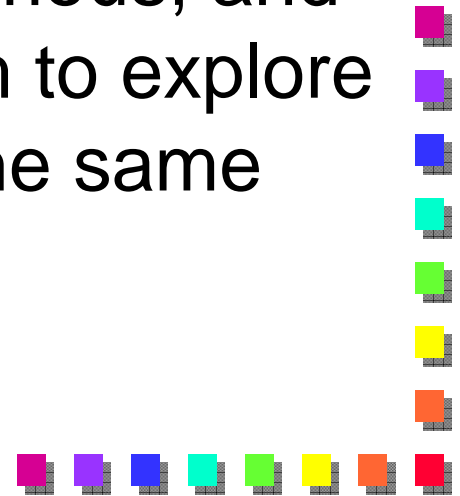


For the love of

Science

Thank you so much for coming!

Science is such a vital part of a child's learning experience. Did you know that creating and experimenting helps build life long critical thinking and problem solving skills? Children are naturally curious, and science provides a way for them to explore that curiosity while learning at the same time.



You can help!

Encourage your child's natural curiosity and creativity!

- Encourage your child to ***TRY IT*** first.
- Provide a safe, fun experimenting environment.
- A mess is OK!
- Be **POSITIVE!**



Getting Started...

1. Coming up with the 'perfect project'.

Anything can become a science project.

- ❖ Start early.
- ❖ Use real life questions.
- ❖ Use topics of interest.
- ❖ Let your child make the final decision.

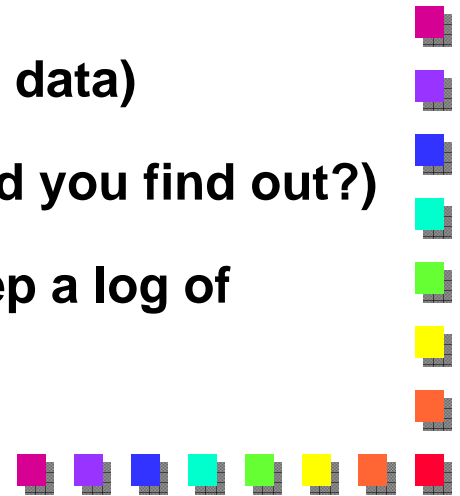
The project will be good if:

- ❖ Your child is interested in it.
- ❖ Your child has fun conducting the experiment.
- ❖ Your child has even more ideas after they have finished experimenting.



Components of an *AWESOME* science project:

- ❖ **Purpose/Question:** What is the problem?
- ❖ **Research:** Find out enough information to make a good question.
- ❖ **Hypothesis:** What do you think will happen?
- ❖ **Procedure:** What will you do? (step by step directions)
- ❖ **Materials:** What do you need?
- ❖ **Results:** What happened? (record and analyze data)
- ❖ **Conclusion:** What do you think now? (What did you find out?)
- ❖ **Science Project Notebook:** Don't forget to keep a log of everything you've done!



Upset Tummy?

MOM to the

Rescue!

Purpose:

I wondered how my stomach medicine worked. I also wondered what it meant to have heartburn or a “sour stomach”.

Question:

What makes a “sour stomach” or “heartburn” feel better? How does an antacid work?

Research:

- What is an acid?
- What is an antacid?
- What is milk of magnesia?
- What is heartburn?
- What is a “sour stomach”?
- What is an indicator?
- What is a base?
- What is a neutral?
- What is solubility?
- What is a solution?

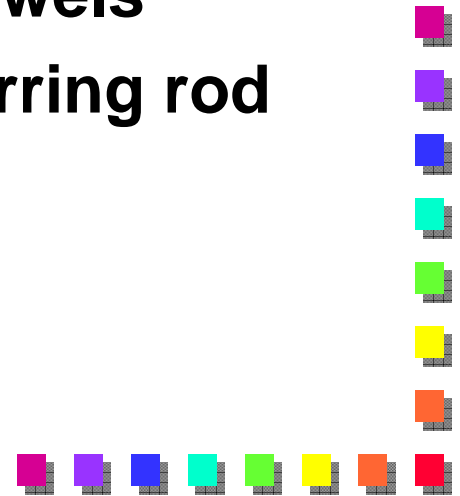


Hypothesis:

An antacid will neutralize excess stomach acids which can cause a sour stomach or heartburn.

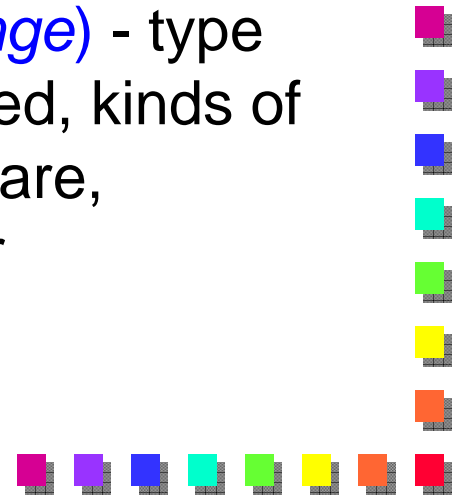
Materials:

- Milk of Magnesia, 40ml
- Hydrochloric acid, 3M, HCl, 40 mL
- Universal indicator solution 1% 8-10 mL
- Phenolphthalein solution, 10 ml
- Water, distilled 1600 mL
- Beaker, 2 L
- Graduated cylinders, 10 mL and 50 mL
- Plastic spoons
- Ice, crushed (or ice cubes)
- Paper towels
- Long stirring rod
- Goggles
- Gloves



Variables:

