

## CLASS DESCRIPTIONS JANUARY 2019

A: class title	Class description
<p><b>Ancient Greek Archaeology: Digging into the mysteries of the past</b></p> <p>Years 5-6</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• What is Archaeology?</li> <li>• Garbage talks: looking at material found on "digs" and how to use this to answer questions</li> <li>• Visit to the Ancient History Museum</li> <li>• Piecing it together: finding broken artefacts and how to put them back together</li> <li>• What lasts in the ground?</li> <li>• How to do a dig: excavation</li> </ul>
<p><b>Astronomy: The Modern Earth</b></p> <p>Years K-1</p> <p>**Learning activities will go until 4.00pm only. Care is available until 5.30pm and children will play inside and outside from 4.00pm - 5.30pm. You can collect your child anytime from 4.00pm - 5.30pm.**</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• The Solar System forms</li> <li>• The crust of the Earth</li> <li>• A story of tectonic plates</li> <li>• The wonder of rocks and becoming a palaeontologist</li> <li>• The most important formula on Earth: photosynthesis</li> </ul>

<p><b>Astronomy: The Solar System</b></p> <p>Years K-1</p> <p>**Learning activities will go until 4.00pm only. Care is available until 5.30pm and children will play inside and outside from 4.00pm - 5.30pm. You can collect your child anytime from 4.00pm - 5.30pm.**</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• A star dies and a new star forms</li> <li>• Planets grow</li> <li>• The Early Earth</li> <li>• Layers of the Earth</li> <li>• Our atmosphere</li> </ul>
<p><b>Attractive Science</b></p> <p>Years 3-4</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Electrostatics – All charged up!</li> <li>• Electrostatics – May the force be with you!</li> <li>• Levitating rings</li> <li>• Hair raising science – the Van der Graff generator</li> <li>• Magnetic forces – What things are magnetic?</li> <li>• Making a compass</li> <li>• Magnetic forces – Gone fishing!</li> </ul>
<p><b>B: class title</b></p>	<p><b>Class description</b></p>
<p><b>Bird Time Lucky</b></p> <p>Years 2-3</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Bird features</li> <li>• Bird walk- what can you find?</li> <li>• Bird talk - special guest</li> <li>• Attract a partner: design a dance to "attract" others!</li> <li>• Bird beaks and adaptations</li> </ul>

<p><b>Bright Sparks</b></p> <p>Years 3-4</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Human circuits</li> <li>• Testing conductors and insulators</li> <li>• Fruit batteries</li> <li>• Circus relay</li> <li>• Building circuits – lights and buzzers</li> <li>• Steady hand game</li> </ul>
<p><b>Bubbleology</b></p> <p>Years 1-2</p> <p>**Learning activities will go until 4.00pm only. Care is available until 5.30pm and children will play inside and outside from 4.00pm - 5.30pm. You can collect your child anytime from 4.00pm - 5.30pm.**</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• The science of bubbles</li> <li>• What ingredients make the best bubbles?</li> <li>• Unbreakable bubbles!</li> <li>• Spooky dry ice bubbles</li> <li>• Sunshine, rainbows and... GIANT BUBBLES</li> </ul>
<p><b>C: class title</b></p>	<p><b>Class description</b></p>
<p><b>Call the Dr</b></p> <p>Years 6-7</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Principles and practice of electrophoresis Whose DNA was left behind? (Fake) Blood-based cancer diagnostics</li> <li>• Detecting sickle-cell anaemia</li> <li>• Which orange juice has the most vitamin C?</li> <li>• Community immunity</li> <li>• Genetic engineering and disease</li> </ul>

