UNIT PLAN

Title: My Amazing World: Beam me up!

Outcome level(s): 3 and 4 It is anticipated that students will mostly demonstrate level 4 outcomes.

Student age: 10, 11 (Year 6 QLD)

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School: Banksia Beach State School, Bribie Island

UNIT RATIONALE
Humans have an innate desire to explore and new technologies have expanded the boundaries of what we think could be possible.
In this unit the students will reflect on the history of space exploration and design and build a capsule that will protect an ‘Eggnaut’ from the perils of re-entry! Throughout the unit the students will keep a Design Journal with all their thought and designs. They will follow design process: INVESTIGATION ➔ IDEATION ➔ PRODUCTION ➔ EVALUATION
They will also participate in the Primary Investigations unit ‘Investigating Astronomy’ and write a report about a planet.
### Attributes of a Lifelong learner

[pages 2, 3 & 4 QSA Science Syllabus]

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledgeable person with deep understanding</td>
<td>I search for information about changes on Earth and in the Solar System that occur on different scales of time and space.</td>
</tr>
<tr>
<td>Complex thinker</td>
<td>I work with different type of intelligences.</td>
</tr>
<tr>
<td>Creative person</td>
<td>I make an eggnaut that will withstand re-entry.</td>
</tr>
<tr>
<td>Active investigator</td>
<td>I investigate astronomical phenomenon.</td>
</tr>
<tr>
<td>Effective communicator</td>
<td>I contribute to the class discussions. I present my findings in a power point presentation.</td>
</tr>
<tr>
<td>Participant in an interdependent world</td>
<td>I think about whether space exploration is worth the cost.</td>
</tr>
<tr>
<td>Reflective and self-directed learner</td>
<td>I follow the design, make, appraise format to complete the eggnaut task.</td>
</tr>
</tbody>
</table>
## Core learning outcomes table

[QSA Syllabus documents]

<table>
<thead>
<tr>
<th>Key Learning Area</th>
<th>Strand</th>
<th>clos</th>
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</thead>
</table>
| **Technology**          | Technology Practice       | 4.1 Students use consultative methods to gather knowledge, ideas and data when researching alternatives within design challenges.  
                           |                           | 4.2 Students generate ideas through consultation and communicate these in detailed design proposals.  
                           |                           | 4.3 Students identify and make use of the practical expertise of others when following production procedures to make products for specific users.  
                           |                           | 4.4 Students gather feedback to gauge how effectively their design ideas and processes meet design challenges and how effectively products meet the needs of specific users. |
| **Materials**           |                           | 4.1 Students explain how characteristics of materials affect ways they can be manipulated.  
                           |                           | 4.2 Students employ their own and others’ practical knowledge about equipment and techniques for manipulating and processing materials in order to enhance their products. |
| **Science**             | Earth and Beyond         | 4.1 Students recognise and analyse some interactions (including the weather) between systems of Earth and beyond.  
                           |                           | 4.2 Students collect information which illustrates that changes on Earth and in the solar system occur on different scales of time and space. |
| **Science and Society** |                           | 4.2 Students use the elements of a fair test when considering the design of their investigations.  
                           |                           | 4.3 Students present analyses of the short- and long-term effects of some of the ways in which science is used. |
| **Maths**               | Measurement – Time       | 4.2 Students read, record and calculate with 24-hour time and develop timetables and calendars to plan and organise events or activities. |
| **The Arts**            | Media                    | 4.1 Students apply media languages and technologies through genre conventions to construct media texts.  
                           |                           | 4.2 Students select media forms and apply technologies to construct and present media texts to target an audience.  
                           |                           | 4.3 Students analyse the media languages and technologies used by them and others to construct representations using generic conventions. |
| **English**             | Cultural                 | 4.1 When speaking, students:  
                           |                           | • select a suitable text type according to purpose in prepared and spontaneous texts  
                           |                           | • choose subject matter and medium that takes account of whether listeners are known or unknown  
                           |                           | • develop a main idea or point of view providing some supporting details and evidence to explore ideas and issues |
| **Operational** | • offer opinions and attempt to persuade others to a point of view.  
4.2 When reading and viewing, students:  
• identify how construction of characters  
contributes to plot development in narratives  
4.3 When writing and shaping, students:  
• select subject matter according to purpose, text type, audience and medium  
• organise subject matter that develops a topic or storyline, supports a point of view or offers an explanation  
• develop characterisation that is relevant to the storyline using descriptions, actions and dialogue. |
| **Critical** | 4.1 When speaking, students:  
• construct representations, taking account of the likely characteristics of target audience  
• appeal to certain groups by selecting  
particular subject matter and related resources, including participants, processes, gestures and voice.  
4.2 When reading and viewing, students:  
• identify how certain textual resources  
have been used to represent people, places, events and things in ways that appeal to different groups  
4.3 When writing and shaping, students:  
• choose aspects of subject matter, attributes, processes and visual resources to construct |
Aspects of ‘working scientifically’ and their components are:

