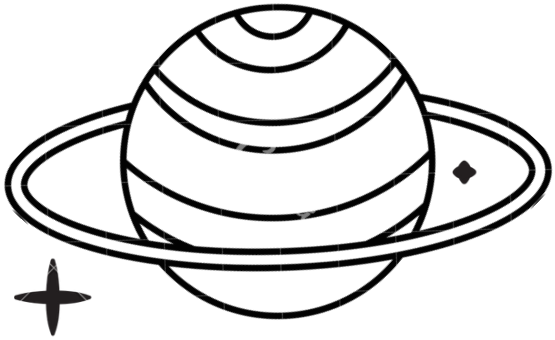
GRAVITY WORKSHEET



Gravity is a force that affects everything around us. Gravity is what causes things to fall. It is also is the force that keeps planets in their orbits. This worksheet will use an app called "Orbit Learn". It can be downloaded from the Google Play Store.

INSTRUCTIONS

Consider the scenarios listed below. Take a moment to consider each scenario and write your prediction for each. Then visit the app Orbit Learn and visit each scenario.

New Simulation -> Menu Button -> Templates

Did your prediction differ from the app? If so why?

SCENARIOS

Scenario 1:
There are two planets in space with equal mass. They are 10 m away from each other. Planet 1 starts with no velocity. Planent 2 has a velocity heading perpendicular from the direction of Planet 1. Perpendicular means that the two directions have a 90 degree difference in two planes. Ask your teacher.

Scenario 2:
There are two planets in space, one with a higher mass than the other. The one with more mass is not moving, while the smaller one is passing by the larger planet with a very high velocity.

Scenario 3:
Just like Scenario 1, except there is now an extra planet behaving just like Planet 2, but at a farther distance.

GRAVITY WORKSHEET

NAME: _____ DATE: _____

SCENARIO 1:

Prediction:
Using the description of scenario 1, what do you predict will happen to the two planets?

App:
Scenario 1 corresponds with the preset simulation called "Circular Orbit". Visit this simulation and observe what happens. Does the app align with what you expected to happen? If not, why did the two differ?

SCENARIO 2:

Prediction:
Using the description of scenario 2, what do you predict will happen to the two planets?

App:
Scenario 2 corresponds with the preset simulation called "Slingshot". Visit this simulation and observe what happens. Does the app align with what you expected to happen? If not, why did the two differ?

SCENARIO 3:

Prediction:
Using the description of scenario 3, what do you predict will happen to the two planets?

App:
Scenario 3 corresponds with the preset simulation called "2 Ellip. Orbits". Visit this simulation and observe what happens. Does the app align with what you expected to happen? If not, why did the two differ?