KS3 Topic Checklist: Year 7

Topic	Content
Introduction to science	• State different safety rules which should be used when working in a laboratory • Label the different parts of a microscope • Describe how to safely set up a Bunsen burner
Particle theory	• Draw particle diagrams to represent particles in solids, liquids and gases • Name the different processes to describe the changes of state: evaporation, condensation, freezing, melting, sublimation, deposition • Link the changing states of matter to the water cycle • Define diffusion and describe examples of where it is used • Explain how gas particles can cause pressure
Cells, tissues and organs	• Name different organs in the human body • Label the organelles inside plant and animal cells • Define the keywords: cells, tissues, organs and organ systems • Describe the differences between plant and animal cells • Give examples of specialised cells in our bodies • Explain the adaptations of specialised cells • Describe the different organ system in our bodies
Energy resources	• Define: fuels, renewable and non-renewable • Name different renewable and non-renewable energy resources • Describe a practical that you could carry out to test how much energy is in a food • Explain why all of the Earth's energy comes from the sun and how this links to fossil fuels • Evaluate renewable and non-renewable energy resources
Acids and Alkalis	• Describe how to use the pH scale to identify acids and alkalis • Give examples of different acids and alkalis • Explain how an indicator can show if a substance is an acid or an alkali • Define neutralisation • Give applications of neutralisation (farmers, indigestion tablets) • State the general equations for: acid + alkali, acid + metal and acid + metal carbonates
Rocks	• Label the structure of the Earth (inner core, outer core, mantle, crust, atmosphere) and describe the properties of each • Give examples of sedimentary, metamorphic and igneous rocks • Describe how sedimentary, metamorphic and igneous rocks are formed • Link the formation of the three types of rock together to explain the rock cycle
Sound	• Label a sound wave (peak, trough, wavelength, amplitude) • Define: frequency, echo and ultrasound • Describe how sound waves are formed due to vibrations • Explain why particles are needed for sound waves to be produced • Describe how our ears work to hear sounds • Explain the applications of ultrasound
Food and digestion	• State the functions of the 7 nutrients in our bodies • Describe the effects of having an unbalanced diet (Obesity, malnourishment, scurvy, anaemia) • Describe the functions of different organs in our digestive system • Explain how the small intestines are adapted to increase the absorption of nutrients • Explain how enzymes are used to speed up the rate of digestion
Reproduction	• Define: fertilisation, hormones, puberty, foetus • Label the different parts of the female and male reproductive organs and state the functions • Describe the journey of a sperm cell to reach the egg for fertilisation • Describe the process of sexual reproduction of flowers • Explain the different stages of the menstrual cycle • Explain the different stages of pregnancy and the development of the foetus
Ecology	• Define: habitats, adaptation, population, species • Describe how plants and animals are adapted to live in their habitat • Describe a food chain as the flow of energy through an ecosystem • Describe predator-prey relationships and how they can be shown on a graph • Explain the effect on predators of toxins building up in the food chain
Electricity	• Draw a range of circuit symbols and recognise where they belong in a circuit • Draw circuit diagrams • Describe the difference between conductors and insulators • Define: current voltage, resistance and describe how to measure each. • Describe applications of resistance in a fuse
Working scientifically	• Define: control variables, independent variables and dependent variables • Describe the difference between categorical and continuous data and how they are represented in a graph