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
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| Skeletal and muscular systems | * Structure and function of skeleton
* How muscles move bones
* Muscles inc. function and antagonistic pairs
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| 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
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| Gas exchange systems | * Structure and function in humans
* Mechanism of breathing
* Impact of exercise, smoking & asthma
* Gaseous exchange in plants
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| Reproduction | * In humans – inc. gametes, menstrual cycle, pregnancy & birth
* In plants – inc. flower structure, pollination and seeds
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| Health  | Effect of drugs |  |  |
| Photosynthesis | * Reactants and products
* Importance to all life
* Adaptations of leaves
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| 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
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| 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
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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 movementDescribe 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 speedUse distance time graphs to describe a journeyRelative motion |  |  |
| Forces | Pushes, pulls & the interactions between objectsUsing force arrows on diagramsMoment – the turning effect of a forceForces associated with deforming an objectMeasurement of force – inc. effect of linear extension – Hooke’s LawNon-contact forcesWork 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. usesLight 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 resistanceStatic electricityMagnetism – inc. electromagnetism |  |  |
| Matter | Conservation of material and mass and changes of stateSimilarities and differences between S,L & GBrownian motion; diffusion; difference between chemical & physical changes.Particle modelEnergy in matter |  |  |
| Space | GravityStarsSeasonsLight 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>