[QSA Science Syllabus page 33]

<table>
<thead>
<tr>
<th>INVESTIGATING</th>
<th>UNDERSTANDING</th>
<th>COMMUNICATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>• collecting information</td>
<td>• inferring from data</td>
<td>• constructing and using models</td>
</tr>
<tr>
<td>• designing and performing</td>
<td>• making comparisons</td>
<td>• creating presentations</td>
</tr>
<tr>
<td>investigations</td>
<td>• reflecting and considering</td>
<td>• discussing thinking</td>
</tr>
<tr>
<td>• exploring phenomena</td>
<td></td>
<td>• expressing points of view</td>
</tr>
<tr>
<td>• handling materials</td>
<td></td>
<td>• summarising and reporting</td>
</tr>
<tr>
<td>• measuring</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Unit overview

<table>
<thead>
<tr>
<th>STAGE</th>
<th>ACTIVITY</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I N T R O D U C T I O N</strong></td>
<td>Prior knowledge check with pre-test concept web.</td>
<td>Paper and pencils</td>
</tr>
<tr>
<td></td>
<td>KWL chart on space and its exploration.</td>
<td>Chart board</td>
</tr>
<tr>
<td></td>
<td>List all the places that the students know they can use to find information about space topics.</td>
<td>Example of cinquain poem</td>
</tr>
<tr>
<td></td>
<td>Discuss that the topic of study means that the students need to be looking beyond their local area, beyond their country and into space. Travellers need to have a passport so one is needed for the students before they go any further. Firstly have them fill out a passport application, and then a passport.</td>
<td>Bookmarks</td>
</tr>
<tr>
<td></td>
<td>Read ‘My Place in Space’. Use a diagram to show the place of the earth within the solar system, the galaxy, the universe. Have students record their place in space on an envelope and display.</td>
<td>White paper, coloured crayons, black paint, pins</td>
</tr>
<tr>
<td></td>
<td>Students develop a Space Word Bank throughout the duration of the unit, adding important words and their meanings after each activity.</td>
<td>Stranded on the Moon sheet</td>
</tr>
<tr>
<td></td>
<td>Model the format of cinquain poems. Have students create three cinquain poems – about the moon, sun and one other space concept. Think Pair Share their poems.</td>
<td>NASA recommendations</td>
</tr>
<tr>
<td></td>
<td>Students colour a bookmark that has the planets displayed. Bookmarks can be laminated. Students cover a white piece of paper with coloured patterns using crayons. They then paint over the entire paper with black paint. Once the paint</td>
<td>• Task Sheet</td>
</tr>
</tbody>
</table>
is dry the students use a pin to scratch the design in to the paint, leaving the
coloured crayon coming through.

The students pretend that they have been stranded on the moon after crash
landing far from their base. From the equipment they have, they need to
prioritise their choice of items to take with them on the trek to the base.
Compare their decisions in groups with those of NASA. Discuss the reasons
why some things are more important to have on the moon, and why some are
not.

