = P t$

See next page for more equations

energy transferred = charge flow × potential difference		$E = Q V$
HT	**potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil**	$V_p I_p = V_s I_s$
	density = $\dfrac{\text{mass}}{\text{volume}}$	$\rho = \dfrac{m}{V}$
	thermal energy for a change of state = mass × specific latent heat	$E = m L$
	weight = mass × gravitational field strength	$W = m g$
	work done = force × distance (along the line of action of the force)	$W = F s$
	force = spring constant × extension	$F = k e$
	distance travelled = speed × time	$s = v t$
	acceleration = $\dfrac{\text{change in velocity}}{\text{time taken}}$	$a = \dfrac{\Delta v}{t}$
	(final velocity)^2 – (initial velocity)^2 = 2 × acceleration × distance	$v^2 - u^2 = 2 a s$
	resultant force = mass × acceleration	$F = m a$
HT	**momentum = mass × velocity**	$p = m v$
	period = $\dfrac{1}{\text{frequency}}$	$T = \dfrac{1}{f}$
	wave speed = frequency × wavelength	$v = f \lambda$
HT	**force on a conductor (at right angles to a magnetic field) carrying a current = magnetic flux density × current × length**	$F = B I l$

How Science Works Crossword

Materials   Procedure

Hypothesis   Conclusion   Statement
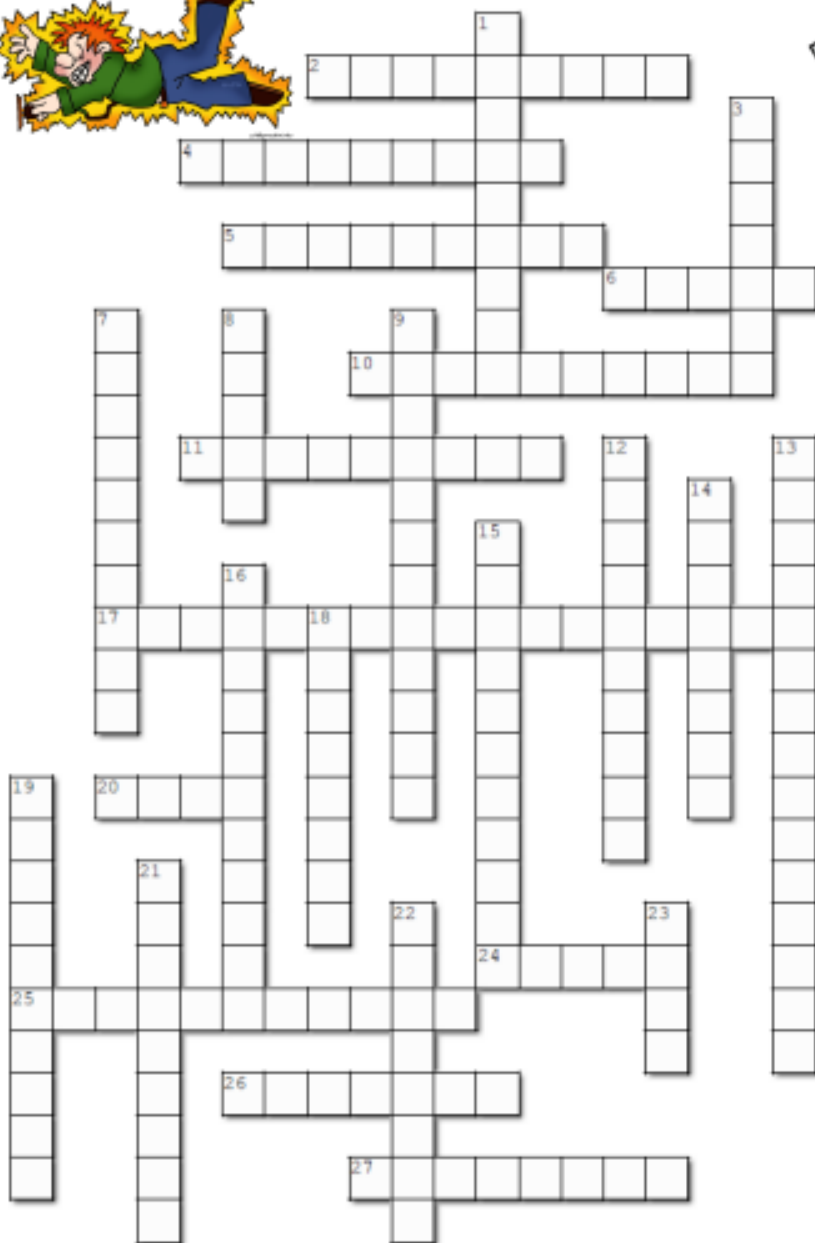
Down