<p><b>Coding with Processing</b></p> <p>Years 4-6</p>	<p><b>Learning experiences include:</b></p> <p>Learn to code using Processing (Java language) Processing is a visual programming language designed for creative people incorporating digital multi-media.</p> <ul style="list-style-type: none"> <li>• Processing is based on Java so you learn Java coding</li> <li>• Learn to draw shapes in different colours and move them around the screen</li> <li>• Create your own avatar</li> <li>• Interact with your creations</li> <li>• Check out <a href="http://processing.org">processing.org</a> for more information</li> </ul>
<p><b>CSI</b></p> <p>Years 5-6</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Collect evidence <ul style="list-style-type: none"> <li>▪ fingerprinting</li> <li>▪ dental forensics</li> <li>▪ footprint analysis</li> <li>▪ chromatography</li> <li>▪ handwriting analysis</li> </ul> </li> <li>• Solve a crime in your group!</li> </ul>
<p><b>D: class title</b></p>	<p><b>Class description</b></p>
<p><b>Day of the Dinosaur</b></p> <p>Years K-1</p> <p>**Learning activities will go until 4.00pm only. Care is available until 5.30pm and children will play inside and outside from 4.00pm - 5.30pm. You can collect your child anytime from 4.00pm - 5.30pm.**</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Fizzing dinosaur eggs</li> <li>• Make fossil imprints</li> <li>• T-rex tag</li> <li>• Bird feather bonanza</li> <li>• Touch and feel bird experience</li> <li>• Pasta skeleton</li> <li>• How big is a dinosaur's foot?</li> </ul>

<p><b>DNA and Evolution</b></p> <p>Years 4-6</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Alike but different</li> <li>• Tree of genetic traits</li> <li>• DNA model</li> <li>• Dog DNA: interpreting the code</li> <li>• Extracting strawberry DNA</li> <li>• Preying on beans: evolution and natural selection</li> <li>• Bird beak adaptations</li> </ul>
<p><b>E: class title</b></p>	<p><b>Class description</b></p>
<p><b>Earth and Solar System</b></p> <p>Years 2-3</p> <p>(with solar telescope!)</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Making Earth's defence - our magnetic field</li> <li>• The charged particle game</li> <li>• How do moon craters form?</li> <li>• Oreo moon cycle</li> <li>• Make a model of the Earth, Sun and Moon</li> <li>• Check out a solar telescope</li> </ul>
<p><b>Earth and Solar System</b></p> <p>Years 3-4</p> <p>(with planetarium!)</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Model the scale of the solar system</li> <li>• Make a meteorite</li> <li>• Visit to the digital epsilon planetarium</li> <li>• Model a black hole</li> </ul>

F: class title	Class description
<p><b>Falling with Style (Flight)</b></p> <p>Years 2-3</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• What is flight? Flight and forces</li> <li>• Perfecting the paper plane: dart planes, hang gliders, circular planes</li> <li>• Paper plane competition: whose plane can fly the furthest and for the longest?</li> <li>• Paper helicopters</li> <li>• Hot air balloons</li> </ul>
<p><b>Funky Physics</b></p> <p>Years K-1</p> <p>**Learning activities will go until 4.00pm only. Care is available until 5.30pm and children will play inside and outside from 4.00pm - 5.30pm. You can collect your child anytime from 4.00pm - 5.30pm.**</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• We'll explode ... safely!</li> <li>• We'll apply force, propel and hit targets</li> <li>• We'll push, pull, drop and explore gravity</li> <li>• At the end of today we will understand Earth a little better!</li> </ul>
<p><b>Future Pilots</b> (previously known as Flight)</p> <p>Years 5-6</p>	<p><b>Learning experiences include:</b></p> <p>Day 1</p> <ul style="list-style-type: none"> <li>• All things that fly</li> <li>• Plane manoeuvres during flight</li> <li>• Creating fast-moving air</li> <li>• The hot air challenge</li> <li>• Designing a fair test – Nakamura design</li> <li>• Paper plane testing – Nakamura and Alpine</li> <li>• Pocket rockets</li> </ul> <p>Day 2</p> <ul style="list-style-type: none"> <li>• The propeller problem</li> </ul>

