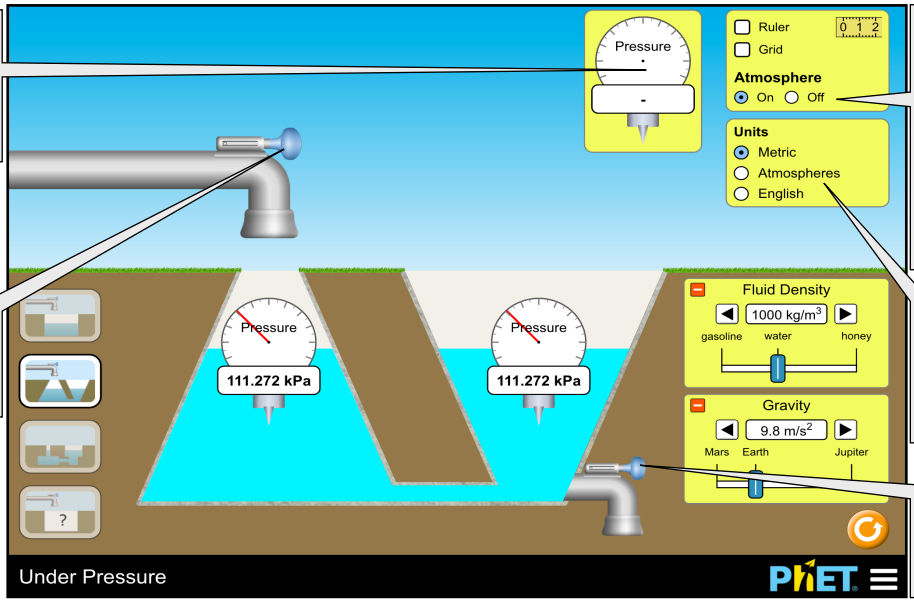
PhET Tips for Teachers

Under Pressure

The ***Under Pressure*** simulation allows students to explore pressure under and above water, as change fluid density, gravity, container shapes, and volume is varied.

MEASURE the pressure at up to four locations

ADD fluid to the system



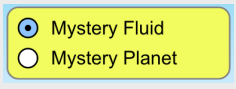
EXPLORE the system with or without the presence of atmospheric pressure

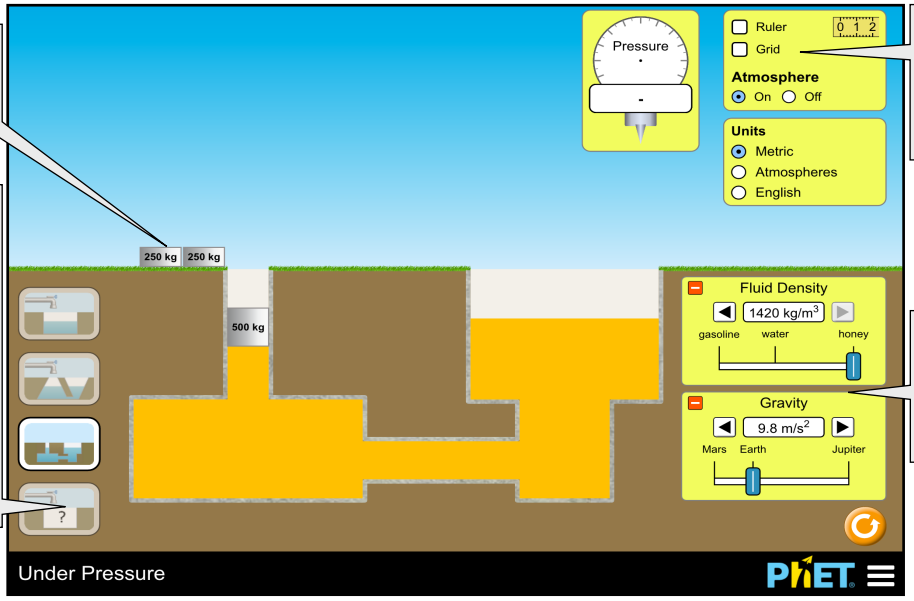
CHOOSE the desired units of pressure

DRAIN fluid from the system

PLACE masses onto the fluid

INVESTIGATE fluids with an unknown density or planets with unknown gravity





MEASURE the height using a ruler or grid

ADJUST the fluid density and gravity

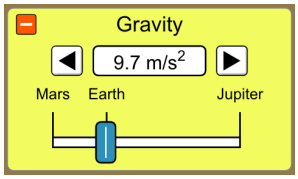
Rouinfar, July 2016

Model Simplifications

- The simulation displays a thin slice of an underground basin with fluid in it, where the top of the basin is at sea level.
- The pressure gauges are very sensitive, so you may expect some variations in answers.

Insights into Student Use

- Because the gravity slider has few tick marks, it is easy for a student to think they have set the slider to Earth, but the value may not be exactly 9.8 m/s^2. The gravity can be adjusted in 0.1 m/s^2 increments using the buttons on either side of the readout.



Suggestions for Use

Sample Challenge Prompts

- Design an experiment to determine the factors influence the pressure in the tank.
- Predict the pressure reading when the gauge is placed at 0m.
- What effect does the atmosphere have on the pressure at the bottom of the tank? How would your observations change if the tank was located at the top of a mountain?
- Predict how the pressure in the tank will change if a mass is placed in the tank. How does the 250 kg mass compare to the 500 kg mass?
- Develop a method to determine the unknown density of the mystery fluids.

See all published activities for Under Pressure here.
For more tips on using PhET sims with your students, see Tips for Using PhET.

Rouinfar, July 2016