## Activity 3: Your Weight on Other Worlds

Lab originally written by Jatila van der Veen, with modifications by Erin O'Connor

In this activity you will get a feeling for how much any hypothetical being of your choice would weigh on the surface of other planets.

1. Go to this url: https://www.exploratorium.edu/ronh/weight/
2. Make up a hypothetical being (an avatar) and give them a weight, in pounds:

Name of avatar: $\qquad$
Weight of avatar in pounds: $\qquad$
3. Calculate the mass of your avatar in kg using this formula (or you can find a web app to do it):

$$
\text { weight in } \mathrm{kg}=\frac{\text { weight in pounds }}{2.2 \mathrm{lb} / \mathrm{kg}}=\square \mathrm{kg}
$$

and enter this value in the box on the website that says "ENTER YOUR WEIGHT HERE."
Although the website says you can enter weight in any units you wish, we are going to use kilograms because the meter-kilogram-second unit system is what we universally use in science.
4. Then click on the box that says "Calculate." Voila! You can see how much your avatar would weigh in kg on each planet and moon listed, and also three representative stars. Write your answers in the following table (next page):

Your avatar's weight on other worlds (in Kilograms):

| Mercury | Venus | The Moon | Mars |
| :---: | :---: | :---: | :---: |
| Jupiter | Saturn | Uranus | Neptune |
| Pluto | lo | Europa | Ganymede |
| Callisto | The Sun | A White Dwarf | A Neutron Star |
|  |  |  |  |

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5. Now enter your avatar's weight in pounds (lbs):

| Mercury | Venus | The Moon | Mars |
| :---: | :---: | :---: | :---: |
| Jupiter | Saturn | Uranus | Neptune |
| Pluto | lo | Europa | Ganymede |
| Callisto | The Sun | A White Dwarf | A Neutron Star |
|  |  |  |  |

Hopefully seeing the weights both in Kg and in Lbs will help you get more comfortable with the metric system.

On which planet does your avatar weigh the most?

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6. The website also calculated your weight on the Sun, a white dwarf, and a neutron star.


Look back at your table of your weight on other worlds.
On which of these do you weigh most? $\qquad$
On which of these do you weigh least? $\qquad$
Rank your weights from high to low for the sun, a white dwarf, and a neutron star.
\#1 (give the weight) $\qquad$
\#2 (give the weight) $\qquad$
\#3 (give the weight) $\qquad$

Keep these concepts in mind as we study planets, stars, and how stars evolve.

## SUBMITTING ANSWERS IN CANVAS:

Please copy and paste your answers in Canvas. Try copying and pasting the whole thing and see if that works (it's ok if the picture doesn't copy). As long as it's readable, I can grade it and give you full credit.