- Paper plane testing – Kamikaza and Hipster
- Plane launchers
- Air resistance engineering
- Presentation prep
- Electric planes
- Flying machines of the future
- Presentation with parents

<b>G: class title</b>	<b>Class description</b>
<p><b>Geology Rocks!</b></p> <p>Years 3-4</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• The rock cycle</li> <li>• What rock is that?</li> <li>• Rock abrasion</li> <li>• Minerals under the microscope and looking at mineral density</li> <li>• Build an earthquake resistant building</li> <li>• Meet a real, live geologist! What do they do anyway?</li> </ul>
<p><b>Good Vibrations</b></p> <p>Years 1-2</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Sensing Sound: using your ears</li> <li>• What's that Sound?</li> <li>• Good Vibrations: learning that sounds are vibrations</li> <li>• Making different sounds</li> <li>• Sound Travels: making a string telephone</li> <li>• Water and Sound</li> <li>• The Science of Music</li> <li>• Sound Art</li> </ul>

H: class title	Class description
<p><b>The Human Circulatory System</b></p> <p>Years 2-3</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Make a heart, a lung, and blood</li> <li>• Model the circulation of blood around the body</li> <li>• Sheep heart and lung dissection</li> <li>• What can you see in the chest x-ray of a child?</li> <li>• Experiment: what gets our heart pumping the most?</li> </ul>
I: class title	Class description
<p><b>Incredible Forces</b></p> <p>Years 2-3</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Balloon rockets</li> <li>• Egg-citing science</li> <li>• Push and pull dance</li> <li>• Magnetic forces</li> <li>• Make a bridge that can withstand strong push forces</li> </ul>
L: class title	Class description
<p><b>Let's Get Physics</b></p> <p>Years 3-4</p>	<p><b>Learning experiences include:</b></p> <p>Will Egg-bert survive the day? Use your newfound knowledge and skills to make sure Egg-bert makes it (or not, that's fun too!).</p> <ul style="list-style-type: none"> <li>• Do activities and games on energy</li> <li>• Test your reaction time</li> <li>• Know your hand preference</li> <li>• Learn about how you balance</li> </ul>



<p><b>Let It Grow</b></p> <p>Years 1-2</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Do you know what it needs to grow?</li> <li>• Rainbow flowers</li> <li>• Bush tucker garden walk with a special guest</li> <li>• Why do leaves change colour?</li> <li>• Garden scavenger hunt!</li> <li>• Create your own grass heads</li> </ul>
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<b>M: class title</b>	<b>Class description</b>
<p><b>Matter Mayhem</b></p> <p>Years K-1</p> <p>**Learning activities will go until 4.00pm only. Care is available until 5.30pm and children will play inside and outside from 4.00pm - 5.30pm. You can collect your child anytime from 4.00pm - 5.30pm.**</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• It's all about adding and subtracting and making something new</li> <li>• Do elephants use toothpaste?</li> <li>• Is slime really slippery?</li> <li>• Do cupcakes really need all those ingredients?</li> </ul>
<p><b>Magic Tricks</b></p> <p>Year 1</p> <p>**Learning activities will go until 4.00pm only. Care is available until 5.30pm and children will play inside and outside from 4.00pm - 5.30pm. You can collect your child anytime from 4.00pm - 5.30pm.**</p>	<p><b>Learning experiences include:</b></p> <p>Make some magic (it's really just science)!</p> <ul style="list-style-type: none"> <li>• First, make your wand</li> <li>• Walking on water</li> <li>• Lemon volcano</li> <li>• Magic potion</li> <li>• Heat changing slime</li> <li>• Electric eels</li> <li>• Put on a show!</li> </ul>

