



This course is developed using the WA Curriculum as a guide. The order of the content and the time in which they are covered are only a guide. Circumstances may result in changes during the year. Kambalda West District High School reserves the right to alter the order the objectives are taught and time over which they are taught.

In Year 7, students explore the diversity of life on Earth and continue to develop their understanding of the role of classification in ordering and organising information. They use and develop models such as food chains, food webs and the water cycle to represent and analyse the flow of energy and matter through ecosystems and explore the impact of changing components within these systems. They consider the interaction between multiple forces when explaining changes in an object's motion. They explore the notion of renewable and non-renewable resources and consider how this classification depends on the timescale considered. They investigate relationships in the Earth-sun-moon system and use models to predict and explain events. Students make accurate measurements and control variables to analyse relationships between system components. They explore and explain these relationships through appropriate representations and consider the role of science in decision making processes.

### Vocabulary & Grammar

Below is a list of science words and phrases that students should know: the meaning of; and be able to spell; by the end of term:

Adaptation	Pure substances	Observation	Force
Biomass	Mixture	Hypothesis	Balanced
Carnivore	Solute	Variable	Newton
Class	Solvent	Independent	Machine
Classification	Solution	Dependent	Newton meter
Detritivore	Solubility	Controlled	Moment
Detritus	Homogeneous	Eclipse	Fulcrum
Dichotomous	Heterogeneous	Season	Pivot
Ecosystem	Suspension	Orbit	Weight
Family	Colloid	Earth	Gravity
Food Chain	Saturated	Moon	Electrostatic
Food Web	Concentrated	Sun	Thrust
Genus	Condensation	Rotation	Friction
Herbivore	Evaporation	Revolution	Reaction force
Kingdom	Sublimation	Phases	Magnetism
Omnivore	Fusion	Regeneration	Lever
Order	Dilute	Resource	Pulley
Phylum	Distillation	Renewable	Inclined plan
Taxon	Filtration	Non-renewable	Wheel and axle

There is an expectation that students will make every effort to correctly use capitals, full stops, commas, semi colons, apostrophes, question marks and exclamation marks.

# Topics

## Science Understanding –

- Biological Science - Students classify and organise diverse organisms based on observable differences and predict the effect of human and environmental changes on interactions between organisms.
- Chemical Science - Students describe techniques to separate pure substances from mixtures.
- Earth and Space Science - Students explain how the relative positions of Earth, the sun and moon affect phenomena on Earth. They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems.
- Physical Science – Students represent and predict the effects of unbalanced forces, including Earth's gravity, on motion.

## Science as a Human Endeavour –

- Students describe situations where scientific knowledge has been used to solve a real-world problem.

## Science Inquiry –

- Students identify questions that can be investigated scientifically. They plan fair experimental methods, identifying variables to be changed and measured. Students select equipment that improves fairness and accuracy and describe how they considered safety. They draw on evidence to support their conclusions. Students summarise data from different sources, describe trends and refer to the quality of their data when suggesting improvements to their methods. They communicate their ideas, methods and findings using scientific language and appropriate representations.



