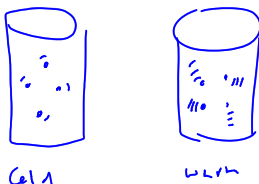


Today's Objective: Students can explain that gas pressure is caused by air particles running into a surface. Students can calculate changes in pressure based on changes in temperature, volume, and amount of air particles

ICP Do Now: Get out HW: Temperature Worksheet

Fill in blanks: All matter is made of _____.
Particles are always _____. The more energy particles get, the _____ they move.
When particles move faster, substances _____.
This is why we can use a _____ to measure temperature.



Nov 12-2:30 PM

Gas pressure: pressure caused by air particles running into a surface

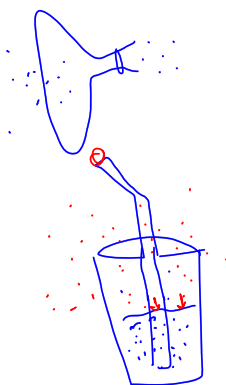
more particles = more pressure

Units of measurement:

atm → atmosphere

mm of Hg → millimeters of mercury

psi → pounds/square in

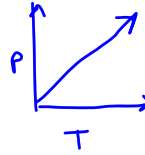


Nov 12-3:47 PM

Variables that effect gas pressure:

Temperature (K)-

If temp \uparrow , pressure \uparrow
+ particles moving faster



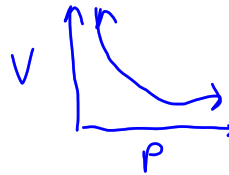
Amount of particles (n)-

If # particles \uparrow ,
pressure \uparrow



Volume (mL, cm^3)

If volume \uparrow , pressure \downarrow



Nov 12-3:49 PM

Volume and Temperature...

Nov 12-3:56 PM

Exit Ticket

1. If Volume increases, Pressure _____
2. If Temperature increases, Pressure _____
3. If Temperature increases, Volume _____
4. If particle # increases, Pressure _____

Nov 12-3:52 PM

1. A sample of gas occupies 150 mL at 298 K. What is its volume when the temperature is increased to 323 K? (P and n = constant)

	P	T (K)	V (mL)	n
Initial		298	150	
Final		323		
Effect		↑	↑	

$$150 \text{ mL} \times \frac{323 \text{ K}}{298 \text{ K}} = 163 \text{ mL}$$

Nov 12-3:57 PM

2. The pressure in a bicycle tire is 105 psi at 298 K in Fresno. You take the bicycle up to Huntington, where the temperature is 268 K. What is the pressure in the tire?
(V and n = constant)

	P	T (K)	V	n
Initial	105	298 K	 	
Final		268 K	 	
Effect	↓	↓	 	

$$105 \times \frac{268}{298} = 94 \text{ psi}$$

Nov 12-3:58 PM

3. What would be the new pressure if 250 cm³ of gas at standard pressure is compressed to a volume of 150 cm³? (T, n = constant)

	P (atm)	T	V	n
Initial	1	 	250	
Final		 	150	
Effect	↑	 	↓	

$$1 \times \frac{250}{150} = 1.7 \text{ atm}$$

Nov 12-3:59 PM

4. What would be the new volume if 250 cm³ of gas at 298 K and 730 mm pressure were changed to standard conditions of temperature and pressure? (_____ = constant)

	P	T	V	n
Initial	730	298	250	
Final	760	273		
Effect	↑	↓		

$$250 \times \frac{730}{760} \times \frac{273}{298} =$$

Nov 12-4:00 PM