- Manipulated Variables (*things changed*) - acid-base solutions
- Responding Variables (*what happened*) - color change of solution
- Variables held constant (*did not change*) - type of indicator, amounts of chemicals used, kinds of acid and base solutions, type of lab ware, temperature of solutions and indicator

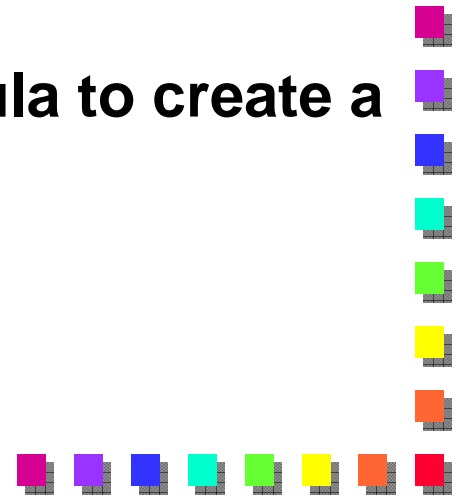


Procedure:

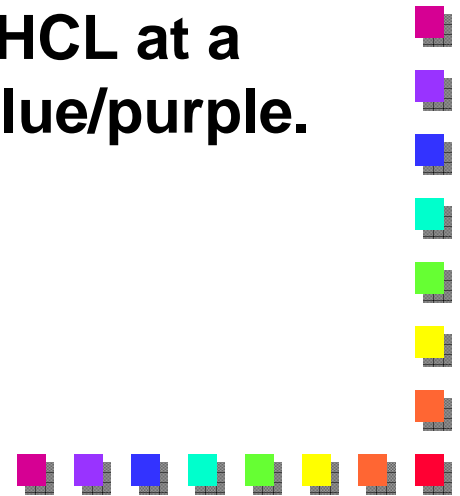
- 1. Put on goggles, gloves, and apron.**
- 2. Fill 2 L beaker with 400 mL water, with ice cubes and 1 tsp. universal indicator solution.**
- 3. Add Dad's dinner to a 2 C clear, measuring cup.**
- 4. Add Dad's meal to the beaker containing his stomach contents.**
- 5. Add 6-8 tsp. of milk of magnesia to the stomach contents.**



- 6. Measure 40 mL of milk of magnesia using a graduated cylinder.**
- 7. Pour it in a 2000 mL graduated cylinder.**
- 8. Add water and ice cubes to give a total volume of approximately 1600 mL.**
- 9. Stir with a long-handled rubber spatula to create a vortex in the mixture.**



- 10.** Add 8 -10 mL of universal indicator solution. Stir again.
- 11.** Add 4 -6 mL (one tsp.) of 3 M HCl (acid).
- 12.** Stir.
- 13.** Repeat this process, adding one tsp. HCL at a time, until the mixture turns back to blue/purple.



Results:

When the milk of magnesia is added to the water and ice, the solution looks milky. When the universal indicator is added to the white suspension of milk of magnesia, it turns a deep purple color. Adding the HCl to the solution quickly turns the solution red. The mixture then goes through the entire universal indicator color range back to purple.

This process can be repeated several times by adding one more teaspoon of HCl and waiting after each addition until the mixture turns back to blue/purple. As more acid is added, the color changes will occur more rapidly until eventually only a clear, red solution will be seen.

Conclusion:

My results did agree with my hypothesis because the antacid, milk of magnesia, did neutralize excess stomach acids which were causing a “sour stomach” or heartburn.

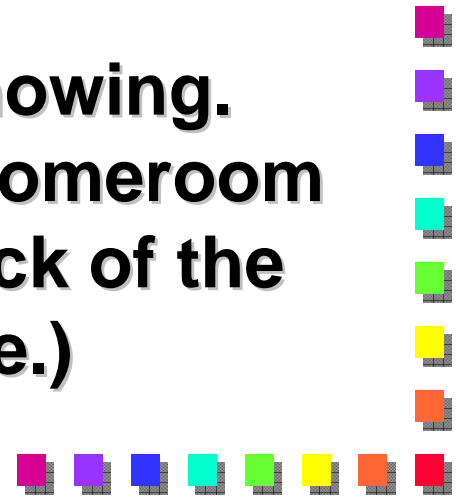
Helpful Hints

- **Have A Good Title**
 - **Take Photographs**
 - **Be Organized**
 - **Be Eye-Catching**
 - **Have A Well-Constructed and Presented Display**



Things to Remember:

- **No liquids are allowed at the fair.**
 - **No faces can be showing in pictures.**
 - **Show respect for all living things.**
 - **All foods must be in a sealed container.**
 - **No names can be showing.
(Name, grade, and homeroom should be on the back of the board in an envelope.)**

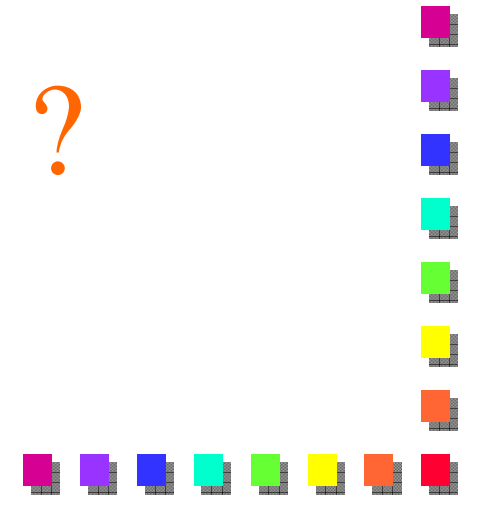


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? *Questions*

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Happy
Experimenting!