



## ASTON FIELDS MIDDLE SCHOOL

### YEAR 7 SCIENCE

### KEY PERFORMANCE INDICATORS

#### BIOLOGY

##### CELLS

- Understand that cells are the basic fundamental unit of organisms.
- Use a microscope to observe cells.
- Describe the functions of cell components.
- Describe the similarities and differences between plant and animal cells.
- Give examples of specialised cells, explaining how their structure is adapted for their function.
- Describe the process of diffusion.
- Explain how unicellular organisms are adapted, giving examples.

##### BODY SYSTEMS

- Explain the hierarchy of organisation in multicellular organisms.
- Describe how parts of the gas exchange system are adapted for their function.
- Describe the process of inhaling and exhaling.
- Describe the structure and functions of the skeletal system.
- Describe the role of joints and muscles in movement.

##### REPRODUCTION

- State the changes that happen to boys and girls during puberty.
- Describe structure and function of the male and female reproductive systems.
- State the definition of gamete, fertilisation and gestation.
- State the main stages of the menstrual cycle.
- Explain the role of the parts of a flower.
- Describe pollination, fertilisation and seed dispersal.

#### CHEMISTRY

##### PARTICLES

- Use the particle model to explain why different materials have different properties.
- Use ideas about particles to explain the properties of a substance in its three states.
- Discuss the change in particle movement during changes of state, including boiling, evaporating, condensing, and subliming.
- Use the particle model to explain diffusion and gas pressure.

##### ATOMS AND ELEMENTS

- State what elements and compounds are.
- Compare the properties of one atom of an element to the properties of many atoms.



- State what a compound is, explaining why it has different properties to the elements in it.
- Write and interpret simple chemical formulae.

## CHEMICAL REACTIONS

- State what a chemical reaction is giving some signs of a chemical reaction. Explain what happens to the reactants in a reaction.
- Explain what a fuel is, identifying what happens to fuels when they burn.
- State what a decomposition reaction is.
- State the law of conservation of mass.
- Explain what happens in endothermic and exothermic changes.

## ACIDS AND ALKALIS

- Give the meaning of hazard symbols offering suitable safety precautions.
- Compare properties of acids and alkalis using the pH scale to measure acidity and alkalinity.
- Describe the differences between concentrated and dilute solutions.
- Explain pH changes during neutralisation reactions giving examples of useful reactions. Describe what a salt is.

## PHYSICS

### FORCES AND MOTION

- Identify forces acting on objects, including interaction pairs.
- Use a Newton meter to measure the size of the force.
- Explore how Hooke's law identifies proportional stretching.
- Give examples of drag force and friction suggesting how to reduce these.
- Identify gravity as a force that acts as a distance.
- Explain how unbalanced forces result in a change in the speed or direction of an object.

### WAVES

- Name some features of waves, comparing sound waves to those of light.
- State the link between loudness and amplitude, and frequency and pitch. Explain how the ear allows us to hear and the eye allows us to see.
- State what ultrasound is giving some uses.
- Explain specular reflection, diffuse scattering, and refraction of light.
- State what happens to light as it passes through a prism, and the effects of coloured filters on light.

### SPACE

- Place objects seen in the night sky in size order.
- Explain what is in our solar system, giving the names of the planets.
- Describe the motion of the Sun, stars, and moon across the sky.
- Describe the differences between seasons.
- Explain the phases of the moon and eclipses.