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|  | Working towards the skills and knowledge needed | Acquiring the skills and knowledge needed | On track with the skills and knowledge needed | Advancing the skills and knowledge needed | Extending the skills and knowledge needed |
| 1. Unicellular organisms | State the different types of microbes | Explain the differences between unicellular and multicellular organisms. | Describe how yeast reproduce and their limiting factors | Describe how bacteria reproduce  Describe how an enzymes works  Identify the difference between pyramids of number and biomass | Outline the variables that affect enzyme action.  Explain how a toxin can pass along a food chain |
| 1. Food and Nutrition | Recall the nutrients needed in a diet.  Recall tests for starch and fat  Recall the parts of the digestive system and their function | Describe what each nutrient does in the body  Describe the benefits of a balanced diet | Explain why varying professions have different energy needs  Explain the different types of malnutrition and their effects | Interpret nutrition information labels  Outline how diffusion occurs in the small intestine | Identify how verbs and adjectives can add bias to certain diets  Outline the importance of surface area in relation to digestion |
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| 1. Breathing and respiration | Recall what happens in aerobic respiration  Recall the functions of organs in the respiratory system | Describe the functions of the main parts of the human gaseous exchange system.  Describe how muscles attached to ribs and the diaphragm produce breathing movements.  Describe what happens during gas exchange. | Use a knowledge of respiration and ventilation to explain why inhaled air differs from exhaled air.  Use a model to explain how lungs expand and contract.  Suggest the effects of [diseases that affect, damage] the [gaseous exchange, breathing] system.  Suggest the effects of differences (e.g. in size or organs) between the gaseous exchange systems in different people. | Use a pressure model to explain ventilation.  Suggest reasons for differences in [lung capacity, tidal volume, vital capacity].  Compare the human gaseous exchange system with those of other animals. | Suggest how problems with the [gaseous exchange, breathing] system could be [overcome, treated]. |
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| 1. Rocks | Recall some uses of rocks | Describe the textures of different rocks  Describe how igneous and metamorphic rocks are formed  Describe the different forms of weathering | Explain how the properties of some rocks relate to their texture  Explain how cooling affects grain size in igneous rocks  Explain how sedimentary rocks are formed | Identify rocks based on their properties | Use the rock cycle to show how all three rocks are linked |
| 1. Metals | State what a property is  State some common properties of metals and non-metals | Describe some common properties of metals  Describe what happens during metal corrosion and rusting  Describe the reactions of metals with acids | Produce word equations for the reactions of metals and non-metals  Explain how metals can be protected from corrosion  Place metals in order of their reactivity | Identify products and symbols using symbol equations | Produce balanced symbol equations to represent chemical reactions |
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| 1. Periodic table and combustion | State what an element and compound are  State what makes up the fire triangle | Describe physical properties of elements  Identify chemical symbols of elements  Explain what a hydrocarbon is | Explain the difference between chemical and physical changes  Explain what oxidation is  Use the fire triangle to identify how to put out fires | Outline the evidence proving the mass of a substance increases when it is heated  Explain how pollutants have led to the greenhouse effects | Use atomic theory to outline what takes place during a chemical reaction  Outline the long term consequences of global warming |
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| 1. Fluids | State some properties of solids, liquids and gases  State what is meant by density  Recall a substance does not change temperature whilst it is changing state  State what up thrust is | Describe the properties of different states of matter  Describe what happens to particles during changes of state  Describe how gas pressure can be increased  Describe what drag is and the factors that affects it | Explain the properties of different states of matter using the particle model  Explain how temperature affects a material  Use the formula to calculate density  Explain factors that can affect up thrust | Rearrange the density formulae to calculate volume and mass | Outline the variables and their effects on air pressure |
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| 8. Light | Recognise and state some properties of light and sound waves  Recall some uses of lenses  Recall the parts of a camera and the eye and state their functions | Describe how to show light travels in straight lines  Describe how mirrors and rough surfaces reflect light and how an image is formed in a mirror  Describe how refraction occurs | Compare light and sound waves  Explain refraction in terms of particles and density  Describe how to make a spectrum | Produce accurate ray diagrams using light equipment  Compare and contrast the human eye to a camera  Explain why coloured objects appear the way they do | Use a model to explain how lenses work |
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| 1. Energy Transfers | Identify the direction that energy will be transferred  Recall ways of reducing energy transfers  Interpret Sankey diagrams  State what payback time is | Describe how energy is transferred by radiation, convection and conduction  Describe what power and efficiency mean  Work out payback time | Explain how internal energy and temperature are different  Explain what happens to particles when they evaporate  Calculate energy efficiency  Explain how energy companies charge for payback times | Use the particle model to explain energy transfers if matter  Calculate payback time | Explain in terms of particles why energy is never lost or formed |