Semester 1 – Earth and Space, Physics

Week	Topics/Syllabus	Assessment	Resources
<b>Term 1</b>			
1	<u>The Night Sky</u> <ul style="list-style-type: none"> <li>What's in the night sky? – Identify common celestial bodies found in space, discover prior knowledge.</li> <li>Satellites, meteors, asteroids, galaxies.</li> <li>Constellations; what are they, common constellations, used for navigation. Zodiac.</li> <li>Human endeavour – emu in the sky.</li> </ul>		Pearson new spec (pgs 344- 350) Pearson old spec (pgs 327 - 334)  Create own constellation.
2	<u>The solar system</u> <ul style="list-style-type: none"> <li>Planets in order from the sun. Differences between planets, terrestrial vs gaseous. Names of planets (roman gods)</li> <li>Comparison chart - Number of moons and temperature, length of days and years.</li> <li>Planets vs dwarf planets.</li> </ul>		Pearson new spec (pgs 352 – n360) Pearson old spec (pgs 332, 354 - 361) Create a planetarium
3	<u>Gravity and orbits</u> <ul style="list-style-type: none"> <li>What is Gravity and the effect it has on Earth.</li> <li>The relationship between the Earth, the moon and the tides.</li> <li>Solar and lunar eclipses</li> <li>Phases of the moon Waxing/Waning gibbous and crescent, first and third quarter, new and full moon.</li> </ul>		Pearson new spec (pgs 363 - 370) Pearson old spec (pgs 335 - 345)
4	<u>The Earth</u> <ul style="list-style-type: none"> <li>Day and night – rotation and earth's tilt</li> <li>Year – Revolution</li> <li>Seasons and Climate</li> </ul>	<b>Task 1: Night Sky Multiple choice</b>	Pearson new spec (pgs 373 - 380) Pearson old spec (pgs 346 - 353)
5	<u>Renewable vs non-renewable resources</u> <ul style="list-style-type: none"> <li>Definitions of renewable (replenishes itself within the lifespan of a human) Examples of types of renewable resources along with importance</li> <li>Non-renewable resources; definition and examples.</li> <li>Conserving resources; recycling</li> <li>Carbon capture and storage systems, coal mining</li> </ul>		Pearson new spec (pgs 86 -96) Pearson old spec (pgs 68 -75)
6	<u>Energy resources</u> <ul style="list-style-type: none"> <li>Non-renewable energy sources; fossil fuels. What are they and where do they come from?</li> <li>Renewable energy resources; what are they and how do they work?</li> </ul>		Pearson new spec (pgs 100-110) Pearson old spec (pgs 80 - 90) Making a solar oven
7	<u>The water cycle</u> <ul style="list-style-type: none"> <li>What is it and why is it important?</li> <li>Evaporation, condensation and precipitation</li> <li>Transpiration, run-off, percolation</li> <li>Factors affecting the water cycle; humidity, air temperature, aquifers (Great Artesian Basin)</li> <li>Landscape, vegetation and sunshine</li> </ul>		Pearson new spec (pgs 112 - 120) Pearson old spec (pgs 92 - 100)
8	<u>Water management</u> <ul style="list-style-type: none"> <li>Stores of water dams and reservoirs (link back to renewable energy, hydroelectric).</li> <li>Different types of watering systems and irrigation; spray, drip and flood</li> <li>Changing vegetation – deforestation leads to soil erosion.</li> </ul>	<b>Task 2: Earth Resources Extended Answer</b>	Pearson new spec (pgs 123 - 131) Pearson old spec (pgs 102 -107)
9	<u>Revision</u>	<b>Task 3: Topic test</b>	Pearson new spec (pgs 133-135, 383) Pearson old spec (pgs 113,362)
10	<u>Science inquiry</u> <ul style="list-style-type: none"> <li>Transpiration from leaves</li> <li>Making clouds</li> <li>Generating electricity</li> </ul>		

Term 2			
1	<u>What are forces</u> <ul style="list-style-type: none"> <li>• Contact vs non-contact forces; whats the difference, compare the different types</li> <li>• Balanced vs unbalanced forces; introduce Newton and Newton meters.</li> <li>• Resultant forces; the overall or net force. Relate back to balanced and unbalanced forces.</li> <li>• Drawing free body diagrams; List common forces found around us; Gravity, the reaction force, thrust and drag etc.</li> </ul>		Pearson new spec (pgs 280- 283) Pearson old spec (pgs 245 - 253)
2	<u>Friction</u> <ul style="list-style-type: none"> <li>• What is it? Why does it exist (newtons laws of motion)?</li> <li>• Uses of friction Bad verse Good</li> <li>• Increasing and decreasing friction</li> </ul>		Pearson new spec (pgs 292 - 295) Pearson old spec (pgs 255 - 261)
3	<u>Gravity as a force</u> <ul style="list-style-type: none"> <li>• What is it? A force of attraction that exists between all objects that have mass.</li> <li>• Compare gravitational fields</li> <li>• Weight verse Mass what's the difference?</li> <li>• Falling and terminal velocity</li> </ul>		Pearson new spec (pgs 301 - 304) Pearson old spec (pgs 263 - 271)
4	<u>Magnetic and electric fields</u> <ul style="list-style-type: none"> <li>• Magnets and their poles; north and south, Plotting magnetic fields</li> <li>• Difference between temporary magnets and permanent magnets</li> <li>• Building up static charge, rubbing balloons – link back to friction</li> <li>• Lightning! What is it and what causes it?</li> </ul>	<b>Task 4: Forces Multiple choice</b>	Pearson new spec (pgs 311 - 319) Pearson old spec (pgs 273 - 280) Making an electromagnet. Using the Van de Graaff generator
5	<u>Levers</u> <ul style="list-style-type: none"> <li>• All simple machines are force multipliers, identify some simple machines (wheel barrow, scissors, fishing rod, screw driver, door handle etc.)</li> <li>• Levers contain a fulcrum, load and effort. There are three classes of lever, first class (fulcrum in the middle, scissors), second class (load is in the middle; nut cracker) and third class (effort is in the middle; fishing rod)</li> <li>• Moments (force acting around a pivot) and Lever arms (distance from the pivot that force is applied)</li> <li>• Clockwise verse anti-clockwise moments</li> </ul>		Pearson new spec (pgs 323 - 325) Pearson old spec (pgs 290 -294) Balancing mass on a see-saw
6	<u>Wheel + Axles and Pullies</u> <ul style="list-style-type: none"> <li>• A wheel and axle is similar to a lever, as the rim of the wheel acts as a lever arm.</li> <li>• Examples of wheel and axles in the modern world.</li> <li>• A Pulley changes the direction of the applied force; examples include, cranes and wells. More pullies less effort.</li> </ul>		Pearson new spec (pgs 325-326, 328) Pearson old spec (pgs 311 - 315) Building a system of pullies
7	<u>Inclined planes, Wedges and Screws</u> <ul style="list-style-type: none"> <li>• Inclined planes decrease effort but increase the distance travelled, these include ramps.</li> <li>• Two inclined planes stuck together make a wedge. Common uses of a wedge include axes, knives etc.</li> <li>• A screw is an inclined plane wrapped around a column. Great use in moving substances from one place to another, ogle.</li> </ul>	<b>Task 5: Simple machines Short answer</b>	Pearson new spec (pgs 326) Pearson old spec (pgs 301 - 304) Pulling a cart up a ramp Archimedes screw
8	<u>Revision</u>	<b>Task 6: Topic test</b>	
9	<u>Science inquiry</u> <ul style="list-style-type: none"> <li>• Building a catapult out of pop sticks</li> </ul>		
10	<u>Science inquiry</u> <ul style="list-style-type: none"> <li>• Building an Archimedes screw using hose and a cardboard cylinder</li> </ul>		

