

# Problem Solving with Gas Laws

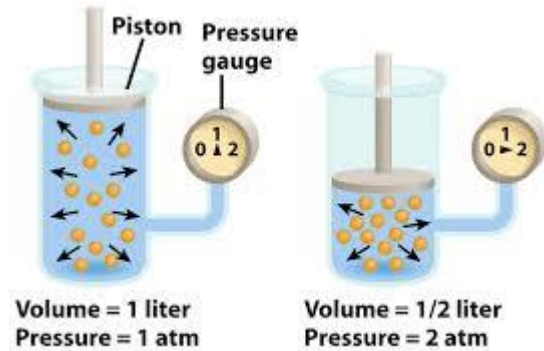
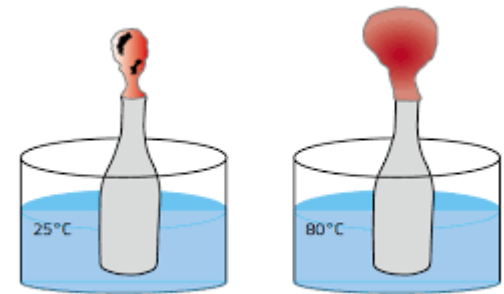


Figure 2.11 Principles of Anatomy and Physiology, 11/e  
© 2014, John Wiley & Sons



Ex. Herbie and Gertrude are going on a trip downward from the mountains. They have a fluffy cake wrapped loosely in plastic wrap. By the time they reach lower levels of land, what can they predict?

Click the word needed in the chart, then click **Control + D** to duplicate it. Drag the **word** to the correct place in the chart.

**increases**

**decreases**

Experiment	Temperature	Pressure	Volume
Ex.	Stays the same		

What do you predict will happen to the fluffy cake in the loose plastic wrap?

What law does this experiment demonstrate?

#1 Herbie and Gertrude are doing some experiments. They squash the side of a ping pong ball inward, then put it in a pan of hot water. What prediction can they make?

Click the word needed in the chart, then click **Control + D** to duplicate it. Drag the **word** to the correct place in the chart.

increases

decreases

Experiment	Temperature	Pressure	Volume
#1		Stays the same	

What do you predict will happen to the ping pong ball?

What law does this experiment demonstrate?

#2 Herbie blows up a large ziplock bag with his warm breath, then seals it tightly. He puts it into the freezer. What prediction can he make?

Click the word needed in the chart, **then click Control + D to duplicate it.** **Drag the word** to the correct place in the chart.

increases

decreases

Experiment	Temperature	Pressure	Volume
#2		Stays the same	

What do you predict will happen to the ziplock bag?

What law does this experiment demonstrate?

#3 Gertrude puts a small balloon inside a large plastic jar. Then she makes a hole in the jar and sucks out the air inside using a straw. What change could she predict?

Click the word needed in the chart, **then click Control + D to duplicate it.** **Drag the word** to the correct place in the chart.

increases

decreases

Experiment	Temperature	Pressure	Volume
#3	Stays the same		

What do you predict will happen to the balloon?

What law does this experiment demonstrate?

#4 Gertrude looks at the bicycle pump in the garage. It is a long cylinder with a piston to push down to force air into a bike tire. She holds a finger over the air tube, so it is impossible for air to escape. What change will happen in the bike pump cylinder as she tries to pump down?

Click the word needed in the chart, **then click Control + D to duplicate it.** **Drag the word** to the correct place in the chart.

**increases**

**decreases**

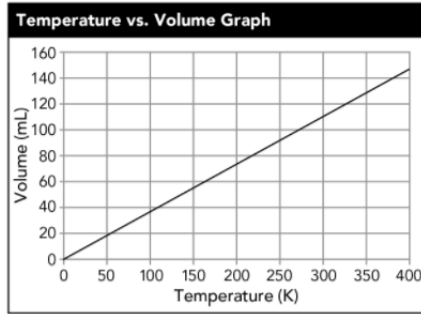
Experiment	Temperature	Pressure	Volume
#4	Stays the same		

What do you predict it will feel like to push the pump downward while she seals the tube?

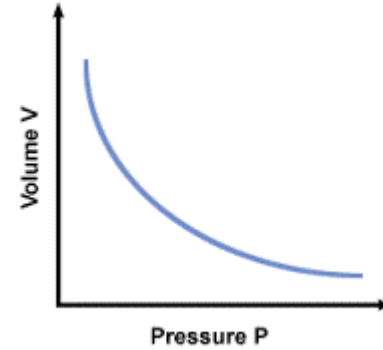
What law does this experiment demonstrate?

#5 - Herbie puts a marshmallow in a syringe, closes off the opening at the end, and pushes the piston inward. Which graph could show his results?

A



B



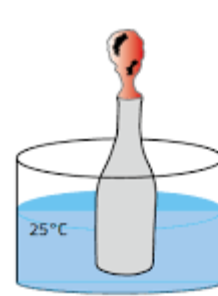
My answer is graph: \_\_\_\_\_

How will the marshmallow change, and why?

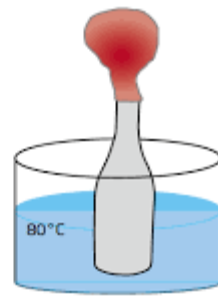
#6 - Gertrude sets up this experiment:

Which graph could show her results?

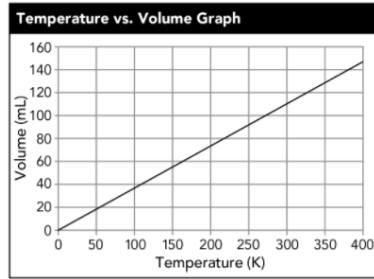
25 C



80 C



A



B



My answer is graph: \_\_\_\_\_

Explain what the particles in the balloon are doing:



Drag and drop the statements on the left to answer each question on the right.

Temperature increased.

Temperature decreased.

Pressure increased.

Pressure decreased.

Volume will increase.

Volume will decrease.

#7 Herbie has a baggie filled with air at 30 C. He puts it into a bowl of ice and the baggie is now 0 C.

a) What change occurred?

a) What will change as a result?

Drag and drop the statements on the left to answer each question on the right.

Temperature increased.

Temperature decreased.

Pressure increased.

Pressure decreased.

Volume will increase.

Volume will decrease.

#8 Gertrude let go of a helium balloon, and it floated high in the sky.

a) What change occurred?

a) What will change as a result?

Drag and drop the statements on the left to answer each question on the right.

Temperature increased.

Temperature decreased.

Pressure increased.

Pressure decreased.

Volume will increase.

Volume will decrease.

#9 Gertrude took a plastic container filled with hot steam and let it cool on a counter. She noticed it sunk inward (it imploded).

a) What change occurred?

a) What will change as a result?

Drag and drop the statements on the left to answer each question on the right.

Temperature increased.

Temperature decreased.

Pressure increased.

Pressure decreased.

Volume will increase.

Volume will decrease.

#10 Herbie had half-empty water bottle in his car as he drove down a mountain. When he got to the bottom, the bottle had pushed inward and looked like it was crushed on one side.

a) What change occurred?

a) What will change as a result?

# You have finished!

Make sure all of your group members mark this assignment as done and then look up more real life example of these two gas laws.