



Play it **safe**

A SAFETY MANUAL
FOR SCHOOL
THEATRES/STUDIOS

actsafe[★]



About this manual

The Vancouver Board of Education (District 39, British Columbia) and Actsafe (www.actsafe.ca) worked together to develop this manual and instructional materials.

“Play It Safe - A Safety Manual for School Theatres/Studios” evolved from a need to raise health and safety awareness in British Columbia’s school performing arts community, to locate relevant occupational health and safety legislation, and to educate and encourage educators and students in the successful implementation of health and safety programs and best practices. Educators are encouraged to actively involve themselves in the sharing and creation of health and safety best practices as they engage in activities related to the performing arts.

Occupational Health And Safety Legislation

While much occupational health and safety legislation applies to performing arts, there are very few requirements that are performing arts specific. Health and safety legislation is, for the most part, hazard-based, not industry-based. It is designed to cover a broad range of industries and its requirements may appear to apply more readily to industries such as construction. References to applicable British Columbia legislation are included in each section. Note that legislated requirements are minimum requirements – best practices may, and often do, exceed these requirements.

Credits

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About Actsafe

Actsafes collaborates with B.C.’s motion picture and performing arts industries to provide innovative, accessible health and safety training and resources. www.actsafe.ca

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Contents

About this Manual.....	2
Contents	3
Part One: Getting Started.....	6
Introduction.....	6
The Three R's.....	7
Safety Responsibilities	7
Part Two: Risk Assessment.....	9
Risk Assessment and Control.....	9
High Risk Activities	13
Venue Selection and Safety	17
APPENDIX 2.1: School Theatre / Studio Best Practices Assessment.....	18
APPENDIX 2.2: School Theatre / Studio Emergency Information.....	21
APPENDIX 2.3: School Theatre / Studio Safety Inspection Checklist.....	22
APPENDIX 2.4: Risk Assessment Process.....	25
Part Three: Best Practices Instructional Materials	
Teacher Information	28
1 - General Safety Precautions	29
2 - Rehearsal and Performance Safety	34
3 - Stage Combat and Weapons Safety	36
4 - Costume Safety.....	40
5 - Props Safety.....	43
6 - Lighting, Sound and Audio/Visual Safety	45
7 - Low Lighting Levels Safety.....	54
8 - Scenery Safety	56
9 - Rigging Safety	60
10 - Strike Safety	62
11 - Personal Protective Equipment (PPE).....	63
12 - Hazardous Materials	67
13 - Fog and Haze Safety.....	69
14 - Working at Height and Ladder Safety	75
15 - Hand Tools and Power Tools Safety.....	80



Part Four: Best Practices Instructional Materials

Student Handouts 85

1 - General Safety Precautions	86
2 - Rehearsal and Performance Safety	88
3 - Stage Combat and Weapons Safety	89
4 - Costume Safety	90
5 - Props Safety	91
6 - Lighting, Sound and Audio/Visual Safety	92
7 - Low Lighting Levels Safety	95
8 - Scenery Safety	96
9 - Rigging Safety	97
10 - Strike Safety	97
11 - Personal Protective Equipment (PPE)	98
12 - Hazardous Materials	99
13 - Fog and Haze Safety	100
14 - Working at Height and Ladder Safety	101
15 - Hand Tools and Power Tools Safety	103

Part Five: Safety Assessments 106

Safety Test for School Theatres/Studios	107
Answer Sheet: Safety Test for School Theatres/Studios	112
Competency Checklist	117
1. Using a Ladder	117
2. Hanging Lighting Instruments	118
3. Operating the Rigging System	119
4. Operating a Fog/Haze Machine	120
Qualified Student Operator Cards	121



Part Six: Educator’s Guide.....122

Introduction..... 122

Implementing Health and Safety in School Theatres/Studios 123

Student Participation 124

Testing for Comprehension..... 126

Record Keeping..... 126

Duty of Care 127

Teacher’s Duty of Care Summary 128

Part Seven: Resources.....129

PART ONE GETTING STARTED

Introduction

The Vancouver Board of Education (District 39, British Columbia) and Actsafe (www.actsafe.ca) worked together to develop this manual. The manual is intended to raise the awareness of health and safety in high school performing arts programs.

There are four primary components to this manual:

- Risk Assessment
- Best Practices
- Safety Assessment
- Educators Guide

Safety always begins with an assessment of the risks. **Conducting a Risk Assessment**, and identifying the hazards involved in the work you and / or your students are doing enables you to identify the steps to working safely.

The **Best Practices** section of this manual is in two parts: **Teacher Info** and **Student Handouts**.

The **Teacher Info** section is intended to provide teachers with instructors notes and learning outcomes on best practices related to safety and health in the performing arts.

The **Student Handouts** are support material intended for distribution.

The **Safety Assessment** section includes two methods of assessment:

- A safety test, intended to ensure students understand the importance of safety onstage, backstage and in shop areas
- A series of competency checklists, for use when observing demonstrations of competency by students

The **Educators Guide** provides teachers with an overview of approaches to implementing health and safety in school theatres and studios, engaging student participation, and testing for comprehension. It also covers record keeping and the legal duty of care of teachers. Following the best practices outlined in this manual contributes to teachers meeting their 'duty of care'.

The Three R's

A safe and healthy workplace doesn't just happen – it takes commitment, planning and everyone's active participation. The following 3 R's sum up a general approach to health and safety management: *Respect, Respond and Require*.

Respect the incredible diversity of the people involved and the unique nature of each project. The work in theatres, studios and shops is different every day, and it takes place in an atmosphere of continuous creativity and change.

Respond to questions and requests as quickly as possible. Students who ask questions or challenge health and safety information are engaged and should be encouraged. If there isn't an immediate answer, refer them to someone else or let them know when more information will be available.

Require people to comply with legislation, wear personal protective equipment and report all hazards, accidents and injuries to their teachers. Everyone must agree that workplace injuries and illnesses are unacceptable and work together to prevent any such occurrences.

Safety Responsibilities

Safety is everyone's business. Keeping students safe requires an understanding of everyone's responsibilities.

Principal

- provide a safe and healthy environment
- support staff and students in their health and safety activities
- take action immediately when the worker or supervisor tells you about a potentially hazardous situation
- initiate an immediate investigation into accidents
- report serious staff accidents to WorkSafeBC or the appropriate local authority; report student accidents to the school district office and / or the Schools Protection Program
- provide adequate First Aid facilities and services
- provide personal protective equipment where required

Teacher

- instruct new students in safe work procedures
- train students for all tasks assigned to them and check their progress
- ensure that only authorized, adequately trained students operate tools and equipment or use hazardous chemicals
- enforce health and safety requirements
- correct unsafe acts and conditions
- identify students with problems such as drugs, alcohol or excessive fatigue that could affect their safety and the safety of others; follow up with interviews and referrals where necessary
- formulate safety rules and inspect for hazards in your own area
- keep accurate safety and training records (who, what, when)
- complete an Incident Report each time an accident occurs

For more information on teacher's responsibilities, see Teacher's Duty of Care (Part Six).

Student

- know and follow safety and health procedures affecting your work
- if you don't know, ask for training before you begin work
- work safely and encourage your classmates to do the same
- correct unsafe conditions or immediately report them to your teacher
- immediately report any injury to your teacher
- take the initiative – make suggestions for improved safety conditions

This list of responsibilities has been adapted from WorkSafeBC's WorkSafe Online document entitled, "Safety on the job is everyone's business."

PART TWO RISK ASSESSMENT

Risk Assessment and Control

Risk Assessment is the careful evaluation of all equipment, materials, work areas and processes to identify potential hazards that people may be exposed to, and assessment of the impact of the identified hazards on those that work in the area. Assessing the risk means determining the likelihood that the hazard may lead to injury or illness and the severity of that potential injury or illness.

RISK ASSESSMENT EXAMPLE

Activity: Rehearsal and Performance

Hazard: Trips and falls due to low lighting levels

Who could be affected? Performers and crew

Controls

- all unguarded edges (stage, risers, stairs etc.) marked with contrasting tape, glowtape etc.
- backstage running lights set up, tested and turned on to identify hazards
- movement on and off stage minimized during blackouts
- before a blackout during rehearsals, a “Going to Black” announcement must be heard by all
- all hazardous sequences (such as scene and costume changes, dance and stage combat sequences) rehearsed under work lights until they can be done with accuracy, confidence and safety in performance light
- sufficient rehearsal time provided for students to orient to low lighting levels
- after a sudden lighting change, allow eyes to adjust before moving
- provide flashlights and/or headlamps for all students who may need them for scene changes, costume changes etc.
- all movement onstage and backstage monitored for safety
- stage management or the teacher alerted to hazards, including light levels that are too low to work safely, so work can be stopped until the hazard has been addressed

Educators have a duty to conduct risk assessments, alert students to hazards, and provide them with instruction on how to control those hazards in the school theatres, studios and shops. Conducting risk assessments is fundamental to preventing injuries and illnesses.

When discussing play selection and how an artistic concept will be brought to life, safety must be considered in order to plan and budget for appropriate precautions. Risk assessment should be undertaken at the design stage and continue progressively as required throughout construction, rehearsal, installation, performance, strike and storage. Risk assessment includes all elements of the production including venue conditions, sets, props, costumes, lighting and sound. Hazardous activities must be assessed and controlled before they are attempted.

ASSESSING THE RISKS

To make this process easier for teachers and students, a School Theatre/ Studio Best Practice Checklist has been provided at the end of this section. Before rehearsals and production activities begin, the supervising teacher should use this checklist to identify all activities and hazards which pose a risk of injury.

Consider every aspect and every phase of the production. Identify the hazards and think about how they could cause harm. Identify who could be affected, including performers, crew and patrons.

Hazards may include, but are not limited to:

- Slips, Trips and Falls:
 - Irregular stair heights
 - Unsuitable floor surfaces, especially for dance and fights
 - Scenery, props, equipment, cables etc. in backstage areas
 - Reduced visibility due to:
 - Low lighting levels and blackouts
 - Masks and headgear with potential to obstruct vision
- Falling Objects:
 - Overhead work due to lighting, sound, audio/visual and rigging activities
- Lifting and Handling Loads (Manual Materials Handling)
- Noise Levels:
 - Sound effects
 - Loud music
 - Power tools
- Tools and Equipment:
 - Hand tools
 - Power tools



- Working at Height:
 - Unguarded edges of performance stages, scenic units, elevated set pieces, orchestra pits, traps etc.
 - Ladders
 - Fog and haze products
 - Paints, solvents, dyes, adhesives etc.
- Stage Combat and Weapons:
 - Edged/bladed weapons
 - Firearms
- Scenery
 - Construction, installation and disassembly of scenery
 - Scene changes within a performance

CONTROLLING THE RISKS

After hazards have been identified and the risks have been assessed, the next step is controlling the risk.

Wherever possible, hazards should be eliminated, but if this is not possible they must be controlled to reduce hazardous exposures to acceptable levels.

Using the checklist for the production, go to the Best Practices section of this manual for guidance on how to proceed safely. Choose the instructional materials each production requires depending on the activities involved.

Directing the Show

This section should be used for all productions. It may be all that is needed for a show with limited production elements such as:

- Scenery – existing scenic elements and furniture
- Props – existing or borrowed props
- Costumes – students' own or borrowed clothing
- Lighting – existing lights; no hang or focus
- Sound – existing playback system

Supervising the Stage Crew

Add this section if the production includes technical elements such as the hang and focus of lighting instruments, the installation of sound or audio/visual equipment, or the use of fog, haze or rigging.

Supervising the Set Construction

Add this section if scenery will be built and painted.

SUMMARY

The purpose of a Risk Assessment is to keep people and productions safe by identifying and eliminating or controlling health and safety hazards onstage and backstage. New hazards may arise and existing hazards may change during the development of a show. Assessing and controlling risks is a continuous and fluid process.

To summarize, the four key elements for the supervising teacher are:

1. Complete the School Theatre/Studio Best Practice Checklist and check off the Activities and Best Practices which apply to the production.
2. Review the applicable Best Practice sections of the manual.
3. Provide appropriate training to students.
4. Ensure all hazards are controlled, including additional hazards not listed in this manual.

Appendices

These forms are found at the end of this section:

- School Theatre/Studio Best Practice Checklist (as above)
- Theatre/Studio Emergency Information – Complete this form then post it in visible locations, review it with students and provide it to supply teachers
- Theatre/Studio Safety Inspection Checklist – Use this form to inspect the theatre/studio for hazards
- Risk Assessment Form – Use this form to conduct a detailed risk assessment

High Risk Activities

All theatres, including professional theatres, have restrictions relating to play selection and design. Time, people, money **and** safety must be considered when artistic choices are made.

District 39 Schools, Vancouver, British Columbia: Due to safety concerns, students and teachers are **PROHIBITED** from carrying out the high risk activities and using the equipment described below in school theatres and studios. If a teacher needs clarification, the Principal and the Health & Safety Department should be contacted.

Non-District 39 Schools: **Acts** **safe** strongly recommends that teachers who would like to carry out these high risk activities seek approval from their Principal and/or Health & Safety Department. Teachers must be adequately qualified for these activities and parental consent for students may be required. (Due to the high risk nature of the activities listed below, resources relating to these activities are **not** included in this manual.)

1. **Access to auditorium attics or grids** – Due to fall hazards of between 15' and 50', potential fire and electrical hazards, insufficient emergency egress equipment and easily disturbed asbestos containing materials, access to these areas by students and teachers is not recommended.
NOTE: Catwalk access may be permitted when approved by the Principal / District for student access.

CEILINGS AREN'T FOR WALKING

In a British Columbia school, a custodian was changing a school theatre house light bulb. He had to reach beyond the auditorium catwalk to reach the light housing. He took a step onto the auditorium ceiling and his body weight broke through the plaster. Luckily he was stuck in the hole and did not fall down to the auditorium floor below. He managed to climb his way back onto the auditorium catwalk.

2. **Alterations to building structures and facilities** – Cutting holes in ceilings, walls, doors, windows and adding rigging or lighting positions etc. is not recommended.
3. **Alterations to equipment** – Equipment, such as lighting instruments, should not be altered, unless the manufacturer's instructions explicitly support the alterations.

4. **Electrical work** - Students should only plug in equipment and change lamps in lighting instruments and projection equipment. Any other electrical work is not recommended.
5. **Flame effects** - Only battery or electrically-powered flame effects are recommended. Live flame is not recommended.

FIRE IN A CROWDED THEATRE

BENI SUEF, EGYPT, SEPTEMBER 2005 An actor knocked over a candle and the fire spread to the set which was lined with paper to look like a cave. People trampled each other trying to get out the one door which was partially blocked with wood. The other exit was covered in the same paper as the set and had caught fire. Thirty-two people died and 60 were injured. Among the dead were 3 actors, 2 journalists and the director, who also designed the play.

6. **Fog and haze** – Only glycol-based fog and haze products are recommended. See page 69 for detailed information.
7. **Hazardous materials with respiratory hazards** – Classes should only use products that do not require respiratory protection. Check the Material Safety Data Sheet (MSDS) before purchase or use.
8. **Lasers** – Use of lasers requires the supervision of a qualified Laser Safety Officer; unless a qualified Laser Safety Officer is assigned to the production, this activity is prohibited by legislation in some regions.
9. **Performer flying and aerial stunts** - These activities involve much greater potential for serious or fatal injury than normal performance activities. They also require the supervision of a fully trained and experienced professional stunt co-ordinator, the use of appropriate engineering and expensive, specialized equipment. Performer flying and aerial stunts are not recommended in schools, unless Principal and / or District approval is granted and appropriate liability insurance is in place.
10. **Pyrotechnics** – By legislation, only trained and certified technicians can plan, rig and fire/detonate pyrotechnic special effects.
11. **Rigging** – Only trained, qualified people are permitted to operate existing professionally installed and inspected rigging systems. Additions to the existing rigging system by teachers and students are not recommended unless Principal / District approval is granted and appropriate liability insurance is in place. Again, legislation may apply to this area and should be consulted.

12. **Weapons** - Only weapons specifically designed for stage combat and approved by the Fight Director should be used.
- a) **Firearms** –The *Criminal Code of Canada* and the *Criminal Code Regulations* prohibit and restrict certain weapons, firearms and other devices, including certain replica/imitation weapons and firearms.
- Firearms, live ammunition and blanks can seriously injure or kill people and are not permitted. They must never be brought to the school, theatre, or stage.
 - A Non-Firing Replica Firearm is a device designed to look like a real firearm, but incapable of firing projectiles (bullets, shot etc.), blanks or caps.
 - **Only** non-firing replicas such as toy or prop guns, and offstage sound effects of gunshots are recommended.

PROP PISTOL PACKS DEADLY PUNCH

ST. GEORGE, UTAH, NOVEMBER 2008 A 17-year-old student at Washington County high school died after firing a blank-shooting prop pistol used in the performance of *Oklahoma!* Police stated that the gas from the prop can have the same energy as a bullet, which would seem to raise some obvious negligence and product liability issues. The student fired the weapon in the sound booth and was alone at the time. Permission to use the gun for the play was based on it being in the possession of a parent.

- b) **Edged/bladed weapons:** These weapons are not recommended under any circumstances: ornamental, costume, antique or ceremonial weapons, archery equipment, crossbow replicas and any weapon that depends on a mechanical action for safety, such as a retractable or collapsible dagger. Never allow a sharp blade in rehearsal or on stage.
13. **Welding** – Welding may be carried out with the approval and supervision of the shop teacher in appropriately equipped metal work shops.
14. **Working Alone** – Students should not work without supervision when these hazards exist:
- a) Working at height
 - b) Working with power tools
 - c) Working with hazardous materials
 - d) Working outside of regular school hours

15. **Working at Height** – Only work at height where the person's feet are below a height of 10' is recommended.

- a) **Scenery** – Elevated performance stages and scenic units are permitted, provided the person's feet are below a height of 10'. Stages and scenic units above this height are not recommended.
NOTE: Guardrails should be used in all locations not visible to audiences. WorksafeBC allows exceptions for performance stages and scenic units visible to audiences, as long as effective measures are taken to ensure that people are protected from injury.
- b) **Ladders** – With appropriate training, working from step ladders is permitted, provided the person's feet are below a height of 10'. Working from ladders with feet above 3 m (10 ft) is not recommended.
- c) **Scaffolds** – The use of scaffolding by students and teachers is not recommended.
- d) **Wheeled A-frame ladders** (including extension trestle ladders mounted on a castered base) – These ladders are not recommended in school theatres and studios because they are unstable and frequently used inappropriately.
- e) **Elevating Work Platforms** – Also known as lifts (bucket lifts, scissor lifts etc.), this equipment is used to raise a qualified professional up in the air to work. Use of this equipment by teachers and students is not recommended.
- f) **Fall Protection Equipment** - Working at height in any situation that requires fall protection equipment such as a harness for fall restraint or fall arrest is not recommended.

Venue Selection and Safety

Most performances will take place in a school theatre or studio, but sometimes other venues, such as a non-theatre space within a school, church basement, city park or storefront, may be used. If you are considering a performance in an existing space that was designed/engineered for other purposes, extreme care must be taken to ensure that the venue is free of hazards that could put people at risk.

VENUE SELECTION

Consult Building and Fire Code regulations; not all spaces that look appropriate are suitable for performances..

Obtain information from the building owner such as the approved occupancy/ capacity of the space, floor plans with emergency exits and breaker panels, emergency procedures, fire alarm system and risk assessment, if available.

Ensure adequate entrances and exits for students and the audience.

Emergency exits must be marked with emergency signage and be equipped with panic hardware.

Ensure adequate structural support for any materials and equipment to be hung and/or rigged.

Use engineered structures for temporary staging and/or audience platforms.

Ensure adequate power supply for electrical load.

Invite a municipal fire inspector to inspect temporary venues for safety concerns and requirements.

Ensure that safety equipment and supplies (including first aid kits, Personal Protective Equipment etc.) are available at the venue. If necessary, take them with you.



APPENDIX 2.1

School theatre / studio best practices assessment

SCHOOL

THEATRE/STUDIO NAME

PRODUCTION NAME

DESCRIPTION

DATE(S)

SUPERVISING TEACHER

PHONE NUMBER

INSTRUCTIONS: Before rehearsals and production activities begin, use this checklist to assess all activities and hazards which pose a risk of injury. Consider every aspect and every phase of the production.

1. Check off the Activities and Best Practices which apply to this production.
2. Review the applicable sections of the manual.
3. Provide appropriate training to students.
4. Ensure all hazards are controlled, including additional hazards not listed here.