Meteorite Monsters – students are given the task of designing a trap for the
meteorite monsters that are attacking the humans on a space base.

| INVESTIGATION | Serial reading of the text ‘Halfway Across the Galaxy and Turn Left’ by
Robin Klein. Discuss story line, characters, settings etc. Students can make
reflective journal entries after each reading session.
Discuss the difference between truth and fiction. Have students conduct an
informal debate about whether or not they believe that there is life elsewhere
in the universe. If so, why do they believe it? If not, why not? Why do they
think that people are inclined to think that there might be life on other
planets? Have students complete an Alien Wanted Poster.
Students create a timeline of space exploration to be presented in a chosen
format e.g. poster, Power Point Presentation

Critical Analysis of Web Site Information – Designate a specific web site to
student and then have them answer the following questions.
What is the name of the site?
Who is/are the authors?
Who is this site designed for? Why do you think that?

| | Text ‘Halfway Across the Galaxy and Turn Left’ by Robin Klein
Alien Wanted Poster
Non-fiction texts with information about
the history of space exploration
List of Web sites
Computers with Internet access
List of questions for students
Non-fiction texts, biography format
guideline
Structured Overview
Texts about the sun List of Web Quest
sites (see Appendix 2)
Instructions for making a space shuttle
Materials for space shuttle
Texts about shuttles |
<table>
<thead>
<tr>
<th>How do you know that is a valid site?</th>
<th>Pictures of the phases of the moon</th>
<th>Pictures of phases of the moon, OHP and basketball for demonstration</th>
</tr>
</thead>
<tbody>
<tr>
<td>What information would you expect to gain from this site?</td>
<td>Non-fiction resources, blank table, markers, information about the distances on the oval</td>
<td>Internet access NASA site</td>
</tr>
<tr>
<td>What do you need to know to navigate this site?</td>
<td>Primary Investigations Kit</td>
<td>Information about space vehicles, a blank compare and contrast diagram</td>
</tr>
<tr>
<td>When was this written? How do you know?</td>
<td>Videos/DVDs of available movies</td>
<td>Videos/DVDs of available movies</td>
</tr>
<tr>
<td>Does the writer have a viewpoint? What is it?</td>
<td>9 Planets Retrieval Chart</td>
<td>9 Planets Retrieval Chart</td>
</tr>
<tr>
<td>What other viewpoints may exist on this information?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do the illustrations or pictures support a particular viewpoint? If so what is it?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there an obvious gender bias?</td>
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<td></td>
</tr>
<tr>
<td>Was this a useful site? Why or why not?</td>
<td></td>
<td></td>
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</tbody>
</table>

Students research and write the biography for a space explorer using a clear format guideline.

Groups investigate an aspect of the sun and record these on a graphic organiser. Jigsaw and share the information.

- Facts about the sun
- Why the sun is important to earth
- Myths about the sun
- The future of the sun

Web Quests – have students conduct one of the many available web quests. Work in small groups to complete the set task.

Students use a set of instructions to build a model of a space shuttle. Discuss the benefits of the space shuttle, as well as the tragic events that have occurred since its development. Debate whether the students believe that exploration is worth the risk to life. Would they go into space?

Students investigate the phases of the moon. Students could record the shape of the moon each night during the unit.
Students investigate and record the distances of the planets to the sun, and to earth. The results will be recorded in a table. Teacher demonstrates the distances by placing markers at set points on the oval. Examine the use of light years to measure large distances. Graph the distances from the sun to each of the planets.

Have students research contributions made to space exploration by Australians.

Students participate in the Primary Investigations unit ‘Investigating Astronomy’ (students should have completed the ‘Design and Efficiency’ unit previously)

Students research the different types of vehicles used in space. They look at the purpose of each. Use a compare and contrast diagram to look at two different vehicles.

Students watch movies like ‘ET’, ‘Star Wars’, ‘Babylon 5’, or ‘Star Trek’ to examine:
- communication
- food
- shelter e.g., space station / craft / rocket
- technologies e.g., air use, power, greenhouse plants, oxygen
- transport e.g., moon buggy
- landing on the moon (gravity)

Using all resources available, students complete a retrieval chart about the basic information of all the planets.

| C  | O  | List the technical language that the students will come in contact with during the unit. Divide the words into smaller groups and have students develop a List of technical terms to be used during the unit |
### NSOLIDATION

- glossary of the words
- Watch a video about the planets. Practice note taking skills.
- In home and expert groups, the students use non-fiction resources and the internet to create a concept web about a selection of space topics. The expert groups then share their webs with their home groups.
- Students use non-fiction resources and the internet to research a chosen space topic. They will present their report as a power point or Web Page. Topics could include comets, planets, space vehicles, missions etc.
- Students complete task cards that follow Bloom’s Taxonomy.
- Students complete task cards based on Gardner’s Multiple Intelligences

