

I'm not robot!

Periodic Table

A large grid of 10 columns and 10 rows of small squares, with two larger vertical structures on the left and right edges.

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Name: _____

Scientific Notation

Scientists very often deal with very small and very large numbers, which can lead to a lot of confusion when counting zeros. We can express these numbers as powers of 10.

Scientific notation takes the form of $M \times 10^n$ where $1 \leq M < 10$ and n represents the number of decimal places to be moved. Positive n indicates the standard form is a large number. Negative n indicates a number between zero and one.

Example 1: Convert 1,500,000 to scientific notation.

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Move the decimal point so that there is only one digit to

Move the decimal point so it's left, for a total of 6 places.

$$1,500,000 = 1.5 \times 10^6$$

Example 3: Convert 0.000025 to scientific notation.

Example 2: Convert 0.000025 to scientific notation.
For this, move the decimal point 5 places to the right.

decimal point 5 place

$$0.000025 = 2.5 \times 10^{-5}$$

- Convert each number to scientific notation.

1. $0.005 =$ _____	6. $0.25 =$ _____
2. $5,050 =$ _____	7. $0.025 =$ _____
3. $0.0008 =$ _____	8. $0.0025 =$ _____
4. $1,000 =$ _____	9. $500 =$ _____
5. $1,000,000 =$ _____	10. $5,000 =$ _____

Convert each number to standard notation.

11. 1.5×10^9 = _____ 16. 3.35×10^{-1} = _____

12. 1.5×10^{-3} = _____ 17. 1.2×10^4 = _____

13. 3.75×10^{-2} = _____ 18. 1×10^6 = _____

14. 3.75×10^2 = _____ 19. 1×10^{-1} = _____

15. 2.2×10^6 = _____ 20. 4×10^8 = _____

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Quarter 4 - Matter and its Interaction
MODULE 1 - BEHAVIOR OF GASES

Group no. _____
Group name: _____

Activity 3 – Charles' Law

- Activity 3 - Charles Law
Procedure:

 1. Prepare 3 set-ups using beakers/basin.
 - a. Set-up A (hot water)
 - b. Set-up B (tap water)
 - c. Set-up C (cold water)
 2. Inflate a balloon (it must be spherical).
 3. After inflating, draw a line around the widest (or middle portion) of the balloon.

3. After inflating, draw a line around the widest (or middle portion) of the balloon to be consistent with where to measure the circumference.

- note: The same balloon will be used throughout the experiment. Thus, do not overinflate the balloon.)

4. Predict first what will happen to the size of the balloon before submerging the balloons into the different settings. Write your predictions on Table 1.

Set-up	Predictions	Observations
Warm water		
Tap water		

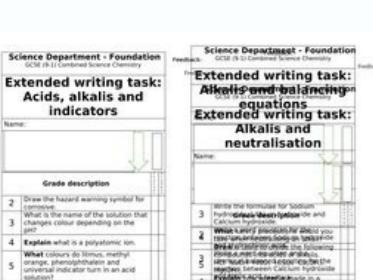
- Cold water

 5. Measure the circumference of the balloon.
 6. Get the temperature of the water in the basin (Set up A).
 7. Place inflated balloon in set-up A for 2-3 minutes.
 8. Measure the circumference of the balloon once more.
 9. Perform two more trials and get the average of the results.
 10. Repeat step 5-9 using Set up B and C.
 11. Record your observations on Table 2.

Set up / trials		Temp (°C)	Average Temp (°C)	Ave Temp (K)	Circumference of the balloon (cm)			Volume of the balloon after placing in a set up.	Average volume
					Before	after	diff		
Warm	1								
	2								
	3								
Tap water	1								
	2								
	3								
Cold water	1								
	2								

Q1. What happens to the size of the balloon as the temperature decreases?

Q1. What happens to the size of the balloon as the temperature decreases?
Q2. How does the temperature relate to the volume of gas in the balloon?





Carson dellosa chemistry answer key

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