ACTIVITY		#	REFER TO BEST PRACTICES	
<input type="checkbox"/>	Directing the Show	<input type="checkbox"/>	1	General Safety Precautions
		<input type="checkbox"/>	2	Rehearsal and Performance
		<input type="checkbox"/>	3	Stage Combat and Weapons
		<input type="checkbox"/>	4	Costumes
		<input type="checkbox"/>	5	Props
		<input type="checkbox"/>	7	Low Lighting Levels
		<input type="checkbox"/>	9	Scenery
		<input type="checkbox"/>	11	Strike
		<input type="checkbox"/>	13	Hazardous Materials, if applicable
<input type="checkbox"/>	Supervising the Stage Crew	<input type="checkbox"/>	1	General Safety Precautions
		<input type="checkbox"/>	6	“Lighting, Sound and Audio/Visual”
		<input type="checkbox"/>	7	Low Lighting Levels
		<input type="checkbox"/>	8	Fog and Haze
		<input type="checkbox"/>	10	Rigging
		<input type="checkbox"/>	11	Strike
		<input type="checkbox"/>	12	Personal Protective Equipment
		<input type="checkbox"/>	14	Working at Height and Ladders

ACTIVITY		#	REFER TO BEST PRACTICES
<input type="checkbox"/>	Supervising the Set Construction	<input type="checkbox"/>	1 General Safety Precautions
<input type="checkbox"/>		<input type="checkbox"/>	9 Scenery
<input type="checkbox"/>		<input type="checkbox"/>	10 Rigging
<input type="checkbox"/>		<input type="checkbox"/>	11 Strike
<input type="checkbox"/>		<input type="checkbox"/>	12 Personal Protective Equipment
<input type="checkbox"/>		<input type="checkbox"/>	13 Hazardous Materials, if applicable
<input type="checkbox"/>		<input type="checkbox"/>	14 Working at Height and Ladders
<input type="checkbox"/>		<input type="checkbox"/>	15 Hand Tools and Power Tools
<input type="checkbox"/>		<input type="checkbox"/>	16 Band Saw
<input type="checkbox"/>		<input type="checkbox"/>	17 Electric Hand Drill
<input type="checkbox"/>		<input type="checkbox"/>	18 Portable Circular Saw
<input type="checkbox"/>		<input type="checkbox"/>	19 Radial Arm Saw
<input type="checkbox"/>		<input type="checkbox"/>	20 Mitre Saw
<input type="checkbox"/>		<input type="checkbox"/>	21 Table Saw

APPENDIX 2.2

School Theatre / Studio Emergency Information

School	
Address	
Theatre/Studio Name	
Supervising Teacher Name and Phone Number	
IN CASE OF EMERGENCY: (Ambulance, Police, Fire Department)	Call 911
First Aid Attendant Name and Phone Number	
Backup First Aid Attendant Name and Phone Number	
Location of First Aid Supplies	
Location of Pull Station	
Location of Nearest and Alternative Fire Exits	
Meeting Place in case of Emergency Evacuation	
Location of Material Safety Data Sheets (MSDS)	
Location of Personal Protective Equipment (PPE)	
Location of Eyewash Station	
Location of Fire Extinguishers	

REMINDER:

Report any unsafe conditions to a teacher immediately.

Report any accidents or incidents to a teacher immediately.

If you have any questions, ask a teacher.

APPENDIX 2.3

School Theatre/studio safety inspection checklist

If an item is not applicable, mark it as N/A

EMERGENCY PREPAREDNESS AND FIRST AID				
Emergency Procedures	Procedures posted for all emergencies			
First Aid Attendant	Contact info posted for first aid attendant (and backup) on site			
Fire Extinguishers	Visible and not obstructed			
Eye wash Station	Provided in shop areas			

PERSONAL PROTECTION				
Clothing and Footwear	Personal clothing and footwear (substantive, closed toes shoes) appropriate for the activity Loose clothing tucked in, long hair tied back and jewellery removed when working around tools and equipment with moving parts			
Eye Protection	Safety glasses, goggles or a face shield worn when there is a risk of eye injury			
Hand Protection	Appropriate gloves in good condition worn when there is a risk of hand injury			
Head Protection	Hard hats worn when there is a risk of head injury due to overhead work etc.			
Hearing Protection	Hearing protection worn when working where noise levels are at hazardous levels			

GENERAL CONDITIONS				
Scenery	<ul style="list-style-type: none"> Secure and free of hazards (sharp edges, splinters, paint that comes off etc.) 			
Guardrails	<ul style="list-style-type: none"> Installed on elevated surfaces more than 1.2 m (4 ft) high. Exception: Performance stages and scenic units visible to audiences, as long as effective measures taken to protect people from injury 			
Unguarded Edges and Elevation	<ul style="list-style-type: none"> Stage, risers, stairs, traps etc. Adequately marked with contrasting tape, glowtape or other markers 			
Orchestra Pits	<ul style="list-style-type: none"> Safety nets in place, as applicable 			
Stairways	<ul style="list-style-type: none"> Clean, free of slipping/tripping hazards, good lighting, hand rails if 4 or more risers 			
Exits	<ul style="list-style-type: none"> Clearly marked, unobstructed 			
Floors	<ul style="list-style-type: none"> Clean, free of slipping/tripping hazards 			
Work Surfaces	Clean, uncluttered			
Walls and Ceiling	<ul style="list-style-type: none"> Clear of objects that might fall Overhead sprinklers free of obstructions 			
Lighting	<ul style="list-style-type: none"> All work lights and house lights on and operating Adequate lighting backstage 			

TOOLS AND EQUIPMENT				
Cords and cables	<ul style="list-style-type: none"> • Safe condition - grounded and free of nails, staples, cuts, frays, twists, kinks, splices etc. • Not carrying excessive loads 			
Hand tools and power tools	<ul style="list-style-type: none"> • Safe working order 			
Guards	<ul style="list-style-type: none"> • Used on all equipment, without exception 			
Lighting, sound, A/V equipment	<ul style="list-style-type: none"> • Safe working order • Properly attached and secured with safety chains or wires • Lights clear of combustibles, sprinkler heads, drapery, scenery etc. • Lights stored to prevent tipping and falling when not in use 			
Ladders	<ul style="list-style-type: none"> • Safe condition - free of broken, loose or missing rungs, split or bent side rails etc. • Danger zone marked off when overhead work in progress 			
Defective items	<ul style="list-style-type: none"> • Tagged and taken out of service 			
Electrical	<ul style="list-style-type: none"> • No live electrical hazards (exposed wiring, open electrical boxes etc.) • At least 1 m (3 ft) of clearance around electrical panels 			
Materials	<ul style="list-style-type: none"> • Stored in an orderly and safe fashion 			

HAZARDOUS MATERIALS				
Hazardous materials	<ul style="list-style-type: none"> • Properly stored and handled, kept in closed containers when not in use 			
Labels	<ul style="list-style-type: none"> • Containers properly marked with supplier or workplace labels 			
Material Safety Data Sheets (MSDS)	<ul style="list-style-type: none"> • MSDS up-to-date and readily available for all hazardous materials (paints, solvents, adhesives, fog and haze products etc.) 			
Hazardous waste	<ul style="list-style-type: none"> • Stored appropriately for disposal 			

APPENDIX 2.4

Risk assessment process

There are many Risk Assessment templates available that may be customized to meet specific needs.

INSTRUCTIONS

1. Fill in the columns labeled Activity/Task and Hazard
2. Fill in the columns labeled Likelihood, Severity and Risk Rating, as follows.
 - **Likelihood** – Estimate, using High, Medium or Low, the probability that the hazard will cause injury or illness
 - High – injury or illness due to this hazard is probable
 - Medium – there is a 50-50 chance that this hazard will cause injury or illness
 - Low – the hazard will probably not cause injury or harm
 - **Severity** – Estimate, using Major, Moderate or Minor, how serious the injury or illness would be.
 - Major – the hazard would cause injury or illness resulting in fatality, or permanent or long-term disability
 - Moderate - the hazard would cause injury or illness resulting in lost time
 - Minor – the hazard would cause injury or illness without lost time
 - **Risk Rating** – Plot the Likelihood and Severity on the Risk Rating Chart to determine the Risk Rating

RISK RATING CHART

SEVERITY OF INJURY	LIKELIHOOD OF INJURY			
		High	Medium	Low
	Major	High	High	Medium
	Moderate	High	Medium	Low
	Minor	Medium	Low	Low

3. Fill in the column labeled Controls

RISK ASSESSMENT FORM

Activity/Task	Hazard	Likelihood	Severity	Risk Rating	Controls
Describe the activity or task. Indicate scene, load-in, setup etc	Describe the hazard and how it could cause harm (injury, illness, fire etc.)	High Medium Low	Major Moderate Minor	High Medium Low	Describe measures that are in place to reduce the hazard to an acceptable level? (Guardrails, procedures, PPE etc.)
Rehearsal and performance	- Slips, trips and falls due to low lighting levels	Medium	Moderate	Medium	<ul style="list-style-type: none"> - all unguarded edges (stage, risers, stairs etc.) marked with contrasting tape, glowtape etc. - backstage running lights set up, tested and turned on to identify hazards - movement on and off stage minimized during blackouts - before a blackout during rehearsals, make a "Going to Black" announcement - rehearse all hazardous sequences (scene and costume changes, dance and stage combat sequences etc.) under work lights until they can be done with accuracy, confidence and safety in performance light - allow sufficient rehearsal time orient to low lighting levels - provide flashlights and/or headlamps for those who may need them for scene changes, costume changes etc. - monitor all movement onstage and backstage monitored for safety - in case of a hazard due to low lighting levels, stop work until it is addressed

RISK ASSESSMENT FORM

Activity/Task	Hazard	Likelihood	Severity	Risk Rating	Controls



PART THREE

BEST PRACTICES INSTRUCTIONAL MATERIALS: TEACHER INFORMATION

Since resource information on safety in the school theatre/studio environment may be hard to come by, we have put together a series of materials for you to use to instruct students on safety. Select the ones that apply to your situation. This information is organized into three sections:

- Part Three – Teacher Info
- Part Four – Student Handouts
- Part Five – Safety Tests

If your program includes the use of additional tools and equipment, you should develop comparable student handouts and safety tests using the manufacturer's instructions.

NOTE: Prior to instructing students on the use of tools or equipment, you should review the manufacturer's instructions for each one to ensure you are familiar with the safe operation of that specific model.

NOTE: School district policies regarding qualifications, insurance coverage, criminal record checks etc. must be adhered to when contracted theatre professionals, parents and volunteers are involved in school theatre and studio activities.

TEACHER INFORMATION

1 - GENERAL SAFETY PRECAUTIONS

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Personal responsibilities	<p>Ensuring student safety is your most important role.</p> <p>Expectations about student behaviour should be clearly defined, explained and enforced.</p> <p>Encourage students to take responsibility for themselves and their classmates at all times.</p> <p>Encourage students to regularly conduct safety checks on themselves, their materials and their tools.</p> <p>Horseplay must not be tolerated.</p> <p>Students must not be assigned work if there is concern that they will endanger themselves or others.</p>	<ul style="list-style-type: none"> • if you feel unsafe about any activity, consult with your teacher before proceeding • if you see something dangerous, report it to a teacher so it can be fixed • many accidents occur when people are tired, rushed or under the influence of alcohol or drugs; do not work in these states • adopt a calm, careful and focused attitude at all times • be aware of the risks your work may pose to others, especially when using power tools, working overhead etc. • walk, don't run; avoid pushing or bumping • horseplay (e.g., throwing things) is not allowed
Training	<p>Prior to using tools and equipment, students must be trained and assessed on its safe operation as well as applicable Personal Protective Equipment (PPE).</p> <p>(Refer to the Best Practice #12)</p>	<ul style="list-style-type: none"> • prior to using tools and equipment, ensure that you understand and are able to demonstrate their safe operation, as well as applicable Personal Protective Equipment (PPE)
TEACHER INFORMATION 1 - GENERAL SAFETY PRECAUTIONS		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Working alone	<p>Teachers must provide adequate supervision at all times.</p> <p>Students are not permitted to work without supervision when these hazards exist:</p> <ul style="list-style-type: none"> • Working at height • Working with power tools • Working with hazardous materials • Working outside of regular school hours 	<ul style="list-style-type: none"> • never work without supervision when these hazards exist: • working at height • working with power tools • working with hazardous materials • working outside of regular school hours
Accidents and incidents	<p>Explain how to summon a First Aid Attendant.</p> <p>Explain the risk of contacting blood or other bodily fluids.</p> <p>Explain why accidents and incidents must be reported immediately.</p> <p>The Administrator is to arrange first aid coverage on an “as needed” basis.</p>	<ul style="list-style-type: none"> • know how to summon a First Aid Attendant • immediately report all accidents or incidents so that treatment can be given and hazards can be dealt with
Emergencies	<p>Post emergency procedures, review them with students, and practice emergency routines regularly.</p> <p>Ensure adequate emergency equipment is available.</p> <p>Ensure all power shut offs (at each piece of equipment and for the shop) are labelled and instruct students on their location and use.</p>	<ul style="list-style-type: none"> • know what to do in an emergency • be familiar with emergency equipment including fire extinguishers, eye wash stations and power shut offs (at each piece of equipment and for the shop)
TEACHER INFORMATION 1 - GENERAL SAFETY PRECAUTIONS		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Noise levels	<p>Common sources of hazardous noise in theatre industry include sound cues and special effects, gunshots, live music, feedback, shop noise/tool noise, etc.</p> <p>Whenever practicable, student exposure to noise levels over 85 dBA should be eliminated.</p> <p>Particularly loud sound cues should be carefully considered. They should be integrated slowly into the rehearsal process and students at risk of exposure should be provided with hearing protection.</p>	<ul style="list-style-type: none"> students should be audibly warned prior to impending loud noise monitor background music during work sessions – it should not impede communication or delay progress, provide a distraction or combine with any other background noise to create hazardous sound levels wear earplugs or earmuffs when working where noise levels are high, such as when operating power tools or when sound effects or live music are at hazardous levels
Falling objects	<p>Avoid having extra students on stage or in the auditorium when students are working above.</p> <p>If there is a risk of head injury from falling objects (scenery, lighting equipment, tools, tail ends of cable etc.) then all students in the danger zone must wear hard hats.</p>	<ul style="list-style-type: none"> before overhead work begins: <ul style="list-style-type: none"> ensure the area below the work area is clear of anyone not wearing a hard hat mark off the area as a danger zone (using orange traffic cones or stanchions and caution tape) place signs, if needed anyone working in the danger zone (such as a ladder assistant) must wear a hard hat before working at height, empty pockets and secure all loose tools, flashlights etc. to your body using a lanyard or tool belt never leave tools on a ladder or scaffold once a student has returned to ground level if you drop an object from a height, immediately yell “Heads!” to warn people below if you hear someone yell “Heads!”, duck and cover; do not look up
TEACHER INFORMATION 1 - GENERAL SAFETY PRECAUTIONS		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Working conditions	<p>Ensure work areas are well-lit and adequately ventilated.</p> <p>Ensure adequate work space is allocated for each task.</p> <p>Discuss ergonomics, repetitive strain injuries, etc. as they relate to each task.</p>	<ul style="list-style-type: none"> • set your work up so that it is well-organized, well-lit and adequately ventilated • to prevent strains, make sure you are in a comfortable position
Housekeeping	<p>Clutter, sawdust, paint, unsecured ground cloths, etc. can create (and hide) potential hazards including slip, trip and fire hazards.</p> <p>Provide adequate storage for tools, materials, projects and waste.</p> <p>Ensure students have the supplies and equipment they need to keep their work areas clean.</p> <p>Develop, implement and oversee a regular and effective clean-up routine.</p>	<ul style="list-style-type: none"> • clutter creates slip and trip hazards; keep the floor and work surfaces clean and clear of spills and debris • clean up wood chips, dust, and other combustible materials as they are potential fire hazards • keep aisles and exits clear at all times • store tools, materials and projects safely and securely at the end of each day • do not eat or drink in the work area
Slips, trips and falls	<p>Liquids used on and off stage as part of production design or stage business, as well as liquid residues formed from the use of atmospherics (fog, haze etc.), can create slipping hazards on floors and other surfaces.</p>	<ul style="list-style-type: none"> • ensure floors are clean and dry • position cables, cords and hoses should be in minimal traffic areas and ensure they are covered/taped down to the floor or suspended from above
Storage	<p>Provide adequate storage space for each department.</p> <p>Ensure storage shelves and racks are adequately engineered to withstand intended use.</p>	<ul style="list-style-type: none"> • do not place materials or equipment where they will restrict movement or block aisles or exits • stack shelves to prevent awkward weight distribution and reaching
TEACHER INFORMATION 1 - GENERAL SAFETY PRECAUTIONS		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Lifting and handling loads (Manual materials handling)	<p>Manual materials handling is the lifting and handling of loads and it includes lifting, lowering, pushing, pulling, carrying, holding, dragging and supporting objects such as set pieces, lighting equipment, speakers, drapery, pails of paint etc.</p> <p>Musculoskeletal injuries (MSI) may be caused by such work and they include injuries of the bones, joints, ligaments, tendons, muscles and other soft tissues.</p> <p>Modify the work process to reduce bending, twisting, reaching, heavy lifting, excessive forces and highly repetitive motions.</p>	<ul style="list-style-type: none"> • reduce or eliminate heavy and repetitive lifting wherever possible • use equipment such as carts, dollies, as well as mobile racks, to avoid unnecessary loading and unloading • use handholds, cut-outs, or grips so the load can be held as close to the body as possible • if materials must be manually handled, two person lifts are preferred • avoid rotating or twisting movements when lifting or lowering a load
TEACHER INFORMATION 1 - GENERAL SAFETY PRECAUTIONS		

Applicable WorkSafeBC Regulations

Part 4 – General Conditions including:

- Working Alone or in Isolation
- Work Area Requirements
- Storing and Handling Materials
- Ergonomics (MSI) Requirements

<http://www2.worksafebc.com/publications/OHSRegulation/Part4.asp>

Part 7 Divisions 1 – Noise Exposure

<http://www2.worksafebc.com/publications/OHSRegulation/Part7.asp>

**TEACHER INFORMATION****2 - REHEARSAL AND PERFORMANCE SAFETY**

Rehearsals involve the development of blocking, stage business and technical elements. The rehearsal process is a fundamental safe work practice in theatre and it is used to train students about hazards that may arise within a specific production.

Definitions:

Blocking – A pattern of pre-arranged, precise movements and positions, other than dance choreography, used by performers in performance.

Choreography – Pre-arranged dance steps, spatial patterns and groupings that make up a dance composition.

Rehearsal – Time used by performers and technicians to prepare for a performance.

Technical Rehearsals – Onstage rehearsals including cue-to-cues, dry runs, tech runs, and dress rehearsals.

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Rehearsal spaces	Rehearsal spaces should allow adequate room for free movement and blocking.	<ul style="list-style-type: none"> • set design features should be marked/ taped on the floor to scale from the beginning of the rehearsal process • performers involved in dance, stage combat or stunt choreography should have dedicated and uninterrupted warm-up time and space prior to each rehearsal and performance
Scheduling and communication	<p>Administrators should consider competing priorities for use of the school theatre, studio and shop when scheduling theatre activities.</p> <p>Teachers should ensure adequate time in the rehearsal schedule for the safe and successful integration of all potentially hazardous production elements, including</p> <ul style="list-style-type: none"> • stage combat sequences • fog and haze effects • costume changes • scene changes <p>Deal with hazards by developing blocking or choreography that eliminates or controls risks, or by altering the technical parameters of the hazardous sequence.</p>	<ul style="list-style-type: none"> • at the first onstage rehearsal, students should be oriented to the theatre; hazards and controls should be pointed out • on the rehearsal schedule and callboard, identify rehearsals that will be used to integrate potentially hazardous production elements (including stage combat sequences, fog and haze effects, costume changes and scene changes) • update students on changing conditions onstage and backstage • when there is a raked stage, ensure adequate rehearsal so that everyone becomes accustomed to it and provide frequent rest periods off the rake • dry run all potentially hazardous sequences before including performers • stage management must develop and rehearse clear, specialized communication systems for any running crew or performers involved in hazardous sequences • ensure that understudies have enough rehearsal time to perform with an adequate level of comfort and safety
TEACHER INFORMATION 2 - REHEARSAL AND PERFORMANCE SAFETY		

TEACHER INFORMATION

3 - STAGE COMBAT AND WEAPONS SAFETY

Stage combat and the use of weapons involve significant risk so precautions must be taken to protect students and patrons.

Definitions

- **Stage Combat** - A coordinated series of moves creating the illusion of violent intent, requiring specific timing and skill, involving either unarmed combat or the use of weapons.
- **Weapons** - Any objects used in a staged fight for attack or defence, including edged/bladed weapons, firearms and props or furniture used in stage combat choreography.
- **Non-Firing Replica Firearm**. A device designed to look like a real firearm, but incapable of firing projectiles (bullets, shot etc.), blanks or caps.
- **Fight Director** - A competent person responsible for staging and co-ordinating all fights who has specific knowledge of the requested type of fight.
- **Weapons Handler** - A competent person responsible for the maintenance and security of all weapons during the course of rehearsal and performance.
- **Gunshot Simulator** – A gunshot simulator can be used to make an offstage sound rather than using a starter's pistol or blank cartridges. It can be made easily by joining two pieces of wood at one end with a hinge. Use a cabinet knob for ease of handling. The device can be hand-held or mounted to a wall.

Restrictions

- **Firearms:** The Criminal Code of Canada and the Criminal Code Regulations prohibit and restrict certain weapons, firearms and other devices, including certain replica/imitation weapons and firearms. Firearms, live ammunition and blanks can seriously injure or kill people and are not permitted. They must never be brought to the school, theatre, or stage. Only non-firing replicas such as toy or prop guns, and offstage sound effects of gunshots are permitted.
- **Edged/bladed weapons:** These weapons are prohibited: ornamental, costume, antique or ceremonial weapons, archery equipment, crossbow replicas and any weapon that depends on a mechanical action for safety, such as a retractable or collapsible dagger. Never allow a sharp blade in rehearsal or on the stage.

TOPIC	TEACHER NOTES
Fight Director	The Fight Director is responsible for staging and coordinating all fights and should be consulted regarding the design of all physical elements (scenery, lighting, props, costumes, weapons, etc.) for the production that could affect the fight choreography.

