Ormiston Horizon Academy

CURRICULUM MAP FOR Science

YEAR 7

UNIT 2: Microbiology • Label the main parts of a microscope • Describe how to use a microscope • Label animal cells • Label plant cells • Describe the roles of the sub cellular structures • Compare animal and plant cells • Put cell, tissue, organ and organ system in size order • Describe the roles of cells, tissue, organ and organ system • Name the main cells in a leaf • Describe the role of a leaf • Describe photosynthesis • Write the equation for photosynthesis • Name unicellular microorganisms		Nucleus Cell membrane Cytoplasm Vacuole Cell wall Chloroplast Photosynthesis Tissue Organ
		End of unit assessment
		Knowledge Organiser
Unit 3 Industrial chemist • State the 3 states of matter as solid, liquid and gas • Describe the structure of: solids as: particles vibrate in a fixed position, held together by strong forces, regular arrangement gases as: particles move randomly in all directions, with large amounts of kinetic energy, weak forces • State that drawing the states of matter is an example of a model • Describe the structure of an atom • Describe an element and a compound • Explain the difference between an element and a compound • Explain what a mixture is and state it can be separated • Use the periodic table to write the symbols for elements • Match common compounds to their formula, (Hydrochloric acid, Water, Carbon dioxide, Methane, Sulfuric acid, Nitric acid, Ammonia)		Evaporation Particle Evaporation Condensation Internal energy Kinetic energy Atom Element Proton Electron Neutron Nucleus
		End of unit assessment
		Knowledge Organiser
UNIT 4: Rollercoaster Engineer • State what a force is and its unit. • Investigate different forces and categorise them into contact & non-contact forces. • Draw and label forces on diagrams • Identify if forces are balanced or unbalanced from free body diagrams. • Describe factors that affect friction • Identify if data is continuous or discontinuous • State the unit of speed • Apply the equation distance = speed/time. • Identify on a distant time graph when an object is: stationary and moving at a constant speed		Force Newton. Speed Acceleration Deceleration Stationary Moment Pivot
		End of unit assessment
		Knowledge Organiser

• Define what a moment it.		
Unit 5: Sport science • Identify 6 different bones in the human skeleton (femur, tibia, fibula, humorous, patella, cranium) – tibia, fibula, femur and patella are needed to reach an objective in lesson 4) • Describe the function of the skeletal system • State the different types of joints and give examples. • State the function of muscles • Identify antagonistic muscles in the arms and legs • state what biomechanics is • Describe why biomechanics is useful • Identify the content of a healthy human diet • Describe what a deficiency is		Skeleton Cranium Vertebrae Scapula Humorous Ribs Sternum Pelvis Femur
		End of unit assessment
		Knowledge Organiser
UNIT 6: Chemical Engineer • Identify the different groups of the periodic table • Describe how the periodic table is arranged • State who Mendeleev was • Compare Mendeleev's periodic table to today's modern periodic table – state the differences • State the common properties of metals and non-metals. (sonorous, malleable, ductile, melting and boiling points, conductivity and strength) • Identify unknow samples as metals or non-metals using experimental methods. • State that the reactivity series is a list of metals from the most reactive to the least reactive • Name common acids and alkalis • Describe the use of litmus indictor to test for an acid or alkali • Compare the use of a litmus indicator to universal indicator to identify acids and alkalis • define what neutralisation is in terms of an acid and alkali		Periodic table Element Atomic number Metal. Non-metals Malleable Sonorous
		End of unit assessment
		Knowledge Organiser
UNIT 7: Renewable Energy Engineer • Identify thermal, elastic, Gravitational and Spring as stores of energy and describe a store of energy changing as a result of a pathway • State that heating and mechanical are examples of energy pathways		Efficiency Power Electrical appliances

• State the law of the conservation of energy as "energy cannot be created or destroyed" • Describe conduction in solids using the terms vibration, collision and kinetic energy • State what an insulator is • State that heat moves through gas and liquids by convection • State that ALL objects give off (emit) radiation and explain that emits mean to give off/out and explain what radiation is • State the relationship between power and energy • Describe how fuel bills are calculated		End of unit assessment
		Knowledge Organiser
UNIT 8: Breeding Manager • Label the female reproductive system: uterus, ovary, vagina, cervix and fallopian tube • Label the male reproductive system: urethra, sperm duct, testis, gland and scrotum. • Describe the function of the parts of the female and male reproductive system • Define and explain how fertilisation occurs • State the menstrual cycle is 28 days long and that ovulation occurs on day 14. • Label the developing foetus with the amniotic sac, amniotic fluid, placenta, umbilical cord and foetus. • Describe the function of the amniotic sac, amniotic fluid, placenta and umbilical cord. • State human gestation is 39 weeks,		Cervix Ovaries Uterus Fallopian tube Chromosome Fertilisation Gamete Menstruation Ovulation Puberty Gestation Foetus Embryo Placenta
		End of unit assessment
		Knowledge Organiser

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YEAR 7

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<td>UNIT 9: Astrophysicist

• Name the three types of rock as sedimentary, igneous and metamorphic
• Describe the properties of each type of rock
• Describe the main changes in the rock cycle from igneous to metamorphic as due to high heat and high pressure.
• Explain biological weathering and give an example
• Explain chemical weathering and give an example
• Explain physical weathering and give an example
• State what erosion is
• Label a cross section of the earth with the mantle, core and crust.
• Explain that the crust is made of plates (tectonic).</td>
<td>  </td>
<td>Crust
Mantle
Core
Sedimentary Rocks
Porous
Weathering
Erosion
Transportation
Deposition
Igneous
Extrusive
Intrusive
Metamorphic</td>
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<td>UNIT 10: Electrical engineer

• Identify and draw circuit symbols for bulb, cell, battery, ammeter, voltmeter
• Define current
• State the unit for current
• Describe how an ammeter is connected
• Define voltage
• State the unit for voltage
• Describe how a voltmeter is connected
• Define resistance (at least basic definition)
• State the unit for resistance
• Calculate resistance given the equation
• Describe the rules for current in series components
• Describe the rules for potential difference in series components
• Describe the rules for current in parallel components
• Describe the rules for potential difference in parallel components</td>
<td>  </td>
<td>Current
Charge
Potential difference
Ammeter
Voltmeter
Resistance
Series
Parallel
Voltage</td>
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