



PHYSICAL & CHEMICAL CHANGES



Dear Educator:

Thank you for choosing to bring your students to the Science Gallery. When you arrive, check in at the box office on the Planetarium level. For payment, you will be required to know the exact number of students and adults in your group.

Store outerwear, lunches, backpacks, etc. in the cloakroom in the lower level. No backpacks in the gallery. The Manitoba Museum is not responsible for loss or theft; valuables should be left at home or school.

For further information, please visit our website www.manitobamuseum.ca or call 988-0626.

Visiting the Science Gallery

After your program, you will be exploring the Science Gallery. Our exhibits are best enjoyed with the assistance of an adult – teachers are asked to divide the class into smaller groups assigned to adult supervisors.

Please note, washrooms and water fountain are located near the *Numbers Game* exhibit. There is no need to leave the gallery during your visit.

Science Gallery Rules

1. No running, please.
2. Out of respect for other classes and visitors, please use indoor voices.
3. Food and drink are not allowed in the gallery. No gum, please.
4. Before entering the Matrix –the room of mirrors– everyone must remove their shoes and put on the slippers provided. Please put your shoes back on your feet when you leave the Matrix.
5. Please read or listen to instructions before trying out the exhibits.

Class control remains the teacher's responsibility.

Please turn off cell phones or set the ring to silent during programs.

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Grade: 5
Cluster: Properties of and Changes in Substances
Duration: 30 minutes

Program Outline:

Designed after the *Properties of and Changes in Substances* cluster, this demonstration focuses on the concepts of physical and chemical changes and tests the students' knowledge of physical and chemical change through a series of experiments.

Vocabulary

Here is a list of words we use during this program:

Characteristic, property, substance, matter, volume, state, solid, liquid, gas, reversible, and non-reversible changes, physical change, chemical change, chemical products.

Pre-visit Suggestions:

1. Discuss the definitions of a physical change and a chemical. Come up with examples of each type of change.
2. Explore the concept of reversible and non-reversible changes.

Follow-up Activity

Try your hand at making this liquid rubber, known as "Gak" at the Science Gallery.

Solution A: Equal parts glue and water
Solution B: 1 tablespoon Borax dissolved in 1 cup water warm.

In a cup, mix two tablespoons of Solution A and a few drops of food colouring. Once completely mixed, add two teaspoon of Solution B. Mix until thickened. Take the substance out and gently press it between your palms until there is no more excess water. Store in a baggie in the fridge for up to two weeks.

Rubber is made of polymers, long chains of monomers (molecules). Depending on how the polymers are arranged, the resulting substance will have varying characteristics.

Perform some experiments (stretching, bouncing, applying heat and cold) to learn more about this substance.