

Science and Technology Activities Resource

Safety Rules for Grade 5

Students are expected to have:

- the knowledge to use the materials, tools, and procedures involved in science and technology safely;
- the knowledge concerning the care of living things that are brought into the classroom; and
- the skills needed to perform tasks efficiently and safely.

The Ontario Curriculum Grades 1-8: Science and Technology, 2007 (Revised)

The *Science and Technology Activities Resource* calls for an active, experimental approach to learning, with all students participating regularly in hands-on activities. These hands-on activities can reinforce the learning of science concepts and promote the development of the skills of scientific investigation and technological problem solving.

Teachers, students and parents all share in the goal to **ensure safe hands-on activities** and an outcome of **students becoming self-directed learners responsible for their own and others' safety**. The following guideline highlights a listing of do's and don'ts for all elementary science and technology students.

Planning



Students should:

- consider safety when planning and designing an activity.
- keep the floor and aisles clean at all times.
- in general, have a teacher or an adult supervise the activity.
- be careful not to spill water on the floor and mop up any spills immediately.
- wear protective gloves and carefully dispose of broken glassware in clearly marked containers.
- never bring food or drink into the lab.
- always wash their hands thoroughly with soap after the classroom/lab cleanup.

Teachers/Adults should:

- consider safety when planning and designing an activity.
- remind students not to look directly at the sun. Permanent eye damage can happen.
- ensure that the students use plastic instead of glassware whenever possible.
- use alcohol-filled thermometers, not mercury.
- in general, be present to supervise the activity.

Safety Gear



When working in the science and technology classroom/lab, students should:

- wear safety goggles.
- use protective gloves.
- wear oven mitts when putting items into the oven or when removing items from the oven.

When working in the science and technology classroom/lab, teachers/adults should:

- sanitize shared equipment such as goggles after use.
- wear footwear at all times.
- tie back long hair.

Testing



Students should:

- keep a safe distance away from stretched materials that might snap and cause injury.
- ensure structures, especially when required to support heavy loads, are designed and built to support the weight. In drop tests, soft materials should be used under the testing load.

Teachers/Adults should:

- review the testing procedures and ensure the tests do not put students at risk.
- limit the size and weight of testing objects.
- not taste anything in the lab, unless instructed by the teacher.

Tools



Students should:

- be careful when handling sharp objects.
- use tools only for the purpose for which they were designed and use them safely and correctly as instructed by the teacher.
- use utility knives and cutting boards or mats when cutting. In the case of nailing, the nail should be measured for correct fit before hammering into the project.
- use a hole punch or paper drill when making holes in paper.
- be careful when using a glue gun which can get very hot.
- keep tools below waist level.

Teachers/Adults should:

- sharpen cutting tools to reduce the need for excessive force when cutting, which may be dangerous.
- ensure that students use a hand drill under supervision when making holes in wood and plastic.
- ensure that the students avoid using wood chisels.

Chemicals



Students should:

- ensure activities that involve the use of protein developer solution are conducted in well-ventilated areas.
- report any breakage or spills to the teacher. Any spills should be wiped up immediately, using appropriate caution, procedures, and materials.

Teachers/Adults should:

- store chemicals classified as poisonous, flammable, corrosive or irritant securely to prevent unauthorized access.
- always be present to supervise the use of these chemicals.

Electrical Devices



Students should:

- use battery holders to avoid burns.
- discard old batteries according to school policy on hazardous waste. Old batteries may leak and the contents can be corrosive and poisonous.
- not stare at the light bulb.
- carefully handle the light bulbs and dispose of broken bulbs in clearly marked containers.
- be aware of power overload when electrical appliances such as hot plates and hair dryers are used.
- unplug all devices when setting up an activity.

Teachers/Adults should:

- remind students not to short-circuit batteries as the connecting wire will become hot and can cause serious burns.
- know that most circuit activities need only one or two 1.5V D-cells. Circuit voltage to 30V should be limited.
- not insert any object into electrical outlets except plugs.
- never run a piece of electrical equipment near water.

Heating



Students should:

- be extremely careful when using hot water.
- ensure all heating activities and use of chemicals are conducted in well-ventilated areas.
- use candle holders and place them on sand trays when candles are used.
- stand when heating things in order to move quickly away in case of accident. Flames should never be left unattended.

Teachers/Adults should:

- supervise all activities in which hot water is used.
- ensure a Type 2A-10BC fire extinguisher is available whenever an open flame is used and there is a risk of fire. A bucket containing dry sand is also recommended as an addition to the usual fire fighting equipment.

Science and Technology Activities Resource — Safety Considerations for Grade 5

At the beginning of each Investigation

	Ensure that the students: <ul style="list-style-type: none"> • read the <i>Safety Rules</i> on this card. 	
Human Organs		
INVESTIGATIONS	1,2 Ensure that the students: <ul style="list-style-type: none"> • report to the teacher/adult any known allergy they may have. Some students may be allergic to certain foods. 	INVESTIGATIONS 4 <ul style="list-style-type: none"> • report to the teacher/adult any known allergy they may have to latex rubber products. • each use a separate mouth piece for the tubing.
Forces		
INVESTIGATIONS	Many investigations require the use of tools. Students should always wear protective gear and use these tools safely and correctly as instructed by the teacher.	INVESTIGATIONS 1 Ensure that the students: <ul style="list-style-type: none"> • report to the teacher/adult any known allergy they may have to latex rubber products.
Matter		
INVESTIGATIONS	4 5 Ensure that the students: <ul style="list-style-type: none"> • report to the teacher/adult any known allergy they may have to latex rubber products. • check the glass items for chips and cracks before use. Protective gloves should be worn and broken glassware should be carefully disposed of in clearly marked containers. 	INVESTIGATIONS 6 <ul style="list-style-type: none"> • check the glass items for chips and cracks before use. Protective gloves should be worn and broken glassware should be carefully disposed of in clearly marked containers. • wear safety goggles in conducting the activity that uses boiling water.
Conservation of Energy		
INVESTIGATIONS	7 Ensure that the students: <ul style="list-style-type: none"> • report to the teacher/adult any known allergy they may have. Some students may be allergic to certain foods. 	INVESTIGATIONS 10 <ul style="list-style-type: none"> • unplug the blender when setting up an activity. • put the lid on the blender before turning it on.