

PR2.A – TEACHING SOURCES

Title	<i>Chemical Equations Conservation of Mass</i>
Duration	<i>1 session</i>
Age Group	<i>14 – 16 YO</i>
Dimension of the advised group of students	<i>The dimension of the group can be unlimited</i>
Area	<input type="checkbox"/> <i>Area 1: Reading, writing and literature</i> <input type="checkbox"/> <i>Area 2: Math</i> <input type="checkbox"/> <i>Area 3: Second language learning</i> <input checked="" type="checkbox"/> <i>Area 4: Sciences and chemistry</i> <input type="checkbox"/> <i>Area 5: Soft skills</i>
Specific objectives	<i>For students to be able to balance a chemical equation. Describe the difference between coefficients and exponents in a chemical equation. Recognize that the number of atoms of each element is conserved in a chemical reaction</i>
Needed Materials	<i>Computers or laptops Internet connection (HTML5 simulations can be run on iPad, PC, Chromebook, Mac and Linux systems)</i>
Software	<i>The activities are online.</i>
Description	<p><i>Chemistry is everywhere! Chemical changes are the chemical reactions that take place all around us when one substance combines with another to form a new or, alternatively, decomposes into two or more different ones.</i></p> <p><i>So practice your chemical reaction equilibration skills, observe the new products that are created. Look at the geometry of molecules and describe the different shapes in space that form.</i></p> <p><i>Debriefing question: What would happen if there was no balance in our lives?</i></p>
Procedure on how to put in practice	<ul style="list-style-type: none"> - <i>Identify each element in the equation. The number of atoms of each type of atom must be the same on each side of the equation once it has been balanced.</i> - <i>What is the net charge on each side of the equation? The net charge must be the same on each side of the equation once it has been balanced</i> <ol style="list-style-type: none"> 1. <i>If possible, start with one element in a compound on each side of the equation. Change the coefficients (the numbers in front of the compound or molecule) so that the number of atoms in the element is the same on each side of the equation. Remember! To balance an equation, you change the coefficients, not the subscripts in the formulas.</i> 2. <i>Once you balance one element, do the same thing with another element. Continue until all the elements are balanced. It is easier to leave elements that are in pure form for last.</i> 3. <i>Check your work to make sure the charge on both sides of the equation</i>



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	<i>is balanced.</i>
Link	https://phet.colorado.edu/en/simulations/balancing-chemical-equations



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