

# Chemistry Internal Assessment (IA) Proposal

Create a proposal for your individual investigation (the IA) that you would find interesting to carry out and the school would have the necessary equipment and chemicals to complete [Check with your teacher to make sure]. Identify the research topic, the research question that will be your focus within the topic, the key variables that the investigation will examine, and a short overview of the methodology and materials needed.

An example (of a Physics IA proposal) is shown below:

Description of research topic:

*The purpose of my investigation is to use the relationship between liquid pressure as a function of water depth. To determine the density of different fluids*

Research question that will be addressed:

*I am an active scuba driver and I am aware of the increase of water pressure the deeper I dive. My teacher showed me how to derive the equation for pressure and water depth,*

$$\text{Pressure} = \text{depth} \times \text{water density} \times \text{gravity}.$$

*My question is: Can the pressure exerted by unknown fluids at depth be used to accurately determine the density of those fluids?*

Identification of key variables:

*Dependent variable will be the fluid pressure at a given depth.*

*The independent variables will be the use of different liquids. I will vary this and measure the resulting pressure at a constant depth.*

*Controlled variables include using the same depth, keeping the fluid temperature constant, and carefully measuring the depth by the same method.*

Proposed research methodology and key materials required:

*I will use a large measuring cylinder to provide an appropriate depth of fluid. My materials include a Vernier gas pressure sensor along with the Lab Pro interface and my laptop. I will use Vernier's LoggerPro software to record pressure.*

*The method is straightforward: to record the pressure for a variety of fluids at a fixed depth (depth being measured from the end of the pressure probe). I will graph pressure against fluid density and correlate the results with the known densities of the liquids. The methodological details are provided by Vernier's instruction sheet for the Gas Pressure Sensor.*

You must submit a completed IA Proposal on the back of this handout (either by hand or digitally on ManageBac) and have it approved by your teacher no later than **January 14<sup>th</sup>**

Name \_\_\_\_\_

Date \_\_\_\_\_

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**Research question that will be addressed:**

**Identification of key variables:**

**Proposed research methodology and key materials required:**