

Science Safety and Good Laboratory Practices

The school district has created a Laboratory Safety Compliance team. As members of the team you have been asked to prepare a safety program for the 7 and 8 grade science students. In order for the students to understand the importance of safety in the laboratory the team will be divided into small groups to prepare a:

- **Brochure** or poster on a specific area of safety.

The entire team will prepare a:

- **Laboratory manual** compiled from the individual work of the groups that contains the guidelines for safety and good laboratory practices that the students will follow.
- **Safety checklist** which will be used to monitor safety during a laboratory activity.

Areas to Be Addressed:

- ❖ General Guidelines
- ❖ Safety Equipment
- ❖ Eye and Eyewear safety
- ❖ Accidents and injuries
- ❖ Handling glassware
- ❖ Handling chemicals
- ❖ Heating substances
- ❖ Dress Code (clothing, hair, etc.)

SAFETY POSTER RUBRIC

	Novice	Apprentice	Practitioner	Expert
Drawing Accurately Represents Rule.	Illustration does not reflect the rule.	<ul style="list-style-type: none"> Lacks detail Illustration somewhat reflects objective chosen 	<ul style="list-style-type: none"> Matches adequate detail Illustration reflects objective chosen 	<ul style="list-style-type: none"> Clearly matches much detail. Illustration reflects objective chosen
Main Safety Theme	Not easy to understand.	<ul style="list-style-type: none"> Picture does not represent rule well. 	<ul style="list-style-type: none"> Clear after studying it. 	<ul style="list-style-type: none"> Shows a clear understanding of the rule.
Statement Of Rules	Less than 3 rules stated	<ul style="list-style-type: none"> Limited information Details not evident 3 rules stated (one on posted two on separate sheet) 	<ul style="list-style-type: none"> Sufficient facts and details Precise 4-5 rules stated (one on posted three on a separate sheet) 	<ul style="list-style-type: none"> Precise and thorough All details and key facts included More than 5 rules stated (one on posted four on a separate sheet)
Writing	<ul style="list-style-type: none"> Difficult to read from a distance (too small) Not straight. 	<ul style="list-style-type: none"> Not printed Easy to read 	<ul style="list-style-type: none"> Printed Easily read from a distance Not straight 	<ul style="list-style-type: none"> Straight Printed Easily read from a distance
Errors	3 spelling errors	2 spelling errors	1 spelling error	No spelling errors
Colorful	<ul style="list-style-type: none"> Limited use of colors <ul style="list-style-type: none"> 1 - 3 colors 	<ul style="list-style-type: none"> Good use of colors 4 colors 	<ul style="list-style-type: none"> Colorful Use of 5 colors 	<ul style="list-style-type: none"> Vivid Use of 6 or more colors
Presentation	<ul style="list-style-type: none"> Poorly presented Unplanned Thrown together Cluttered & confusing 	<ul style="list-style-type: none"> Neat Sketch lines are visible Drawing covers less than 50 % of the paper 	<ul style="list-style-type: none"> Attracts attention Covers 50 % of the paper. Effort is evident Sketch lines slightly visible 	<ul style="list-style-type: none"> Attracts attention Illustration covers more than 50% of the paper. Balance between rule and illustration Well planned Shows care detailed Sketch lines not visible
Creativity	<ul style="list-style-type: none"> Little creative energy used. Bland 	<ul style="list-style-type: none"> Added a few original touches but did not incorporate it throughout Lacks "Pizzazz" 	<ul style="list-style-type: none"> Some originality - Take off on previous Example Thoughtfully presented 	<ul style="list-style-type: none"> Original/ new idea <u>Unique</u> <u>Clever</u>
Coordination Of Theme	<ul style="list-style-type: none"> Sits back and lets others do the work 	<ul style="list-style-type: none"> Shares ideas some of which is related to the topics One of the rules is repetitive 	<ul style="list-style-type: none"> Communicates with team Shares ideas related to the topics Listens to others No repetitive rules 	<ul style="list-style-type: none"> Communicates effectively with team Shares a great deal of ideas clearly related to the topics Engages teammates in discussion Listens attentively to others No repetitive rules

