Physical Sciences – Year 2 – Term 1 - Forces and Motion

Australian Curriculum Achievement Standard - ***Students describe changes to objects (as a result of pushing and pulling including gravity)***

As we investigate our Units of Science, Year 2's will focus on the Inquiry process incorporating STEM where appropriate, which enables them to study the world around them, ask questions, investigate problems & find explanations based on their evidence.

Science Inquiry Skills

- Pose and respond to questions, make predictions about familiar objects and events
- Participate in guided investigations to explore and answer questions, compare observations with predictions
- Use informal measurements to collect and record observations, using digital technologies as appropriate
- Use a range of methods to sort, record and share information - drawings and provided tables – discuss, compare observations with predictions
- Compare observations with those of others
- Represent and communicate observations and ideas in a wide variety of ways

Science as a Human Endeavour

- Suggesting how everyday items work, using knowledge of forces or materials
- Describe everyday events and experiences and changes in our environment using knowledge of science
- Science involves observing, asking questions about, and describing changes in, objects and events

Learning Intentions	Exploring through Inquiry	Success Criteria
FORCES ON LAND AND WATER Explore ways that objects move on land and the forces acting them. Explore ways that objects move on water and the forces acting on them.	Investigate the concept of a force. What forces are involved in playing games or with toys and manipulating plasticine to expand vocabulary other than push or pull. Observe and experiment with the force of water. Students push air filled objects (balls) under water to experience the push of water. They make predictions about which ball will be hardest to push under and why this is so. Why do things float? Building on the previous lesson, children discuss floating and sinking, make predictions and test a number of objects to see if they will float.	Using one game or toy, create a diagram using force arrows to describe the pushes & pulls involved when playing with that toy. Using a piece of plasticine, record different words to describe the many ways it can be manipulated. Students take buckets of water outside to experiment for themselves with the push of water on different sized objects. They draw a simple graph showing which sized ball was hardest to push under & describe why. Students record results next to their predictions and draw conclusions about what type of objects float or sink and the forces involved.
FORCE OF AIR Investigate the force of air and how it exerts a force affecting objects being pulled towards the Earth by gravity. INQUIRY INVESTIGATION How can we get a balloon filled with water into a bottle?	What is air? Can air exert a force? Students experiment with air as a substance that can exert a force. They experiment with different types of parachute materials and predict which will create the greatest air resistance Children experiment with the force of air to solve this problem.	Recorded drawings, results and conclusions will give evidence of learning An open ended inquiry investigation where evidence of learning is recorded and processes varied to observe change.
STEM INVESTIGATION Investigating factors which may affect the rate at which and object falls.	Students plan and conduct an investigation 'What happens to the speed a paper helicopter will fall when we change ……'	Students Work in teams to identify variables to change and keep the same in an investigation, record and discuss observations and show on a diagram where pushes and pulls act on a falling paper helicopter. They consider changes to the wing, including weight and the effect on speed at which it falls.