### APPLICATION

1. What effect does spending billions of dollars on space exploration have on other society concerns?
2. List 4 areas of society that are affected by lack of funds.
3. Identify and describe 3 or 4 causes and effects on these areas.
4. Choose one area and create a proposal for money expenditure if that area was to receive ten billion dollars.
5. Evaluate the advantages and disadvantages for society using a PMI and Black and Yellow Hats.
6. Consider Space exploration: Write 3 or 4 reasons to justify the expenditure.
7. Do you agree with the justification? Why or why not? What decision would you make? (use Red Hat)

- Information from a number of countries that spend money on space research
- Thinking Hats
- Red Hat, Black Hat, Yellow Hat
- Recycled materials brought from home, set of guidelines for vehicle
- Self assessment outline for space shuttle
- Draft books, spacey paper for publishing
- Non-fiction resources, dictionaries
- Access to non fiction information about technological advances
- Retrieval Chart
- News article genre format examples
meet strict guidelines and requirements. When testing vehicles, discuss the aspects of having a ‘fair test’. Students will also complete a self-assessment on their vehicle.

Students write a space narrative and publish it on spacey paper.

Oral Report: One thing that space exploration technology has given us. Students research an aspect of space technology using a retrieval chart, and present it as a short oral report.

Students write a newspaper report for the day that humans land on Mars.

Students jointly write an information report on the moon.

Students independently write a report on a planet. The students write a postcard from their planet, describing an imaginary visit. The postcard must contain correct information about the planet. Have other students’ guess where the postcard was sent.

Timeline of space exploration history.

Eggnaut
The students receive the task sheet and begin to design the protective capsule for their eggnauts. Throughout this process they will keep a Design Journal with all their thought and designs. Begin by investigating the structure of the NASA re-entry vehicles. Brainstorm materials available to the students.

Follow design process:

INVESTIGATION ➔ IDEATION ➔ PRODUCTION ➔ EVALUATION

Information about Mars
Report information sheets
Postcards
Task sheet for timeline
Access to texts, internet etc
Criteria for marking sheets
Task Sheet
Materials for eggnauts
Eggs
Criteria for marking sheet
Examples of Critical Questions that may apply at various points during this unit
(taken from the unit ‘Space’ by J. Gibson Smith and C. Brown)

On what basis might people hold strong beliefs about the existence of other life in space?

What are some of the reasons why other people resist beliefs about other life in space?

Compare some of the language used in accounts of ‘belief’ and ‘disbelief’. What are the differences?

Why might ancient cultures have explained space-related phenomena through story telling?

Why do we now rely on science rather than story telling to explain space phenomena?

What are some of the most recent and most illuminating discoveries about the galaxy?

How can the validity (truth) of what we read or view be tested?

Locate an account of inter-galaxy travel that is written as ‘truth’. How and why do people agree and disagree with the related events?

As readers, do we tend to believe information that comes through visual media (television, video, cinema) less than we believe information that comes through written texts? Is this the case or not?

When is verbal (spoken or written) language not as good as visual (photographs, diagrams, drawings/paintings, 3D images) language for learning about the galaxy? When is it the opposite? What information requires both?

Is it possible to visually develop a scale plan for the galaxy?

What are some myths about rocket science? Why do you think they are myths?

What are some of the valid facts relating to rocket science? How do you know they are valid?

When did rocket science first emerge?

What are some of the phenomenal incidents that have been recorded over time that indicate inter-galaxy space travelers?

Who are some of the social groups who have visually recorded these incidents?

Use a map to plot the ancient recordings of space travel and identify any patterns?
At the time when inter-galaxy space travel was being visually recorded by different cultural and social groups around the globe, was the land and sea mass as we know it today?

How similar or dissimilar are the Australian Indigenous cave paintings that modern people have interpreted as space traveler, from those recorded in South America?

What information could be used as the basis for understanding how to sustain life on another planet?

Is this information scientific and tested?

Where did you locate the information that assisted you to understand how life is sustained?

Why have stereotypical images of extra-terrestrial life occurred?

