

**YEAR 7 SPACE ACTIVITY**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Use books, the internet and other resources provided to complete the following activities. You will be required to hand in your package of work, and a list of references you used, then sit a validation test based on your work.

**EARTH IN SPACE**

**1. Complete** the following table about the eight planets in our solar system.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **planet name** | **diameter****(km)** | **mass****(tonnes)** | **rock or gas planet?** | **average temperature****(oC)** | **main gases in atmosphere** |
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**2.** **Analyse** the information in your completed table. **Explain** why

 Earth is the only planet in our solar system that humans could live on unaided by

 specialised equipment.

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**GRAVITY**

**3.** **Define** the term “gravity”. What units is it measured in?

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**4.** Find out the size of surface gravity on the sun, moon and each of the eight planets

 in our solar system.

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| --- | --- | --- | --- | --- | --- |
|  | **Sun** | **Moon** | **Mercury** | **Venus** | **Earth** |
| **Gravity** |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mars** | **Jupiter** | **Saturn** | **Neptune** | **Uranus** |
| **Gravity** |  |  |  |  |  |

**5.** Consider the hypotheses put forward by the following students.

Based on the evidence that you have collected about the planets and their gravity, which hypothesis do you agree with?

|  |  |  |
| --- | --- | --- |
| **Student** | **Hypothesis** | **Is the hypothesis supported by the evidence?** |
| Amy | Planets with thin or no atmosphere have little or no gravity--like Mercury. |  |
| Bridget | Planets that are cold have only a small amount of gravity--like Saturn. |  |
| Calvin | Planets that are massive and have the largest diameters have the most gravity. |  |
| Darren | Planets that have thick atmospheres and are farther from the Sun have the most gravity. |  |

**Explain** which properties cause a planet to have more or less gravity.  Which properties do not impact gravity? Give examples from your data to support your argument.

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**ORBITS**

**6.** **Define** the term “orbit”.

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**7.** **State** the object that the Earth orbits. What object does the moon orbit?

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**Draw** a labelled diagram to show their paths and positions.

**TIDES**

**8.** **Predict**; When are tides at their highest?

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**9.** Find information about high and low tides in Fremantle this month (newspaper or

 internet). Then look up the dates for the new and full moon this month.

 **Describe** the relationship between tide height and the moon.

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**10.** The diagrams below show the moon’s position in relation to the Earth and

 sun as it orbits the Earth.

(a) **Use arrows** to show the pull of gravity of the Earth toward the sun and the moon toward Earth on each of the diagrams.

(b) **Identify** which diagram shows a neap tide and which one shows a spring tide.



(c) Use the diagrams above and notes to **explain** why there are changes in the tide heights.

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**ECLIPSES**

**11.** **Make** a basic model of solar and/or lunar eclipse.

Work as a group of three. Use a torch to represent the sun, a larger ball to represent Earth and a smaller ball to represent the moon. The person holding the torch will need to stand a metre or two away from the person with the Earth. Try holding the moon between the sun and the Earth, then on the opposite side of the Earth. Observe any shadows formed.

**12.** **Draw** diagrams showing the positions of the Moon, Earth and Sun during a lunar

 eclipse and during a solar eclipse. Show any shadows. (Use the model to help.)

 Lunar eclipse Solar eclipse

**13.** **Use** your model to answer the following questions.

 **During a lunar eclipse:**

 **a)** Which bright object is in shadow? **b)** Which object is casting the shadow?

 **c)** Does everyone in the world see it? **d)** Who can’t see a lunar eclipse?

 **e)** Do you see lunar eclipses at night or during the day?

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**During a solar eclipse:**

1. Which bright object is covered up?
2. Which object is blocking the sunlight?
3. Does everyone in the world see it?
4. Who can’t see a solar eclipse?
5. Do you see solar eclipses at night or during the day?
6. Why are solar eclipses so much rarer than lunar eclipses?
7. During a solar eclipse, what would you see from the Moon and looking at the Earth?
8. Why don’t we see a lunar eclipse during every full moon?
9. Why is it dangerous to look directly at the sun during a solar eclipse?

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**REFERENCES**

Write references for at least 3 resources that you have used in completing this assignment. You must include at least one internet site and one book.

Correct referencing style:

**Books:** Author (surname, initials), year of publication, Title of book (italics or

 underlined), edition (if applicable), Publisher, Place of publication.

**Example:** Healey, J, 2011, *Alternative energy*, Spinney Press, Sydney

**Website:** Author, publication date, Page title (italics or underlined), retrieved month, year, from URL

**Example:** Australian Institute of Petroleum Ltd, 2008, *Refining of petroleum*, retrieved June, 2015, from <http://www.aip.com.au/industry/fact_refine.htm>

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