



UNITED NATIONS SCHOOL I.E.D.

PEI: COMPREHENSIVE TRAINING OF COMPETENT ENTREPRENEURIAL LEADERS, WITH  
DEMOCRATIC, TECHNOLOGICAL, CULTURAL AND SPORTS PRINCIPLES

MOTTO: "EDUCATION, SCIENCE, CULTURE AND SPORT TO TRANSCEND"

---

PREPARATION WORKSHOP FOR THE SECOND PERIOD

CHEMISTRY

TENTH GRADE

TEACHER HEISEL QUESADA

The preparation workshop must be carried out in the Chemistry notebook as a requirement to take the competency test

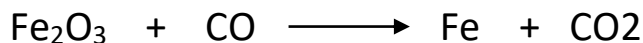
Delivery date: JULY 15

USE THE FOLLOWING INFORMATION FOR QUESTIONS 1 TO 5

The balancing of equations is nothing more than a consequence of Lavoisier's law of conservation of mass, so the mass of the reactants must be equal to the mass of the, this implies that the quantity and variety of atoms present in the reactants must be maintained in the products, (the only thing that varies is the way they are combined); It consists of balancing the reagents and products of the formulas, for this, coefficients are only added when required but the subscripts are not changed.

1. From the text, write 3 statements that are true and 3 that are false. Write the fake ones correctly
2. Explain why a chemical equation should be balanced
3. Lists the steps to follow to perform a chemical calculation from a chemical equation
4. Explain what the coefficients mean in a balanced equation and what their importance is
5. To balance an equation, can the subscripts (number of atoms) of substances be changed? Justify your answer

USE THE FOLLOWING INFORMATION FOR QUESTIONS 6 TO 11

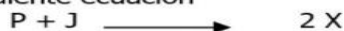


6. Write down the coefficients for each reagent and each product (number of moles)
7. If you have 40 grams of  $\text{Fe}_2\text{O}_3$  and you want to know the number of moles of Fe produced, write down what is the first thing to do after balancing the equation. Solve the exercise
8. If 9 moles of CO react, calculate the amount of moles of  $\text{CO}_2$  produced. Describes the steps used to troubleshoot the exercise
9. If 80 grams of Fe are produced, calculate the number of grams of  $\text{Fe}_2\text{O}_3$  needed. Describes the steps used to troubleshoot the exercise

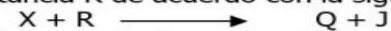
- If you have 4 moles of Fe<sub>2</sub>O<sub>3</sub>, calculate the amount of moles of CO<sub>2</sub> produced
- Propose an exercise with statement, procedure and response based on the equation

USE THE FOLLOWING INFORMATION FOR QUESTIONS 12 TO 20

Las sustancias P y J reaccionan de acuerdo con la siguiente ecuación



Adicionalmente la sustancia X reacciona con la sustancia R de acuerdo con la siguiente ecuación



Químicamente la sustancia R no reacciona con las sustancias P y J

En la siguiente tabla se presentan algunas características de las sustancias mencionadas

Todas las sustancias son líquidas a 20 °C

Sustancia	Masa molar (g/mol)	Temperatura de ebullición (°C)
P	50	215
J	?	50
X	30	180
R	?	100
Q	40	200

- Based on the information, it calculates the molecular weights of J and R
- Write the reactants and products in each equation
- Write down the boiling temperatures of the substances in ascending order
- Which of the substances would go into a gaseous state first? Justify your answer
- Which of the substances would first go into a solid state? Justify your answer
- Perform the ratio in moles for each equation
- Perform the gram ratio for each equation
- Organizes substances from highest to lowest molecular weight
- Calculate the moles of J produced from 400g of R

USE THE FOLLOWING INFORMATION FOR QUESTIONS 21-30

A continuación se muestran la ecuación balanceada que describe la oxidación del hierro (Fe) y la masa molar de cada uno de los reactivos y del producto.



Reactivo o producto	Masa molar (g/mol)
Fe	56
O <sub>2</sub>	32
Fe <sub>2</sub> O <sub>3</sub>	160

- Write down the reactants and products of the equation
- According to the information, if 280 g of Fe react with 96 g of O<sub>2</sub>, calculate the limit reagent
- What would be the excess reagent? Perform the procedure
- From the limit reagent, it calculates the moles of Fe<sub>2</sub>O<sub>3</sub> produced
- From the limit reagent, calculate the grams of Fe<sub>2</sub>O<sub>3</sub> produced
- Calculates the amount in grams of overreactive reactant that is left over
- Discuss what would happen if you miscalculated the limit reactant
- It poses a situation at the industrial level where the limit reagent and the reagent are used in excess
- It poses a situation of everyday life where the limit reagent and the reagent are used in excess
- Why the use of limit and excess reagents is important in Chemistry