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Weapon selection	Only weapons specifically designed for stage combat and approved by the Fight Director should be used.	Same
Edged/bladed weapon selection	<p>Do not use</p> <ul style="list-style-type: none"> • Ornamental, costume, antique or ceremonial weapons • Archery equipment or crossbow replicas (non-functioning, prop bows and arrows may be used) • Any weapon that depends on a mechanical action for safety, such as a retractable or collapsible dagger • Never allow a sharp blade in rehearsal or on stage <p>All edged/bladed weapons (swords, knives, daggers, etc.) must have their points and edges made safe, including the removal of nicks and burrs, and their blades properly balanced.</p>	Same
Firearm selection	<p>Firearms, live ammunition and blanks can seriously injure or kill people and are not permitted. They must never be brought to the school, theatre, or stage.</p> <p>Only non-firing replicas such as toy or prop guns and offstage sound effects are permitted. A gunshot simulator or recorded sound may be used.</p>	Same
TEACHER INFORMATION 3 - STAGE COMBAT AND WEAPONS SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Weapon inspection and maintenance	<p>A designated Weapons Handler must maintain all weapons in safe working order, according to law and manufacturer's specifications.</p> <p>Edged/bladed weapons should be inspected for damage such as loose handles, loose blades or burrs (jagged cuts a blade develops when it strikes another blade or solid object).</p>	<ul style="list-style-type: none"> the Weapons Handler, as well as the performer to use the weapon, should inspect the weapon prior to each use, as close to the actual time it is required in rehearsal or on stage as practicable
Use of weapons	<p>Do not give weapons to students until they have been trained by the Fight Director or Weapons Handler on their safe handling and use, and are deemed qualified to handle them.</p> <p>Inform all students in advance of the intention to use a toy or prop firearm.</p> <p>The Weapons Handler should supervise the weapons at all times.</p> <p>Weapons must not be taken out of the rehearsal or performance area, as toys or props may be mistaken for real weapons.</p> <p>All weapons should be secured in locked cabinets when not in use.</p>	<ul style="list-style-type: none"> the unauthorized use of any weapon is forbidden all weapons are dangerous; never engage in horseplay while in possession of, or while using, any weapon never rehearse or perform a fight under the influence of drugs, (including over the counter and prescription medication), alcohol, extreme fatigue or illness use the same weapon(s) in all rehearsals and performances do not take weapons out of the rehearsal or performance area, as toys or props may be mistaken for real weapons
TEACHER INFORMATION 3 - STAGE COMBAT AND WEAPONS SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Pre-show rehearsals	Pre-show rehearsals for all stage combat sequences should be mandatory.	<ul style="list-style-type: none"> • ensure complete control of the space; allow no distractions once the rehearsal has started • do not rush the rehearsal under any circumstances • run each sequence a minimum of three times before each show: first as a walk through, then again at 75% of performance speed with full intention; corrections should be given as necessary
Notices (Gunshots)	<p>If applicable, post signs at audience entry points and print a notice in the program to let people know of gunshots in advance.</p> <p>EXAMPLE: "This production includes loud gunshots."</p>	Same
TEACHER INFORMATION 3 - STAGE COMBAT AND WEAPONS SAFETY		

Additional Best Practices:

Rehearsal and Performances

Applicable Legislation:

Firearms are regulated primarily by the *Firearms Act* and by Part III of the *Criminal Code* which prohibits and restricts certain weapons, firearms and other devices, including certain replica/imitation weapons and firearms.

**TEACHER INFORMATION****4 - COSTUME SAFETY**

The safety of performers and others who handle costumes, hair and makeup should be taken into account in all stages of their selection, purchase, construction, repair and maintenance.

Definition

- **Costume** – Any article, including footwear, masks, wigs and headgear, that is worn, not carried or handled by a performer.

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Costumes	<p>Within the reasonable bounds of period, style and character, costumes (including footwear, masks, wigs and headgear) should be constructed and fit so as not to</p> <ul style="list-style-type: none"> • impede performers' movement, vision, breathing or hearing • cause injury or unnecessary discomfort <p>Whenever practicable, appropriate rehearsal costume pieces accessories (hats, masks etc.) and footwear should be provided.</p> <p>Ensure footwear is appropriate to the activity, especially when dance and fight sequences are involved.</p> <p>Wool, dyes or laundry detergents may cause skin irritations in students with allergies or sensitivities.</p> <p>When paints, dyes, solvents or other chemical are used in construction, repair and maintenance of costumes, allow them to air out and off-gas completely before the costume is used.</p> <p>Give performers adequate instruction and rehearsal time to become accustomed to all costumes they will use in performance, including costume quick changes.</p> <p>NOTE: Additional hazards such as punctures, cuts and burns, will be present if equipment such as sewing machines, sergers and irons, is used in costume construction. If applicable, students should be trained to use equipment according to the manufacturer's instructions and supervised appropriately.</p>	<ul style="list-style-type: none"> • rehearsal costumes, accessories (hats, masks etc.) and footwear should be provided wherever practicable and should be as close as possible in size, weight and shape to the intended performance articles • footwear should be appropriate for the activity • when students are in bare feet, the floor must be swept and checked for hazards (eg. nails, staples etc.) prior to each rehearsal or performance • notify the teacher of any allergies or sensitivities to fabric or costume care materials (i.e. wool, dyes, laundry detergent etc.) • report any adverse reaction, irritation, discomfort or illness from such products immediately and discontinue their use • allow paints, dyes, solvents or other chemicals used on costumes to air out and off gas completely before use • give performers adequate instruction and rehearsal time to become accustomed to all costumes they will use in performance, including costume quick changes • if equipment, such as sewing machines, sergers and irons, is used in costume construction, it must be used according to the manufacturer's instructions
TEACHER INFORMATION 4 - COSTUME SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Hair and Makeup	<p>Many hair and makeup products contain solvents, dyes, pigments, preservatives, oils or waxes that can cause dermatitis, cosmetic acne, rashes, conjunctivitis, (eye irritation) and other skin irritations or allergic reactions.</p> <p>Only cosmetic products should be used on skin. Paints, dyes and other non-cosmetic substances must not be used. Ingredient-labelled products from professional theatrical makeup companies are preferred. Products that are not manufactured by such a company and where no ingredient list is available should not be used.</p> <p>Many artificial facial and body parts contain latex rubber that can irritate skin and cause serious latex allergies in some people.</p>	<ul style="list-style-type: none"> • notify the teacher of any allergies or sensitivities to street makeup, stage/ special effects makeup or other skin/hair products • report any adverse reaction, irritation, discomfort or illness from hair and makeup products immediately and discontinue their use
TEACHER INFORMATION 4 - COSTUME SAFETY		

Additional Best Practices

General Safety Precautions

Personal Protective Equipment (PPE) *

Hazardous Materials*

Strike *

* As applicable

TEACHER INFORMATION

5 - PROPS SAFETY

Props must be selected and constructed with consideration for their specific use onstage and physical demands on the performers, as well as the safety of those who handle and create the props.

Definition:

- **Prop** – Any article that is carried or handled, not worn, by the performer. This includes items such as pens, money, documents, books, dishes, furniture, etc.

Restrictions: Only battery or electrically powered flame effects are permitted. Live flame is prohibited.

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Props	<p>If food or beverages will be consumed during a production, be aware of student allergies.</p> <p>Improperly prepared or stored food can cause illness. Prop food should be clearly labelled and stored separately from personal food.</p> <p>When paints, dyes, adhesives and solvents are used in construction, repair and maintenance of props, allow them to evaporate completely before the prop is used.</p> <p>Props that performers may touch must be free of materials or finishes that could cause injury (rough edges, chips, loose material, etc.)</p> <p>Whenever practicable, appropriate rehearsal props should be provided.</p> <p>Performers should be informed of any changes to props and given adequate instruction and time to work with the changes before performance.</p>	<ul style="list-style-type: none"> • notify the teacher of any food allergies if food or beverages will be consumed during a production • report any adverse reaction, irritation, discomfort or illness from prop materials immediately • ensure safe handling and use of food and beverages to be consumed during a production • allow paints, dyes, adhesives and solvents used on props to evaporate completely before the prop is used • ensure that props that performers may touch are free of materials or finishes that could cause injury (rough edges, chips, loose material, etc.) • provide rehearsal props wherever practicable; they should be as close as possible in size, weight and shape to the intended performance articles • inform performers of any changes to a hand prop or stage business already in place and give them adequate instruction and time to work with the changes before performance
TEACHER INFORMATION 5 - PROPS SAFETY		



Additional Best Practices

General Safety Precautions

Personal Protective Equipment (PPE) *

Hand Tools and Power Tools *

Working at Height and Ladders *

Hazardous Materials *

Strike *

** As applicable*

TEACHER INFORMATION

6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY

Lighting involves hanging, plugging in, focusing and striking lighting instruments and accessories to illuminate the stage and indicate the time, place and mood of the production.

Sound and audio/visual work involves the set up and strike of speakers, consoles, racks, microphones, stands, musical instruments and equipment, inter communication systems, screens, projectors and video equipment used for sound effects, live music, show communication and the projection of computer and video media.

Definitions

- **Lighting instruments** – Instruments include fresnels, ellipsoidal reflector spotlights (lekos), strip lights, scoops, par cans, moving lights and follow spots.
- **Lighting accessories** – Accessories include barn doors, snoots/top hats, gel frames and gobo holders.
- **Lamp** - The glass and metal assembly that is the source of the light within a lighting instrument. The bulb is the glass part of the lamp.
- **Strike** - The dismantling and removal of production elements including scenery, lighting, audio, props, costumes etc. from the theatre.

Restrictions: Students may only plug in equipment and change lamps in lighting instruments and projection equipment. All other electrical work is prohibited. Equipment, such as lighting instruments, must not be altered. Alterations to building structures and facilities (cutting holes in ceilings, walls, doors and windows, and adding rigging or lighting positions etc.) are prohibited.

Use of lasers requires the supervision of a qualified Laser Safety Officer; therefore, lasers are prohibited in schools.

Only trained and certified technicians can plan, rig and fire/detonate pyrotechnic special effects. Pyrotechnics are prohibited in schools, unless district approval is granted and appropriate liability insurance is in place.



TOPIC	TEACHER NOTES
Equipment selection	<p>Equipment must bear an electrical approval label and must not be altered.</p> <p>In case of a lamp burst, lighting instruments should fully contain all parts of the lamp; instruments without lenses should be equipped with wire mesh guards.</p>
Inspection and maintenance	<p>Equipment should be inspected by a qualified electrician for electrical safety and maintained by a qualified person on a regular basis including a formal, annual check of the complete inventory.</p> <p>Follow the manufacturer's instructions and specifications for inspection and maintenance.</p> <p>Only properly trained personnel should use or service "arc" or "higher voltage" gas discharge lamps (including most follow spots and moving lights).</p>
Lockout	<p><i>Lockout</i> means the use of a lock or locks to render machinery or equipment inoperable or to isolate an energy source, in accordance with a written procedure, to prevent injury.</p>
TEACHER INFORMATION 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY	

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Electrical safety	<p>Only qualified electricians should undertake the maintenance and/or installation of electrical services, including the “tie in” of portable distribution panels to existing electrical services.</p> <p>Maximum rated loads of lighting dimmers, cables and boxes must not be exceeded; breakers must not be loaded to more than 80% of their rated capacity.</p>	<ul style="list-style-type: none"> • all outlets should be considered live • work on live circuits is potentially lethal and is not permitted • students may only plug in equipment and change lamps in lighting instruments and projection equipment; all other electrical work is prohibited • if a breaker or fuse blows, disconnect the power source and notify the teacher
Personal Protective Equipment (PPE)	<p>Students must be trained in the selection, effective use and care of PPE.</p> <p>Students must be provided with the appropriate PPE.</p>	<ul style="list-style-type: none"> • a hard hat is required in the danger zone below overhead work (such as a ladder assistant) • gloves – preferably leather- are required when handling powered lighting instruments • hearing protection is required when noise is at hazardous levels
TEACHER INFORMATION 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Access to equipment	<p>Where hazards exist, teachers and students are NOT PERMITTED access to auditorium attics or grids. Hazards may include fall hazards, potential fire and electrical hazards, insufficient emergency egress equipment and easily disturbed asbestos containing materials.</p> <p>Catwalk access is permitted when approved by the district.</p>	<ul style="list-style-type: none"> equipment must only be placed in approved locations that may be accessed safely
Falling objects	<p>Avoid having extra students on stage or in the auditorium when students are working above.</p> <p>If there is a risk of head injury from falling objects (scenery, lighting equipment, tools, tail ends of cable etc.) then all students in the danger zone must wear hard hats.</p>	<ul style="list-style-type: none"> before overhead work begins <ul style="list-style-type: none"> ensure the area below the work area is clear of anyone not wearing a hard hat mark off the area as a danger zone (using orange traffic cones or stanchions and caution tape) place signs, if needed anyone working in the danger zone (such as a ladder assistant) must wear a hard hat before working at height, empty pockets and secure all loose tools, flashlights etc. to your body using a lanyard or tool belt never leave tools on a ladder or scaffold once a student has returned to ground level if you drop an object from a height, immediately yell "Heads!" to warn people below
Condition of equipment	<p>Defective equipment must be tagged, taken out of service and secured so it cannot be used.</p> <p>The tag should say "Do Not Use" and should indicate the teacher's name, the date and a description of the problem.</p> <p>Follow school district procedures to arrange maintenance repair or replacement.</p>	<ul style="list-style-type: none"> inspect each piece of equipment before use to ensure it is in safe working order if equipment is defective, give it to the teacher
TEACHER INFORMATION 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Cords and cables	<p>All extension cords and cables must be of sufficient gauge, voltage and amperage rating. The connectors on the ends of the cords should have the similar ratings, be properly strain relieved and in good working order.</p> <ul style="list-style-type: none"> • where 15 amp circuit protection is in place, 14/3 SJO cables must be used • where 20 amp circuit protection is in place, 12/3 SJO cables must be used <p>Extension cords must not be used as permanent wiring.</p> <p>Defective cables or cords must be tagged, taken out of service and secured so they cannot be used.</p> <p>The tag should say "Do Not Use" and should indicate the teacher's name, the date and a description of the problem.</p> <p>Spliced cables must be destroyed.</p> <p>Follow school district procedures to arrange repair by a qualified electrician.</p>	<ul style="list-style-type: none"> • grounded extension cords should never have their grounding pins removed; ground cheats (ungrounded male to grounded female adapters) should not be used • ensure all cables and cords are free of nails, staples, cuts, frays, twists, kinks, etc; check the entire length of cables being used • cables should not be spliced; if found, they must be given to the teacher to be destroyed • if a cable or cord is defective, give it to the teacher • always grasp the plug firmly to unplug; do not pull on the cord when unplugging equipment; this can cause the wires to pull out of their termination in the plug • cables may run along a wall but not through one • cables and floor pockets should be clearly marked and taped or covered to prevent tripping hazards; mats or cables troughs may be used
TEACHER INFORMATION 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Hanging lighting instruments	<p>Equipment should not be carried up a ladder; pull equipment up with a rope once you are safely in place.</p> <p>All lighting instruments and accessories (barn doors, tops hats, scrollers, gobo holders etc.) must be safely secured and equipped with a safety chain or wire to prevent them from falling.</p> <p>The distance that an instrument might fall before being stopped by its safety chain must be such that no strain is placed upon the electrical cord.</p> <p>Lighting instruments must be kept a suitable distance from flammable or combustible materials.</p>	<ul style="list-style-type: none"> • to hang a lighting instrument • pull equipment up rather than carrying up • place the instrument in position • tighten the C-clamp or other primary attachment • attach the safety chain or wire to secure the instrument and accessories (gobos, gels, gel holders etc.) and prevent them from falling • maintain adequate clearance of at least .35 m (12 in) between lighting Instruments and nearby items such as drapery, scenery, etc. including Instruments on pipes that be blocked by drapery or scenery that travels • use fire resistant fibreboard gel frames, not metal ones • do not look directly into stage lights
Installing sound and audio/visual equipment	<p>All equipment must be safely secured and equipped with a safety chain or wire to prevent them from falling.</p> <p>The distance that a Instrument might fall before being stopped by its safety chain or wire must be such that no strain is placed upon the electrical cord.</p> <p>Equipment must be kept a suitable distance from flammable or combustible materials.</p>	<ul style="list-style-type: none"> • to install sound and audio/ visual equipment • place the equipment in position • tighten the C-clamp or other primary attachment • attach the safety chain or wire to secure the equipment and prevent it from falling • maintain adequate clearance of at least .35 m (12 in) between equipment and nearby items such as drapery, scenery, etc. including Instruments on pipes that be blocked by drapery or scenery that travels
TEACHER INFORMATION 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Re-lamping lighting instruments and projectors	<p>Check the manufacturer's instructions for re-lamping and use only correct wattage lamps.</p> <p>Re-lamping should be done with the power supply to the lighting instrument or projector turned off and unplugged.</p> <p>The lamp should be replaced in the instrument before restoring power. Do not turn on an exposed bulb to test power.</p> <p>New lamps must be handled with care according to manufacturer's instructions.</p> <p>Any surface contamination, notably fingerprints, can damage the glass when it is heated, weakening the glass and leading to the lamp's failure or explosion.</p>	<ul style="list-style-type: none"> • before relamping a lighting instrument or projector <ul style="list-style-type: none"> • turn it off • unplug it • allow it to cool • keep the plug in view while doing the work • wait until a lamp has cooled before replacing it and do not touch it with bare hands • new lamps must be handled without touching the glass, according to manufacturer's instructions; gloves may be required • if the glass is contaminated in any way, it must be thoroughly cleaned with alcohol and a microfiber or lint-free cloth, then dried before use
Avoid burns	<p>Electricity generates heat and halogen lamps get hotter than regular incandescent lamps.</p> <p>Avoid burns on hot components.</p>	<ul style="list-style-type: none"> • always use gloves – preferably leather – when handling a powered lighting instruments as metal shutters, barrels, housings and gobos can become extremely hot while in use • “flagging” - it is possible to pass your hand briefly through the beam to show where it has landed without being burned, but do not hold your hand directly in front of the lighting instrument while it is on
Wet conditions	<p>Water is a great conductor of electricity.</p> <p>If working in wet conditions cannot be avoided, consult a qualified electrician before proceeding.</p>	<ul style="list-style-type: none"> • never work in wet conditions
Emergency response	<p>It is dangerous to approach a person who has received an electric shock while the power is still on.</p> <p>The power must be shut off before trying to help them.</p>	<ul style="list-style-type: none"> • turn off the power before touching a person who has received an electric shock; call for help immediately
TEACHER INFORMATION 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Notices (Strobe lights)	<p>CAUTION: In rare cases, people with epilepsy may be affected by strobe lights.</p> <p>Post signs at audience entry points and print a notice in the program to let people know of strobe lights in advance.</p> <p>EXAMPLE: "This production includes strobe lights."</p>	<ul style="list-style-type: none"> • CAUTION: In rare cases, people with epilepsy may be affected by strobe lights • notify students if strobe lights will be used • post signs at audience entry points and print a notice in the program to let people know of strobe lights in advance • EXAMPLE: "This production includes strobe lights."
Noise Levels	<p>Whenever practicable, student exposure to noise levels over 85 dBA should be eliminated</p> <p>Particularly loud sound cues should be carefully considered. If such effects are approved, they should be integrated slowly into the rehearsal process.</p>	<ul style="list-style-type: none"> • students should be audibly warned prior to impending loud noise • monitor background music during work calls; it should not impede communication or delay progress, provide a distraction or combine with any other background noise to create hazardous sound levels • wear earplugs or earmuffs when working where noise levels are high, such as when operating power tools or when sound effects or live music are at hazardous levels
Storage	<p>Lighting instruments and equipment that is not in use must be secured to prevent it from falling.</p>	<ul style="list-style-type: none"> • when not in use, lighting instruments and equipment should be <ul style="list-style-type: none"> • placed in a storage position with the C-clamp or other primary attachment tightened and its safety chain or wire attached • alternatively, it should be stored on its side so it cannot tip over and fall
TEACHER INFORMATION 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Rigging operation	<p>Only properly trained and qualified persons may be involved with the operation of professionally- installed and inspected rigging equipment and systems.</p> <p>They must be knowledgeable in safe operation of the equipment and its safety devices, safe working loads, hazards during operation and emergency procedures.</p>	<ul style="list-style-type: none"> • only trained, qualified students are permitted to operate existing rigging systems • adding rigging or lighting positions etc. is prohibited • maintain control and visual contact with a moving piece at all times • be aware if and when students are underneath loads
TEACHER INFORMATION 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY		

Additional Best Practices

Low Lighting Levels

General Safety Precautions

Personal Protective Equipment (PPE)

Hand Tools and Power Tools

Working at Height and Ladders

Applicable WorkSafeBC Regulations

Part 19 Electrical Safety

<http://www2.worksafebc.com/publications/OHSRegulation/Part19.asp>

Part 10 De-energization and Lockout

<http://www2.worksafebc.com/Publications/OHSRegulation/Part10.asp>

TEACHER INFORMATION

7 - LOW LIGHTING LEVELS SAFETY

During rehearsals and performances, work may be done in low lighting conditions with physical hazards present. Sudden lighting changes and low backstage lighting levels can increase the risk of tripping or falling.

