**O3.2 Lesson Plan –** The synthesis of aspirin

**Age group/class:** 16-17 years old/ Year 11

**Lesson title:** The synthesis of aspirin

**School Discipline:** Chemistry

**Key concepts:** synthesis, reaction yield, product purity, catalyst

**Aims:**

The main aim of this VR resource is the preparation of the laboratory activity of the synthesis of aspirin.

**Skills developed**:

The VR resource applied in this lesson plan, and running in a laboratory environment, should allow students to become more familiar with the following aspects of the experimental procedure:

- Interpret safety information on reagent labels.

- Interpret and follow the synthesis procedure.

- Calculate the yield of a chemical reaction.

- Apply standard laboratory techniques (vacuum filtration, wash and dry the crystals obtained).

**Materials/Equipment needed**:

- VR glasses;

- VR video/link: <https://felipegimenezsilva.github.io/exp2.html>

**Lesson plan:**

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| **Stages** | **Description of activity** | **Time** |
| **Preparation before the lesson** | Introducing students to VR glasses if this is their first VR experience.  Proper and safe use of VR glasses.  Potential adverse effects of VR glasses.  Students should be given the choice to opt out of using VR. |  |
| **Introduction** | The activity can start by discussing with students about the chemical reactants to use, the type of chemical reaction and writing the chemical equation that describes the synthesis.  Following the discussion, students are asked on how to calculate the yield of the synthesis.  Reagent labels are analyzed to identify risks associated with the handling of reagents and adequate safety measures.  Revise the different types of laboratory operations: mixing a solid reagent with another liquid or in solution; heating; vacuum filtration, washing and drying the reaction product. | 25 min. |
| **Guided**  **Immersive**  **Experience** | The students put on the VR headsets to explore the laboratory experiment.    Turn the headsets off and bring students back into the classroom.  After using the digital resource, students compare their assumptions with what they learned from the resource; students are encouraged to ask questions about what they learned from the resource. | 3 min. |
| **Follow up** | The teacher distributes a table containing the results from the synthesis of aspirin and students are asked to calculate the reaction yield. | 15 min. |
| **Formative assessment** | Teacher collects the groups calculations and correct them, if necessary. | 5 min. |