**PBL8 – G.P.G.P. Prototype - Pressure Project**

**This assignment will provide you with an opportunity to demonstrate that you have mastered the key concepts in this Mix and Flow of Matter unit.** **You are asked to design and build a working model that applies many of the key concepts you have learned in this Unit.**

**Design a Prototype:** The key concepts you should consider (these concepts must be clearly explained in your presentation) include:

*Fluid Properties Buoyancy Density Fluid Pressure*

*Flow Rate and Viscosity Hydraulics (all prototypes must have a working hydraulic system)*

**Create an Electronic Blueprint:** Each student will create a basic blueprint prior to the formation of groups/companies. When companies are created, each student will present their ideas to the group and the formation of their master blueprint can be created. The blueprint should include:

* Dimensions of the prototype (Length, width and Height)
* Function of the Prototype – (Use arrows to show the movement of the hydraulics)

**Build a working prototype:** The prototype must be functional – buoyant and can physically pick up plastic and garbage from water.

**Create an I-Movie presentation:** Your presentation should be professional (taped quietly), and edited. The presentation must include: Blueprint, Prototype, and all key concepts mentioned above.

All Final products (blueprint, prototype, write-up, movie) must be shared with your teacher via google docs. You will be marked on the General Science Rubric. Please take a look at the criteria.

**Science: I can statements…**

**Skill Outcomes**

**Communication and Teamwork**

* **I can work collaboratively on problems.**
* **I can use appropriate language and formats to communicate ideas, procedures, and results.**

**Unit A: Mix and Flow of Matter**

* **I can investigate and describe fluids used in technological devices and everyday materials.**
* **I can investigate and describe the composition of fluids.**
* **I can interpret the behaviour of materials in solution.**
* **I can investigate and compare the properties of gases and liquids.**
* **I can relate variations in viscosity, density, buoyancy, and compressibility of liquids and gases to the particle model of matter.**
* **I can identify, interpret and apply technologies based on properties of fluids.**