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
House Lights	If house lights are not dimmable, warn the audience before the lights are turned off.	<ul style="list-style-type: none"> ushers should ensure that audience members are seated before the house lights go out ushers should be provided with flashlights for emergencies and for safely seating latecomers
Before the work lights go out	<p>During preproduction, in rehearsal or for performance, ensure all students have received a safety orientation for the theatre/studio.</p> <p>Install backstage and onstage safety lighting/running lights, and spike scenery and other hazards with contrasting tape or glow tape to provide enough light and definition for work to be done safely.</p> <p>Do not turn off or cover exit lights or running lights on stairs in the house to achieve a true blackout.</p>	<ul style="list-style-type: none"> leave as much work light on as possible at all times: when rehearsing, during technical work, set installation and strike, on breaks and prior to/following performances, etc. identify, minimize and mark all hazards onstage and backstage mark all unguarded edges (stage, risers, stairs etc.) and other safety design features both onstage and backstage with contrasting tape, glowtape or other markers set up, test and turn on all backstage running lights to identify hazards ensure exit signs, aisle and other safety lighting are functioning, turned on, visible and not covered rehearse all hazardous sequences – such as scene and costume changes, dance, stage combat – under work lights until they can be done with accuracy, confidence and safety in performance light ensure flashlights and/or headlamps are available for all students who may need them for scene changes, costume changes etc.
TEACHER INFORMATION 7 - LOW LIGHTING LEVELS SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
When the work lights go out	<p>During preproduction, in rehearsal or for performance, minimize the time work light is off.</p> <p>With the exception of the lighting focus, work on ladders is prohibited when the lights are off.</p> <p>Stage management/teacher must monitor all movement onstage and backstage.</p> <p>In case of a hazard, including light levels that are too low to work safely, work must be stopped until the hazard has been addressed.</p> <p>If a hazard is identified once a performance is in progress, the stage manager, teacher and student(s) at risk must decide if the hazard is an imminent danger, and make a decision about stopping the show.</p>	<ul style="list-style-type: none"> • minimize movement of people, set pieces and equipment backstage, onstage and in the house when work lights are off • ensure everyone has sufficient rehearsal time to orient themselves to low lighting levels • with the exception of the lighting focus, work on ladders is prohibited when the lights are off • stage management/teacher must monitor all movement onstage and backstage • alert stage management or the teacher of any new hazards, including light levels that are too low to work safely, and stop work until the hazard has been addressed • if a hazard is identified once a performance is in progress, the stage manager, teacher and student(s) at risk must decide if the hazard is an imminent danger, and make a decision about stopping the show
In case of a blackout	<p>Use blue-outs or brown-outs instead of black-outs whenever possible.</p> <p>Keep blackouts to a minimum, in number and length.</p>	<ul style="list-style-type: none"> • minimize movement on and off stage during blackouts • during rehearsals and technical work, all students must be informed before a blackout can occur; the student operating the lights must be heard by all saying "Going to Black" • after a sudden lighting change, allow eyes to adjust before moving
TEACHER INFORMATION 7 - LOW LIGHTING LEVELS SAFETY		

TEACHER INFORMATION

8 - SCENERY SAFETY

Most productions involve scenery that is specially designed and custom-built then disassembled at the end of the run. Scenery includes platforms, ramps, stairs, flats, drops and drapes which are used to create a setting for the performance. The scenic design is based on the director's artistic concept and considerations include:

- where on the set each scene will be played
- the type of activity and the number of performers to be accommodated in each area
- entrance and exit routes for performers
- necessary scene changes

Scenery must be appropriately constructed and demonstrated to be safe for use by performers and crew for the specific requirements of the performance.

Definitions

- **Guardrail** - A guard consisting of a top rail 102 cm to 112 cm (40 in to 44 in) above the work surface, and a midrail located approximately midway between the underside of the top rail and the top of the toeboard, if one is provided, or the work surface if no toeboard is provided.

NOTE: Guardrails must be used in all locations not visible to audiences.

WorksafeBC allows exceptions for performance stages and scenic units visible to audiences, as long as effective measures are taken to ensure that people are protected from injury. These measures could include placing rope light along the edge, marking off a control zone with contrasting tape to keep people back from the edge, no moving in the dark etc.

- **Toeboard** – Floor openings, elevated walkways and platforms must have toeboards if there is a danger from tools, materials, equipment and debris falling off the edge of the work surface, or there is a danger of slipping off the work surface due to the environment or work practices being used. The top of a toeboard must be at least 10 cm (4 in) above the floor or platform, and the space between the bottom of the toeboard and the floor or platform must not exceed 13 mm (1/2 in).
- **Rake** - A rake is an acting area that is not horizontal. An unsafe rake is one that exceeds an incline of 2.5 cm (1 in) in 30 cm (12 in).
- **Raked stage** – A stage where most or all of the deck is raked.
- **Raked area** – A portion of the stage which is raked.
- **Ramp** – A means of getting from one acting area to another.

- **Restrictions:** Elevated performance stages and scenic units are permitted, provided the person's feet are below a height of 3 m (10 ft). Stages and scenic units above this height are prohibited. Cutting holes in ceilings, walls, doors, windows and adding rigging or lighting positions etc is prohibited.

TOPIC	TEACHER NOTES
Scenic Design	<p>The safety of all who handle or interact with scenery should be taken into account in all stages of design, purchase, construction, repair, maintenance and use.</p> <p>Teachers should have a thorough understanding of building standards and codes, and the reasons for their existence. Sets should be constructed according to building standards. Use professionally engineered and manufactured products; do not alter or compromise engineered products.</p> <p>Sets and scenery should be performer/crew friendly – both for movement during performance and for scene changes, taking into consideration the size, physical fitness and movement/blocking needs of performers and crew. Moving platforms and scenery, as well as other hazardous set elements such as raked stage floors, need to be designed and constructed with care and attention to safety features.</p> <p>Students, including performers, who will be on elevated set pieces more than 3 m (10 ft) high, must be protected from falling.</p> <p>If there is a fire curtain, the area below it must be kept clear of scenery, furniture and other objects.</p>
TEACHER INFORMATION 8 - SCENERY SAFETY	

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Scenic Construction	<p>When scenery is constructed in a shop, consider how it will be moved to the theatre and ensure it will fit through doorways and that it is of a reasonable size and shape to be carried, especially if the route is outdoors.</p>	<ul style="list-style-type: none"> • ensure platforms are securely fastened together and evenly joined; if the joins cause an uneven surface, cover the surface completely to ensure it is level • report any signs of wear or damage to design elements to a teacher immediately that it can be repaired or replaced
TEACHER INFORMATION 8 - SCENERY SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Guardrails	<p>Openings or holes through which a student could fall (trap, orchestra pit, etc.) must be protected by a securely attached cover or guardrails and toe boards; temporary covers must be clearly marked/signed indicating the nature of the hazard.</p> <p>Guardrails and toeboards must be constructed in accordance with the specific requirements on the previous page.</p> <p>Exceptions:</p> <p>WorksafeBC allows exceptions for performance stages and scenic units visible to audiences, as long as effective measures are taken to ensure that people are protected from injury.</p> <p>These measures could include placing rope light along the edge, marking off a control zone with contrasting tape to keep people back from the edge, no moving in the dark etc.</p> <p>In situations where guardrails are not practicable, do a risk assessment to identify and resolve health and safety issues. You may also consult with the District or School Health & Safety Department.</p>	<ul style="list-style-type: none"> • wherever possible, avoid work at height • cover openings (such as traps and orchestra pits) with material that can safely support any anticipated load, or guard them using guardrails and toeboards • ensure guardrails are in place in all locations not visible to audiences • use removable guardrails when the stage is not being used for rehearsal or performance (during installation, technical work and strike) • if guardrails are not practicable on scenery that will be visible to the audience, then effective measures must be taken to protect people from injury • where applicable, an orchestra pit net must be used when the orchestra pit cover is removed
TEACHER INFORMATION 8 - SCENERY SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Ladders as Scenic Units or Props	A ladder that is constructed specifically as a scenic unit or a prop that will be visible to the audience does not have to meet the requirements of the OHS Regulation but must be safe for its intended use.	<ul style="list-style-type: none"> a prop ladder must be marked “for performance only” when it is not being used in rehearsal or performance and all students must be informed
Rakes	<p>An unsafe rake is one that exceeds an incline of 2.5 cm (1 in) in 30 cm (12 in).</p> <p>Hazards include tripping or stumbling, loose objects that roll, slide or fall down a rake (props, ladders, people, tools and equipment).</p>	<ul style="list-style-type: none"> take adequate measures (tethers, stops, construction methods, shape of the object, wedges etc.) to prevent props and scenery from inadvertently rolling down a rake
TEACHER INFORMATION 8 - SCENERY SAFETY		

Additional Best Practices:

General Safety Precautions

Personal Protective Equipment (PPE)

Hand Tools and Power Tools

Working at Height and Ladders

TEACHER INFORMATION

9 - RIGGING SAFETY

Anyone who is responsible for rigging must understand the legislation before proceeding with any rigging work. Rigging is one of the most dangerous tasks in the theatre and it presents hazards for:

- the rigger (musculoskeletal and other bodily injuries)
- the performers or crew onstage below (being crushed by falling scenery)
- the audience (being crushed by falling scenery)
- other set pieces, furniture, stage floors and the rigging equipment itself

Definition:

- **Rigging** - Generally refers to anything that is used for attaching, supporting or flying scenery, drapery, lighting, audio, visual and sound equipment. This includes fibre ropes, wire ropes, chains, slings, attachments, connecting fittings and associated components.

Restrictions: Alterations to building structures and facilities (including cutting holes in ceilings, walls, doors and windows and adding rigging or lighting positions etc.) are prohibited. Only trained, qualified people are permitted to operate professionally installed and inspected existing rigging systems. Additions to the existing rigging system by teachers and students are prohibited unless District approval is granted and appropriate liability insurance is in place.

Performer flying and aerial stunts involve much greater potential for serious or fatal injury than normal performance activities. They also require the supervision of a fully trained and experienced professional stunt co-ordinator, the use of appropriate engineering and expensive, specialized equipment. Performer flying and aerial stunts are prohibited in schools, unless District approval is granted and appropriate liability insurance is in place.

TOPIC	TEACHER NOTES	
Inspection and maintenance	<p>All rigging of accessible pipes and winch systems (including winches, clues, lines, head blocks and line blocks) must be inspected after installation and then inspected and maintained annually by a qualified professional, according to the manufacturer's instructions.</p> <p>Defective components must be marked and removed from service until they are repaired by a qualified person.</p>	
TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Rigging operation	<p>Only properly trained and qualified persons may be involved with the operation of professionally- installed and inspected rigging equipment and systems.</p> <p>They must be knowledgeable in safe operation of the equipment and its safety devices, safe working loads, hazards during operation and emergency procedures.</p> <p>Warn students of the dangers arising from loads, such as flown scenery, suspended or moved above them.</p> <p>As far as it is reasonably practicable, suspended loads must not be passed over people.</p> <p>The operation of all rigging equipment and systems, including chain hoists, trusses, etc., must meet with manufacturer's specifications and recommendations.</p>	<ul style="list-style-type: none"> only trained, qualified students are permitted to operate existing rigging systems adding rigging or lighting positions etc. is prohibited maintain control and visual contact with a moving piece at all times be aware if and when students are underneath loads
TEACHER INFORMATION 9 - RIGGING SAFETY		

Additional Best Practices

General Safety

Personal Protective Equipment (PPE)

Hand Tools and Power Tools *

Working at Height and Ladders *

Lighting, Sound and Audio/Visual *

Scenery *

Strike *

* As applicable

Applicable WorkSafeBC Regulations:

Part 15 Rigging

<http://www2.worksafebc.com/publications/OHSRegulation/Part15.asp>

TEACHER INFORMATION

10 - STRIKE SAFETY

A strike involves many people converging onstage and backstage following the final performance of a production. Many activities take place simultaneously and in close quarters so planning and supervision are essential to avoid accidents and incidents.

Definition:

- **Strike** - The dismantling and removal of production elements including scenery, lighting, audio, props, costumes etc. from the theatre.

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Strike	<p>Strikes can be hazardous because there is often a sense of urgency, crew sizes may have changed, all departments may be working at the same time, and fatigue is often a factor.</p> <p>When feasible, avoid scheduling strikes directly following a closing performance and directly before or after the cast and crew party.</p> <p>Consider scheduling strikes so that different departments work at different times.</p> <p>The teacher should be present at the strike to supervise the work and ensure that everyone is aware of their duties.</p> <p>At regular intervals, a quick assessment of progress should be done with all each department. Work does not necessarily need to stop for these assessments to occur.</p>	<ul style="list-style-type: none"> • strikes should only proceed under full work light • items and equipment in pathways should be removed first, followed by props and furniture • ensure that stairs and other access routes are left intact until access to the areas they serve is no longer needed • particular attention should be paid to overhead work, ladders and power tools
TEACHER INFORMATION 10 - STRIKE SAFETY		

Additional Best Practices:

General Safety Precautions

Personal Protective Equipment (PPE)

Hand Tools and Power Tools

Working at Height and Ladders

Lighting, Sounds and Audio/Visual *

Rigging *

Scenery *

Costumes *

Props *

* As applicable



TEACHER INFORMATION

11 - PERSONAL PROTECTIVE EQUIPMENT (PPE)

Whenever possible, hazards should be eliminated or minimized. When it is not practical to reduce hazards to acceptable levels using other controls, the use of Personal Protective Equipment (PPE) (PPE) is necessary. For some hazards, PPE is the only practical control.

Definition:

- **Personal Protective Equipment (PPE)** - PPE is designed to establish an effective barrier between a person and potentially hazardous objects, substances or environments. PPE may be required for many different theatre activities to prevent injuries including:
 - Eye injury due to flying particles – wear eye protection
 - Foot injury due to moving scenery – wear substantive footwear, preferably leather
 - Hand injury due to slivers from handling wood – wear gloves when appropriate
 - Head injury due to tools falling from above – wear a hard hat
 - Hearing damage due to high noise levels – wear hearing protection

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Personal Protective Equipment (PPE)	<p>Students must be trained in the selection, effective use and care of PPE.</p> <p>Students must be provided with the appropriate PPE.</p>	<ul style="list-style-type: none">• use or wear appropriate PPE for each activity• inspect PPE before each use• keep PPE clean and in good repair• report any defective PPE to a teacher immediately and remove it from service
Clothing and Footwear	<p>Expectations about student attire should be clearly defined, explained and enforced.</p> <p>Building scenery is comparable to construction and students should dress appropriately:</p> <ul style="list-style-type: none">• long pants• short sleeve shirt• substantive, closed toe shoes, preferably leather; sandals and high heels are not permitted• tuck in loose clothing, tie back long hair and remove jewellery when working around tools and equipment with moving parts	<ul style="list-style-type: none">• wear appropriate clothing and footwear for the activity• for construction-type work (building scenery etc.), wear long pants and a short sleeve shirt• substantive, closed toe shoes, preferably leather must be worn; sandals and high heels are not permitted• tuck in loose clothing, tie back long hair and remove jewellery when working around tools and equipment with moving parts
Eye and Face Protection	<p>Ensure CSA approved eye protection is available and in good condition.</p> <p>Appropriate eye protection must be worn when there is a risk of eye injury.</p> <p>Appropriate face protection must be worn when grinding or burning.</p>	<ul style="list-style-type: none">• wear safety glasses, goggles or a face shield when using tools, equipment or materials (including carpentry, power tools, flying dust and particles, hazardous materials etc.) where there is a risk of eye injury
Fall Protection	Working at height, in any situation that requires fall protection equipment such as a harness for fall restraint or fall arrest, is PROHIBITED .	
TEACHER INFORMATION 11 - PERSONAL PROTECTIVE EQUIPMENT (PPE)		



TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Hand Protection	<p>Statistics identify that most injuries in school shops involve students' hands.</p> <p>Ensure appropriate gloves are available and in good condition.</p> <p>Gloves must not be worn when there is a danger of them being entangled in moving equipment.</p>	<ul style="list-style-type: none">• wear gloves when exposed to a risk of hand injury due to splinters, slippery materials, abrasions, rough objects, heat, sharp objects, hazardous materials etc.• for hazardous materials, check the MSDS for specific glove requirements• do not wear gloves when there is a danger of them being entangled in moving equipment
TEACHER INFORMATION 11 - PERSONAL PROTECTIVE EQUIPMENT (PPE)		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Head Protection	<p>Ensure CSA approved hard hats are available and in good condition.</p> <p>If there is a risk of head injury from falling objects (scenery, lighting equipment, tools, tail ends of cable etc.) then all students in the danger zone must wear hard hats.</p>	<ul style="list-style-type: none">• before overhead work begins, ensure the area below the work area is clear of anyone not wearing a hard hat; mark off the area as a danger zone and place signs, if needed• anyone working in the danger zone (such as a ladder assistant) must wear a hard hat• inspect the hard hat for cracks or damage; do not drill holes in it, paint it or apply stickers• chin straps should be used when working at height
Hearing Protection	<p>High noise areas should be identified and signs posted to require hearing protection.</p> <p>Ensure appropriate earplugs or earmuffs are available and in good condition.</p> <p>Any person exposed to noise over 85 dB must wear hearing protection.</p>	<ul style="list-style-type: none">• wear earplugs or earmuffs when working where noise levels are high, such as when operating power tools or when sound effects or live music are at hazardous levels
Respiratory Protection	Use of materials with respiratory hazards is PROHIBITED . Only products that do not require respiratory protection are permitted. Check the MSDS before purchase or use.	
TEACHER INFORMATION 11 - PERSONAL PROTECTIVE EQUIPMENT (PPE)		

Applicable WorkSafeBC Regulations:

Part 8 Personal Protective Equipment (PPE) Clothing and Equipment

<http://www2.worksafebc.com/Publications/OHSRegulation/Part8.asp>

TEACHER INFORMATION

12 - HAZARDOUS MATERIALS

Hazardous materials are commonly used when creating costumes and props, as well as when painting scenery. Some examples include paints, lacquers, stains, solvents, dyes, adhesives, shoe sprays and polishes.

Restrictions: Hazardous Materials with respiratory hazards – Classes may only use products that do not require respiratory protection. Check the Material Safety Data Sheet (MSDS) before purchase or use.

Low VOC, water-based products are recommended, whenever possible.

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Hazardous materials	<p>Hazardous materials can be ingested, inhaled or absorbed through skin.</p> <p>Explain how being informed about hazardous materials can protect your health and save your life.</p> <p>Identify hazardous materials to students.</p>	<ul style="list-style-type: none"> • check with the teacher before using hazardous materials • if in doubt, ask
Training	<p>Ensure students have received Workplace Hazardous Materials Information System (WHMIS) training.</p> <p>Instruct students on how to work safely with the products they will be using, including proper use, handling, and emergency response.</p>	<ul style="list-style-type: none"> • recognize and understand the hazard symbols on product labels • understand with how hazardous materials can do harm
Labels	<p>Ensure hazardous materials are clearly marked with either a supplier or workplace label.</p> <p>Ensure workplace labels are available for use when a product is moved to a new container or the supplier label is illegible.</p>	<ul style="list-style-type: none"> • always read the label • if the product is moved to a new container or the supplier label is illegible, place a workplace label on the container
Material Safety Data Sheets (MSDS)	<p>Ensure the MSDS for each product is not more than 3 years old.</p> <p>Ensure the MSDS is available to students.</p> <p>Explain the information that is found on an MSDS.</p>	<ul style="list-style-type: none"> • know where to find the MSDS • always read the MSDS before using any product for the first time or if you cannot remember how to use it correctly
TEACHER INFORMATION 12 - HAZARDOUS MATERIALS		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Handling and use	<p>Hazardous materials should only be used under the direct supervision of an experienced individual knowledgeable in its potential hazards.</p> <p>Ensure hazardous materials are safely stored as required by the MSDS.</p>	<ul style="list-style-type: none"> • follow procedures for safe handling, use, storage, and disposal, including emergency procedures and spill clean up • always use Personal Protective Equipment (PPE) (such as gloves, goggles etc.) as identified on the MSDS for the product • keep product containers tightly closed and in an upright position when not in use
Hazardous waste	<p>Ensure procedures are in place to gather hazardous waste (e.g., leftover paints, solvents etc.).</p> <p>Contact the Health & Safety Department to arrange for disposal of hazardous waste.</p>	<ul style="list-style-type: none"> • notify the teacher to arrange for disposal of hazardous waste
TEACHER INFORMATION 12 - HAZARDOUS MATERIALS		

Applicable WorkSafeBC Regulations:

Part 5 Chemical Agents and Biological Agents

<http://www2.worksafebc.com/Publications/OHSRegulation/Part5.asp>

Resources:

Science Safety Resource Manual (British Columbia Ministry of Education, Revised 2003)

<http://www.bced.gov.bc.ca/irp/resdocs/scisafe/moescisaf.pdf>

Sample Forms - Science Safety Resource Manual

<http://www.bced.gov.bc.ca/irp/resdocs/scisafety.htm>

Paint Safety Primer (Actsafes)

<http://www.actsafe.ca/wp-content/uploads/resources/pdf/PaintPrimer.pdf>

WHMIS Information, 17" X 11" poster (Actsafes)

<http://www.actsafe.ca/resources/posters/whmis-workplace-hazardous-information-system/>

WHMIS at Work (WorkSafeBC)

<http://www.actsafe.ca/resources/library/whmis/books-manuals-whmis-library-resources/whmis-at-work/>

TEACHER INFORMATION

13 - FOG AND HAZE SAFETY

A wide variety of commercial products and machines are available to create fog and haze effects, with varying degrees of hazards.

