If I were a Martian

What would life really be like on another planet? Our lives would certainly be different. The days, nights and years may be much longer or shorter! Our planetary ages would be different, so would the weight of objects.

In this investigation you will be required to draw a representation of the solar system. You will then gather data about the four closest planets in our solar system(Mercury, Venus, Mars and Jupiter) and record this information in a clear and well organised table. Once you have completed your research you will then need to calculate how much your school bag would weigh on each of the four planets.

Next you must interpret your data and write about what life would be like on each of the four planets.

Use the following checklist to help you.

https://docs.google.com/drawings/d/soFKHOhSq5SKYq7qq4XrDtg/image?w=22&h=21&rev=1&ac=1Annotated Representation of the solar system

https://docs.google.com/drawings/d/sOHRGSao1855DdZo1_-fwsg/image?w=22&h=21&rev=1&ac=1Use the *Kids Astronomy* website to research information

https://docs.google.com/drawings/d/s1Ijz2Ck2nYFINn4CnhG8fg/image?w=22&h=21&rev=1&ac=1Weigh your school bag

https://docs.google.com/drawings/d/s7Qr8U6UtxjSqwSB0OfO_pw/image?w=22&h=21&rev=1&ac=1Use the given information on relative surface gravity to calculate the   
     weight of your bag on each of the four planets

https://docs.google.com/drawings/d/sgC0wTWxnwMyDR1tU5Y1ftA/image?w=22&h=21&rev=1&ac=1Write interesting paragraphs on explaining what life would be like on   
     each of the four planets.

https://docs.google.com/drawings/d/sfj6-Gk54b8iVtDCovqr6Ug/image?w=22&h=21&rev=1&ac=1Complete the extension questions

Visit the *Kids Astronomy* website using the link below. Explore the information on the site and use it to complete this Maths investigation.

<http://www.kidsastronomy.com/solar_system.htm>

1. **Read and Plan**

Before you begin, make sure you understand the meanings of: *planet, planetary,   
          representation, solar system, weight, sense, relative surface gravity, radiating,   
          randomly and submit.*

1. **Create a representation of the solar system**

On an A3 sheet of paper draw a small circle in the middle to   
          represent the sun. Rule eight lines of increasing length radiating   
          from the circle to represent the distance of each planet from the sun.   
          Draw small circles on the end of each line to represent the planets.   
          Label each of the planets and the distance in kilometres from the   
          sun on the line. Use the table below to help draw your diagram.

|  |  |
| --- | --- |
| Planet | Approximate distance  from the Sun in  kilometres |
| Mercury | 57,910,000 |
| Venus | 108,200,000 |
| Earth | 149,600,000 |
| Mars | 227,940,000 |
| Jupiter | 778,330,000 |
| Saturn | 1,426,940,000 |
| Uranus | 2,870,990,000 |
| Neptune | 4,497,070,000 |

1. **Find the Planetary Weight of your School Bag**

Find the weight of your school bag using some bathroom scales, rounding to the   
          nearest kilogram. Convert the weight to grams. Using a calculator and the below   
          table to help you, calculate the weight of your school bag on Mercury, Venus,   
          Mars and Jupiter. Create your own table to record your calculations.

|  |  |  |
| --- | --- | --- |
| Planet | Relative Surface Gravity | Weight of School Bag |
| Earth | 1 |  |
| Mercury | 0.38 |  |
| Venus | 0.91 |  |
| Mars | 0.38 |  |
| Jupiter | 2.34 |  |

1. **Considering the following, what would life be like on other planets?**

**Planet Information (Approximate)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Earth | Mercury | Venus | Mars | Jupiter |
| Relative Surface Gravity | 1.00 | 0.38 | 0.91 | 0.38 | 2.34 |
| Planetary Day | 24 hours | 58 days 15 hours | 243 days | 24 hours 40 minutes | 10 hours |
| Planetary Year Length | 365 days | 88 days | 224 days | 687 days | 12 years |

Use the above table to complete the following information.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Earth | Mercury | Venus | Mars | Jupiter |
| Your  Age |  |  |  |  |  |
| Your  Weight |  |  |  |  |  |

Hint: If I was 1 year old on Earth, I would be 4 on Mercury, nearly 2 on Venus, 6  months on Mars and only about a month old on Jupiter.

1. **Life on other planets**

          Using the information about relative surface gravity, planetary days and planetary                   
          years, answer the following questions.

How would a day on Mercury be different to a day on Earth?

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How would a day on Venus be different to a day on Earth?

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How would a day on Mars be different to a day on Earth?

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How would a day on Jupiter be different to a day on Earth?

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1. **Comparing Facts**

          Using your calculations and the information you have collected, answer the   
          following questions:

Will it be hotter on Venus or Neptune? Give reasons for your answer.

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     Which planet will you be heaviest on? Explain your answer.

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   If Miss Theresa is 22 years old on Jupiter, how old will she be on

a.    Earth                                                years old

b.    Mercury                                            years old

c.    Neptune                                             years old

    If the gravity on the Sun is 6784 times more than on Earth, how much would these items  
weigh?

a.    A 5kg bag of rice                                      .

b.    A 8kg school bag                                      .

c.    A 6kg laptop                                              .

d.    Mr Blair who weighs 62 kg (challenge question)                                                 .

What is the sum of distances from the Sun to Mars, Mercury, and Uranus?  
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