



Scientist of the Month:

Robert Boyle

- * B. Jan 35, 1627 in a castle in Ireland
- * Had 14 siblings
- * Spent a lot of time studying abroad
- * Was instructed by a very elderly Galileo
- * After his father's death Robert moved back to Ireland to research air and it's properties
- * Attributed as being a founder of modern chemistry
- * Published many works, one of which included the gas law attributed to him
- * Boyle's Law states that the volume of a gas varies inversely to the gas pressure



January 2011

Praxis: The Science and Technology Hotline

Happy New Year!

Welcome to 2011! I hope everyone had a great holiday break and you're ready to start the new year exploring more science topics!

We still have learning kits available to borrow! If you're looking for resources to help you teach with

enthusiasm we have kits that cover most elementary science topics. We also have demonstration models for junior and senior high including a DNA model and a model fetal pig dissection. Also, if you want to reward a smaller group of students or do a fun exercise with your Student Council, ask us about our murder

mystery kit!

Remember it's never too early to book your science kits and demonstrators! Check out our website for a full list of kits: www.praxismh.ca



Operation Minerva

The 19th Annual Operation Minerva is coming up on Friday January 28, 2011. This one day conference is a fantastic opportunity for grade 9 girls to explore career options in science, math and technology.

Never heard of Operation Minerva? Here is a short history. The Operation Minerva organization was established and founded in 1988 by a group of Calgary teachers, Female Science Mentors, and interested individuals who recognized a need to develop an awareness of the small number of female students choosing science, mathematics and technical courses and careers. This group created a model to aid in bringing young women and female science mentors together. Each

year Operation Minerva projects across the province provides young women an opportunity to share an experience of Job-Shadowing a Female Mentor in a math, science or technological related career. To date each Project has been very successful in giving these young students an opening for success in their futures.



A group of girls participating in the EMS workshop at Operation Minerva 2009

In 1992, Operation Minerva was established in

Medicine Hat. In January of every year, the Operation Minerva Conference is organized in Medicine Hat.

Approximately 50 girls from southeastern Alberta and Saskatchewan are invited to participate. The morning portion of our conference consists of the girls going out into the community to mentor a female who has a career in Math, Science and/or Technology. In the afternoon, we have mentors come into the school to do hands on science workshops. The day provides the girls with an excellent overview and understanding that women can do science too!

If you are interested in learning more about Operation Minerva please contact Praxis at 403-527-5365 or praxis@praxismh.ca.

Interesting fact: Chalk is made up of trillions of microscopic skeleton fossils of plankton.

Good Bacteria!



Up Coming Events

January 28: Operation Minerva

February 24 & 25: South Eastern Alberta Teacher's Convention

March 26: Kiwanis South Eastern Alberta Science Fair

April: Operation Thoth

April 22—May 1: Spring break (Easter Holidays)

Check out Praxis Online:
www.praxismh.ca

Did you know there are more bacteria cells in your body than human cells? That is a lot! Many bacteria are helpful for your body, including the ones found in yogurt. Here is an experiment to try making your own!

Materials:

- large sized cooler
- 2L glass or plastic bottles
- Kitchen thermometer
- Plastic or glass containers
- 2-4L of milk
- Small container of unsweetened, unflavoured yogurt with live cultures

Directions:

1. Heat the milk on the stove to between 76-82°C. This will kill any bacteria that may be in the milk.
2. Use boiling water to sterilize the containers you will be putting your yogurt in.
3. Cool the milk to 40-43°C, stirring the whole time.
4. While the milk is cooling, mix the

prepared yogurt until it is a liquid consistency.

5. Stir the yogurt into the milk, and continue stirring for 2 minutes.
6. Pour the milk mixture into the containers and place in the homemade incubator. (Fill the 2L containers with boiling water and place in the cooler).
7. Put the yogurt into the homemade incubator for 4-8 hours. This allows the bacteria to ferment the milk and make yogurt. You may need to change the water containers in the incubator.
8. Once completed, cover the containers and refrigerate.

Explanation:

The live cultures of bacteria in the yogurt help your digestive tract stay healthy. They also can be “reactivated” to produce more yogurt when they are heated slightly. Stirring your yogurt and refrigerating it helps the bacteria stop digesting the milk and makes the yogurt more solid. Try different kinds of milk (skim, 2%) and different kinds of yogurt starters to see what makes the best yogurt!

Food Digestion: Liver Enzymes

Your body digests food every day. Breaking down all the different food components takes time and a lot of different enzymes. In this experiment we're looking at liver enzymes.

Materials:

- Liver (from the grocery store)
- Hydrogen peroxide (fresh)
- Re-sealable plastic bags
- Cutting surface
- Knife

- Tablespoon

Directions:

1. Chop the liver into cubes (2cm)
2. Put a few pieces of liver into one of the re-sealable bags.
3. Add 3 tablespoons of hydrogen peroxide and seal the bag.
4. Observe the reaction.

Observations:

A very common reaction is occurring in the bag. Hydrogen peroxide will

naturally dissociate into water and oxygen (this is why peroxide bottle have an expiry date).

In this experiment, a liver enzyme known as catalase is speeding up the reaction. Catalase is a catalyst, or a chemical that speeds up chemical reactions without being “used up” in the reaction. You should have also noticed that the bag was warm to the touch. This is because the reaction is exothermic (or releases heat).

Many enzymes in your body need particular conditions to be active. This is one reason our body temperature is kept constant.

**For all your Science needs
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