Definitions:

- **Fog** - Produced by heating or cooling a chemical, and is composed of liquid droplets. Glycol-based products (mixtures of water and polyfunctional alcohols; propylene glycol and butylene glycol) are considered to be the least hazardous of these products available.
- **Haze** - Similar to fog, it creates a fine mist that hangs in the air for extended periods.

Restrictions: Only glycol-based products fog and haze products are permitted. The following products are prohibited:

- **dry ice** – burn hazards exist due to cold dry ice and boiling water used in some machines and carbon dioxide can accumulate to dangerously high levels
- **oil- or petroleum-**based products including mineral oil
- **smoke** produced by burning or fuming a material, composed of solid particles, including:
- **chlorides** – ammonium chloride (sal ammoniac powder) and zinc chloride (used in smoke cookies, smoke pots, smoke candles, smoke bombs, etc.)
- **organic materials** – frankincense, paper, rosin, charcoal, tobacco, rubber, etc. (these smokes are irritating and generate carbon dioxide, carbon monoxide and other toxic gases, vapours and/or fumes)
- **A/B (Acid and Base) Smoke** – highly irritating and toxic; potential fire hazard

NOTE: Consult the principal regarding spiritual, religious or cultural ceremonies that involve burning materials.

TOPIC	TEACHER NOTES
Fog and haze product selection	<p>All fog and haze is easily inhaled and can cause irritation to people with respiratory sensitivities and allergies.</p> <p>Consider situations which involve strenuous physical activity and singing, as well as live musicians, as deep breathing increases inhalation hazards. Some products (notably glycols) absorb water and may cause drying of the throat, nose, and sinuses.</p> <p>Children, the elderly, people with respiratory problems such as asthma, pregnant women and people with serious illnesses are at increased risk of irritation or complications caused by these products.</p> <p>Carefully research available/appropriate atmospheric products and production methods in consideration of the effect you want to achieve. Consider factors such as</p> <ul style="list-style-type: none"> • number of students/patrons who will be exposed to the effect • length of exposure time • the venue airflow patterns • interference with building fire alarm systems such as smoke and particle detectors • available storage facilities • skill of students who will operate the effect, etc. <p>Select the least hazardous product with the simplest and most consistent method of production.</p> <p>Only use products accompanied by an MSDS that clearly identifies the chemical ingredients present as well as their potential hazards and necessary precautionary measures.</p> <p>Ensure inhalation hazards, not just ingestion hazards, are listed.</p> <p>Be aware of long-term exposure hazards to products/chemicals; many products have been tested for acute, short-term toxicity only.</p>
Training , Labels and MSDS	Refer to #12 Hazardous Materials
Equipment selection	Equipment must bear an electrical approval label and must not be altered.
Inspection and maintenance	Equipment should be inspected by a qualified electrician for electrical safety and maintained by a qualified person on a regular basis including a formal, annual check of the complete inventory.
TEACHER INFORMATION 13 - FOG AND HAZE SAFETY	

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Electrical safety	Only qualified electricians should undertake the maintenance and/or installation of electrical services.	<ul style="list-style-type: none"> • all outlets should be considered live • work on live circuits is potentially lethal and is not permitted • students may only plug in equipment and change lamps in lighting instruments and projection equipment; all other electrical work is prohibited • if a breaker or fuse blows, disconnect the power source and notify the teacher
Access to equipment	Designate approved equipment storage locations.	<ul style="list-style-type: none"> • equipment must only be placed in approved locations that may be accessed safely
Condition of equipment	<p>Defective equipment must be tagged, taken out of service and secured so it cannot be used.</p> <p>The tag should say “Do Not Use” and should indicate the teacher’s name, the date and a description of the problem.</p> <p>Follow school district procedures to arrange maintenance repair or replacement.</p>	<ul style="list-style-type: none"> • inspect each piece of equipment before use to ensure it is in safe working order • if equipment is defective, give it to the teacher
TEACHER INFORMATION 13 - FOG AND HAZE SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Cords and cables	<p>All extension cords and cables must be of sufficient gauge, voltage and amperage rating. The connectors on the ends of the cords should have the similar ratings, be properly strain relieved and in good working order.</p> <ul style="list-style-type: none"> • where 15 amp circuit protection is in place, 14/3 SJO cables must be used • where 20 amp circuit protection is in place, 12/3 SJO cables must be used <p>Extension cords must not be used as permanent wiring.</p> <p>Defective cables or cords must be tagged, taken out of service and secured so they cannot be used.</p> <p>The tag should say "Do Not Use" and should indicate the teacher's name, the date and a description of the problem.</p> <p>Spliced cables must be destroyed.</p> <p>Follow school district procedures to arrange repair by a qualified electrician.</p>	<ul style="list-style-type: none"> • grounded extension cords should never have their grounding pins removed; ground cheats (ungrounded male to grounded female adapters) should not be used • ensure all cables and cords are free of nails, staples, cuts, frays, twists, kinks, etc; check the entire length of cables being used • cables should not be spliced; if found, they must be given to the teacher to be destroyed • if a cable or cord is defective, give it to the teacher • always grasp the plug firmly to unplug; do not pull on the cord when unplugging equipment; this can cause the wires to pull out of their termination in the plug • cables may run along a wall but not through one • cables and floor pockets should be clearly marked and taped or covered to prevent tripping hazards; mats or cables troughs may be used
TEACHER INFORMATION 13 - FOG AND HAZE SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Handling and use	<p>Fog and haze should only be used under the direct supervision of an experienced individual knowledgeable in its potential hazards.</p> <p>Obtain and use only commercially manufactured fog and haze products and equipment, and always use, store and maintain these items in strict accordance with manufacturers' specifications.</p> <p>Use the minimum concentration of product for the minimum period of time necessary for the effect.</p> <p>Ensure fog and haze machines are cleaned and maintained to avoid contamination of products.</p> <p>Monitor airflow patterns in the venue and minimize the movement of fog or haze where it is not needed.</p> <p>Ensure exits, warning signs and hazards are not obstructed by fog or haze, and that accidental activation of the venue's fire alarm system does not occur.</p> <p>Ensure measures are in place for exhausting fog and haze from the stage, backstage and house after the effect; always exhaust away from the audience and the orchestra pit, if any.</p>	<ul style="list-style-type: none"> • all fog and haze is easily inhaled and can cause irritation to people with respiratory sensitivities • inform performers and crew in advance of the intention to use fog or haze products including the type of product and when and how the product will be used • post the MSDS for the product on the callboard • follow procedures for safe handling, use, storage, and disposal, including emergency procedures and spill clean up • do not alter fog and smoke products in any way, by adding dyes, fragrances or additional chemicals; coloured fog can be achieved using coloured light • place the fog machine/equipment where it can be accessed at all times, and where it will not create additional hazards, such as fire and tripping hazards • use the minimum concentration for the minimum time necessary for the effect • discontinue use of fog and haze if anyone experiences discomfort
Slips, Trips and Falls	<p>Many products condense and create slippery conditions on the stage floor and other objects.</p>	<ul style="list-style-type: none"> • ensure performers and crew have appropriate footwear and use extreme caution when the floor may be slippery
Notices	<p>Post signs at audience entry points and print a notice in the program to let people know of fog and haze in advance.</p> <p>EXAMPLE: "This production includes fog and haze."</p>	<ul style="list-style-type: none"> • post signs at audience entry points and print a notice in the program to let people know of fog and haze in advance • EXAMPLE: "This production includes fog and haze."
TEACHER INFORMATION 13 - FOG AND HAZE SAFETY		



Additional Best Practices:

Personal Protective Equipment (PPE)

Applicable WorkSafeBC Regulations:

Part 5 Chemical Agents and Biological Agents

<http://www2.worksafebc.com/Publications/OHSRegulation/Part5.asp>

Resources:

Actsafes

<http://www.actsafe.ca/category/resources/library/disease-respiratory-concerns/>

Actsafes Safety Bulletin #10 -

Artificially Created Smokes Fogs and Lighting Effects

<http://www.actsafe.ca/wp-content/uploads/resources/bulletins/10smokes.pdf>

Atmospheric Effects in the Entertainment Industry:

Constituents, Exposures and Health Effects (2003)

Summary Report

<http://www.actsafe.ca/wp-content/uploads/resources/pdf/summary.pdf>

Table of Contents

<http://www.actsafe.ca/wp-content/uploads/resources/pdf/toc.pdf>

Chapters 1-6

<http://www.actsafe.ca/wp-content/uploads/resources/pdf/chap1-6.pdf>

Chapters 7-9

<http://www.actsafe.ca/wp-content/uploads/resources/pdf/chap7-9.pdf>

TEACHER INFORMATION

14 – WORKING AT HEIGHT AND LADDER SAFETY

Within the theatre, ladders may be used to access and install set pieces, drapery and masking, paint scenery, hang and focus lighting instruments as well as sound and audio/visual equipment.

Major hazards include falling from height and injury to people below from falling objects. A fall from a height of less than 10' may involve an unusual risk of injury (for example, onto an uneven set surface). Fall hazards must be identified and controlled for each work area.

Wherever possible, work at height is to be avoided or guardrails should be installed.

Definition:

- **Ladder** – Includes portable ladders (straight ladders, extension ladders, A-frame ladders and step ladders) and permanent ladders (access ladders, escape ladders). Wheeled A-frame ladders are not permitted in school theatres.

Restrictions – Only work at height where the person's feet is below a height of 3 m (10 ft) is permitted in school theatres and studios.

- Ladders** – With appropriate training, working from step ladders is permitted, provided the person's feet are below a height of 3 m (10 ft). Working from ladders with feet above 3 m (10 ft) is prohibited.
- Scaffolds** – The use of scaffolding by students and teachers is prohibited.
- Wheeled A-frame ladders** (including extension trestle ladders mounted on a castored base) – These ladders are unstable and are not permitted in school theatres and studios.
- Elevating Work Platforms** – Also known as lifts (bucket lifts, scissor lifts etc.), this equipment is used to raise a qualified professional up in the air to work. Use of this equipment by teachers and students is prohibited.
- Fall Protection Equipment** - Working at height in any situation that requires fall protection equipment such as a harness for fall restraint or fall arrest is prohibited.

NOTE: Catwalk access is permitted when approved by the District for student access.

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Scenery	Refer to #8 – Scenery Safety when scenery involves work at height.	
Catwalks	If the theatre is equipped with permanent catwalks, student access is only permitted when approved by the district.	<ul style="list-style-type: none"> do not lean out, between or over guardrails such that the personal centre of gravity is beyond the guardrails minimize tripping hazards and falling objects by ensuring that tools, equipment and cables are stored securely
Ladder selection	<p>Ladders must meet the appropriate CSA or ANSI standards.</p> <p>Ladders must be made of non-conductive materials such as wood or fiberglass (not aluminum).</p> <p>Types of ladders that are permitted include</p> <ul style="list-style-type: none"> portable ladders (stepladders only) provided the person's feet are below a height of 3 m (10 ft) permanent ladders (access ladders) 	<ul style="list-style-type: none"> if an alternate safe method is available to enter or leave an elevated or sub-level work area (e.g. a staircase or ramp), use that method instead of a ladder students are only permitted to climb stepladders to a height of less than 3 m (10 ft), measured to the height of the person's feet
Ladder inspection and maintenance	<p>Follow the manufacturer's instructions and specifications for inspection and maintenance.</p> <p>Defective equipment must be tagged, taken out of service and secured so it cannot be used.</p> <p>The tag should say "Do Not Use" and should indicate the teacher's name, the date and a description of the problem.</p> <p>Follow school district procedures to arrange maintenance repair or replacement.</p>	<ul style="list-style-type: none"> inspect each ladder before use to ensure it is in safe working order if a ladder is defective (broken, loose or missing rungs; split or bent side rails etc.), tell the teacher make sure the ladder is free of grease, oil, mud and other slippery substances do not paint wooden ladders; paint hides cracks and other damage
TEACHER INFORMATION 14 – WORKING AT HEIGHT AND LADDER SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Ladder set up	A-frame stepladders should not be used while folded up, propped against walls or other objects.	<ul style="list-style-type: none"> • clear the area around base and top of the ladder of debris, equipment and materials • set the ladder on a firm and level base; do not place the ladder on other materials (boxes, tables, etc.) to gain extra height • open a stepladder fully; ensure the spreaders are locked into place
Ladder use		<ul style="list-style-type: none"> • ensure footwear is not wet or slippery • face the ladder when climbing and maintain your centre of gravity – keep your belly button or belt buckle between the ladder rails • grip both rails firmly while climbing and maintain three-point contact at all times (two hands and one foot or two feet and one hand) • do not lean over the side of the ladder, overreach, or “walk” the ladder; instead, climb down and move the ladder • do not stand or sit on of the top two rungs or the bucket shelf, unless using a platform ladder (surrounded a railing at the top) that is intended for this purpose and marked as such • do not straddle the space between a ladder and another object • do not overload; only one person at a time should use a ladder • work lights should be on when there is any movement up or down a ladder • do not allow anyone to stand under a ladder
Ladder assistants		<ul style="list-style-type: none"> • when a ladder is in use, a ladder assistant is required to: <ul style="list-style-type: none"> • foot the ladder • keep people out of the area • attach and raise or lower equipment or materials on a rope • anyone working in the danger zone below overhead work must wear a hard hat
TEACHER INFORMATION 14 – WORKING AT HEIGHT AND LADDER SAFETY		

TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Use of tools on ladders		<ul style="list-style-type: none"> • use hand and power tools with utmost caution when working on ladders • hand tools should be secured to the student's body (using a lanyard or tool belt) to prevent them from falling • tools must never be left on a ladder once a student has returned to ground level
Raising and lowering objects while on ladders		<ul style="list-style-type: none"> • do not climb ladders while carrying heavy or bulky objects that make ascent or descent unsafe • have a ladder assistant attach and raise or lower equipment or materials on a rope
TEACHER INFORMATION 14 – WORKING AT HEIGHT AND LADDER SAFETY		

Applicable WorkSafeBC Regulations:

Part 13 Part 1 General

<http://www2.worksafebc.com/publications/OHSRegulation/Part13.asp#SectionNumber:13.1>

Part 13 Division 2 Ladders

<http://www2.worksafebc.com/publications/OHSRegulation/Part13.asp#SectionNumber:13.4>

Resources

Compiled Ladder Safety Resources from WorkSafeBC

<http://www2.worksafebc.com/Topics/EquipmentSafety/LadderSafety.asp>

Ladder Safety Videos - A five-part video from WorkSafeBC that highlights safety procedures and ladder use on construction sites. The video uses classic B&W comedic film footage and computer graphic simulations to illustrate safe ladder techniques.

<http://www.youtube.com/user/WorkSafeBC#p/c/0/oyXbWCXR15Q>

Ladder Safety Challenge Online Game - Put your ladder safety skills to the test on a virtual construction site.

<http://www.ladderchallenge.com/s/Home.asp>

Safe Ladder Use - Construction Safety Series Posters

http://www.worksafebc.com/publications/health_and_safety/by_topic/assets/pdf/safety_series_ladders.pdf



Hand and Power Tools

This section includes materials for the Hand Tools and Power Tools that are most commonly used in school theatres and studios.

If your program includes the use of specific tools and equipment, then you should develop comparable Student Handouts and Safety Tests using the manufacturer's instructions.

NOTE: Prior to instructing students on the use of tools or equipment, you should review the manufacturer's instructions for each one to ensure you are familiar with the safe operation of that specific model.

NOTE: Welding is prohibited in school theatres and studios but may be carried out with the approval and supervision of the shop teacher in appropriately equipped metal workshops.

TEACHER INFORMATION

15 - HAND TOOLS AND POWER TOOLS SAFETY

HAND TOOLS		
TOPIC	NOTES	STUDENT INFORMATION
Condition of tools	<p>Maintain all tools in safe working order and maintain all cutting tools in a sharp condition.</p> <p>Remove all defective, dull, and maladjusted tools from the workshop area until they have been repaired.</p>	<ul style="list-style-type: none"> inspect each tool before use to ensure it is in safe working order if a tool is defective, dull, or out of adjustment, give it to the teacher
Use tools as intended	Emphasize the importance of using tools properly and setting a good example.	<ul style="list-style-type: none"> select the appropriate tool for each task using tools improperly can lead to personal injury and/or damage to the tool, e.g., hammering with a wrench, prying with a chisel, using files without handles
Sharp objects		<ul style="list-style-type: none"> do not carry sharp objects such as nails, chisels, etc., in your pockets or mouth carry them with the pointed end facing downward cutting tools should be protected when not in use
Secure your work		<ul style="list-style-type: none"> make sure the piece you are working on is stable secure the piece you are working on by putting it in a vise or clamp on the workbench never hold material with one hand while trying to cut, chisel or drill it with the other hand
Protect your hands	Statistics identify that most injuries in school workshops occur to students' hands.	<ul style="list-style-type: none"> keep your hands behind the blade on any cutting tool test tools for sharpness on wood or paper, not with your fingers to test for heat, place your hand near, but not on, the object
TEACHER INFORMATION 15 - HAND TOOLS AND POWER TOOLS SAFETY		

POWER TOOLS		
TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Authorization	<p>Determine whether students need to ask for permission to use a tool based on these factors</p> <ul style="list-style-type: none"> • the age and experience of the student • the power tool in question • the operation to be performed. <p>The safest approach is to have them ask you for permission each time they want to use a power tool.</p> <p>Students should not use tools unless they are trained and supervised.</p>	<ul style="list-style-type: none"> • you must be trained and have the teacher's authorization before using any power tools
Personal Protective Equipment (PPE)	Refer to the Personal Protective Equipment (PPE) section for details.	<ul style="list-style-type: none"> • eye and hearing protection are required when using power tools
Electrical safety	Only qualified electricians should undertake the maintenance and/or installation of electrical services.	<ul style="list-style-type: none"> • all outlets should be considered live • if a breaker or fuse blows, disconnect the power source and notify the teacher
Condition of materials, tools and equipment	<p>Ensure all guards are in place and in good working order.</p> <p>Defective tools and equipment must be tagged, taken out of service and secured so they cannot be used.</p> <p>The tag should say "Do Not Use" and should indicate the teacher's name, the date and a description of the problem.</p> <p>Follow school district procedures to arrange maintenance repair or replacement.</p>	<ul style="list-style-type: none"> • inspect the material for defects (such as knots) or foreign objects (such as nails) • inspect each tool before use to ensure it is in safe working order • if a tool or equipment is defective, give it to the teacher • never remove a guard
TEACHER INFORMATION 15 - HAND TOOLS AND POWER TOOLS SAFETY		

POWER TOOLS		
TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Cords and cables	<p>All extension cords and cables must be of sufficient gauge, voltage and amperage rating. The connectors on the ends of the cords should have similar ratings, be properly strain relieved and in good working order.</p> <ul style="list-style-type: none"> • where 15 amp circuit protection is in place, 14/3 SJO cables must be used. • where 20 amp circuit protection is in place, 12/3 SJO cables must be used. <p>Extension cords must not be used as permanent wiring.</p> <p>Defective cords or cables must be tagged, taken out of service and secured so they cannot be used.</p> <p>The tag should say “Do Not Use” and should indicate the teacher’s name, the date and a description of the problem.</p> <p>Spliced cables must be destroyed.</p> <p>Follow school district procedures to arrange repair by a qualified electrician.</p>	<ul style="list-style-type: none"> • inspect each cord and cable before use to ensure it is in safe working order • grounded extension cords should never have their grounding pins removed; ground cheats (ungrounded male to grounded female adapters) should not be used • ensure all cables and cords are free of nails, staples, cuts, frays, twists, kinks, etc; check the entire length of cables being used • cables should not be spliced; if found, they must be given to the teacher to be destroyed • if a cable or cord is defective, give it to the teacher • always grasp the plug firmly to unplug; do not pull on the cord when unplugging equipment; this can cause the wires to pull out of their termination in the plug • cables and floor pockets should be clearly marked and taped or covered to prevent tripping hazards; mats or cables troughs may be used
Emergency response	<p>It is dangerous to approach a person who has received an electric shock while the power is still on.</p> <p>The power must be shut off before trying to help them.</p>	<ul style="list-style-type: none"> • do not touch a person who has received an electric shock; call for help immediately
Know how the tool works	<p>Keep manufacturers’ instructions readily available.</p> <p>Ensure all manufacturers’ instructions are followed and that student’s know the tool’s applications and limitations before use.</p>	<ul style="list-style-type: none"> • know which direction your tool will go when you run material through it and which way the material will go; in other words • know what is going to happen before you operate a tool so you can be ready to control those forces
TEACHER INFORMATION 15 - HAND TOOLS AND POWER TOOLS SAFETY		

POWER TOOLS		
TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Secure your work		<ul style="list-style-type: none"> • large power tools stay in place while the material moves; however, portable power tools move and the material must stay in place • don't try to hold a small piece of material in one hand while you approach it with a power tool in the other • ensure the material stays in place, especially round materials and small pieces; put material in a vise or clamp it to a workbench before approaching it with a power tool • when operating a portable power tool, maintain a firm grip at all times
Start-up		<ul style="list-style-type: none"> • check to ensure that all guards and safety devices are in place and functioning properly • check to make sure the power switch is in the off position before plugging in a portable power tool • only the student using the tool is to turn it on
Path of the tool		<ul style="list-style-type: none"> • keep your hands and the power cord away from the cutting path of the tool and ensure the path of tool is clear • ensure that tool you are using will only cut, drill or grind what you want to cut, drill or grind – avoid having the saw blade or the drill bit breaking through material and cutting anything unintentionally
TEACHER INFORMATION 15 - HAND TOOLS AND POWER TOOLS SAFETY		

POWER TOOLS		
TOPIC	TEACHER NOTES	LEARNING OUTCOMES
Stay beside running power tools		<ul style="list-style-type: none"> • concentrate on the task at hand • a power tool needs time to ‘wind down’ after it has been shut off – do not walk away from a tool you have been using until it comes to a complete stop • other students must avoid distracting, bumping or rushing anyone using a tool
Stop to make adjustments	<p>Adjustments should never be made to a power tool while it is running.</p> <p>The student’s full attention should be on the cutter or active part of the machine.</p>	<ul style="list-style-type: none"> • never make adjustments to a power tool while it is running • always unplug the tool before changing bits, replacing blades, making adjustments or changing settings • the trigger could be bumped unintentionally when handling the tool and the start up of the tool could cause an injury • keep the plug within your sight and control so that it doesn’t get inadvertently plugged in while you are working on the tool
Compressed air	<p>Using compressed air to clean debris or clothes is hazardous.</p> <p>Compressed air is extremely forceful; particles can enter the eyes or abrade skin. Using air to clean also forces the dirt and dust particles into the air, making these contaminants airborne and creating a respiratory hazard.</p> <p>On rare occasions compressed air can enter the blood stream through a break in the skin causing an embolism which is a dangerous medical condition.</p> <p>Serious injuries may result from horseplay if students are not aware of the hazards of compressed air.</p>	<ul style="list-style-type: none"> • compressed air should not be used to clean clothing • compressed air should not be used for cleaning off equipment, as someone could be exposed to the jet or to the material it expels • use vacuums to clean clothing and shop areas
TEACHER INFORMATION 15 - HAND TOOLS AND POWER TOOLS SAFETY		



PART FOUR

BEST PRACTICES INSTRUCTIONAL MATERIALS: STUDENT HANDOUTS

If your program includes the use of additional tools and equipment, you should develop comparable student handouts and safety tests using the manufacturer's instructions.

