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## Stage 8

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### E Scientific enquiry

#### Ep Ideas and evidence

- **8Ep1** Discuss the importance of developing empirical questions which can be investigated, collecting evidence, developing explanations and using creative thinking
- **8Ep2** Test predictions with reference to evidence gained

#### Ep Plan investigative work

- **8Ep3** Select ideas and turn them into a form that can be tested
- **8Ep4** Plan investigations to test ideas
- **8Ep5** Identify important variables; choose which variables to change, control and measure
- **8Ep6** Make predictions using scientific knowledge and understanding

#### Eo Obtain and present evidence

- **8Eo1** Take appropriately accurate measurements
- **8Eo2** Use a range of equipment correctly
- **8Eo3** Discuss and control risks to themselves and others
- **8Eo4** Present results as appropriate in tables and graphs

#### Ec Consider evidence and approach

- **8Ec1** Make simple calculations
- **8Ec2** Identify trends and patterns in results (correlations)
- **8Ec3** Compare results with predictions
- **8Ec4** Identify anomalous results and suggest improvements to investigations
- **8Ec5** Interpret data from secondary sources
- **8Ec6** Discuss explanations for results using scientific knowledge and understanding. Communicate these clearly to others
- **8Ec7** Present conclusions to others in appropriate ways

### B Biology

#### Bp Plants

- **8Bp1** Explore how plants need carbon dioxide, water and light for photosynthesis in order to make biomass and oxygen
- **8Bp2** Describe the absorption and transport of water and mineral salts in flowering plants

## Bh Humans as organisms

- **8Bh1** Identify the constituents of a balanced diet and the functions of various nutrients. Secondary sources can be used
- **8Bh2** Understand the effects of nutritional deficiencies
- **8Bh3** Recognise the organs of the alimentary canal and know their functions. Secondary sources can be used
- **8Bh4** Understand the function of enzymes as biological catalysts in breaking down food to simple chemicals
- **8Bh5** Recognise and model the basic components of the circulatory system and know their functions
- **8Bh6** Understand the relationship between diet and fitness
- **8Bh7** Discuss how conception, growth, development, behaviour and health can be affected by diet, drugs and disease
- **8Bh8** Recognise the basic components of the respiratory system and know their functions
- **8Bh9** Define and describe aerobic respiration, and use the word equation
- **8Bh10** Explain gaseous exchange
- **8Bh11** Describe the effects of smoking. Secondary sources can be used
- **8Bh12** Discuss the physical and emotional changes that take place during adolescence
- **8Bh13** Describe the human reproductive system, including the menstrual cycle, fertilisation and foetal development

## C Chemistry

### Cs States of matter

- **8Cs1** Show how the particle theory of matter can be used to explain the properties of solids, liquids and gases, including changes of state, gas pressure and diffusion

### Cp Material properties

- **8Cp1** Describe and explain the differences between metals and non-metals
- **8Cp2** Give chemical symbols for the first twenty elements of the Periodic Table
- **8Cp3** Understand that elements are made of atoms
- **8Cp4** Explain the idea of compounds
- **8Cp5** Name some common compounds including oxides, hydroxides, chlorides, sulfates and carbonates
- **8Cp6** Distinguish between elements, compounds and mixtures

### Cc Material changes

- **8Cc1** Use a word equation to describe a common reaction. Secondary sources can be used
- **8Cc2** Describe chemical reactions which are not useful, e.g. rusting

## P Physics

### Pf Forces and motion

- **8Pf1** Calculate average speeds, including through the use of timing gates
- **8Pf2** Interpret simple distance/time graphs

### **Ps Sound**

- **8Ps1** Explain the properties of sound in terms of movement of air particles
- **8Ps2** Recognise the link between loudness and amplitude, pitch and frequency, using an oscilloscope

### **Pl Light**

- **8Pl1** Use light travelling in a straight line to explain the formation of shadows and other phenomena
- **8Pl2** Describe how non-luminous objects are seen
- **8Pl3** Describe reflection at a plane surface and use the law of reflection
- **8Pl4** Investigate refraction at the boundary between air and glass or air and water
- **8Pl5** Explain the dispersion of white light
- **8Pl6** Explain colour addition and subtraction, and the absorption and reflection of coloured light

### **Pm Magnetism**

- **8Pm1** Describe the properties of magnets
- **8Pm2** Recognise and reproduce the magnetic field pattern of a bar magnet
- **8Pm3** Construct and use an electromagnet