

WAH YAN COLLEGE, HONG KONG  
Content of Teaching in Form Three Physics

1. Reflection of Light
  - Light and vision
  - Reflection
  - Mirror image
  - Systems with two mirrors
2. Refraction of Light
  - Refraction
  - Laws of refraction
  - Total internal reflection
  - Phenomena and applications of refraction
3. Lenses
  - Basics of lenses
  - Images formed by lenses
  - Graphical methods for lenses
  - Lens formula
4. Temperature and Heat Transfer
  - Temperature and thermometers
  - Heat and internal energy
  - Ways of heat transfer
5. Heat Capacity
  - Rate of energy transfer
  - Heat capacity
  - Temperature of a mixture
  - High specific heat capacity of water

**WAH YAN COLLEGE, HONG KONG**  
**Learning Content for F.3 Biology**

<i>Topic</i>	
1	<p><b>Introduction to Biology</b></p> <ul style="list-style-type: none"> <li>● What is Biology?</li> <li>● Characteristics of organisms</li> <li>● How do scientists study biology?               <ul style="list-style-type: none"> <li>- Major steps of scientific investigation</li> <li>- Hypothesis</li> <li>- Variables (dependent, independent &amp; fixed variables)</li> <li>- Importance of control experiment</li> <li>- Presentation of results: graph, table</li> </ul> </li> <li>● Nature of science</li> </ul>
2	<p><b>Enzymes and Metabolism</b></p> <ul style="list-style-type: none"> <li>● Metabolism: catabolism &amp; anabolism</li> <li>● Enzymes:               <ul style="list-style-type: none"> <li>Properties</li> <li>Roles in metabolism</li> <li>Active site and specificity of enzymes</li> <li>Effects of temperature, pH and inhibitors on rate of enzymatic reactions</li> </ul> </li> </ul> <p><b>Application of enzyme in everyday life</b></p>
3	<p><b>Organisms and Environment</b></p> <p><b>Food and Human</b></p> <ul style="list-style-type: none"> <li>● Human as heterotroph</li> <li>● Food requirements and functions of different food substances:               <ul style="list-style-type: none"> <li>- Carbohydrate, lipids, proteins, vitamins, minerals, dietary fibre</li> </ul> </li> </ul>
3	<p><b>Organisms and Environment</b></p> <p><b>Food and Human</b></p> <ul style="list-style-type: none"> <li>● Food tests</li> <li>● Balanced diet</li> </ul>
4	<p><b>Nutrition in human</b></p> <ul style="list-style-type: none"> <li>● Processes of human nutrition</li> <li>● The human digestive system</li> <li>● Ingestion of food</li> <li>● Tooth structure &amp; dentition</li> <li>● Movement of food along the alimentary canal</li> <li>● Digestion of food</li> <li>● Absorption of digested food</li> <li>● Assimilation of absorbed food</li> <li>● Egestion</li> </ul>
5	<p><b>Functions of liver</b></p>

**WAH YAN COLLEGE, HONG KONG**  
**Content of Teaching in Form Three Chemistry**

**1 Fundamentals of Chemistry**

- What is chemistry about?
- Chemistry in our lives today
- Classification of matter
- Properties of substances
- Physical and chemical changes
- Working in chemistry laboratory

**2 The atmosphere**

- Getting to know our planet Earth
- The atmosphere
- Separation of oxygen and nitrogen from air
- Properties of oxygen

**3 Oceans**

- Introducing oceans and seas
- Composition of sea water
- Extraction of common salt from sea water
- Tests for sodium and chloride ions in common salt
- Tests for the presence of water in a sample
- Electrolysis of sea water and uses of products

**4 Rocks and minerals**

- Rocks
- Extraction of metals from their ores
- Limestone, chalk and marble
- Weathering and erosion of rocks
- Chemical changes involving calcium carbonate
- Tests for calcium carbonate in a sample of limestone / chalk / marble

**5 Atomic structure**

- What is an element?
- Classification of elements based on physical states
- Classification of elements into metals and non-metals
- Chemical symbols for elements
- Atoms
- Structure of atoms
- Atomic number and mass number Isotopes
- Relative masses of atoms Arrangement of electrons
- Stability of noble gases related to their electronic arrangements

**6 The periodic Table**

- Elements with similar chemical properties
- The Periodic Table
- Patterns in the Periodic Table
- Groups - similarities and trends
- Predicting chemical properties of an unfamiliar element

**7 Chemical bonding : ionic bonding**

- Formation of ions from atoms
- Colours and migration of ions
- Formulae of ions
- Elements and ions
- Chemical bonds
- Ionic bond and ionic substances
- Structures of solid ionic compounds
- Formulae and names of ionic compounds

**8 Chemical bonding : covalent bonding**

- Covalent bonding and covalent substances
- Prediction of formulae for covalent compounds
- Particles that make up matter - a summary
- Relative molecular mass and formula mass