KS3 Subject knowledge audit

Please complete the following table using the key below as guidance

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| 1 | Little or no secure knowledge |
| 2 | Basic knowledge that would enable you to answer simple questions about the topic |
| 3 | Secure knowledge that would allow you to explain the topic to others |

Biology

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| --- | --- | --- | --- |
| Area | Skill/knowledge | Level (1,2,3) | Evidence |
| Structure and function of living organisms | Cells and organisation including:   * What cells are & how we see them * The components of cells * Plant & animal cells – similarity and differences * Adaptations of unicellular organisms * Role of diffusion in transport * How cells are arranged in multicellular organisms |  |  |
| Skeletal and muscular systems | * Structure and function of skeleton * How muscles move bones * Muscles inc. function and antagonistic pairs |  |  |
| Nutrition and digestion | * What comprises a balanced diet * Energy requirements * Consequences of imbalance * The digestive system and how it works * The role of bacteria in the digestive system * How plants make carbohydrates |  |  |
| Gas exchange systems | * Structure and function in humans * Mechanism of breathing * Impact of exercise, smoking & asthma * Gaseous exchange in plants |  |  |
| Reproduction | * In humans – inc. gametes, menstrual cycle, pregnancy & birth * In plants – inc. flower structure, pollination and seeds |  |  |
| Health | Effect of drugs |  |  |
| Photosynthesis | * Reactants and products * Importance to all life * Adaptations of leaves |  |  |
| Cellular respiration | Anaerobic and aerobic inc. differences between;  examples of use of anaerobic,  equation for aerobic |  |  |
| Relationships in an ecosystem | * Interdependence of organisms – inc. food webs * Importance of plant pollination in food security * How organisms are affected by the environment |  |  |
| Inheritance, chromosomes, DNA and genes | * What heredity is and how it involves DNA * Differences between and within species * Natural selection – related to variation * The effect of change on survival * Role of gene banks in preventing extinction |  |  |

Physics

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| Area | Skill/knowledge | Level (1,2,3) | Evidence |
| Energy | Compare energy values of different foods; power ratings of different appliances and amount of energy transferred.  Calculate fuel costs and bills  Describe fuels and energy resources. |  |  |
| Energy changes and transfers | Describe machines in terms of force and movement  Describe what happens when two objects are of different temperatures.  Define processes that involve energy transfer such as dropping an object or stretching a spring. |  |  |
| Changes in systems | Describe energy changes in systems inc. physical and chemical processes and the fact that energy is conserved. |  |  |
| Describing motion | Define and use the equation for speed  Use distance time graphs to describe a journey  Relative motion |  |  |
| Forces | Pushes, pulls & the interactions between objects  Using force arrows on diagrams  Moment – the turning effect of a force  Forces associated with deforming an object  Measurement of force – inc. effect of linear extension – Hooke’s Law  Non-contact forces  Work done and energy changes on deformation. |  |  |
| Pressure in fluids | Atmospheric, pressure in fluid and how to measure pressure |  |  |
| Balanced forces | Opposing and at equilibrium |  |  |
| Forces and motion | Inc. stopping, starting and changing speed or direction |  |  |
| Waves | Sound waves – describe how they are produced and how they travel; describe detection inc. auditory range and characteristics of sound waves  Energy and waves inc. uses  Light waves – describe how they travel, their transmission, reflection and refraction; use the ray model in explanations; relate colours to white light |  |  |
| Electricity and electromagnetism | Explain electric current; potential difference and resistance  Static electricity  Magnetism – inc. electromagnetism |  |  |
| Matter | Conservation of material and mass and changes of state  Similarities and differences between S,L & G  Brownian motion; diffusion; difference between chemical & physical changes.  Particle model  Energy in matter |  |  |
| Space | Gravity  Stars  Seasons  Light years as a measurement. |  |  |

You should also identify the role of working scientifically at KS3

<https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#key-stage-3>