Connections To SACSA Framework

Strand: Earth and Space

Standards	Curriculum requirements Outcomes/Key Ideas	Activities	Further Ideas and Questions to investigate
1.2 **(R – Year2)**	1.2 Compares the apparent position of the sun to patterns of behaviour in everyday life	**Shadow sticks** (or own shadow); length and direction of shadow throughout the day **Time and position** of sunrise, sunset **Telescope and binocular** viewing night	• Our closest star (the sun) gives us light and warmth. • The sun dries up puddles, makes clouds and rain. • Why don't we see other stars in the daytime? • Light and darkness. Games with shadows. • What's in the day sky? • What's in the night sky? • Dot-to-dot pictures with stars (constellations) • For every star pictures there is an ancient story.
2.2 **(Years 3-4)**	2.2 Explores the apparent motion of the sun in relation to the earth and develops models of their understanding. [In] [T] [C] [KC6]	**Sundial models and shadow sticks** to show "motion" of sun. **Telescope and binocular** viewing night **Daytime viewing** of planets, moon **Solar viewing:** projected image **Solar System** – find the words **Solar System** – cross word **Astronomy** – Find the words **Facts about Sun** – Questions **Planets** – distances, gravity etc at different planets **Webquest** - http://amazing-space.stsci.edu/resources/explorations/groundup/teacher/sciencebackground.html	• Planet Earth: our ball shaped space ship. • Our space ship is spinning, how quickly? • Night and day • Space mirrors; why we can see moon and planets? • Why do we see different shapes of the moon? • Every star is a sun, what are stars made of? • Why do very big stars look smaller than sun? • Constellations and planets in tonight's sky. • Star myths and stories: various cultures.
3.2 **(Years 5 -6)**	3.2 Describes various components of the solar system and the effects of these on our everyday lives. [F] [In] [C] [KC2] **Key Ideas:** Students use information and communication	**Solar viewing:** projected image, narrow band filters, etc. **Activity:** viewing and mapping position of major constellations **Activity:** Construction of analemma(to show position of the sun at different times of the year) **Activity:** Construction of solar system model to scale **Gravity exploration:** Part A: How much would you weigh on other planets and the moon? Part B: How far could you jump on other planets and the moon? **Lifecycle of a Star** - http://www.brainpop.com (Fill in the blanks and cross word) Surprise On Mars - http://www.pantherpaw.net/astro/astro.htm (Link not working - bloc Solar System – multiple choice questions – Parts A - D ked) **Activity** – Report on planet **Solar System** – find the words	• The hourly movement of sun and stars. • Comparable sizes • Effects of gravity. How much would I weigh on different planets? On the Moon? • Earth's orbit around the sun. • The moon's orbit around the earth. Eclipses • The poles, equator, earth's axis. • Seasonal stars and constellations. • Constellations, planets and tonight's sky. • The other planets: orbits and time for a year. • What are the planets made of? Could I land on Jupiter? • How many years old would I be if I lived on other planets?

		Planet's description and Questions – multiple choice (Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune) **Planets of our solar system** – activity to find out information about planets **Solar System** – cross word **Space probes** – match column A and B **The planets** word search **Planet project** – distances and temperatures **Planets** – distances, gravity etc at different planets **Assignment** – stuck on the moon **Planet tourist brochure** **Webquest** - http://amazing-space.stsci.edu/resources/explorations/groundup/teacher/sciencebackground.html The solar system – http://www.kidsastronomy.com The Solar System Deep Space Exploration The Stars	• How long would it take to travel there? The Ecliptic and Zodiac constellations.
4.2	Investigates and analyses astronomical features and changes as seen from the earth and debates the ways scientists examine and explain these. [F] [In] [C] [KC2]	**"Hands on" introduction** to different telescope types **Construction** of basic telescopes **Viewing night**, including use of a variety of telescopes (including manually operated and computer controlled) and binoculars. **Use of star charts** to find planets and constellations **Solar system** modelling **Activity sheets** for information on planets and solar system bodies, tracking moon and planets **Use of internet** resources and star charts to identify man-made satellites and their orbits **Hubble space Telescope** video and/or power point presentations of Hubble findings **Gravity exploration:** Part A: How much would you weigh on other planets and the moon? Part B: How far could you jump on other planets and the moon? Lifecycle of a Star - http://www.brainpop.com (Fill in the blanks and cross word) **Surprise On Mars** - http://www.pantherpaw.net/astro/astro.htm (Link not working - blocked) **Solar System** – multiple choice questions – Parts A – D **Activity** – Report on planet **Solar System** – find the words Planets' description and Questions – multiple choice (Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune)	• Distances and sizes: light years and giant stars • How are distances to stars worked out? Parallax. • Why are some bodies covered in craters? Why not the earth? • The Southern Cross as a compass and a clock. • Characteristics of the planets and other solar system bodies (moons, asteroids, comets....) • Why Pluto is now called a "dwarf planet"? • Exo-planets and other solar systems. • Galaxies and deep space objects. • Star birth, nebulae, star clusters. • Recent discoveries by satellites and space probes. • Origins of Zodiac. • The use of stars and constellations as seasonal calendars. • Tides • Summer and winter solstice, equinox • Eclipses: solar; partial, total and lunar; umbral and penumbral. • Seasonal considerations for architecture; elevation and angles of sun throughout the year. • Measuring the sky; degrees, minutes and seconds, Right ascension (RA) and Declination

		Where the Past and the Present Meet – fill in the blanks http://www.seds.org/nineplanets/nineplanets/nineplanets.html **Astronomy** – Find the words **Space probes** – match column A and B **Assignment** – stuck on the moon **Webquest** - http://amazing-space.stsci.edu/resources/explorations/groundup/teacher/sciencebackground.html The solar system – http://www.kidsastronomy.com The Solar System Deep Space Exploration The Stars	
5.2 (Years 9-10)	Critically examines theories of astronomy and how they have contributed to our understandings about the universe, and articulates personal theoretical preferences. [In] [C] [KC1]	**Activity sheets** for estimating solar system and interstellar distances and sizes and effects of gravity **Construction** of different types of sundials and analemmas **Exploration** of models of star formation, including activity sheets for photographic investigation of colours of stars: star trails **Use** of spectrometer/spectroscope **Doppler effect** and red shift of galaxies **Universe expansion** model(balloon), supernova model **Hertzprung/Russel** diagram **Solar system models** including "Power of ten" simulation **Where the Past and the Present Meet** – fill in the blanks http://www.seds.org/nineplanets/nineplanets/nineplanets.html	• Astronomical "hoaxes": Did astronauts get to the moon? • The faces on Mars • The non-science of astrology. • Theories of Universe formation and age of universe: Big Bang, Steady State, creation • Life Cycle of Stars: how do they work? How are elements manufactured in stars? • Galaxy formation and macro structures in the universe.