Science 8 Forces, Fluids and Density Unit

Big Idea: **Are we all dense?**

Outcome:

FD8.4 Identify and interpret the scientific principles underlying the functioning of

natural and constructed fluid systems.

Understandings:

* Hydraulic or pneumatic pressure can be used to create a mechanical advantage in a simple mechanical device.
* Canada has made contributions to the science and technology of fluids.
* Scientific understanding is about collecting evidence, finding relationships, proposing explanations, and thinking outside the box.
* Prototypes help us understand systems.

Essential questions:

1. How can hydraulic or pneumatic pressure be used to create a mechanical advantage in a simple mechanical device?
2. What are some advantages and disadvantages of natural and constructed hydraulic and pneumatic devices?
3. What are some Canadian contributions to the science and technology of fluids?
4. What are the parts of scientific work?
5. What is the value of a prototype?

Students need to know: (essential questions they are related to are in brackets)

- Vocabulary and concepts: hydraulic, pneumatic, mechanical advantage, natural, constructed, fluid system, prototype.

-How hydraulic and pneumatic pressure can be used. (1)

 - Examples of natural and constructed hydraulic and pneumatic devices. (2)

 - Examples of Canadian contributions to the science and technology of fluids. (3)

And be able to: (essential questions they are related to are in brackets)

 - Describe how hydraulic and pneumatic pressure can be used. (1)

 - Compare natural and constructed hydraulic and pneumatic devices. (2)

 - Use the technological problem-solving process to design, construct and evaluate a prototype of

 a device that models the operation of a natural or constructed fluid system. (2)

- Provide examples of Canadian contributions to the science and technology of fluids. (3)

-Work collaboratively to identify and correct problems.

-Test a prototype.

-Describe, explain the role of evidence, finding relationships, proposing explanations and imagination in science.