What media has been most effective in presenting stereotypical images? What does this say about the power of language/image to affect our thinking?

How have you developed your knowledge-base about the galaxy, extra-terrestrial life, visitations from other planets to earth and so on?

Is your knowledge based more on myth than fact? How do you know?

Where are you likely to gain the most helpful information on building a model space rocket? Why have you selected that source of information?
Appendix 2
Web Sites and Web Quests
(Adapted from ‘My Place in Space’ Unit)

An excellent Webquest for students to actively study the solar system is Planet Web Quest. It has an astronaut email template ***
http://schools.sbe.saskatoon.sk.ca/Victo/projects/Grasroots/Planet%20Web.../WebQuest2.htm

Third Rock from the Sun
http://encarta.msn.com/alexandria/templates/lessonFull.sp?page=1560

"1-2-3 Blast Off!!"
NASA has called you to be the lead team for the next exploration into the unknown. Retrieve information about the nine planets and create a PowerPoint presentation which will include pictures and facts proving whether life can or cannot be sustained on another planet.

Space: Our Place in Space: Zoom Astronomy, Planets, Webguide, Nasa, Women in Space, Scavenger Hunt, BBC - the Planets: Bayswater Primary School

"Planet Web Quest” A Webquest for Grade 3 Science/English
You are an astronaut on a mission to another planet in our solar system. Gather record and present data about your planet. Highly recommended ***
http://schools.sbe.saskatoon.sk.ca/Victro/projects/Grassroots/Planet%20Web.../WebQuest2.htm

"The Planets" Discover nine interesting facts about the planets.
http://www.esc20.net.etprojects/formats/sampler/pfeiffer01/planetss/default.html

Space - The Final Frontier
Investigate the nine planets and compose an essay comparing and contrasting the planet of your choice with the Earth.
http://www.spa3.k12.sc.us/WebQuests/Solar%20System/Index.html

"Our Solar System"
Pretend you are an astronaut preparing for a journey into the deep, dark sky. You must gain scientific information about the places you are travelling to. Which planet will you land your spaceship on?

"The Solar System" Subject Sampler
ABC Teach: Solar System Classroom Ideas:
Solar System Distances Chart, Solar System Graph, Moon Chart, Research Planner KWL, Planet Report Form, Famous Astronaut Form, Solar System Story Planner, Constellation Project, Solar System Poetry Form, Rocket Shape Book, Word Search, Crossword...

"The Moon is a Harsh Mistress" An Internet-Based Treasure Hunt

"Blast Off Into the Solar System"

"Journey through Space" Internet Scavenger Hunt, model of a solar system or individual planet...

Robots" Consider how robots will impact your future

"Objects in Space"
Find facts images, sounds that help you understand asteroids, comets and meteors.

"Escape From Planet Earth"
A large asteroid is on a collision course with Earth. NASA needs to find an alternative planet for colonization.
http://www.cap.nsw.edu.au/Finley/Planets/Planets.html

"What Other Energy Sources are Out There?" An Internet-Based Treasure Hunt

"Pack Your Bags - We're going on a Space Vacation!"

"Welcome to Space!" A Final Countdown.
Discover the galaxies, planets, stars and extraterrestrials.
http://www.esc20.net/etprojects/formats/webquests/spring2000/ulvaled228.../efault.htm
"To Infinity and Beyond"
Research conditions to sustain life on planets. Create a graph/chart/poster/brochure/PowerPoint presentation that includes pictures and facts about the planet.

Are Asteroids Coming? A WebQuest
Prepare a speech to be aired on local television networks in response to the fears of asteroid collisions with Earth.
http://wapiti.pvs.k12.nm.us/~Computer/asteroid.html

Star Ship Adventure: Is There Life Up There?
NASA wants to relocate people to a new planet. What types of things might we need to adapt to life on these planets?
http://www.plainfield.k12.in.us/hschool/webq/webq54/james.htm

Journey Into the Universe
Examine items from a survival kit to help you survive on a planet.
http://www.spa3.k12.sc.us/WebQuests/new%20Planet%20WebQuest/Index.html

SEARCH ENGINES
Students use technology to find out information to question arising from group discussions.
http://www.Yahooligans.com
http://www.google.com (a high powered search engine, highly recommended)
http://www.nasa.com