NOTE: Prior to instructing students on the use of tools or equipment, you should review the manufacturer's instructions for each one to ensure you are familiar with the safe operation of that specific model.

STUDENT HANDOUT

1 - GENERAL SAFETY PRECAUTIONS

TOPIC	INFORMATION
Personal Responsibilities	<ul style="list-style-type: none"> • if you feel unsafe about any activity, consult with your teacher before proceeding • if you see something dangerous, report it to a teacher so it can be fixed • many accidents occur when people are tired, rushed or under the influence of alcohol or drugs; do not work in these states • adopt a calm, careful and focused attitude at all times • be aware of the risks your work may pose to others, especially when using power tools, working overhead etc. • walk, don't run; avoid pushing or bumping • horseplay (e.g., throwing things) is not allowed
Training	<ul style="list-style-type: none"> • prior to using tools and equipment, ensure that you understand and are able to demonstrate their safe operation, as well as applicable Personal Protective Equipment (PPE)
Working Alone	<ul style="list-style-type: none"> • never work without supervision when these hazards exist <ul style="list-style-type: none"> • working at height • working with power tools • working with hazardous materials • working outside of regular school hours
First Aid, Accidents and Incidents	<ul style="list-style-type: none"> • know how to summon a First Aid Attendant • immediately report all accidents or incidents so that treatment can be given and hazards can be dealt with
Emergencies	<ul style="list-style-type: none"> • know what to do in an emergency • be familiar with emergency equipment including fire extinguishers, eye wash stations and power shut offs (at each piece of equipment and for the shop)
Noise Levels	<ul style="list-style-type: none"> • students should be audibly warned prior to impending loud noise • monitor background music during work sessions – it should not impede communication or delay progress, provide a distraction or combine with any other background noise to create hazardous sound levels • wear earplugs or earmuffs when working where noise levels are high, such as when operating power tools or when sound effects or live music are at hazardous levels
STUDENT HANDOUT 1 - GENERAL SAFETY PRECAUTIONS	

TOPIC	INFORMATION
Falling Objects	<ul style="list-style-type: none"> • before overhead work begins • ensure the area below the work area is clear of anyone not wearing a hard hat • mark off the area as a danger zone (using orange traffic cones or stanchions and caution tape) • place signs, if needed • anyone working in the danger zone (such as a ladder assistant) must wear a hard hat • before working at height, empty pockets and secure all loose tools, flashlights etc. to your body using a lanyard • never leave tools on a ladder or scaffold once a student has returned to ground level • if you drop an object from a height, immediately yell “Heads!” to warn people below • if you hear someone yell “Heads!”, duck and cover; do not look up
Working conditions	<ul style="list-style-type: none"> • set your work up so that it is well-organized, well-lit and adequately ventilated • to prevent strains, make sure you are in a comfortable position
Housekeeping	<ul style="list-style-type: none"> • clutter creates slip and trip hazards; keep the floor and work surfaces clean and clear of spills and debris • clean up wood chips, dust, and other combustible materials as they are potential fire hazards • keep aisles and exits clear at all times • store tools, materials and projects safely and securely at the end of each day • do not eat or drink in the work area
Slips, Trips and Falls	<ul style="list-style-type: none"> • ensure floors are clean and dry • position cables, cords and hoses should be in minimal traffic areas and ensure they are covered/taped down to the floor or suspended from above
Storage	<ul style="list-style-type: none"> • do not place materials or equipment where they will restrict movement or block aisles or exits • stack shelves to prevent awkward weight distribution and reaching
Lifting and Handling Loads (Manual Materials Handling)	<ul style="list-style-type: none"> • reduce or eliminate heavy and repetitive lifting wherever possible • use equipment such as carts, dollies, as well as mobile racks, to avoid unnecessary loading and unloading • use handholds, cut-outs, or grips so the load can be held as close to the body as possible • if materials must be manually handled, two person lifts are preferred • avoid rotating or twisting movements when lifting or lowering a load
STUDENT HANDOUT 1 - GENERAL SAFETY PRECAUTIONS	

STUDENT HANDOUT

2 - REHEARSAL AND PERFORMANCE SAFETY

TOPIC	INFORMATION
Rehearsal spaces	<ul style="list-style-type: none"> • set design features should be marked/taped on the floor to scale from the beginning of the rehearsal process • performers involved in dance, stage combat or stunt choreography should have dedicated and uninterrupted warm-up time and space prior to each rehearsal and performance
Scheduling and communication	<ul style="list-style-type: none"> • at the first onstage rehearsal, students should be oriented to the theatre; hazards and controls should be pointed out • on the rehearsal schedule and callboard, identify rehearsals that will be used to integrate potentially hazardous production elements (including stage combat sequences, fog and haze effects, costume changes and scene changes) • update students on changing conditions onstage and backstage • when there is a raked stage, ensure adequate rehearsal so that everyone becomes accustomed to it – and provide frequent rest periods off the rake • dry run all potentially hazardous sequences before including performers • stage management must develop and rehearse clear, specialized communication systems for any running crew or performers involved in hazardous sequences • ensure that understudies have enough rehearsal time to perform with an adequate level of comfort and safety
STUDENT HANDOUT 2 - REHEARSAL AND PERFORMANCE SAFETY	

LIGHT IT UP!

Lorrie fell off the Stage Right landing of the stage during a rehearsal for *Rosencrantz & Guildenstern Are Dead* and broke his wrist. He was attempting a new exit in a blackout for the curtain call and became disoriented. The doorway LEDs had been covered up because no exits during blackouts were expected.

SAFETY TIP: Ensure ALL exits, changes in levels, and stage edges are lined with LED's or clearly glow-taped BEFORE rehearsing in dim light or going to black-out. Take note of any changes in blocking and assess risks before trying in low light or black-out.

STUDENT HANDOUT

3 - STAGE COMBAT AND WEAPONS SAFETY

TOPIC	INFORMATION
Weapon selection	<ul style="list-style-type: none"> only weapons specifically designed for stage combat and approved by the Fight Director should be used
Edged/bladed weapon selection	<ul style="list-style-type: none"> do not use <ul style="list-style-type: none"> ornamental, costume, antique or ceremonial weapons archery equipment or crossbow replicas (non-functioning, prop bows and arrows may be used) any weapon that depends on a mechanical action for safety, such as a retractable or collapsible dagger never allow a sharp blade in rehearsal or on stage all edged/bladed weapons (swords, knives, daggers, etc.) must have their points and edges made safe, including the removal of nicks and burrs, and their blades properly balanced
Firearm selection	<ul style="list-style-type: none"> Firearms, live ammunition and blanks can seriously injure or kill people and are not permitted. They must never be brought to the school, theatre, or stage. Only non-firing replicas such as toy or prop guns and off-stage sound effects of gunshots are permitted
Weapon inspection and maintenance	<ul style="list-style-type: none"> the Weapons Handler, as well as the performer to use the weapon, should inspect the weapon prior to each use, as close to the actual time it is required in rehearsal or on stage as practicable
Use of weapons	<ul style="list-style-type: none"> the unauthorized use of any weapon is forbidden all weapons are dangerous; never engage in horseplay while in possession of, or while using, any weapon never rehearse or perform a fight under the influence of drugs, (including over the counter and prescription medication), alcohol, extreme fatigue or illness use the same weapon(s) in all rehearsals and performances do not take weapons out of the rehearsal or performance area, as toys or props may be mistaken for real weapons
Pre-show rehearsals	<ul style="list-style-type: none"> ensure complete control of the space; allow no distractions once the rehearsal has started do not rush the rehearsal under any circumstances run each sequence a minimum of three times before each show: first as a walk through, then again at 75% of performance speed with full intention; corrections should be given between the second and third runs only if necessary
Notices	<ul style="list-style-type: none"> if applicable, post signs at audience entry points and print a notice in the program to let people know of gunshots in advance EXAMPLE: "This production includes loud gunshots."

STUDENT HANDOUT

4 - COSTUME SAFETY

TOPIC	INFORMATION
Costumes	<ul style="list-style-type: none"> • within the reasonable bounds of period, style and character, costumes (including footwear, masks, wigs and headgear) should be constructed and fit so as not to <ul style="list-style-type: none"> • impede performers' movement, vision, breathing or hearing • cause injury or unnecessary discomfort • rehearsal costumes, accessories (hats, masks etc.) and footwear should be provided wherever practicable and should be as close as possible in size, weight and shape to the intended performance articles • footwear should be appropriate for the activity • when students are in bare feet, the floor must be swept and checked for hazards (nails, staples etc.) prior to each rehearsal or performance • notify the teacher of any allergies or sensitivities to costume or costume care materials (i.e. fabrics, dyes etc.) • report any adverse reaction, irritation, discomfort or illness from such products immediately and discontinue their use • allow paints, dyes, solvents or other chemicals used on costumes to air out and off gas completely before use • give performers adequate instruction and rehearsal time to become accustomed to all costumes they will use in performance, including costume quick changes • if equipment, such as sewing machines, sergers and irons, is used in costume construction, it must be used according to the manufacturer's instructions
Hair and Makeup	<ul style="list-style-type: none"> • notify the teacher of any allergies or sensitivities to street makeup, stage/special effects makeup or other skin/hair products • report any adverse reaction, irritation, discomfort or illness from hair and makeup products immediately and discontinue their use
STUDENT HANDOUT 4 - COSTUME SAFETY	

QUICK CHANGE ARTISTRY

During a quick costume change in *You Can't Take It With You*, Dusty elbowed her dresser, Tracey in the eye. Tracey had to be taken to hospital.

SAFETY TIP: Ensure quick costume changes have sufficient rehearsal time.



STUDENT HANDOUT

5 - PROPS SAFETY

TOPIC	INFORMATION
Props	<ul style="list-style-type: none">• notify the teacher of any food allergies if food or beverages will be consumed during a production• report any adverse reaction, irritation, discomfort or illness from prop materials immediately• ensure safe handling and use of food and beverages to be consumed during a production• allow paints, dyes, adhesives and solvents used on props to evaporate completely before the prop is used• ensure that props that performers may touch are free of materials or finishes that could cause injury (rough edges, chips, loose material, etc.)• provide rehearsal props wherever practicable; they should be as close as possible in size, weight and shape to the intended performance articles• inform performers of any changes to a hand prop or stage business already in place and give them adequate instruction and time to work with the changes before performance
STUDENT HANDOUT 5 - PROPS SAFETY	

PROPS STOP SHOW

Don was waiting in the wings for his entrance in *Our Town*. A large wooden prop ladder leaning against a wall fell and hit him on the head while he was waiting backstage. Don had to be taken to hospital and the performance cancelled part way through. Don suffered a concussion and had to be replaced for the rest of the run. He was out of school for three weeks as a result.

SAFETY TIP: Store tall props flat on the floor or in stands that will prevent them from falling.

STUDENT HANDOUT

6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY

TOPIC	INFORMATION
Electrical safety	<ul style="list-style-type: none"> • all outlets should be considered live • work on live circuits is potentially lethal and is not permitted • students may only plug in equipment and change lamps in lighting instruments and projection equipment; all other electrical work is prohibited • if a breaker or fuse blows, disconnect the power source and notify the teacher
Personal Protective Equipment (PPE)	<ul style="list-style-type: none"> • a hard hat is required in the danger zone below overhead work (such as a ladder assistant) • gloves – preferably leather – are required when handling powered lighting instruments • hearing protection is required when noise is at hazardous levels
Access to equipment	<ul style="list-style-type: none"> • equipment must only be placed in approved locations that may be accessed safely
Falling Objects	<ul style="list-style-type: none"> • before overhead work begins <ul style="list-style-type: none"> • ensure the area below the work area is clear of anyone not wearing a hard hat • mark off the area as a danger zone (using orange traffic cones or stanchions and caution tape) • place signs, if needed • anyone working in the danger zone (such as a ladder assistant) must wear a hard hat • before working at height, empty pockets and secure all loose tools, flashlights etc. to your body using a lanyard or tool belt • never leave tools on a ladder or scaffold once a student has returned to ground level • if you drop an object from a height, immediately yell “Heads!” to warn people below • if you hear someone yell “Heads!”, duck and cover; do not look up
Condition of equipment	<ul style="list-style-type: none"> • inspect each piece of equipment before use to ensure it is in safe working order • if equipment is defective, give it to the teacher
STUDENT HANDOUT 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY	

BECOME A PICK-UP ARTIST

During a set-up for *Hello Dolly*, Maureen, a Grade 12 student, was teaching Billy, a Grade 9 student, how to hang a theatre light. Maureen left a lighting instrument standing on the catwalk with the yolk bent at a 45 degree angle. As she went back to get Billy from the control room, the lighting instrument toppled over the catwalk and fell into the seats below. Eve, the stage manager, had just left that seat to talk to an actor. Eve could have easily sustained a serious injury.

SAFETY TIP: students have to be trained and oriented to the risks of working at height and the need to ensure all loose objects are secured.

TOPIC	INFORMATION
Cords and cables	<ul style="list-style-type: none"> grounded extension cords should never have their grounding pins removed; ground cheats (ungrounded male to grounded female adapters) should not be used ensure all cables and cords are free of nails, staples, cuts, frays, twists, kinks, etc; check the entire length of cables being used cables should not be spliced; if found, they must be given to the teacher to be destroyed if a cable or cord is defective, give it to the teacher always grasp the plug firmly to unplug; do not pull on the cord when unplugging equipment; this can cause the wires to pull out of their termination in the plug cables may run along a wall but not through one cables and floor pockets should be clearly marked and taped or covered to prevent tripping hazards; mats or cables troughs may be used
Hanging lighting instruments	<ul style="list-style-type: none"> do not carry equipment up a ladder; pull it up with a rope once you are safely in place to hang a lighting instrument: <ul style="list-style-type: none"> place the instrument in position tighten the C-clamp or other primary attachment attach the safety chain or wire to secure the instrument and accessories (gobos, gels, gel holders etc.) and prevent them from falling maintain adequate clearance of at least .35 m (12 in) between lighting instruments and nearby items such as drapery, scenery, etc. including Instruments on pipes that be blocked by drapery or scenery that travels use fire resistant fibreboard gel frames, not metal ones do not look directly into stage lights
Installing sound and audio/visual equipment	<ul style="list-style-type: none"> to install sound and audio/ visual equipment <ul style="list-style-type: none"> place the equipment in position tighten the C-clamp or other primary attachment attach the safety chain or wire to secure the equipment and prevent it from falling maintain adequate clearance of at least .35 m (12 in) between equipment and nearby items such as drapery, scenery, etc. including Instruments on pipes that be blocked by drapery or scenery that travels
Re-lamping lighting instruments and projectors	<ul style="list-style-type: none"> before relamping a lighting instrument or projector <ul style="list-style-type: none"> turn it off unplug it allow it to cool keep the plug in view while doing the work wait until a lamp has cooled before replacing it and do not touch it with bare hands new lamps must be handled without touching the glass, according to manufacturer's instructions; gloves may be required if the glass is contaminated in any way, it must be thoroughly cleaned with alcohol and a microfiber or lint-free cloth, then dried before use
STUDENT HANDOUT 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY	

TOPIC	INFORMATION
Avoid burns	<ul style="list-style-type: none"> • always use gloves – preferably leather – when handling powered lighting instruments as metal shutters, barrels, housings and gobos can become extremely hot while in use • “flagging” - it is possible to pass your hand briefly through the beam to show where it has landed without being burned, but do not hold your hand directly in front of the lighting instrument while it is on
Wet conditions	<ul style="list-style-type: none"> • never work in wet conditions
Emergency response	<ul style="list-style-type: none"> • turn off the power before touching a person who has received an electric shock; call for help immediately
Notices (Strobe lights)	<ul style="list-style-type: none"> • CAUTION: In rare cases, people with epilepsy may be affected by strobe lights • notify student performers and crew if strobe lights will be used • post signs at audience entry points and print a notice in the program to let people know of strobe lights in advance • EXAMPLE: “This production includes strobe lights.”
Noise Levels	<ul style="list-style-type: none"> • students should be audibly warned prior to impending loud noise • monitor background music during work calls; it should not impede communication or delay progress, provide a distraction or combine with any other background noise to create hazardous sound levels • wear earplugs or earmuffs when working where noise levels are high, such as when operating power tools or when sound effects or live music are at hazardous levels
Storage	<ul style="list-style-type: none"> • when not in use, lighting instruments and equipment should be: <ul style="list-style-type: none"> • placed in a storage position with the C-clamp or other primary attachment tightened and its safety chain or wire attached • alternatively, it should be stored on its side so it cannot tip over and fall
Rigging operation	<ul style="list-style-type: none"> • only trained, qualified students are permitted to operate existing rigging systems • adding rigging or lighting positions etc. is prohibited • maintain control and visual contact with a moving piece at all times • be aware if and when students are underneath loads
STUDENT HANDOUT 6 - LIGHTING, SOUND AND AUDIO/VISUAL SAFETY	

STUDENT HANDOUT

7 - LOW LIGHTING LEVELS SAFETY

TOPIC	INFORMATION
House Lights	<ul style="list-style-type: none"> ushers should ensure that audience members are seated before the house lights go out ushers should be provided with flashlights for emergencies and for safely seating latecomers
Before the work lights go out	<ul style="list-style-type: none"> leave as much work light on as possible at all times: when rehearsing, during technical work, set installation and strike, on breaks and prior to/following performances, etc. identify, minimize and mark all hazards onstage and backstage mark all unguarded edges (stage, risers, stairs etc.) and other safety design features both onstage and backstage with contrasting tape, glowtape or other markers set up, test and turn on all backstage running lights to identify hazards ensure exit signs, aisle and other safety lighting are functioning, turned on, visible and not covered rehearse all hazardous sequences – such as scene and costume changes, dance, stage combat – under work lights until they can be done with accuracy, confidence and safety in performance light ensure flashlights and/or headlamps are available for all students who may need them for scene changes, costume changes etc.
When the work lights go out	<ul style="list-style-type: none"> minimize movement of people, set pieces and equipment backstage, onstage and in the house when work lights are off ensure everyone has sufficient rehearsal time to orient themselves to low lighting levels with the exception of the lighting focus, work on ladders is prohibited when the lights are off stage management/teacher must monitor all movement onstage and backstage alert stage management or the teacher of any new hazards, including light levels that are too low to work safely, and stop work until the hazard has been addressed if a hazard is identified once a performance is in progress, the stage manager, teacher and student(s) at risk must decide if the hazard is an imminent danger, and make a decision about stopping the show
In case of a blackout	<ul style="list-style-type: none"> minimize movement on and off stage during blackouts during rehearsals and technical work, all students must be informed before a blackout can occur; the student operating the lights must be heard by all saying “Going to Black” after a sudden lighting change, allow eyes to adjust before moving
STUDENT HANDOUT 7 - LOW LIGHTING LEVELS SAFETY	

STUDENT HANDOUT

8 - SCENERY SAFETY

TOPIC	INFORMATION
Scenic Construction	<ul style="list-style-type: none"> • ensure platforms are securely fastened together and evenly joined; if the joins cause an uneven surface, cover the surface completely to ensure it is level • report any signs of wear or damage to a teacher immediately that it can be repaired or replaced
Guardrails	<ul style="list-style-type: none"> • wherever possible, avoid work at height • cover openings (such as traps and orchestra pits) with material that can safely support any anticipated load, or guard them using guardrails and toeboards • ensure guardrails are in place in all locations not visible to audiences • use removable guardrails when the stage is not being used for rehearsal or performance (during installation, technical work and strike) • if guardrails are not practicable on scenery that will be visible to the audience, then effective measures must be taken to protect people from injury • where applicable, an orchestra pit net must be used when the orchestra pit cover is removed
Ladders as Scenic Units or Props	<ul style="list-style-type: none"> • a prop ladder must be marked "for performance only" when it is not being used in rehearsal or performance and all students must be informed
Rakes	<ul style="list-style-type: none"> • take adequate measures (tethers, stops, construction methods, shape of the object, wedges etc.) to prevent props and scenery from inadvertently rolling down the rake
STUDENT HANDOUT 8 - SCENERY SAFETY	

STUDENT HANDOUT

9 - RIGGING SAFETY

TOPIC	INFORMATION
Rigging operation	<ul style="list-style-type: none"> • only trained, qualified students are permitted to operate existing rigging systems • adding rigging or lighting positions etc. is prohibited • maintain control and visual contact with a moving piece at all times • be aware if and when students are underneath loads
STUDENT HANDOUT 9 - RIGGING SAFETY	

SAFE AND SECURE

During onstage rehearsals for *The Fantasticks*, a 1 lb. pickle (a weight attached to a line) was not properly secured. It fell from the rigging high above and hit Jay, who was playing El Gallo, on his right hand. Jay suffered a bruised hand, but could easily have received a significant head injury.

