

Transitioning from PLSC to iLowerSecondary

This document is designed to help schools moving from the Primary Lower Secondary Curriculum to iLowerSecondary. It indicates iLowerSecondary objectives from Years 7 to 9 that will not have been covered by PLSC by your point of transitioning and may need separate teaching to provide children with a solid base for their learning. The curriculum document will provide further examples and guidance of what each objective looks like in practice.

| Your Year group | Additional iLowerSecondary objectives to teach |
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| Year 8 | Biology |
| | Y7: Know the seven shared characteristics of living things and be able to relate them to a wide range of organisms in the local and the wider environment. |
| | Y7: Know the cell wall, cell membrane, cytoplasm, nucleus, permanent vacuole, mitochondria and chloroplasts in a range of familiar and less familiar animal and plant cells. |
| | Y7: Apply knowledge of human organs and organ systems to other vertebrates. |
| | Y7: Understand the structure and functions of the human skeleton, to include support, protection, movement and making blood cells. |
| | Y7: Understand the function of antagonistic muscles in movement. |
| | Y7: Explain the relationship between muscles and bones to bring about movement at the elbow and shoulder. |
| | Y7: Compare the range of movement of a variety of human joints. |
| | Chemistry |
| | Y7: Understand the meaning of the terms 'element', 'atom', 'compound' and 'molecule'. |
| | Y7: Know the names and chemical symbols of some common elements. |
| | Y7: Understand how to identify an element as a metal or a non-metal from its position in the Periodic Table. |

Y7: Know and describe the typical physical properties of metals and non-metals.

Y7: Relate the physical properties of metals to their uses.

Y7: Know a vertical column of elements as a 'group'.

Y7: Know a horizontal row of elements as a 'period'.

Y7: Know the approximate composition of gases found in dry air.

Y7: Know uses of the gases found in air.

Physics

Y7: Understand that the energy we need is obtained from food.

Y7: Understand that energy can be moved/transferred between energy stores but no energy is created or lost.

Y7: Know ways in which energy is transferred, such as by: light, heating, sound, electricity, and forces.

Y7: Understand that in a parallel circuit currents combine when routes/branches meet and the total current entering a junction is the same as the total amount leaving.

Y7: When discussing objects on or near Earth, know gravity (gravitational field strength, g) as a force that always pulls things towards the centre of the Earth.

Y7: Understand that pressure is the amount of force acting on a certain area.

Y7: Know that the unit of pressure is N/m^2 or pascals (Pa).

Y7: Know simple situations where size of pressure is important.

Y7: Understand what is meant by a longitudinal wave, using sound waves as an example.

Y7: Understand what is meant by a transverse wave using waves on the surface of water as an example.

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| | <p>Y7: Know that all waves can be reflected.</p> <p>Y7: Know what happens when waves meet and what superposition means.</p> <p>Y7: Understand what causes sound in terms of vibrations of objects.</p> <p>Y7: Understand the terms 'volume', 'pitch', 'frequency' (measured in hertz, Hz) and 'amplitude' and the links between them.</p> <p>Y7: Know how sound travels through a medium.</p> <p>Y7: Know how moving vibrations form a wave.</p> <p>Y7: Know how animals use ears to detect sound.</p> <p>Y7: Know how a microphone converts sound into electrical signals.</p> <p>Y7: Know that sound waves transfer energy and describe ways in which sound is used.</p> |
| Year 9 | <p>Biology</p> <p>Y7: Understand the structure and functions of the human skeleton, to include support, protection, movement and making blood cells.</p> <p>Y7: Understand the function of antagonistic muscles in movement.</p> <p>Y7: Explain the relationship between muscles and bones to bring about movement at the elbow and shoulder.</p> <p>Y7: Compare the range of movement of a variety of human joints.</p> <p>Y8: Identify the slime capsule, cell wall, cell membrane, flagella, nucleoid and plasmids in a generalised bacterial cell.</p> <p>Y8: Explain the functions of the slime capsule, cell wall, cell membrane, flagella, nucleoid and plasmids in a generalised bacterial cell.</p> <p>Y8: Know the similarities and differences between generalised plant, animal and bacterial cells.</p> |

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| | <p>Y8: Know how water and minerals are absorbed and transported in flowering plants.</p> <p>Y8: Explain why plants need minerals, using nitrate and magnesium ions as examples.</p> <p>Y8: Explain how fertilisers can increase crop yield.</p> <p>Y8: Know the advantages and disadvantages of natural and artificial fertilisers.</p> <p>Y8: Know the difference between starvation and malnutrition and the effects of nutritional deficiencies.</p> <p>Y8: Recognise the main components of the respiratory system and their functions.</p> <p>Y8: Explain the role of cartilage in keeping airways open.</p> <p>Y8: Know and describe the mechanism of breathing to move air in and out of the lungs.</p> <p>Y8: Understand the term 'gas exchange'.</p> <p>Y8: Describe the effects of smoking.</p> <p>Y8: Know how to draw and interpret pyramids of number.</p> <p>Y8: Explain how toxic materials can accumulate along food chains.</p> |
| | <p>Chemistry</p> <p>Y7: Know and describe the typical physical properties of metals and non-metals.</p> <p>Y7: Relate the physical properties of metals to their uses.</p> <p>Y7: Know the approximate composition of gases found in dry air.</p> <p>Y7: Know uses of the gases found in air.</p> |

Y8: Know a physical test to show whether a sample of water is pure.

