

Name:

OL Lab 3: Stoichiometry: Avogadro's number and molecular calculations / Solution Preparation: From salt to solution

Learning Objectives:

- Explain the relationship between mass, molecular weight, and numbers of atoms or molecules and perform calculations deriving these quantities from one another
- Perform mass-to-mass stoichiometric calculations *via* conversions to moles
- Identify the limiting and excess reagents in a chemical reaction
- Calculate the theoretical, actual and percent reaction yield
- Define Avogadro's number and describe the mole quantification of matter
- Explain relationship between mass, molecular weight, and numbers of atoms or molecules
- Perform conversion and derivations calculations using key molecular quantity parameters
- Define Avogadro's number and describe the mole quantification of matter

How many moles of sand grains has the Sahara desert? What is the only equation you'll ever need in chemistry? The short stoichiometry simulation will help you answer those questions! Follow the footsteps of great chemists and learn about key molecular parameters based on one and only star of chemistry calculations: Avogadro's Law!

Concept mole and Avogadro's Law:

Your first mission in this short simulation is to familiarize yourself with the concept of mole and the way of counting molecules of substances using the one and only Avogadro's Law. You will learn how to convert huge numbers of particles into handy Avogadro's number, extensively used by all chemists around the world!

Chemical units relationship:

Next, you will explore the relationship between mass, molecular weight, and number of atoms. This magical equation will enable you to perform derivations of molecular quantity parameters for various chemical substances. You will feel like Marie Curie analysing chemical dependencies of chemicals in her French laboratory! Part 1: Complete the Labster lab: Stoichiometric calculations: Identify an unknown compound using gravimetric analysis.

Glassware and quantitative transfer

Moving on to the second workbench, you will explore and determine what glassware will be appropriate for you to use. Your lab guide and mentor, Dr. One, will walk you through the process of preparing the solution. You will have the freedom to use the equipment as you like, but only by following Dr. One's instructions will you be successful in making the right solution. To make sure you can always redo the essential steps of the process,