SAFETY TIP: only trained, qualified students should be permitted to operate rigging systems

STUDENT HANDOUT

10 - STRIKE SAFETY

TOPIC	INFORMATION
Strike	<ul style="list-style-type: none"> • strikes should only proceed under full work light • items and equipment in pathways should be removed first, followed by props and furniture • ensure that stairs and other access routes are left intact until access to the areas they serve is no longer needed • particular attention should be paid to overhead work, ladders and power tools
STUDENT HANDOUT 10 - STRIKE SAFETY	

THE RIGHT TOOL FOR THE JOB

The strike for *The Effect of Gamma Rays on Man-in-the-Moon Marigolds* took place after the final performance. The crew was rushing to get to the closing party. Catherine was prying screws out of a section of stage floor with a Jonson bar when the head of a screw broke off and hit Cheryl in the eye. She was not wearing safety glasses. Cheryl lost partial sight in her right eye.

SAFETY TIPS: Schedule the strike at a time when students are not rushed. Ensure students are educated about and using appropriate personal protective equipment. Use the right tools for the job – remove screws with a screwdriver!

STUDENT HANDOUT

11 - PERSONAL PROTECTIVE EQUIPMENT (PPE)

TOPIC	INFORMATION
Personal Protective Equipment (PPE)	<ul style="list-style-type: none"> • use or wear appropriate PPE for each activity • inspect PPE before each use • keep PPE clean and in good repair • report any defective PPE to a teacher immediately and remove it from service if it is unsafe to use
Clothing	<ul style="list-style-type: none"> • wear appropriate clothing and footwear for the activity • for construction work (building scenery), wear long pants and short sleeves • substantive, closed toe shoes, preferably leather must be worn; sandals and high heels are not permitted • tuck in loose clothing, tie back long hair and remove jewellery when working around tools and equipment with moving parts
Eye and Face Protection	<ul style="list-style-type: none"> • wear safety glasses, goggles or a face shield when using tools, equipment or materials (including carpentry, power tools, flying dust and particles, hazardous materials etc.) where there is a risk of eye injury
Fall Protection	<ul style="list-style-type: none"> • working at height in any situation that requires fall protection equipment such as a harness for fall restraint or fall arrest is prohibited
Hand Protection	<ul style="list-style-type: none"> • wear gloves when exposed to a risk of hand injury due to splinters, slippery materials, abrasions, rough objects, heat, sharp objects, hazardous materials etc. • for hazardous materials, check the MSDS for specific glove requirements • do not wear gloves when there is a danger of them being entangled in moving equipment
Head Protection	<ul style="list-style-type: none"> • before overhead work begins, ensure the area below the work area is clear of anyone not wearing a hard hat; mark off the area as a danger zone and place signs, if needed • anyone working in the danger zone (such as a ladder assistant) must wear a hard hat • inspect the hard hat for cracks or damage; do not drill holes in it, paint it or apply stickers • chin straps should be used when working at height
Hearing Protection	<ul style="list-style-type: none"> • wear earplugs or earmuffs when working where noise levels are high, such as when operating power tools or when sound effects or live music are loud
Respiratory Protection	<ul style="list-style-type: none"> • use of materials with respiratory hazards is prohibited • only products that do not require respiratory protection are permitted • check the MSDS before purchase or use
STUDENT HANDOUT 11 - PERSONAL PROTECTIVE EQUIPMENT (PPE)	

STUDENT HANDOUT

12 - HAZARDOUS MATERIALS

TOPIC	INFORMATION
Hazardous materials	<ul style="list-style-type: none"> • check with the teacher before using hazardous materials • if in doubt, ask
Training	<ul style="list-style-type: none"> • WHMIS training is needed to ensure students can <ul style="list-style-type: none"> • recognize and understand the hazard symbols on product labels • understand with how hazardous materials can do harm
Labels	<ul style="list-style-type: none"> • always read the label • if the product was moved to a new container or the supplier label is illegible, place a workplace label on the container
Material Safety Data Sheets (MSDS)	<ul style="list-style-type: none"> • know where to find the MSDS • always read the MSDS before using any product for the first time or if you cannot remember how to use it correctly
Handling and use	<ul style="list-style-type: none"> • follow procedures for safe handling, use, storage, and disposal, including emergency procedures and spill clean up • always use Personal Protective Equipment (PPE) (such as gloves, goggles etc.) as identified on the MSDS for the product • keep product containers tightly closed and in an upright position when not in use
Hazardous waste	<ul style="list-style-type: none"> • notify the teacher to arrange for disposal of hazardous waste
STUDENT HANDOUT 12 - HAZARDOUS MATERIALS	

STUDENT HANDOUT

13 - FOG AND HAZE SAFETY

TOPIC	INFORMATION
Access to equipment	<ul style="list-style-type: none"> • equipment must only be placed in approved locations that may be accessed safely
Condition of equipment	<ul style="list-style-type: none"> • inspect each piece of equipment before use to ensure it is in safe working order • if equipment is defective, give it to the teacher
Handling and use	<ul style="list-style-type: none"> • all fog and haze is easily inhaled and can cause irritation to people with respiratory sensitivities • inform performers and crew in advance of the intention to use fog or haze products including the type of product and when and how the product will be used • post the MSDS for the product on the callboard • follow procedures for safe handling, use, storage, and disposal, including emergency procedures and spill clean up • do not alter fog and smoke products in any way, by adding dyes, fragrances or additional chemicals; coloured fog can be achieved using coloured light • place the fog machine/equipment where it can be accessed at all times, and where it will not create additional hazards, such as fire and tripping hazards • use the minimum concentration for the minimum time necessary for the effect • discontinue use of fog and haze if anyone experiences discomfort
Slips, Trips and Falls	<ul style="list-style-type: none"> • ensure performers and crew have appropriate footwear and use extreme caution when the floor may be slippery
Notices	<ul style="list-style-type: none"> • post signs at audience entry points and print a notice in the program to let people know of fog and haze in advance • EXAMPLE: "This production includes fog and haze."
STUDENT HANDOUT 13 - FOG AND HAZE SAFETY	

A MIDSUMMER NIGHT'S FIREDRILL

During a technical rehearsal for *A Midsummer Night's Dream*, the fire alarm was activated and students and teachers were evacuated into a snow storm. A fog machine was in use under the stage and accumulated fog migrated under the stage to an opening near the hallway door, setting off the school's smoke detector. The amount of fog was carefully controlled in subsequent rehearsals and performances.

SAFETY TIP: only trained, qualified students should be permitted to operate fog / haze machines

STUDENT HANDOUT

14 – WORKING AT HEIGHT AND LADDER SAFETY

TOPIC	INFORMATION
Catwalks	<ul style="list-style-type: none"> do not lean out, between or over guardrails such that the personal centre of gravity is beyond the guardrails minimize tripping hazards and falling objects by ensuring that tools, equipment and cables are stored securely
Ladder selection	<ul style="list-style-type: none"> if an alternate safe method is available to enter or leave an elevated or sub-level work area (e.g. a staircase or ramp), use that method instead of a ladder students are only permitted to climb stepladders to a height of less than 3 m (10 ft) (measured to the height of person's the feet)
Ladder inspection and maintenance	<ul style="list-style-type: none"> inspect each ladder before use to ensure it is in safe working order if a ladder is defective (broken, loose or missing rungs; split or bent side rails etc.), tell the teacher make sure the ladder is free of grease, oil, mud and other slippery substances do not paint wooden ladders; paint hides cracks and other damage
Ladder set up	<ul style="list-style-type: none"> clear the area around base and top of the ladder of debris, equipment and materials set the ladder on a firm and level base; do not place the ladder on other materials (boxes, tables, etc.) to gain extra height open a stepladder fully; ensure the spreaders are locked into place
Ladder use	<ul style="list-style-type: none"> ensure footwear is not wet or slippery face the ladder when climbing and maintain your centre of gravity – keep your belly button or belt buckle between the ladder rails grip both rails firmly while climbing and maintain three-point contact at all times (two hands and one foot or two feet and one hand) do not lean over the side of the ladder, overreach, or “walk” the ladder; instead, climb down and move the ladder do not stand or sit on the top two rungs or the bucket shelf, unless using a platform ladder (surrounded a railing at the top) that is intended for this purpose and marked as such do not straddle the space between a ladder and another object do not overload; only one person at a time should use a ladder work lights should be on when there is any movement up or down a ladder do not allow anyone to stand under a ladder
STUDENT HANDOUT 14 – WORKING AT HEIGHT AND LADDER SAFETY	



TOPIC	INFORMATION
Ladder assistants	<ul style="list-style-type: none">• when a ladder is in use, a ladder assistant is required to<ul style="list-style-type: none">• foot the ladder• keep people out of the area• attach and raise or lower equipment or materials on a rope• anyone working in the danger zone below overhead work must wear a hard hat
Use of tools on ladders	<ul style="list-style-type: none">• use hand and power tools with utmost caution when working on ladders• hand tools should be secured to the student's body (using a lanyard or tool belt) to prevent them from falling• tools must never be left on a ladder once a student has returned to ground level
Raising and lowering objects while on ladders	<ul style="list-style-type: none">• do not climb ladders while carrying heavy or bulky objects that make ascent or descent unsafe• have a ladder assistant attach and raise or lower equipment or materials on a rope
STUDENT HANDOUT 14 – WORKING AT HEIGHT AND LADDER SAFETY	

A LADDER TO THE HOSPITAL

Miles was painting props on the musical *Titanic* when he fell from a two step ladder (approx. 18" high), receiving a cut above his forehead and a hairline fracture to his left arm. The ladder was not high enough for the shelf he was trying to reach and he was using the top step, which is not intended for standing.

SAFETY TIP: Select an appropriate ladder for the task

STUDENT HANDOUT

15 - HAND TOOLS AND POWER TOOLS SAFETY

HAND TOOLS	
TOPIC	INFORMATION
Condition of tools	<ul style="list-style-type: none"> inspect each tool before use to ensure it is in safe working order if a tool is defective, dull, or out of adjustment, give it to the teacher
Use tools as intended	<ul style="list-style-type: none"> select the appropriate tool for each task using tools improperly can lead to personal injury or damage to the tool (e.g., hammering with a wrench, prying with a chisel, using files without handles)
Sharp objects	<ul style="list-style-type: none"> do not carry sharp objects such as nails, chisels, etc., in your pockets or mouth carry them with the pointed end facing downward cutting tools should be protected when not in use
Secure your work	<ul style="list-style-type: none"> make sure the piece you are working on is stable so it cannot slip and cause an injury secure the piece you are working on by putting it in a vise or clamp on the workbench never hold material with one hand while trying to cut, chisel or drill it with the other hand
Protect your hands	<ul style="list-style-type: none"> most injuries while using tools involve students' hands keep your hands behind the blade on any cutting tool test tools for sharpness on wood or paper, not with your fingers to test for heat, place your hand near, but not on, the object
STUDENT HANDOUT 15 - HAND TOOLS AND POWER TOOLS SAFETY	

NO SAFETY GUARD? DON'T TOUCH IT!

Bev was using a circular saw and contacted the saw blade with her right hand. There was no safety guard over the blade and she sustained significant injuries to her thumb and fingers, resulting in a permanent disability. If a safety guard had been in place it would have been impossible for the accident to have occurred.

SAFETY TIP: Equipment without safety guards should be withdrawn from use until proper safety guards are installed.

POWER TOOLS	
TOPIC	INFORMATION
Authorization	<ul style="list-style-type: none"> • you must be trained and have the teacher's authorization before using any power tools
Personal Protective Equipment (PPE)	<ul style="list-style-type: none"> • eye and hearing protection are required when using power tools
Electrical safety	<ul style="list-style-type: none"> • all outlets should be considered live • if a breaker or fuse blows, disconnect the power source and notify the teacher
Condition of materials and tools	<ul style="list-style-type: none"> • inspect the material for defects (such as knots) or foreign objects (such as nails) • inspect each tool before use to ensure it is in safe working order • if a tool or equipment is defective, give it to the teacher • never remove a guard
Cords and cables	<ul style="list-style-type: none"> • inspect each cord and cable before use to ensure it is in safe working order • grounded extension cords should never have their grounding pins removed; ground cheats (ungrounded male to grounded female adapters) should not be used • ensure all cables and cords are free of nails, staples, cuts, frays, twists, kinks, etc; check the entire length of cables being used • cables should not be spliced; if found, they must be given to the teacher to be destroyed • if a cable or cord is defective, give it to the teacher • always grasp the plug firmly to unplug; do not pull on the cord when unplugging equipment; this can cause the wires to pull out of their termination in the plug • cables and floor pockets should be clearly marked and taped or covered to prevent tripping hazards; mats or cables troughs may be used
Emergency response	<ul style="list-style-type: none"> • turn off the power before touching a person who has received an electric shock; call for help immediately
Know how the tool works	<ul style="list-style-type: none"> • know which direction your tool will go when you run material through it and which way the material will go; in other words • know what is going to happen before you operate a tool so you can be ready to control those forces
STUDENT HANDOUT 15 - HAND TOOLS AND POWER TOOLS SAFETY	

POWER TOOLS	
TOPIC	INFORMATION
Secure your work	<ul style="list-style-type: none"> • large power tools stay in place while the material moves; however, portable power tools move and the material must stay in place • don't try to hold a small piece of material in one hand while you approach it with a power tool in the other • ensure the material stays in place, especially round materials and small pieces; put material in a vise or clamp it to a workbench before approaching it with a power tool • when operating a portable power tool, maintain a firm grip at all times
Start-up	<ul style="list-style-type: none"> • check to ensure that all guards and safety devices are in place and functioning properly • check to make sure the power switch is in the off position before plugging in a portable power tool • only the student using the tool is to turn it on
Path of the tool	<ul style="list-style-type: none"> • keep your hands and the power cord away from the cutting path of the tool and ensure the path of tool is clear • ensure that tool you are using will only cut, drill or grind what you want to cut, drill or grind – avoid having the saw blade or the drill bit breaking through material and cutting anything unintentionally
Stay beside running power tools	<ul style="list-style-type: none"> • concentrate on the task at hand • a power tool needs time to 'wind down' after it has been shut off - do not walk away from a tool you have been using until it comes to a complete stop • avoid distracting, bumping or rushing anyone using a tool
Stop to make adjustments	<ul style="list-style-type: none"> • never make adjustments to a power tool while it is running • always unplug the tool before changing bits, replacing blades, making adjustments or changing settings • the trigger could be bumped unintentionally when handling the tool and the start up of the tool could cause an injury • keep the plug within your sight and control so that it doesn't get inadvertently plugged in while you are working on the tool
Compressed air	<ul style="list-style-type: none"> • compressed air should not be used to clean clothing • compressed air should not be used for cleaning off equipment, as someone could be exposed to the jet or to the material it expels • use vacuums to clean clothing and shop areas
STUDENT HANDOUT 15 - HAND TOOLS AND POWER TOOLS SAFETY	

PART FIVE SAFETY ASSESSMENTS

After the Best Practices have been reviewed and the tools and equipment have been demonstrated, the students need to be tested and assessed for competency if they will be using tools and equipment.

Testing confirms that they understand the importance of safety in the onstage, backstage and shop areas, and that they can demonstrate they are willing and able to work safely. Checking for competency assures they understand and can safely operate tools and equipment.

Best Practices should be reviewed and Safety Tests should be completed annually.

This section includes:

1. **Safety Test** – This is a multiple choice, general safety test that covers selected information from the Best Practices Student Handouts. It is intended for students who will be working under direct, competent supervision.
2. **Answer Sheet for the Safety Test** – This is provided to assist the teacher in marking the Safety Test. Each question may have more than one correct answer. Give a full mark for a correct answer and a half mark for a partially correct answer.
3. **Competency Checklists** – These checklists are designed to assist the teacher in determining if the student can safely use the specific equipment at their school. Testing can be done fairly quickly in person, at the beginning of the school year or on an “as required” basis.
4. **Qualified Student Equipment Operator Cards** – These may be given to students to identify which tools and equipment they are eligible to use.

Record Keeping

The Safety Test has a student and teacher sign-off on the last page. The Competency Checklists each have practical components and the student must demonstrate an acceptable level of skill with the tools and equipment.

Completed tests should be filed, as training records must be kept for a minimum of ten years in the event of an injury in class that results in litigation.

NOTE: If the student transfers to another school, the new teacher should confirm that the previous training covers the requirements of the new school.



Safety Test for School Theatres/Studios

For each of the following questions, circle all of the correct answers:

1. If you feel unsafe about any activity:
 - a) Refuse to do that activity
 - b) Take extra time when doing the activity
 - c) Report it to your supervisor
 - d) Find another student to do it
2. If you see something dangerous onstage, you should:
 - a) Avoid it in future
 - b) Report it to your supervisor
 - c) Tell other students about it
 - d) Fix it yourself
3. Accidents happen when people are:
 - a) Distracted by something (other people, music, cell phone)
 - b) Fatigued (very tired)
 - c) Under the influence of drugs or alcohol
 - d) Engaged in horseplay
4. Playing music during a work call:
 - a) Needs to be loud enough for all to hear
 - b) Should not cause a distraction to the people working
 - c) Should not drown out normal communication between students
 - d) Should only be played through personal headphones
5. Before working overhead:
 - a) Clear the area below the work
 - b) Ensure students below will be wearing hard hats
 - c) Make the other students aware of overhead work
 - d) Lay out some gym mats in case you fall



6. To prevent tools from accidentally falling while working overhead:
 - a) Wear a tool belt to hold them all
 - b) Use a safety strap with the tool
 - c) Toss them to the ground once you have used them
 - d) Pull them up with a rope, once you are safely in place
7. Hazards which can cause slips and falls onstage and backstage include:
 - a) Low lighting levels
 - b) Uneven surfaces
 - c) Improper or missing handrails
 - d) Cables or cords running across pathways
8. Prop weapons such as knives or guns should only be used on stage if:
 - a) You have a hunting license
 - b) They have been specifically designed for stage use
 - c) They only fire blanks
 - d) You have received proper training in their safe use
9. If a costume or prop causes you to have a reaction, irritation, or discomfort:
 - a) Don't make a big deal of it
 - b) Notify your supervisor immediately
 - c) Wait to see if the problem gets worse
 - d) Stop using it immediately
10. If the performers will be in bare feet:
 - a) The stage should be swept carefully before each show
 - b) No special precautions are needed
 - c) Slippers or shoes should be worn backstage, between scenes
 - d) The crew should also be in bare feet



11. When working in low light levels:
 - a) Scene changes and onstage action should be well rehearsed
 - b) Glow-tape should be used to mark hazards or pathways
 - c) There should be adequate running lights set up backstage
 - d) Each student crew member should have a flashlight
12. When working on elevated stages or scenery:
 - a) There is an increased risk of injury
 - b) Extra rehearsal time is needed
 - c) Some type of fall prevention method should be in place
 - d) The risk of injury is the same as any other activity
13. Striking the set can be more hazardous than other work calls because:
 - a) People are often in a hurry
 - b) The strike happens at the end of the day when people are tired
 - c) There is more heavy lifting involved
 - d) There are more people involved
14. Before working with hazardous materials, you must:
 - a) Read the label on the product
 - b) Be trained in WHIMIS
 - c) Open all the windows for fresh air
 - d) Make sure you are wearing gloves
15. To find out what Personal Protective Equipment (PPE) is needed to work with a product:
 - a) Read the label on the product
 - b) Ask another student with more experience
 - c) Read the MSDS sheet
 - d) Look online for the information



16. Before each performance involving stage fighting:
 - a) Fight sequences should be rehearsed on set
 - b) Stage weapons should be checked for defects
 - c) People should be warned beforehand
 - d) Actors should make changes to keep the scenes realistic
17. If the lighting operator needs to fade to black unexpectedly, he/she should:
 - a) Make sure there is adequate lighting in the control booth
 - b) Tell the people who are on headset
 - c) Call out a warning to everyone on stage beforehand
 - d) Ensure the previous cue has been recorded first
18. If Personal Protective Equipment (PPE) is defective, you should:
 - a) Fix it first, before using it
 - b) Discard it
 - c) Use it with extra caution
 - d) Keep it as a backup, and get a new piece of equipment
19. When working around tools and equipment with moving parts:
 - a) Long hair should be tied back
 - b) Loose jewelry should be removed
 - c) Clothing with loose fitting or baggy sleeves should not be worn
 - d) Safety glasses should be worn
20. If you find a damaged cord on a power tool, you should:
 - a) Put it back on where you found it
 - b) Wrap some tape on the cord
 - c) Use it carefully as long as there are no sparks
 - d) Label it as defective and give it to the teacher



21. When someone else is using a power tool, you should:
- a) Stay clear of their immediate work area
 - b) Avoid distracting that person
 - c) Wait until they have shut off the tool before talking to them
 - d) Wear proper personal protective equipment (PPE) if you are assisting them
22. If a circuit breaker trips while you are using a piece of equipment:
- a) Disconnect the power source and notify the teacher
 - b) Re-set the breaker, and continue to work
 - c) Plug the equipment into a different outlet
 - d) Tape the breaker so that it won't trip again
23. When using a portable step ladder, you should:
- a) Never stand on the top step
 - b) Always maintain three points of contact
 - c) Always make sure it is fully open before using it
 - d) Make sure it is set up on a level surface
24. Before changing bits, replacing blades or making adjustments to any tool:
- a) The tool should be switched off
 - b) The tool should be unplugged
 - c) Gloves should be worn
 - d) The teacher should be informed

ANSWER SHEET

Safety Test for School Theatres/Studios

Correct answers are indicated in bold. Give a full mark for a correct answer and a half mark for a partially correct answer.