<p><b>Microscope Magic</b></p> <p>Years 4-6</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Become a master at using a microscope</li> <li>• Collect and examine your own DNA</li> <li>• Discover the secret life of little critters living in our pond water</li> <li>• Compare the cells collected from humans, plants and bacteria</li> <li>• Explore the life cycle of a Sea Monkey</li> </ul>
<p><b>MyScience @ JSA</b></p> <p>Years 3-4 Years 5-6</p> <p><i>** Please note: This is an extension class only available for children who have attended at least 2 Junior Science Academy classes previously **</i></p> <p><i>***This class is available for Years 3-4 and Years 5-6. They will run on different days, please make sure you select the correct year group when booking***</i></p>	<p><b>Learning experiences include:</b></p> <p><b>Day 1</b></p> <ul style="list-style-type: none"> <li>• Define it: contact/non-contact forces</li> <li>• What's a fair test anyway?</li> <li>• You're a real scientist now – create an experiment of your own choice!</li> <li>• Brainstorm it: what do we want to investigate?</li> <li>• Investigate it: create your own experiment!</li> <li>• Mentor visit Part 1 – ironing out all the details</li> <li>• Preparation for tomorrow – what do we need to make this work?</li> </ul> <p><b>Day 2</b></p> <ul style="list-style-type: none"> <li>• Time to investigate – conduct experiments independently</li> <li>• Collecting data</li> <li>• Mentor visit Part 2 – discuss data collection &amp; analysis</li> <li>• Display it: constructing data tables &amp; graphs</li> <li>• Prepare it: organise your group presentation</li> <li>• Present it: to your parents!</li> </ul> <p>Parents are invited at the end of this day to watch their children showcase their findings over the past 2 days!</p>

P: class title	Class description
<p><b>Programming Electronics with Micro:Bit</b></p> <p>Years 3-4 Years 5-6</p> <p>** Two separate classes will be run dividing the students into years grouped by Stage. Teachers will deliver content targeted for the appropriate age groups. **</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Learn to think like a Computer Scientist!</li> <li>• Discover the hardware and software concepts behind everyday objects like TV's, microwaves and traffic lights</li> <li>• Learn the difference between hardware and software</li> <li>• Create 'new technologies' and solve problems using hardware and software</li> <li>• Learn to program electronics with the Micro:bit!</li> </ul>

R: class title	Class description
<p><b>Rube Goldberg Machines</b></p> <p>Years 3-4</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Learn about and make: Levers, inclined planes, wheel and axels, pulleys, wedges, screws and gears</li> <li>• Create a simple Rube Goldberg machine and exhibit it to the class</li> <li>• Check out Rube Goldberg machines on You Tube for the kinds of things that you could make!</li> </ul>

S: class title	Class description
<p><b>Science is Real</b></p> <p>Years 1-2</p> <p>**Learning activities will go until 4.00pm only. Care is available until 5.30pm and children will play inside and outside from 4.00pm - 5.30pm. You can collect your child anytime from 4.00pm - 5.30pm.**</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Purple celery experiment</li> <li>• How much does a guinea pig eat?</li> <li>• Marble physics</li> <li>• Where is my tree?</li> <li>• Film canister rockets</li> <li>• It's all natural</li> </ul>

<p><b>Smart Materials</b></p> <p>Years 5-6</p>	<p><b>Learning experience include:</b></p> <ul style="list-style-type: none"> <li>• Exploring the key concepts of chemistry</li> <li>• What are atoms, molecules and elements?</li> <li>• What are polymers and plastics?</li> <li>• What are smart materials?</li> <li>• Experimenting and playing with polymers</li> <li>• Thermochromic polymers – colour change slime!</li> </ul>
<p><b>Special Effects Science</b></p> <p>Years 4-5</p>	<p><b>Learning experience include:</b></p> <ul style="list-style-type: none"> <li>• Making Spooky potions that change colour</li> <li>• Making and using a variety of invisible inks</li> <li>• A brain dissection</li> <li>• Spreading the Zombie virus</li> <li>• Making fake blood</li> <li>• Creating fake wounds</li> </ul>
<p><b>Super Science</b></p> <p>Years 1-2</p> <p>**Learning activities will go until 4.00pm only. Care is available until 5.30pm and children will play inside and outside from 4.00pm - 5.30pm. You can collect your child anytime from 4.00pm - 5.30pm.**</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Proprioception – your place in space</li> <li>• Animal athletes – can you jump as high as a flea?</li> <li>• Sock walk – what do our feet find in the bush?</li> <li>• Whose scat is that? Make animal scat (playdough)</li> <li>• Looking at our ears and how we hear – make an amplifier</li> </ul>

