Aston Fields Middle School
Striving for Excellence: Learning for Life

ASTON FIELDS MIDDLE SCHOOL

YEAR 8 SCIENCE

KEY PERFORMANCE INDICATORS

BIOLOGY

HEALTH AND LIFESTYLE

- Describe the components of a healthy diet giving the role of each nutrient.
- Explain how to test food for starch, glucose, fat and protein.
- Describe some health issues caused by an unhealthy diet.
- Describe the structure and function of the main parts of the digestive system and the process of digestion.
- State the role of enzymes and bacteria in digestion.
- Describe the differences between recreational and medicinal drugs.
- Describe the effects of alcohol and smoking, on health, and in pregnancy.

ECOSYSTEMS

- Describe the process of photosynthesis giving the word equation.
- Explain how to test the leaf for the presence of starch.
- Describe the structure and function of the main components of a leaf.
- Explain the role of minerals in healthy plant growth.
- Describe the process of chemosynthesis.
- State the word equations for aerobic and anaerobic respiration, stating the similarities and differences between the two.
- Explain what food webs and chains show, describing the interdependence of organisms, along with bioaccumulation.

ADAPTATION

- State some resources the plants and animals compete for.
- Describe how organisms are adapted to their environment, and how they adapt to environmental changes.
- Explain how variation in species can occur giving the differences between environmental and inherited variation.
- Describe how characteristics are inherited and how scientists have worked over time to discover the structure of DNA.
- Describe natural selection, evolution, and extinction.

CHEMISTRY

THE PERIODIC TABLE

- Use patterns to classify an element as a metal or nonmetal.
- Use patterns in properties in the groups and periods to predict properties of elements.
- Describe the properties of group one elements, recording their reactions with water.
- Use patterns to predict properties of group 7 elements, and describe displacement reactions.

- Describe the physical and chemical properties of group 0 elements.

METALS AND ACIDS

- Compare the reactions of different metals with water, writing equations to represent these reactions.
- Use the reactivity series to predict reactions.
- Predict if a given pair of substances will undergo displacement.
- Explain why the properties of ceramics make them suitable for their uses.
- Interpret data on polymers to decide on the best polymer for a given purpose, justifying the choice.
- Explain why composite properties make them suitable for their uses.

SEPARATION

- Describe particle arrangements in mixtures.
- Select appropriate separation techniques for different mixtures.
- Describe solutions using keywords: solute, solvent, solution, solubility, saturated.
- Plan an investigation to compare solubility with temperature, considering the variables.
- Explain how filtration, evaporation, distillation and chromatography can be used to separate mixtures.

THE EARTH

- Describe the different layers of the Earth's structure.
- Explain how igneous, sedimentary and metamorphic rocks form, giving their properties.
- Use the rock cycle to explain how the material in rocks is recycled.
- Explain why the concentration of carbon dioxide in the atmosphere did not change for many years.
- Explore the carbon cycle, identifying carbon stores.
- Explain why global warming happens, giving the impacts of global warming.
- Explain how materials can be reused and recycled.

PHYSICS

ENERGY AND PRESSURE

- Compare the energy in food and fuels with the energy needed for different activities.
- Describe energy before and after a change.
- Explain what brings about transfers in energy.
- State the difference between energy and temperature.
- Describe how energy is transferred by conduction, convection and radiation.
- Describe the differences between renewable and nonrenewable energy resources.
- Describe the link between power, fuel use and cost of using domestic appliances. Calculate work done.

ELECTRICITY AND MAGNETISM

- Describe how charged objects interact and what is meant by an electric field
- Explain what is meant by current, setting up a circuit using an ammeter to

measure current.

- Describe what is meant by potential difference and how to measure it.
- Describe the difference between current and potential difference in series and parallel circuits.
- Describe and calculate resistance.
- Describe how magnets interact, explaining how to find magnetic fields.
- State how to make an electromagnet, and also change its strength.

MOTION AND PRESSURE

- Make appropriate measurements for time and distance to calculate speed. Interpret the distance time graphs.
- Describe factors that affect gas pressure.
- Describe how liquid pressure changes with depth, explaining why some things float. Calculate pressure.