

## Science I—Weekly Subject List

Week	Subject
1	what is chemistry, parts of an atom, atomic structure, orbitals, elements, isotopes, atomic models, periodic table
2	metals, nonmetals, metalloids, isotopes, valence electrons, solids, liquids, gases (volume, density, boiling, melting), kinetic molecular theory of gases, states of matter, changing state, Brownian motion
3	heat expanding particles, density, changing states, melting, evaporating, condensing, freezing, temperature
4	heating curves, temp in changes of state, latent heat, pressure, atmosphere, liquid, Combined gas law (volume, pressure, temperature), Avogadro's theory
5	buoyancy, barometers, pressure in gas, gas pressure, volume, temperature, introduction to bonding
6	ionic compounds, covalent compounds, mixtures, solutions, dissolving
7	reactants, products, signs of chemical reactions, chemical equations, balancing, ionization, acids, bases
8	strength and concentrations of acids/base, pH, uses, acid rain, types of reactions, endo/exothermic, molar mass, stoichiometry, rate of reactions, equilibrium
9	radioactive decay, types of nuclear radiation, types of nuclear radiation, nuclear equations
10	fission vs fusion, nuclear energy, half-life, background radiation, hazards, beneficial uses of radiation, medicine
11	electrochemistry, anodes and cathodes, organic chemistry, biochemistry, significant figures, charts, reading patterns in charts
12	mathematical models in charts, SI units, speed, calculating speed, measuring speed, position-time graphs, vectors, velocity, acceleration, velocity-time graphs
13	force, types of force, unbalanced forces, action-reaction, resultant forces, resolving forces, mass and weight, moments, center of mass
14	simple machines, $F=ma$ , investigating acceleration, momentum, elastic and inelastic collisions
15	changing momentum, stopping distance, car safety features, braking distance and energy, terminal velocity, static electricity, static attract and repel
16	induction, using static, lightning, electric fields, conductors
17	magnets, magnetic fields, magnetic compasses, Earth's magnetic field, electromagnetism
18	using electromagnets, motor effect, electric motor, electromagnetic induction
19	generators, power stations, transformers, electricity to homes, force fields, law of gravity
20	circular motion, solar system (focus on gravity), Moon (focus on gravity), orbits, energy, gravitational potential, mass
21	Newton and gravity, energy, energy stores, renewable resources, non-renewable resources
22	climate change, trends in energy use, efficiency, types of potential energy (elastic, springs), deformations (tension and compression)
23	pressurized potential energy, chemical potential energy, fuel, batteries, energy in food, nuclear potential energy, electrical energy, energy efficiency, batteries
24	kinetic and potential energy, conservation of energy, energy transfer by force, energy and power, energy efficiency
25	kinetic energy, machines using force, $F=ma$ , exponential kinetic energy, thermal energy, internal energy
26	specific heat capacity, history of heat, heat energy and electricity being used by machines, Emmy Noether, conservation of energy
27	energy transfers, heat transfers, radiation, investigating radiation, conduction, insulators, convection, thermals
28	energy-saving homes, current electricity, circuits, series and parallel circuit, current/voltage/resistance
29	series and parallel circuit rules, charge, resistance in wires, resistors, current and voltage calculations
30	current and voltage graphs, power, calculating energy, light-dependent resistors, thermistors, sensor circuits
31	DC/AC, wiring, breakers, shocks, appliances, home energy, wasted energy, power transmission, sound waves
32	oscilloscopes, wave parts and equations, hearing sounds, speed of waves, speed of sound, ultrasound, sonar

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## Science I—Weekly Subject List (cont.)

33	seismic waves, wave interference, light, comparing sound and light, electromagnetic waves as energy
34	visible light, color reflection and absorption, pinhole camera, reflection, refraction, investigating light, total internal reflection
35	lenses, waves and refraction, refractive index in materials, converging and diverging lenses, correcting vision, converging and diverging ray diagrams
36	hazardous radiation, using light from stars to classify stars, redshift in light from stars, expanding universe, radio waves, speakers