SAFETY BROCHURE RUBRIC

	Novice	Apprentice	Practitioner	Expert
Organization	<input type="checkbox"/> Two out of four of the practitioner	<input type="checkbox"/> Three out of four of the practitioner	<input type="checkbox"/> Logical progression from one panel to the other (Good flow) <input type="checkbox"/> Titles and subtitles are used where appropriate <input type="checkbox"/> Good balance between text and graphics <input type="checkbox"/> Draws reader's eye from one key point to the next	<input type="checkbox"/> Four of the practitioner plus Use of borders to highlight text.
Content	<input type="checkbox"/> Text is clear but too wordy <input type="checkbox"/> Few details and key facts support the theme. <input type="checkbox"/> 2 rules stated	<input type="checkbox"/> Text is clear but not concise <input type="checkbox"/> Some details and key facts support the theme. <input type="checkbox"/> Safety symbol present <input type="checkbox"/> 3 rules stated	<input type="checkbox"/> Text is clear and concise <input type="checkbox"/> Most details and key facts support the theme. <input type="checkbox"/> Safety symbol and definition is present <input type="checkbox"/> 4 rules stated <input type="checkbox"/> No repetitive rules	<input type="checkbox"/> Introduction on lab safety 3-5 short sentences. <input type="checkbox"/> Text is well written, succinct. Not too wordy <input type="checkbox"/> All details and key facts support the theme. <input type="checkbox"/> Safety symbol and definition is present <input type="checkbox"/> 5 rules stated <input type="checkbox"/> No repetitive rules
Graphics	<input type="checkbox"/> Two out of four of the practitioner	<input type="checkbox"/> Three out of four of the practitioner	<input type="checkbox"/> Graphics enhance and do not detract from the theme <input type="checkbox"/> Illustrations reflect objective chosen <input type="checkbox"/> Size of graphics appropriate <input type="checkbox"/> 5-7 illustrations are present	<input type="checkbox"/> Graphics enhance and do not distract from the theme <input type="checkbox"/> Illustrations reflect objective chosen <input type="checkbox"/> Size of graphics appropriate and varies <input type="checkbox"/> 6 or illustrations are present
Presentation	<input type="checkbox"/> Cover <ul style="list-style-type: none"> ▪ relates to the theme ▪ has a picture and title <input type="checkbox"/> Fonts <ul style="list-style-type: none"> ▪ appropriately sized ▪ 1 used ▪ easily read ▪ 1 color used in the presentation. <input type="checkbox"/> 5 spelling or grammar errors	<input type="checkbox"/> Cover <ul style="list-style-type: none"> ▪ well designed ▪ relates to the theme and rules. ▪ has a picture and title <input type="checkbox"/> Fonts <ul style="list-style-type: none"> ▪ appropriately sized (2 variation) ▪ easily read ▪ 2 colors are used in the presentation. <input type="checkbox"/> 3 - 4 spelling or grammar errors	<input type="checkbox"/> Cover <ul style="list-style-type: none"> ▪ Relates to the theme and rules. ▪ has a picture and title <input type="checkbox"/> Fonts <ul style="list-style-type: none"> ▪ appropriately sized (3 variation) ▪ easily read ▪ 3 colors are used to enhance the presentation. <input type="checkbox"/> 1 -2 spelling or grammar errors	<input type="checkbox"/> Cover <ul style="list-style-type: none"> ▪ well designed ▪ attention getting ▪ Relates to the theme and rules. <input type="checkbox"/> Demonstrates imagination and individual style <input type="checkbox"/> Fonts <ul style="list-style-type: none"> ▪ appropriately sized (4 variations) ▪ easily read ▪ 4 colors are used to enhance the presentation. <input type="checkbox"/> No spelling or grammar errors
Coordination of Theme	<input type="checkbox"/> Sits back and let others do the work. <input type="checkbox"/> Volume control knob needs adjustment	<input type="checkbox"/> Shares ideas some of which are related to the topics <input type="checkbox"/> Listens to others but monopolizes discussion <input type="checkbox"/> Occasional reminder required concerning volume level. <input type="checkbox"/> Drifts off task. <input type="checkbox"/> One of the rules is repetitive	<input type="checkbox"/> Communicates with team <input type="checkbox"/> Shares basic ideas related to the topics <input type="checkbox"/> Listens to others <input type="checkbox"/> Compromise as to which rules pertain to the class. <input type="checkbox"/> Stays on task <input type="checkbox"/> Two-foot conversations" maintained.	<input type="checkbox"/> Communicates effectively with team <input type="checkbox"/> Shares a great deal of ideas that are clearly related to the topics <input type="checkbox"/> Engages teammates in conversational tone discussion. <input type="checkbox"/> Listens attentively to others <input type="checkbox"/> "Everyone contributes equally and stays on task <input type="checkbox"/> Respects the opinion of others. <input type="checkbox"/> No repetitive rules