1. If you feel unsafe about any activity:
 - a) **Refuse to do that activity**
 - b) Take extra time when doing the activity
 - c) **Report it to your supervisor**
 - d) Find another student to do it
2. If you see something dangerous onstage, you should:
 - a) Avoid it in future
 - b) **Report it to your supervisor**
 - c) **Tell other students about it**
 - d) Fix it yourself
3. Accidents happen when people are:
 - a) **Distracted by something (other people, music, cell phone)**
 - b) **Fatigued (very tired)**
 - c) **Under the influence of drugs or alcohol**
 - d) **Engaged in horseplay**
4. Playing music during a work call:
 - a) Needs to be loud enough for all to hear
 - b) **Should not cause a distraction to the people working**
 - c) **Should not drown out normal communication between students**
 - d) Should only be played through personal headphones
5. Before working overhead:
 - a) **Clear the area below the work**
 - b) **Ensure students below will be wearing hard hats**
 - c) **Make the other students aware of overhead work**
 - d) Lay out some gym mats in case you fall



6. To prevent tools from accidentally falling while working overhead:
 - a) **Wear a tool belt to hold them all**
 - b) **Use a safety strap with the tool**
 - c) Toss them to the ground once you have used them
 - d) **Pull them up with a rope, once you are safely in place**
7. Hazards which can cause slips and falls onstage and backstage include:
 - a) **Low lighting levels**
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 - d) **Cables or cords running across pathways**
8. Prop weapons such as knives or guns should only be used on stage if:
 - a) You have a hunting license
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 - a) Don't make a big deal of it
 - b) **Notify your supervisor immediately**
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 - d) **Stop using it immediately**
10. If the performers will be in bare feet:
 - a) **The stage should be swept carefully before each show**
 - b) No special precautions are needed
 - c) **Slippers or shoes should be worn backstage, between scenes**
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 - c) **There should be adequate running lights set up backstage**
 - d) **Each student crew member should have a flashlight**
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15. To find out what Personal Protective Equipment (PPE) is needed to work with a product:
- a) **Read the label on the product**
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16. Before each performance involving stage fighting:
 - a) **Fight sequences should be rehearsed on set**
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 - c) **People should be warned beforehand**
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17. If the lighting operator needs to fade to black unexpectedly, he/she should:
 - a) **Make sure there is adequate lighting in the control booth**
 - b) **Tell the people who are on headset**
 - c) **Call out a warning to everyone on stage beforehand**
 - d) Ensure the previous cue has been recorded first
18. If Personal Protective Equipment (PPE) is defective, you should:
 - a) Fix it first, before using it
 - b) **Discard it**
 - c) Use it with extra caution
 - d) Keep it as a backup, and get a new piece of equipment
19. When working around tools and equipment with moving parts:
 - a) **Long hair should be tied back**
 - b) **Loose jewelry should be removed**
 - c) **Clothing with loose fitting or baggy sleeves should not be worn**
 - d) **Safety glasses should be worn**
20. If you find a damaged cord on a power tool, you should:
 - a) Put it back on where you found it
 - b) Wrap some tape on the cord
 - c) Use it carefully as long as there are no sparks
 - d) **Label it as defective and give it to the teacher**



21. When someone else is using a power tool, you should:
- a) **Stay clear of their immediate work area**
 - b) **Avoid distracting that person**
 - c) **Wait until they have shut off the tool before talking to them**
 - d) **Wear proper personal protective equipment (PPE) if you are assisting them**
22. If a circuit breaker trips while you are using a piece of equipment:
- a) **Disconnect the power source and notify the teacher**
 - b) Re-set the breaker, and continue to work
 - c) Plug the equipment into a different outlet
 - d) Tape the breaker so that it won't trip again
23. When using a portable step ladder, you should:
- a) **Never stand on the top step**
 - b) **Always maintain three points of contact**
 - c) **Always make sure it is fully open before using it**
 - d) **Make sure it is set up on a level surface**
24. Before changing bits, replacing blades or making adjustments to any tool:
- a) **The tool should be switched off**
 - b) **The tool should be unplugged**
 - c) Gloves should be worn
 - d) The teacher should be informed



Competency Checklist

1. USING A LADDER

Name: _____ Date: _____

Class: _____ Section: _____

Set up	
	Wear PPE: appropriate footwear, hard hat for anyone working below
	Inspect the ladder for defects
	Set the ladder up on a firm, level base
	For a stepladder, open it fully and ensure spreaders are locked in place
Ladder Use	
	When climbing, face the ladder and maintain centre of gravity between rails
	Maintain three-point contact
	Secure hand tools using a lanyard or tool belt
	Use a ladder assistant to foot the ladder, keep people out of the area, attach and raise or lower equipment or materials on a rope

This student has reviewed the Student Handout for this activity and completed the Safety Test. He/she has shown an acceptable level of skill with this equipment.

He/she is eligible to participate in this activity and use this equipment with proper supervision.

Student Signature: _____ Date: _____

Teacher Signature: _____ Date: _____

COMPETENCY CHECKLIST

2. HANGING LIGHTING INSTRUMENTS

Name: _____ Date: _____

Class: _____ Section: _____

Hanging a Lighting Instrument	
	Wear PPE: appropriate footwear, gloves, hard hat for anyone working below
	Inspect the equipment and cables for defects
	Place the instrument in position
	Tighten the C-clamp or other primary attachment
	Attach the safety chain or wire to secure the instrument and accessories
	Maintain adequate clearance between lighting instruments and nearby items
	Ensure cables are neat to prevent tripping hazards
	When not in use, store lighting equipment appropriately so it cannot tip over and fall
Relamping a Lighting Instrument	
	Before relamping a lighting instrument: <ul style="list-style-type: none"> • turn it off • unplug it • allow it to cool • keep the plug in view while doing the work
	Wait until a lamp has cooled before replacing it and do not touch it with bare hands
	Handle new lamps without touching the glass, according to manufacturer's instructions; gloves may be required

This student has reviewed the Student Handout for this activity and completed the Safety Test. He/she has shown an acceptable level of skill with this equipment.

He/she is eligible to participate in this activity and use this equipment with proper supervision.

Student Signature: _____ Date: _____

Teacher Signature: _____ Date: _____



COMPETENCY CHECKLIST

3. OPERATING THE RIGGING SYSTEM

Name: _____ Date: _____

Class: _____ Section: _____

OPERATION	
	Demonstrate safe operation of the rigging system according to manufacturers' instructions
	Maintain control and visual contact with a moving piece at all times
Explain (based on the manufacturer's instruction for the rigging system):	
	Safety devices
	Safe working loads
	Hazards during operation
	Emergency procedures

This student has reviewed the Student Handout for this activity and completed the Safety Test. He/she has shown an acceptable level of skill with this equipment.

He/she is eligible to participate in this activity and use this equipment with proper supervision.

Student Signature: _____ Date: _____

Teacher Signature: _____ Date: _____



COMPETENCY CHECKLIST

4. OPERATING A FOG/HAZE MACHINE

Name: _____ Date: _____

Class: _____ Section: _____

Set Up	
	Inspect the equipment and cables for defects
	Read the label on the product and the MSDS
	Wear appropriate PPE as identified on the MSDS
	Follow manufacturer’s instructions for safe handling and use of the equipment and product
	Place the equipment where it can be accessed at all times and will not create a fire or tripping hazard
	Ensure cables are neat to prevent tripping hazards
	Inform performers and crew of the intention to use fog or haze products
Operation	
	Use the minimum concentration for the minimum time necessary for the effect
	Discontinue use if anyone experiences discomfort

This student has reviewed the Student Handout for this activity and completed the Safety Test. He/she has shown an acceptable level of skill with this equipment.

He/she is eligible to participate in this activity and use this equipment with proper supervision.

Student Signature: _____ Date: _____

Teacher Signature: _____ Date: _____

QUALIFIED STUDENT OPERATOR CARDS

These cards may be used to record the tools and equipment that each student is qualified to use.

NOTE: If the student transfers to another school, the new teacher should confirm that the previous training covers the requirements of the new school.

QUALIFIED STUDENT EQUIPMENT OPERATOR			
Student: _____		Date: _____	
School: _____			
Equipment	Teacher	Equipment	Teacher

QUALIFIED STUDENT EQUIPMENT OPERATOR			
Student: _____		Date: _____	
School: _____			
Equipment	Teacher	Equipment	Teacher

QUALIFIED STUDENT EQUIPMENT OPERATOR			
Student: _____		Date: _____	
School: _____			
Equipment	Teacher	Equipment	Teacher

QUALIFIED STUDENT EQUIPMENT OPERATOR			
Student: _____		Date: _____	
School: _____			
Equipment	Teacher	Equipment	Teacher

QUALIFIED STUDENT EQUIPMENT OPERATOR			
Student: _____		Date: _____	
School: _____			
Equipment	Teacher	Equipment	Teacher

QUALIFIED STUDENT EQUIPMENT OPERATOR			
Student: _____		Date: _____	
School: _____			
Equipment	Teacher	Equipment	Teacher



PART SIX EDUCATOR'S GUIDE

Introduction

Educators have a responsibility, to both students and their parents, to provide a safe learning environment in which the risk of personal injury is low. For performing arts educators, this responsibility is compounded because, while students may be filled with excitement and vitality, their lack of experience working in hazardous environments often shows in their attitude towards safety. Working with students to recognize hazards and control risks through safe work practices should be a goal of any performing arts program.

This manual was designed to provide you, the educator, with assistance in your efforts to teach specific safety skills and best practices within the context of a broader performing arts program. In support of the safety-related learning outcomes, this manual outlines best practices and minimum standards required in performing arts classes throughout British Columbia in an effort to keep students safe and to provide them with an awareness of the importance of safety in the workplace.

Students are, or soon will be, part of the workforce. Performing arts classes provide an opportunity to teach them about the importance of safety in the work place while providing them with skills they need to get ahead.

Keys to compliance and injury/illness prevention:

- Strong health and safety culture that enables teachers and students to speak up, ask questions and take action
- Clear roles and responsibilities
- Policies, procedures and risk assessments
- Training for teachers and students
- Sufficient, qualified supervision
- Preventive maintenance of equipment and facilities
- Ongoing communication

Implementing Health and Safety in School Theatres/Studios

Educating students about performing arts safety can be a challenge – how do you provide them with enough information to ensure their safety without overwhelming them or losing their interest? And what do you do about those students who are inclined to disregard safety instructions with a wave of bravado and misplaced confidence? We can offer you some suggestions on how to build safety into your current and future programs.

We suggest that a performing arts safety program be organized into manageable units that focus on the important safety points and repeat the crucial ones. The following process is recommended for integrating safety into all aspects of your program including drama, dance and music classes, projects, performances, assemblies and other events:

1. Provide an introductory lesson about safety for all students entering a performing arts program. Alert students to the health and safety hazards that may arise, the roles and responsibilities of everyone involved, as well as appropriate attitudes in the work place.
2. Supply basic safety instruction on the general use of tools, equipment and materials, as well as specific performing arts activities. Ensure testing takes place before qualifying students to use tools and equipment. This lesson should be given to students before they move from the development phase of a project to the implementation stage.

When giving a lesson on a particular activity, describe (simply and briefly) **and** demonstrate the activity. Each lesson should cover the following areas:

- purpose of the activity;
- how to carry out the activity safely;
- potential hazards of the activity; and
- controlling the hazards.

In teaching about potential hazards, students should be encouraged to think about how each activity could cause injury. If students learn to ask and answer these kinds of questions for themselves, they will have acquired a valuable skill in regards to their own and others' safety – the ability to predict and control hazards.

When a teacher makes safety an integral part of the instructional program, it is learned in much the same manner as skills and operations. However, safety can also be 'caught' as readily as 'taught,' implying that proper safety attitudes and practices are contagious and their development strongly influenced by the teacher's attitude and conduct in the shop. Safety does not just happen, but is the result of a well-planned program administered and modeled by the teacher.



Student Participation

“Actions speak louder than words” is a phrase that is well suited to classroom instruction about safety, particularly for performing arts students who chose your class because they want to “do” something rather than listen to another lecture.

People generally remember more of what they learn if they are actively involved during the learning process. So, whenever possible, offer students an activity where they can actually do something to demonstrate safe work practises. A variety of means can be used to demonstrate safety: The most obvious, of course, is to ask them to perform a new task modeling the safe work practises you have taught them.

Suggested instructional and assessment strategies that refer to safe work practices are found in the British Columbia Ministry of Education – Drama 11 and 12 – Theatre Performance, Theatre Production, Integrated Resource Package 2002. The following table shows excerpts from this document:

Prescribed Learning Outcomes	Suggested Instructional Strategies	Suggested Assessment Strategies	Page
Demonstrate health and safety practices in theatre performance	Brainstorm and discuss rules for performance etiquette	Have students complete self-assessment questionnaires focusing on their health and safety practices in theatre performance	30, 31
Demonstrate leadership in applying health and safety practices in theatre performance	Brainstorm problems that might arise during a performance	Have students identify responsibilities of each company member in promoting and maintaining health and safety of all members of the company	42, 43
Practice safety procedures in using theatre production equipment, processes, and materials	Demonstrate the proper procedures for all the stages in using a particular piece of equipment (e.g., dismantling, cleaning and re-assembling a lighting instrument). Point out any relevant safety procedures. Challenge the students to create a flow chart outlining the correct procedure	Have students complete practical tests and fill out checklists for the safe use of tools and equipment	58, 59
Demonstrate understanding of health and safety procedures and standards for theatre production	As new procedures and equipment are introduced, model associated health and safety practices as appropriate	Use written and practical test to assess students' knowledge of learned safety concepts	64,65
Demonstrate health and safety procedures and standards in theatre production	Have them circulate around the theatre, and use the notes to label various theatre equipment with potential safety hazards	After identifying safety hazards in the theatre, have students use the notes to create a handbook of health and safety guidelines for theatre equipment and procedures	72,73



Testing for Comprehension

The job of teaching safety is not complete until students have been tested to confirm they understand the importance of safety in the onstage, backstage and shop areas, and that they can demonstrate they are willing and able to work safely. Some methods of evaluating their knowledge include:

- Safety tests where each student must pass a written test identifying how to perform certain skills or operate specific tools and equipment safely.
- Demonstration tests where each student must demonstrate the ability to perform the skill and operate the tools and equipment safely before you give them permission to work independently in that area.

Record Keeping

In order to qualify students to work with minimal supervision with tools and equipment, you will need to keep accurate records to verify that they have met the necessary criteria:

- Did they attend the demonstrations on how to use the tools and equipment?
- Did they complete and pass the safety test?
- If they missed the demonstration or test, did they attend a make-up demonstration or pass a make-up test?

The importance of maintaining this information cannot be stressed enough. Not only will it give you some 'peace of mind' knowing who is qualified to use the equipment, but it will provide you with the required information should an issue of liability arise.

In British Columbia, Canada, a minor student or their family has two years from the age of majority to make a claim for an injury that occurred during a school activity. The teacher may be expected to identify the student's skill level and training up to the point when the accident occurred; therefore, training records must be kept for a minimum of ten years in the event of an injury in class that results in litigation.



Duty of Care

The law places a very strict 'duty of care' on teachers and school districts commonly referred to as the rule of the careful parent. School districts are required to provide safe equipment and teachers must provide proper instruction. Following the best practices laid out in this manual contributes to meeting your 'duty of care' as a teacher. (For additional details, refer to the appendices at the end of this section: School Theatre/Studio Responsibilities and Teacher's Duty of Care.)

This duty was modified by a decision of the Supreme Court in *Myers et al v. Peel County Board of Education*. The court identified a number of factors which would be considered to determine if the standard of care had been met in a particular case:

1. The number of students being supervised at any given time;
2. The nature of the exercise of activity in progress;
3. The age and degree of skill and training which students may have received in connection with such activity;
4. The nature and condition of the equipment in use at the time;
5. The competency and capacity of the students involved; and
6. A host of other matters which may be widely varied but which, in a given case, may affect the application of the prudent parent standard to the conduct of the school authority in the circumstances.

NOTE: School district policies regarding qualifications, insurance coverage, criminal record checks etc. must be adhered to when contracted theatre professionals, parents and volunteers are involved in school theatre and studio activities.



Teacher's Duty of Care Summary

If you can answer yes to the following questions, you should feel confident that you have met the duty of care required by Canadian law:

- Do you know and understand your health and safety responsibilities?
- Do you have systems in place to identify and control hazards?
- Have you integrated health and safety into all aspects of your teaching?
- Do you make health and safety a part of a student's overall mark?
- Have you committed appropriate resources to health and safety?
- Have you assigned health and safety responsibilities to the students?
- Have students been given sufficient instruction and training so they can successfully discharge their health and safety responsibilities?
- Do you keep records of the instruction each student has received, especially in regards to health and safety?
- Do you keep records of your program activities and improvements?
- Do your records show that you take disciplinary action when necessary?
- Do you review your safety instructions, procedures and policies at least once a year and make improvements, as needed?
- Do you make adequate accommodations for students with special needs?
- Do you properly supervise each student to ensure they are carrying out their class activities as required?

PART SEVEN **RESOURCES**

Want something in print or on CD? Call Actsafe at 604.733.4682 or 1.888.229.1455.

The following bulletins are available on the [Actsafe website](#).

Actsfafe Performing Arts Safety Bulletins

[Animal Handling](#)

[Artificially Created Smokes and Fogs and Lighting Effects](#)

[Edged and Piercing Props](#)

[Extreme Hot Temperature Conditions](#)

[Flame Resistant Treatment of Scenic Elements](#)

[Personal Protective Equipment \(PPE\)](#)

[Rigging Systems and Flown Scenery](#)

[Safety With Firearms](#)

[Stage Combat, Stunts and Weaponry](#)

[Using Foam\(ed\) Plastics in Set and Prop Construction](#)

[Health and Safety Overview of Orchestra Pits](#)

[Safe Set-up and Use of Small Tents](#)

[Hiring Children in Live Entertainment](#)

Young and New Worker Orientation

[Print resource](#)

[Video Series](#)



Safety Primers

[The Team Approach to Safety](#)

[Performing Arts Safety Primer](#)

[Dancers and MSI Safety Primer](#)

[Musicians and MSI Safety Primer](#)

Other

[Toolbox Talks](#)

[General Info: Woodworking](#)

[Fact sheet #4 – Construction/Woodworking](#)

[Factsheet #5 – Construction/Demolition](#)

[Hearing Awareness](#)

[Personal Protective Equipment](#)

[Actsafes Posters](#)

DVD

[A Midsummer Nightmare](#) (Safety awareness for theatre and film)

An entertaining and humorous look at a serious subject – safety in the theatre & motion picture industries.

Request by email: info@actsafe.ca

Disclaimer

The aim of this manual is to assist in the prevention of injury and disease in school theatres, studios and shops in British Columbia, Canada. However, The Vancouver Board of Education (District 39) and Actsafe cannot and do not warrant the accuracy or the completeness of information, and as a result, they will not be liable to any person or organization for any loss or damage of any nature, whether arising out of negligence or otherwise, which may be occasioned as a result of the use of this manual and instructional materials.

Not all requirements under British Columbia's Occupational Health and Safety Regulation are discussed in this resource. This manual is not a definitive guide to British Columbia's legislation and does not exempt readers from their responsibilities under applicable legislation. In case of inconsistency between this resource and the occupational health and safety legislation or any other legislation, the legislation will always prevail.

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- Heads Up for Safety
- British Columbia Ministry of Education – Drama 11 and 12 – Theatre Performance, Theatre Production, Integrated Resource Package 2002
- Actsafe documents
- Safe Stages – The Vancouver Board of Education thanks [Theatre Alberta](#) and [Work Safe Alberta](#) for the use and incorporation of material from Safe Stages © 2007.
- Ontario Ministry of Labour – Safety Guidelines for the Live Performance Industry in Ontario

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