Space

STAGE 2 SUGGESTED CLASSROOM ACTIVITIES

Visual Arts

VAS2-4 - Identifies connections between subject matter in artworks and what they refer to, and appreciates the use of particular techniques

Student Activity:

Explain to students they are going to be looking at some photos taken by a big telescope in space called the Hubble Telescope. Go to the Hubble Telescope Photo Gallery and explore many of the pictures in the gallery.

Students have a selection of materials on their desks including straws, sponges, cloths etc. They use these plus paintbrushes and fingers to create an artwork inspired by the images they saw on the Hubble Telescope website.

Display the artworks in the classroom after they have dried.

Resources:

Hubble Telescope Photo Gallery: http://hubblesite.org/gallery/wallpaper/

Science

ST2-8ES - Describes some observable changes over time on the Earth’s surface that result from natural processes and human activity

Student Activity:

Discuss with students the names of each of the planets and the order they are in. Have students predict how far apart the planets are from one another and how far the moon is from Earth.

Take students outside and have them stand at the correct distances apart to represent the planets. Have one student stand as the Sun, Mercury, Venus, Earth etc. All the other students in the class should walk with the teacher as each planet/student is dropped off. Have students discuss with a partner or their nearest planet why they think we haven’t found life on any other planet in our solar system? What do they think the conditions would be like on Neptune and why? Which planet is the hottest in the solar system (good listeners will remember this from the clip – it is Venus). Ask all students past Earth to come and join the group after the discussion. Have the sun hold a torch straight out from their belly button. Have Mercury and Venus join the group. This should leave the Earth, the moon and the sun. Have the Earth rotate as well as orbit around the sun and explain the premise of how night and day occurs using this model. Explain that as the Earth turns only part of the Earth is in sunlight which means it is day time and on the other side of the Earth it is night time.

Allow students to ask questions about day and night.

Resources:

See these websites for more information;

http://www.timeanddate.com/worldclock/sunearth.html
http://resources.woodlands-junior.kent.sch.uk/time/
**Science**

ST2-9ES - Describes how relationships between the sun and the Earth cause regular changes

**Student Activity:**
Demonstrate the Earth's tilt. Explain how the Earth's tilt is what causes our seasons. Have students write two or three sentences about: what they discovered in this lesson; what they felt was interesting; and what they would like to try to explain in their own words.

**Resources:**
See this website for more information;
http://www.kidsgeo.com/geography-for-kids/0017B-reasons-for-the-four-seasons.php

**Mathematics**

MA2-9MG - Measures, records, compares and estimates lengths, distances and perimeters in metres, centimetres and millimetres, and measures, compares and records temperatures

**Student Activity:**
Find a series of balls and arrange them in the correct size order replicating the solar system.
Construct a 3D model of the solar system to hang in the classroom - you could use paper to make the balls or foam balls and paint them.
Find out the real distances between each planet and build your model using same dimensions that are scaled down.

**Resources:**
Distances between each planet - http://www.planetsedu.com/distances-between-the-planets/

MA2-18SP - Selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays, including tables, picture graphs and column graphs

**Student Activity:**
Research and explore the concept of gravity on Earth. How does gravity affect us everyday? Discuss how our weight would change if the gravity on Earth was different.
Use the internet to research and compare what students weights would be on each of the planets in our solar system. Collect this data and present it in a table or graph.

**Resources:**
Your weight on other worlds http://www.exploratorium.edu/ronh/weight/

**Creative Arts**

VAS2-2 - Uses the forms to suggest the qualities of subject matter

**Student Activity:**
The solar system, planets and stars, are a great source of inspiration to artists.
Look at artists whose work has used stars in their paintings. Develop an artwork or collage that represents the "milky way".
e.g. Vincent van Gogh: Starry Night.

**Resources:**
Google Images have great artworks picturing the milky way
Name:

1. Find a diagram of the Hubble Telescope and draw it here:

2. List the names of the planets:

3. Briefly explain what causes our seasons:

4. Draw and label our solar system:
### Mathematics

**MA3-9MG** - Selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length

**Resources:**
As a class have the students watch the following animation on the interactive whiteboard. [http://www.youtube.com/watch?v=W47Wa7on1IQ](http://www.youtube.com/watch?v=W47Wa7on1IQ)

**Student Activity:**
Ask the students what was going on in the clip. They should answer or may need to be guided towards the earth is orbiting the sun and spinning (showing day and night, seasons and years) the moon is also orbiting the earth.