1. Checking the accuracy of a measuring instrument by measuring a known value. (9)

3. Results that are close to the mean result. (7)

7. A proposal or statement intended to explain certain facts or observations. (10)

8. Results that are repeatable, reproducible and answer the question posed by the hypothesis. (5)

9. When someone else does the experiment, or the experiment is done with different equipment and the results are similar. (12)

12. Variables which can have values or numbers that are either counted or measured. (10)

13. A measurement that is wrong by the same amount every time. (10, 5)

14. Results that are close to the true value. (8)

15. Unpredictable difference in a result caused by the design of the experiment or human error. (6, 5)

16. The variable that is changed in an experiment. (11)

18. An experiment where the control variables are kept the same or monitored. (4, 4)

19. The smallest change in a measuring instrument. (10)

21. The variable that is measured when you change the independent variable. (9)

22. This would be 10 cm for a set of 11 readings over a distance of 1 m. (8)

23. All the results, except for the anomalous results, added together and divided by the number of results. (4)

Across

2. Results that do not fit the pattern of the other results. (9)

4. Variables which have values that are labels. (9)

5. An error caused by equipment that is not returned to zero each time. (4, 5)

6. The middle value when all the data is put in order. (6)

10. When the same person does an experiment again, using the same equipment and achieving similar results. (10)

11. Type of graph used for two continuous variables e.g. force and extension. (4, 5)

17. The first one is any number that isn't zero. The following ones can be zeros. (11, 6)

20. The number that appears most frequently. (4)

24. The difference between the largest value and the smallest value. (5)

25. The range divided by 2. (11)

26. An experiment that is kept under the same conditions as the rest of the investigation, without having anything done to it. (7)

27. Type of graph used for a categoric and continuous variable. (3, 5)

How Science Works Crossword Answers

Across

2. Results that do not fit the pattern of the other results. (9) Anomalous

4. Variables which have values that are labels. (9) Categoric

5. An error caused by equipment that is not returned to zero each time. (4, 5) Zero error

6. The middle value when all the data is put in order. (6) Median

10. When the same person does an experiment again, using the same equipment and achieving similar results. (10) Repeatable

11. Type of graph used for two continuous variables e.g. force and extension. (4, 5) Line graph

17. The first one is any number that isn't zero. The following ones can be zeros. (11, 6) Significant figure

20. The number that appears most frequently. (4) Mode

24. The difference between the largest value and the smallest value. (5) Range

25. The range divided by 2. (11) Uncertainty

26. An experiment that is kept under the same conditions as the rest of the investigation, without having anything done to it. (7) Control

27. Type of graph used for a categoric and continuous variable. (3, 5) Bar chart

Down

1. Checking the accuracy of a measuring instrument by measuring a known value. (9) Calibrate

3. Results that are close to the mean result. (7) Precise

7. A proposal or statement intended to explain certain facts or observations. (10) Hypothesis

8. Results that are repeatable, reproducible and answer the question posed by the hypothesis. (5) Valid

9. When someone else does the experiment, or the experiment is done with different equipment and the results are similar. (12) Reproducible

12. Variables which can have values or numbers that are either counted or measured. (10) Continuous

13. A measurement that is wrong by the same amount every time. (10, 5) Systematic error

14. Results that are close to the true value. (8) Accurate

15. Unpredictable difference in a result caused by the design of the experiment or human error. (6, 5) Random error

16. The variable that is changed in an experiment. (11) Independent

18. An experiment where the control variables are kept the same or monitored. (4, 4) Fair test

19. The smallest change in a measuring instrument. (10) Resolution

21. The variable that is measured when you change the independent variable. (9) Dependent

22. This would be 10 cm for a set of 11 readings over a distance of 1 m. (8) Interval

23. All the results, except for the anomalous results, added together and divided by the number of results. (4) Mean