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About Rockets

Start Your Journey
Rocket Research 101
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Educator Section
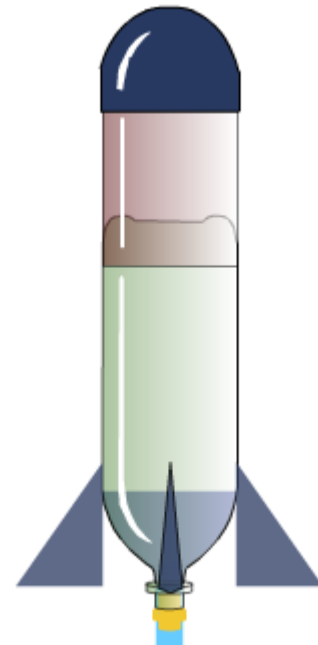Rocket Safety
The Simulators
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START YOUR JOURNEY

Welcome to Rocket Research 101

Propulsion - Questions

Do I have to use water?
Why can't I just use pressurized air?

Let's go to the simulator and try!

Add air (increase the air pressure) to the pop bottle and **Launch** to see the thrust produced.

NOTE: Most pumps (such as a bicycle pump) read out pressurized air in pounds per square inch (lb/in^2, or PSI). In science the metric system is preferred, where pressure is measured in Newtons per square meter (N/m^2) also known as "Pascals" (Pa).

 How do you convert from PSI to Pascals? **Learn how.**

Click here to access the Simulator.

Now:

What happens if I add Water?
Is more water better?

Back to the simulator!

Try different amounts of water and air pressure and log the results.

Click here to access the simulator.

Conclusions:

Which gave the fastest speed, water or air?

a) water
b) air

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To Convert from PSI to Pascals:

1. Set up a conversion table as shown below.
2. The top row is for the numerator and the bottom row for the denominator.
3. Units desired are placed in the *last* column.
4. If you want to replace a unit, put it in an opposing row (for example: to replace 'sq inches' in the lower row, in the next column place 'sq inches' in the upper row).
5. Multiply numbers in the same row.
6. Divide (if necessary) the upper row by the lower row.

14.7 Pounds	4.4482 Newtons	1550 Sq inches	= 101,352 Newtons
1.0 Sq inch	1.0 Pound	1.0 Sq Meter	= Sq meter
			= 101,352 Pascals

You try a conversion. Pick a pressure . . .

Pounds	4.4482 Newtons	1550 Sq inches	= Newtons
Sq inch	Pound	Sq Meter	= Sq meter
			= Pascals