Scribe students’ explanations in their own words.

**Student Activity:**
Students will be comparing the different orbits of each of the planets and need to record how long it takes for each of the planets to orbit around the sun. They will need to search the internet for the answers and record them in their workbooks. Fast finishers can then work out how old they would be on each planet.

For example it takes 88 days for Mercury to orbit the sun, so a 10 year old on Earth would be 41 and a half years old (as a year on Mercury is 88 days long).

Get them to record their answers in months, weeks and days. Allow students to work independently on their task.

**MA3-17MG** - Uses simple maps and grids to represent position and follow routes, including using compass directions

**Student Activity:**
Students work in groups of four to recreate the animation they saw at the beginning of the lesson. One person is to be the sun, one the moon, one earth and the final group member is the narrator presenting what is going on.

Allow groups to present their groups recreation to the class.

Collectively represent accurate positions and directions.

**MA3-18SP** - Uses appropriate methods to collect data and constructs, interprets and evaluates data displays, including dot plots, line graphs and two-way tables

**Student Activity:**
Write a research report on The Southern Cross.
Where else is this symbol used in advertising, art or as a symbol?
Collect as much data as possible and present your findings on a dot plot, line graph or two-way table.
### Science

ST3-4WS - Investigates by posing questions, including testable questions, making predictions and gathering data to draw evidence-based conclusions and develop explanations.

**Student Activity:**
- Pose some questions, including testable questions about our Australian flag.
- Predict the answers to your questions.
- Collect the data and answers online. Evaluate your predicted answers.
- Research the representation and meaning of the stars on the Australian Flag?

**Resources:**

### Visual Arts

VAS3-1 - Investigates subject matter in an attempt to represent likenesses of things in the world.

**Student Activity:**
- Explain to students they are going to be looking at some photos taken by a big telescope in space called the Hubble Telescope. Go to the Hubble Telescope Photo Gallery and explore many of the pictures in the gallery.

**Resources:**

**Student Activity:**
- Students have a selection of materials on their desks including straws, sponges, cloths etc.
- They use these plus paintbrushes and fingers to create an artwork inspired by the images they saw on the Hubble Telescope website.
- Display the artworks in the classroom after they have dried.

VAS3-4 - Communicates about the ways in which subject matter is represented in artworks.

**Student Activity:**
- Many Musicians have been inspired by space and the solar system in their music.
- Listen to 2011 A Space Odyssey music and try to imagine and describe in a poem the ‘sound and feelings’ of being in space.
- Use and listen to this music whilst painting a picture of “space.”

**Resources:**
- [https://www.youtube.com/watch?v=VxLacN2Dp6A](https://www.youtube.com/watch?v=VxLacN2Dp6A)
Name:

1. What is a ‘super novae’?

2. What is an ‘explosion’

3. What are ‘gamma ray bursts’?

4. What is ‘cosmic background radiation’?

5. Name three early civilizations that performed methodical observations of the night sky:

6. What is ‘observational astronomy’?

7. What is ‘theoretical astronomy’?

8. What is ‘astrology’?

9. What is a ‘radio telescope’?

10. Draw and label a radio telescope:
Congratulations on completing your studies of SPACE From “Enquiring Minds”. You are well on your way to becoming an ASTRONOMER.

Signed ____________________ Dated ____________________
Space

STAGE 4 SUGGESTED CLASSROOM ACTIVITIES

**English**

EN4-2A - Effectively uses a widening range of processes, skills, strategies and knowledge for responding to and composing texts in different media and technologies

**Student Activity:**
Construct a time capsule in writing form listing at least 5 objects you would leave in a time capsule for somebody to find in the future (say 200 years from now).
You also need to explain what the object is, what it does and why it is important to you.
Write a letter to the finder of the time capsule describing what life is like now.
Include our successes and problems as a society plus what your dreams are for future generations.

**Science**

SC4-12ES - Describes the dynamic nature of models, theories and laws in developing scientific understanding of the Earth and solar system

**Student Activity:**
In pairs students create a model of the universe.
Individually they research and write a report on one of the planets in our solar system.