

Achievements and Competencies

Learning Outcomes

Kindergarten - Grade 3	Grades 4-6
Exploring the world with our senses	Properties and changes of materials
Materials and our senses	
Liquids and solids	
Air and water in the environment	
Initiating and planning	

Achievements and Competencies are based on the Common Framework of Science Learning Outcomes (K-12) set by the Canadian Council of Ministers of Education (1997).

Specific Expectations

Kindergarten

Exploring the world with our senses

100-1 Develop vocabulary and use language to bring meaning to what is seen, felt, smelled, heard, tasted and thought (e.g., observe and describe their sensory experiences with living things, objects and materials. Observe and describe similarities and differences in living things, objects and materials).

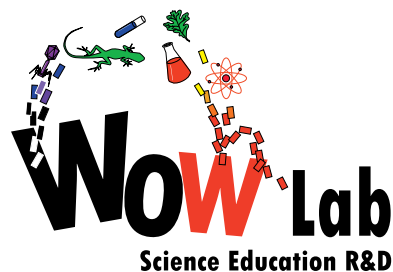
In the *Bubbles* activity, the students will develop vocabulary to describe the sensory experience that they encounter by creating and investigating bubbles with different shapes, colours and textures.

Grade 1

PHYSICAL SCIENCE

Materials and our senses

100-10 Identify attributes of materials that we can learn to recognize through each of our senses (e.g., compare sounds using words such as "loud" or "soft," "high pitch" or "low pitch". Describe tastes as sweet, sour, salty, bitter. Compare textures using words such as "hard" or "soft," "smooth" or "rough," "sticky" or "not sticky". Describe appearance in terms of shape, colour and lustre).



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Bubbles - Achievements and Competencies

The appearance of the different bubbles can be described in terms of their shape, colour and lustre. Students will use their visual senses to identify and describe the different attributes of the bubbles.

101-4 Describe ways in which materials can be changed to alter their appearance and texture (e.g., demonstrate and describe ways of changing the rough surface of a piece of wood, such as by sanding, painting, or waxing. Describe ways to obtain a particular shade or colour by mixing two or more paints).

Coloured Bubble Art gives students the opportunity to make coloured bubbles by mixing two or more colours.

Grade 2

PHYSICAL SCIENCE

Liquids and solids

100-18 Investigate and describe the interactions of familiar liquids and solids (e.g., investigate and describe the interaction of liquids with different surfaces, powdered solids and other liquids. Investigate and describe ways of changing the characteristics of liquids and solids).

Bouncing Bubbles allows students to investigate how the bubbles will interact with different materials and fabrics. They can use various fabrics to see which one will allow the bubbles to bounce the highest.

EARTH AND SPACE SCIENCE

Air and water in the environment

103-7 Describe the effects of weather and ways to protect things under different conditions (e.g., describe changes in things that result from heat, cold, or dampness. Describe and demonstrate ways to keep an ice cube from melting for several hours).

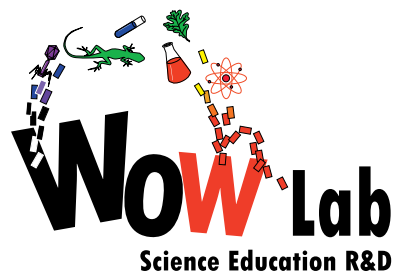
Change in temperature is illustrated in *Frozen Bubbles*. The students will be able to see the bubbles change from liquid to solid when they are taken outside in very cold weather.

200-1 Ask questions that lead to exploration and investigation (e.g., ask how things dry).

Manipulating and adjusting the colour, shape and texture of the bubbles will require students to explore and investigate how they can make and play with various types of bubbles.

200-3 Make predictions, based on an observed pattern (e.g., predict that things dry faster in warmer conditions).

Once the students have had the chance to create and play with various types of bubbles, they will be able to make predictions, based on the patterns that they have noticed, about what will happen if they try to create a square or frozen bubble.



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Bubbles - Achievements and Competencies

Grade 5

PHYSICAL SCIENCE

Properties and changes of materials

300-10 Identify properties such as texture, hardness, flexibility, strength, buoyancy and solubility that allow materials to be distinguished from one another.

Creating and playing with the different types of bubbles (frozen, shaped and coloured), will allow students to distinguish the differences between the properties of the bubbles.

301-11 Describe changes that occur in the properties of materials when they interact with each other.

Students will explore how bubbles interact with different materials. They will investigate the different properties of these materials to see why bubbles will pop against some and bounce on others. When experimenting with *Frozen Bubbles*, wafting the wand through the air will cause the newly formed bubbles to freeze while blowing through the wand with the mouth will leave the bubbles unfrozen. The warm breath keeps the bubbles unfrozen, but the outside air is cold enough to freeze the bubble.