**END OF SEMESTER 1**

## Semester 2 – Biology, Chemistry

Week	Topics/Syllabus	Assessment	Resources
<b>Term 3</b>			
1	<u>Living places</u> <ul style="list-style-type: none"> <li>The variety of habitats that are found on Earth</li> <li>The role that animals and plants play in their habitat; their Niche</li> <li>How animals and plants have adapted to better fulfil their niche.</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____) 
2	<u>Food chains and food webs</u> <ul style="list-style-type: none"> <li>Identify producers and consumers.</li> <li>Differentiate between prey and predators</li> <li>Identify common food chains in common habitats</li> <li>Combining food chains to produce a food web which show the follow of energy throughout a habitat.</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____) 
3	<u>Impact on ecosystems</u> <ul style="list-style-type: none"> <li>Deforestation and desertification</li> <li>Litter and pollution and its effect on wildlife (peppered moths etc.)</li> <li>Bush fires and other natural disasters</li> <li>Introduced species</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____) 
4	<u>Effect on industry</u> <ul style="list-style-type: none"> <li>Over fishing /over cropping</li> <li>Poaching and rare pet trade</li> <li>Agriculture; the benefits (food production etc) and issues (pesticides, fertilizers, deforestation etc) surrounding it.</li> </ul>	<b>Task 7: Habitats Multiple choice</b>	Pearson new spec (pgs ____) Pearson old spec (pgs ____) 
5	<u>Using classification</u> <ul style="list-style-type: none"> <li>The importance of being able to classify stuff</li> <li>Dichotomous keys; what are they and why are they useful</li> <li>Creating a dichotomous key (classifying pasta, or something similar)</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____) 
6	<u>Animal kingdom</u> <ul style="list-style-type: none"> <li>The tiers that make up the taxonomic ranks; Domain, Kingdom, phylum, class, order, family, genus, species.</li> <li>Investigating the various organisms that are found in the animal kingdom</li> <li>Creating and using dichotomous keys to identify animals (does it have fur? Yes or no)</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____) 
7	<u>Other kingdoms</u> <ul style="list-style-type: none"> <li>Plant, fungus, bacteria, protists, and monera</li> <li>Break down examples for each of the other kingdoms and what makes them different. – how does one classify a plant from bacteria?</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____) 
8	<u>Classification systems</u> <ul style="list-style-type: none"> <li>There are three main types of classification – Natural, Artificial, and phylogenetic.</li> <li>Explore the other two systems of classification (artificial and Phylogenetic)</li> <li>Artificial - The ordering of organisms into groups on the basis of non-evolutionary features</li> <li>Phylogenetic - involves placing organisms in a clade with their common ancestor.</li> </ul>	<b>Task 8: Classification Short answer</b>	Pearson new spec (pgs ____) Pearson old spec (pgs ____) 
9	<u>Revision</u>	<b>Task 9: Biology Topic test</b>	
10	<u>Science inquiry</u> <ul style="list-style-type: none"> <li>Creating an organism that will fill a niche</li> </ul>		