ADDITIONAL INTERNET SITES TO EXPLORE
"Destination Mars"
Your team's mission is to travel across the expanse of space to build a colony on the planet Mars.
http://ccsd.net/schools/lummis/Hybarger/noframesdestination.html

"Are We Ready for Life in Space?"
Explore the Space Station Mir.
http://www.lfelem.lfc.edu/tech/DuBose/webquest/pictor/space.html

By the Way of the Moon
Investigate the space program's monetary and social impact on the US
http://www.spa3.k12.sc.us/WebQuests/space/index.htm

Searching for Just the Right Planet
Write a report recommending which planet should be chosen.
Lunar Discovery WebQuest for Years 3-7
http://www.windarooss.qld.edu.au?Main_Pages/Lunar_Webquest/welcombe.htm

Shuttle Discovery WebQuest for Years 3-7
Explain how the space shuttle or a shuttle flight works; design a replacement for the space shuttle.
http://www.windarooss.qld.edu.au?Main_Pages/Space_Webquest/task.htm

Solar System PotLuck Treasure Hunt
http://www.montana.edu/4teachres/instcomp/hunts/science/solarpotluck/solarsystempotluck.htm

Our Solar System Scavenger Hunt
http://www.montana.edu/4teachers/instcomp/hunts/science/Solar/SpaceHunt.html

Space Travel and Astronomy Scavenger Hunt
http://www.montana.edu/4teachers/instcomp/hunts/science/spacewebpage/scapeexploration.html

Moonquest
Choose one of the positions at NASA. List the tasks for that position (e.g. Rocket Scientist, Astronaut...)
http://www.floydgodfrey.com/Deb/webquest/

Intergalactic Travel Agents: Searching for an "Out-of-this-World" Summer Vacation
Your family expects you to plan a summer vacation trip worth remembering. You are the family's official travel agent.
http://www.itrc.ucf.edu/webcamp/final_projects/brown/INDEX1.HTM

ThinkQuest Entries
Space Ball: Exploration of space, the universe and solar system.

LESSON PLANS
Destination Mars

A Journey through Space
http://english.unitecnology.ac.nz/resources/units/planets/home.html
Planetary Profiles  

Classroom Planetarium  

**ONLINE ACTIVITIES**

"Welcome to NASA Quest"  
Meet the people of NASA and explore NASA's online resources  
http://quest.arc.nasa.gov/home/index.html

Solar System Online -  
Biographies of NASA experts and stories about their work, audio/video programs, lesson plans and student activities, publishing on NASA's Web, teacher collaboration, student collaboration  
http://quest.arc.nasa.gov/sso/index.htm

STEPS Site  
http://www.sofweb.vic.edu.au/STEPS/students/3-4Years/earth.htm

Middle school students are fascinated by the Web's ability to bring real-time data and information into the classroom. NASA is a great source for this sort of content, and their real-time shuttle tracking page is sure to be a hit in your space unit. The page shows the current positions of the international space station and any shuttles currently in orbit. It also provides real-time statistics on the missions and links to additional information on both programs. The tracking page is in the space station section of our Astronomy Resources page, available at: http://www.teachersfirst.com/cnt-astro.htm#ISS

Earth from Space - STEPS  
http://www.sofweb.vic.edu.au/STEPS/students/3-4Years/earth.htm

CyberHunt: Calling All Astronauts  
http://teacher.scholastic.com/lessonrepro/reproducibles/instructor/cyberhunt.../cyberhuntkids.htm

Come to My Planet!  
Develop a presentation and brochure to promote your planet as "Number One Travel Destination in the Universe".  
http://www.memphis-schools.k12.tn.us/admin/tlapages/astronomy.html
Planetary WebQuest
You are a member of an international scientific team in charge of the first planetary colony in our solar system. Your team must analyse the different planets and decide which planet to colonize.
http://students.itec.sfsu.edu/edt628/hovey/index.html
<table>
<thead>
<tr>
<th>Appendix 3 Multiple Intelligences Contract Cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design, rehearse and perform some space mimes for the class.</td>
</tr>
<tr>
<td>Create, rehearse and perform a Martian folk dance.</td>
</tr>
</tbody>
</table>
Design a rocket that will move when you push it.

