

Use the links below to answer the question in each section.

Section A

Your weight on other planets

Use [this site](#) to find your weight on other planets and to answer the questions below. Keep in mind that weight is the product of your mass multiplied by the force of gravity. The force of gravity depends on the amount of mass of an object and the distance from the center of the object – so you may not weigh as much on the gas giants as you would think due to the distance you are from the center of the planet and the low density of the material that makes the planet up. Use the weight calculator as well as the text on the page to find your answers.

Record your answers on the data table on the last page of this handout.

1. What planet would you weigh the most on?
2. Which planet would you weigh the least on?
3. Which planet would your weight be closest to your weight on the Earth?
4. Your weight on the sun would be how many times your weight on the Earth?
5. If you triple your distance from a planet, your weight would be what percentage of your weight on the surface?
6. How big is a neutron star?

Section B

Use [this site](#) to find how orbits and rotation effect your relative age. Answers can be found throughout the page.

7. What planet would you be the oldest in days (which planet spins the fastest on its axis)?
8. Which planet would you be the youngest in years?
9. How long does it take Pluto to revolve around the sun?
10. The amount of time a planet takes to rotate around the sun depends on the _____ .

Section C

Use [this applet](#) to answer the following questions:

Make sure Center of Mass is selected, and click on the Start button. Two bodies are plotted. To start out with, the red mass is 8 times as massive as the blue mass.

11. What happens to the speed of the blue mass as it gets closer to the red mass?
Click on Show orbit and you will notice that the red mass is not stationary, but is wobbling.
12. What is causing the red mass to wobble?
In the Orbit param, p = window, increase the value from 5 to 6.
13. What happens to the speed of the blue body when the orbital distance is increased?



Gravity and related topics

Name _____

Section D – Sig Figs!

Click on [this link](#) to test your sig fig skill. Print the page out with your score and write your name on it.

Section E – Reaction Time

[Click here](#) to see how fast your reaction time is. Print out your best effort (please don't print out every effort, it wastes paper and clogs the printer). If you have any questions, read the instructions. Make sure your name is on the paper you turn in (turn in only one of these).

Section F – Pendulum Studies

A pendulum is a mass hung by a string or wire of a certain length. [Click here](#) to find out the answers to the questions below.

Change the length of the string to .01m.

14. What is the period (length of time it takes for the mass to swing back and forth once) of the pendulum?

Increase the length of the string to .3m.

15. What happens to the length of the period?

Change the value of gravity to 0.9. Click on the apply button.

16. What happens to the length of the period?

17. Using the above info, what two factors control how long the period of a pendulum is?

Now that you have completed your data table, [click here](#) to enter your answers.

DATA TABLE

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Section D	Turn in Printout
Section E	Turn in Printout
Section F	
14. What is the period (length of time it takes for the mass to swing back and forth once) of the pendulum?	
15. What happens to the length of the period when you increase the length of the string?	
16. What happens to the length of the period when the value of gravity is increased?	
17. Using the above info, what two factors control how long the period of a pendulum is?	