Term 4			
1	<u>Physical vs Chemical properties</u> <ul style="list-style-type: none"> <li>Identify what a physical change is – examples</li> <li>Identify what a chemical change is – examples</li> <li>Spotting a chemical change.</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____)
2	<u>States of matter/ changing state</u> <ul style="list-style-type: none"> <li>Identify the three states of matter (plasma isn't included)</li> <li>Particle models for each state.</li> <li>Describe changing states using key words; Melting, vapourisation, freezing, condensation, sublimation, deposition,</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____)
3	<u>Density</u> <ul style="list-style-type: none"> <li>Density is equal to the mass of an object divided by the volume of said object. <math>d = M/V</math></li> <li>The density of an object can be increased by increasing the amount of mass or decreasing the volume of the object.</li> <li>The density of various substances can be compared with a density tower.</li> </ul>	<b>Task 10: Properties and substances Multiple choice</b>	Pearson new spec (pgs ____) Pearson old spec (pgs ____)
4	<u>Types of mixtures</u> <ul style="list-style-type: none"> <li>There are four types of mixtures that will be explored; Solutions, suspensions, colloids and emulsions</li> <li>Solutions – a Solute is dissolved in a solvent - <b>homogeneous</b></li> <li>Suspensions – a fluid that contains solid particles sufficiently large for sedimentation – <b>heterogeneous</b></li> <li>Colloids – one substance consisting of microscopically dispersed insoluble particles is suspended throughout another substance (fog, milk etc) - <b>heterogeneous</b>.</li> <li>Emulsions – A class of colloid.</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____)
5	<u>Separating mixtures</u> <ul style="list-style-type: none"> <li>Identify various techniques used for separating mixtures, highlighting their uses.</li> <li>Filtration</li> <li>Distillation</li> <li>Sieving</li> <li>Decanting</li> <li>Chromatography</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____)
6	<u>Purifying water</u> <ul style="list-style-type: none"> <li>Definition of potable water.</li> <li>Details of the purification of water; chlorine added to kill bacteria, sedimentation tanks, filtration etc.</li> <li>Perth's pure water problem, driest city in the world – reverse osmosis.</li> </ul>		Pearson new spec (pgs ____) Pearson old spec (pgs ____)
7	<u>Revision</u>	<b>Task 11: Chemistry Topic test</b>	
8	<u>Science inquiry</u> <ul style="list-style-type: none"> <li>Building a water purification assembly</li> </ul>		
9	<u>Science inquiry</u> <ul style="list-style-type: none"> <li>Blowing bubbles</li> </ul>		
10	<u>Science inquiry</u> <ul style="list-style-type: none"> <li>Student lead investigation</li> </ul>		
<b>END OF SEMESTER 2</b>			



## ASSESSMENT OUTLINE 2022

### SCIENCE YEAR 7

A number of assessments will be used throughout the term to identify the students understanding in the course and be used to determine a grade. Student achievement will be reported using the following descriptors.

#### Semester 1

Assessment Type	Task Description	KWDHS Weighting	Due Date
Multiple Choice Test	<b>Task 1: Night Sky Multiple choice</b>	7.5%	<i>Term 1, Week 4</i>
Extended Answer Test	<b>Task 2: Earth Resources Extended Answer</b>	7.5%	<i>Term 1, Week 8</i>
Topic Test	<b>Task 3: Earth and Space Topic test</b>	10 %	<i>Term 1, Week 9</i>
Multiple Choice Test	<b>Task 4: Forces Multiple choice</b>	7.5%	<i>Term 2, Week 4</i>
Short Answer Test	<b>Task 5: Simple machines Short answer</b>	7.5%	<i>Term 2 Week 6</i>
Topic Test	<b>Task 6: Physics Topic test</b>	10%	<i>Term 2, Week 8</i>

#### Semester 2

Assessment Type <i>SCSA Weighting</i>	Task Description	KWDHS Weighting	Due Date
Multiple Choice Test	<b>Task 7: Habitats Multiple choice</b>	7.5%	<i>Term 3, Week 4</i>
Short Answer Test	<b>Task 8: Classification Short answer</b>	7.5%	<i>Term 3, Week 8</i>
<b>Topic Test</b>	<b>Task 9: Biology Topic test</b>	10%	<i>Term 3, Week 9</i>
Multiple Choice Test	<b>Task 10: Properties and substances Multiple choice</b>	12.5%	<i>Term 4, Week 3</i>
<b>Topic Test</b>	<b>Task 11: Chemistry Topic test</b>	12.5%	<i>Term 4, Week 7</i>

It is expected that all assessments will be completed to the best of your ability and be submitted by the deadlines set. Please make yourself aware of the Assessment Policy as failure to meet deadlines has severe consequences.

Grade	Description	The student demonstrates achievement that:
<b>A</b>	Excellent	has greatly exceeded the expected standard. Achievement is well beyond what is expected at this year level.
<b>B</b>	Good	exceeds the expected standard.
<b>C</b>	Satisfactory	at the expected standard.
<b>D</b>	Limited	is below the expected standard.
<b>E</b>	Very Low	is below the minimum acceptable for this year level.

Student Signature: \_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_