Design some sign language to communicate with aliens.
<p>| Pretend you are interviewing an alien. Ask questions about its planet and how it moves, eats, sleeps, plays. |
| Write a short role play where you are an alien who has visited Earth. What will you... |</p>
<table>
<thead>
<tr>
<th>tell the people on your planet about Earth?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order the planets according to their size.</td>
</tr>
<tr>
<td>Make up a special code to be</td>
</tr>
<tr>
<td>used by astronauts in space.</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Compare the distances from Earth to each of the planets.</td>
</tr>
<tr>
<td>Find out how scientists measure the distances between stars.</td>
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<tr>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Prepare an argument for why we should continue space exploration.</td>
</tr>
<tr>
<td>Make a chart of a time line, showing space exploration</td>
</tr>
<tr>
<td>landmarks up to the present time.</td>
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</tr>
<tr>
<td>Find and learn some space poems to perform for the class.</td>
</tr>
</tbody>
</table>
Create your own space rap.

Design a recorder to be used by an alien with two mouths.
<table>
<thead>
<tr>
<th>Make up a rhythm using instruments to learn the names and order of the planets.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record yourself reading a space story that you wrote and add sound effects.</td>
</tr>
</tbody>
</table>
Practise a space song and sing it to the class.

With a small group of classmates, write and record an ‘add-on’ space story.
Read the day’s stars and tell five friends what the day holds for them.

Write a space poem and then share it with a friend.
| **With a partner, create a new space language and teach it to the class.** |
| **Design and make a space game and then invite a friend to play it with you.** |
Conduct a class survey about their favourite space character. Share the results with the class.

If you were to visit another
<table>
<thead>
<tr>
<th>planet, which one would you choose and why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you were an alien what sort of alien would you be?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>List your criteria for the qualities necessary for astronauts undertaking long journeys in space.</td>
</tr>
<tr>
<td>Pretend you are an astronaut on a long space journey. Write a ‘feelings’ journal of a week in space.</td>
</tr>
<tr>
<td>Make a plan for how you will become fit and healthy enough to be chosen as the first student astronaut.</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>If you met an alien, what ten questions would you like to ask them?</td>
</tr>
<tr>
<td>Create a model of one of a space craft using any available materials.</td>
</tr>
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<tr>
<td>Make up a mnemonic to help you remember the order of the planets.</td>
</tr>
<tr>
<td>Find a number of space jokes to start a class collection.</td>
</tr>
</tbody>
</table>
Select one of these and make an acrostic poem.

OUTER SPACE, EXTRA-TERRESTRIAL, LOST IN SPACE, ASTRONAUT
Write the longest list of space words that you can. Use a dictionary or library book to check your spelling.

Find out what Neil Armstrong said when he landed on the moon. Find two other famous quotations and tell the class about them.
Write a set of instructions for the care and maintenance of a space suit.
# Appendix 4 Planet Report

<table>
<thead>
<tr>
<th>Classification: What type of planet is it?</th>
<th>Mythology: Where did it get its name?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location: Where is it?</th>
<th>Rotation and Revolution: How long are its days and years?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size: how big is it?</th>
<th>Composition: What is it made of?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Surface: What is it like on the surface?</th>
<th>Special Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Moons:</strong> How many moons does it have?</td>
<td><strong>Rings:</strong> Does it have rings?</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td><strong>Discovery:</strong> Who discovered it?</td>
<td><strong>Satellites:</strong> How many man-made satellites have been sent there?</td>
</tr>
</tbody>
</table>
# Building A Structure: Eggnaught