Science Safety and Good Laboratory Practices Manual Page Rubric

Name _____

Section _____

	Novice	Apprentice	Practitioner	Expert
Content	<ul style="list-style-type: none"> • Less than 5 rules • Rules are irrelevant to topic • Vague, inaccurate • Frequent repetition 	<ul style="list-style-type: none"> • 6 - 10 rules • Some rules relate to topic • Somewhat clear, some inaccuracies • 1 or 2 repetitions 	<ul style="list-style-type: none"> • 10 - 15 rules • All rules are closely relative to topic • Clearly and accurately stated • No repetition 	<ul style="list-style-type: none"> • All Practitioner criterion • 16 - 30 rules • All rules are completely relative to topic • Good vocabulary usage
Organization	<ul style="list-style-type: none"> • Hard-to-follow • Many combined rules and sentences 	<ul style="list-style-type: none"> • Relatively easy to follow • Some combination of rules 	<ul style="list-style-type: none"> • Followed specifications as stated 	<ul style="list-style-type: none"> • Easily distinguished categories • Each rule is separate, no combined rules into one sentence
Graphics-	<ul style="list-style-type: none"> • Only 1 graphic • Irrelevant to topic and rules • Positioned randomly 	<ul style="list-style-type: none"> • 2 or 3 graphics • Similar appearance • Partially relevant • Some are placed correctly 	<ul style="list-style-type: none"> • 4 or 5 graphics • Varied types • Mostly relevant • Appropriate placement 	<ul style="list-style-type: none"> • 6 or more graphics • Directly related to rules stated • Placed near applying rule • Proportional size
Presentation	<ul style="list-style-type: none"> • Spacing nonexistent • Hard to distinguish topics • Incorrect font and sizes 	<ul style="list-style-type: none"> • Some spacing used • Somewhat separated topics • Major points are fairly visible 	<ul style="list-style-type: none"> • Good spacing between topics • Appropriate font and font sizes • Gets point across 	<ul style="list-style-type: none"> • Use of color in presentation • Clearly presents major points and topics
Mechanics	<ul style="list-style-type: none"> • 6 or more grammar or spelling errors • Poorly written, effort not evident 	<ul style="list-style-type: none"> • 4 or 5 grammar or spelling errors • Decently composed 	<ul style="list-style-type: none"> • 1 -3 grammar or spelling errors • Well-written 	<ul style="list-style-type: none"> • No grammar or spelling errors • Excellent writing, effort is evident

Science Safety and Good Laboratory Practices

Safety

<http://www.flinnsci.com/homepage/sindex.html>

<http://pc65.frontier.osrhe.edu/hs/science/clab.htm>

http://www.chem.vt.edu/RVGS/ACT/lab/safety_rules.html

<http://www.biotech.vt.edu/~tmhorn/labsafety.html>

<http://jfg.girlscouts.org/Why/gac/Safetyrules.htm>

First Aid

http://www.chem.vt.edu/RVGS/ACT/lab/first_aid.html

Hazard diagrams

http://www.chem.vt.edu/RVGS/ACT/lab/hazard_diagram.html

<http://www.chem.vt.edu/RVGS/ACT/graphics/hazard-2.gif>