Y8: Know what is meant by an 'alloy' and know some examples.

Y8: Relate properties of alloys to uses.

Y8: Know Dalton's atomic model.

Y8: Know common chemical symbols and common chemical formulae.

Y8: Describe the combustion of elements in oxygen, including magnesium, hydrogen and sulphur.

Y8: Understand the term 'oxidation' as gain of oxygen.

Y8: Know the chemical properties of metal and non-metal oxides with respect to acidity/alkalinity.

Y8: Know an experiment to show the products of combustion of a hydrocarbon.

Y8: Know a test for the presence of water using anhydrous copper(II) sulphate.

Y8: Know a test for the presence of carbon dioxide using limewater.

Y8: Understand the fire triangle.

Y8: Know how air pollution may be caused by the combustion of sulphur and the complete/incomplete combustion of carbon in fossil fuels.

Y8: Know the reactions of some metals with oxygen and know what is meant by 'corrosion'.

Y8: Know experiments to find the conditions needed for rusting of iron.

Y8: Know simple methods of preventing rusting by barrier methods and galvanising.

Y8: Describe the reactions of some metals with water.

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| | <p>Y8: Describe the reaction of dilute acid with some metals such as magnesium to produce a salt plus hydrogen.</p> <p>Y8: Know how to test for hydrogen gas.</p> <p>Y8: Know and describe the main parts of the structure of the Earth.</p> <p>Y8: Know what is meant by a 'mineral' and an 'ore'.</p> <p>Y8: Understand that ores are sources of metals and that there is a limited supply on Earth.</p> <p>Y8: Know environmental problems associated with obtaining ores.</p> <p>Y8: Know experiments to find the approximate percentage of oxygen in air using iron and copper.</p> |
| | <p>Physics</p> <p>Y7: Understand that energy can be moved/transferred between energy stores but no energy is created or lost.</p> <p>Y7: Know ways in which energy is transferred such as by: light, heating, sound, electricity, forces.</p> <p>Y7: Understand that in a parallel circuit currents combine when routes/branches meet and the total current entering a junction is the same as the total amount leaving.</p> <p>Y7: When discussing objects on or near Earth, know gravity (gravitational field strength, g) as a force that always pulls things towards the centre of the Earth.</p> <p>Y7: Understand that pressure is the amount of force acting on a certain area.</p> <p>Y7: Know that the unit of pressure is N/m^2 or pascals (Pa).</p> <p>Y7: Know simple situations where size of pressure is important.</p> <p>Y7: Know what happens when waves meet and what superposition means.</p> <p>Y7: Know how a microphone converts sound into electrical signals.</p> |

Y8: Understand the law of conservation of energy.

Y8: Understand the use of Sankey diagrams to show energy transfers.

Y8: Understand how our energy use is calculated and charged for in energy bills.

Y8: Explain expansion, contraction and changes in density in terms of particles.

Y8: Know that the temperature stays constant during changes in state.

Y8: Know the anomalous property of water around its freezing point.

Y8: Know Ptolemy's geocentric model and Copernicus' heliocentric model of the Solar System.

Y8: Understand how knowledge of the modern Solar System has been developed through the use of telescopes on Earth and in space, space probes, photography and the detection of electromagnetic waves.

Y8: Know some evidence for the shape of the Earth.

Y8: Understand that our Solar System is in the Milky Way galaxy and that the Universe is a large collection of billions of galaxies.

Y8: Explain pressure and its effects in terms of particles.

Y8: Know and describe how pressure in liquids and gases changes with depth or height.

Y8: Know that air resistance and water resistance are types of drag.

Y8: Describe the causes of drag and how drag forces can be increased and decreased.

Y8: Know that the greater the mass of an object, the stronger the gravitational force it exerts.

Y8: Know how to use the formula: weight = mass (m) \times gravitational field strength (g) and know that the approximate value of the gravitational field strength (g) on the surface of Earth is 10 N/kg.

Y8: Know that the further away from the centre of the Earth an object is, the weaker the strength of the gravitational force acting on it.

Y8: Know that the gravitational force is weaker if objects are further apart.

Y8: Describe the effect of gravity in making the Earth spherical.

Y8: Know that gravitational force causes moons to orbit planets and causes the planets to orbit the Sun.

Y8: Know that gravitational force causes artificial satellites to orbit the Earth and causes comets to orbit the Sun.

Y8: Understand the terms 'natural satellite' and 'artificial satellite'.

Y8: Describe some uses of artificial satellites.

Y8: Know that a compass is a magnet that points north.

Y8: Know how to find the shape of the magnetic field around a magnet.

Y8: Know about the Earth's magnetic field and how compasses are affected by it.

Y8: Know some differences between light and sound waves.

Y8: Know the properties of an image formed in a plane mirror.