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>Plan is neat with clear measurements and labeling for all components.</td>
<td>Plan is neat with clear measurements and labeling for most components.</td>
<td>Plan provides clear measurements and labeling for most components.</td>
<td>Plan does not show measurements clearly or is otherwise inadequately labeled.</td>
</tr>
<tr>
<td>Journal/Log - Content</td>
<td>Journal provides a complete record of planning, construction, testing, modifications, reasons for modifications, and some reflection about the strategies used and the results.</td>
<td>Journal provides a complete record of planning, construction, testing, modifications, and reasons for modifications.</td>
<td>Journal provides quite a bit of detail about planning, construction, testing, modifications, and reasons for modifications.</td>
<td>Journal provides very little detail about several aspects of the planning, construction, and testing process.</td>
</tr>
<tr>
<td>Journal/Log - Appearance</td>
<td>Several entries made and all are dated and neatly.</td>
<td>Several entries are made and most of the entries are dated and neatly entered.</td>
<td>Several entries are made and most of the entries are dated and legible.</td>
<td>Few entries are made AND/OR many entries are not dated or very difficult to read.</td>
</tr>
<tr>
<td>Construction - Materials</td>
<td>Appropriate materials were selected and creatively modified in ways that made them even better.</td>
<td>Appropriate materials were selected and there was an attempt at creative modification to make them even better.</td>
<td>Appropriate materials were selected.</td>
<td>Inappropriate materials were selected and contributed to a product that performed poorly.</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Construction - Care Taken</td>
<td>Great care taken in construction process so that the structure is neat, attractive and follows plans accurately.</td>
<td>Construction was careful and accurate for the most part, but 1-2 details could have been refined for a more attractive product.</td>
<td>Construction accurately followed the plans, but 3-4 details could have been refined for a more attractive product.</td>
<td>Construction appears careless or haphazard. Many details need refinement for a strong or attractive product.</td>
</tr>
<tr>
<td>Modification/Testing</td>
<td>Clear evidence of troubleshooting, testing, and refinements based on data or scientific principles.</td>
<td>Clear evidence of troubleshooting, testing and refinements.</td>
<td>Some evidence of troubleshooting, testing and refinements.</td>
<td>Little evidence of troubleshooting, testing or refinement.</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Is able to critique the results of testing and makes all necessary judgements about the effectiveness of their design.</td>
<td>Is able to critique the results of testing and make 1-2 judgements about the effectiveness of their design.</td>
<td>Is some evidence of critiquing the results, but not able to make judgements.</td>
<td>Not able to critique or make judgements about the effectiveness of their design.</td>
</tr>
</tbody>
</table>
EGGNAUT – Houston, we have an omelette!!

The Task — Your mission, is to design and build a capsule that will protect your ‘Eggnaut’ from the perils of re-entry! The objective is to have your ‘Eggnaut’ survive the impact without a crack!

The Rules –
1. The re-entry system must fit inside a 20cm x 20cm x20cm space.
2. Parachutes and helicopters are allowed.
3. The vehicle will be dropped from a height of three metres, and it must land as close as possible to the target area directly beneath the drop point.
4. The re-entry vehicle’s weight must not exceed 300g.
5. You must keep a Design Journal throughout the process, noting all design plans, changes and your personal reflections.
6. You must complete an experiment report after the landing has occurred.
7. A list of items that you are allowed to use will be displayed in the classroom.

Consider –
- How can I design the re-entry system to protect the Eggnaut?
- What can I design into the capsule to make sure it lands in the centre of the target area?
- How am I going to slow it down?
- What do I have to remember about forces, motion and energy when designing the eggnaut?

The Launch Date is set for
Good luck!
**TASK SHEET**

Space Exploration Timeline

The Task – Your Task is to design and create a power point presentation that shows six significant events that have contributed to space exploration.

You will need to explain what technology was used or created for the space exploration to be successful and the value of the exploration.

Your presentation will include:

- Minimum of 5 / maximum of 10 slides
- Minimum of 5 / maximum of 20 graphics, photographs or animations
- Minimum of 3 / maximum of 10 web links
- Minimum of 3 / maximum of 10 resources
- Minimum of 1 / maximum of 5 sounds
- Minimum of 1 / maximum of 2 video clips

The process of developing your presentation consists of 7 steps. Each step must be sighted by your teacher.

- **STEP 1:**
  Choose the topics you would like to research for your power point.

- **STEP 2:**
  Use the notemaking sheet to collect all the relevant information you will need.

- **STEP 3:**
  Use the writing framework to put your notes into paragraphs.
☐ STEP 4
Create a word document with all your information. (This will later be cut and pasted into your power point presentation)

☐ STEP 5:
Create your presentation storyboard.

☐ STEP 6:
Develop your presentation.

☐ STEP 7:
Save your presentation in the year level folder on the intranet.

Good luck!