T: class title	Class description
<p><b>Take to the Skies</b> (previously known as Flight)</p> <p>Years 4-5</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Discover things that fly</li> <li>• Making the best paper plane</li> <li>• How are birds able to fly?</li> <li>• Seeds that fly</li> <li>• Creating a seed that can fly</li> <li>• Flying paper planes – Phantom, Nakamura and Cardinal</li> <li>• Make your own flying toy!</li> <li>• How heavy is air?</li> </ul>

V: class title	Class description
<p><b>The Vikings: Longships, Compasses and Magnetism</b></p> <p>Years 5-6</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Learn who the Vikings were and why were their ships the best of their time?</li> <li>• Make your own Viking longship</li> <li>• Investigating the compass</li> <li>• Discover magnetism with magnetic sand and magnetic slime</li> <li>• Create your own compass</li> <li>• Use your new skills to take part in a Treasure Hunt!</li> </ul>
<p><b>Volcanology</b></p> <p>Years 5-6</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Volcanoes intro – everything you need to know!</li> <li>• Types of volcanoes</li> <li>• Let's erupt!</li> <li>• Volcanic rocks – trip to the Macquarie Rock Lab</li> <li>• The dangers of volcanoes and their aftermath</li> <li>• Q&amp;A with a special guest Volcanologist</li> </ul>

W: class title	Class description
<p><b>Weaponry of Ancient Rome: Catapults</b></p> <p>Years 4-5</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Science of catapults: Forces, Motion and Energy</li> <li>• Build a Roman Shield</li> <li>• Ancient Roman Weaponry Show at the Ancient History Museum</li> <li>• Flying Balloons</li> <li>• Build a mini catapult</li> </ul> <p>Romans vs Barbarians: The battle has begun! Your only weapons are marshmallows to attack and a cardboard shield to protect you and your team. Use your knowledge of forces, motion, and energy to seize the day!</p>
<p><b>We Build this City</b></p> <p>Years 1-2</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Become an engineer: draw, design &amp; build your own objects!</li> <li>• Modelling: teacher models what you need to do/think of when designing and building – until you're ready to do it by yourself!</li> <li>• Explore techniques &amp; experiment with materials – see what works and what doesn't</li> <li>• Work as a team to design &amp; build objects</li> <li>• Take home your creations!</li> </ul>
<p><b>The Wonder Gears</b></p> <p>Years 4-5</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Simple machines- why use gears?</li> <li>• How to make working gears DIY</li> <li>• Building gear train models using different gear types</li> <li>• Gaining control- how gears impact torque, direction and speed</li> <li>• Being an engineer- designing and building complex machines to solve everyday problems with gears</li> </ul>

<p><b>What's the Matter?</b></p> <p>Years 3-4</p>	<p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• Making a thermometer</li> <li>• Chemistry magic show</li> <li>• Molecule tag</li> <li>• Dancing ooblek</li> <li>• See an invisible gas</li> <li>• Classic candle experiment</li> <li>• Test items: are they acids or bases?</li> </ul>
<p><b>Z: class title</b></p> <p><b>Zippy Balloon Science</b></p> <p>Years 3-4</p>	<p><b>Class description</b></p> <p><b>Learning experiences include:</b></p> <ul style="list-style-type: none"> <li>• The exploding bag</li> <li>• Flushed away</li> <li>• Making ice-cream</li> <li>• Making sherbet</li> <li>• Heat conduction activity</li> <li>• Make a hovercraft</li> <li>• Marshmallow puff tube experiment</li> </ul>