

LAB SAFETY 101: PART 2

A RESOURCE FOR EDUCATORS





Lab Safety 101 with Flinn Scientific

Flinn has been the Safer Source for Science for over 40 years, dedicated to making school laboratories a safe environment for both students and instructors.

Part 2 of this safety series addresses common science department safety concerns including chemical storage issues, labelling, GHS, inventory controls, PPE usage and best practices in the lab and prep areas.

While not required, we recommend attending **Lab Safety 101: Part 1** prior to attending **Lab Safety 101: Part 2**

OVERVIEW OF THIS SESSION

12. GHS
13. Purchasing Decisions
14. Incorrect Chemical Storage
15. Broken Glass
16. Student Safety
17. Accidental Injury
18. First Aid Training
19. PPE & Safety Equipment
20. Employee Training Program
21. Best Practices
22. Checklists for Compliance
23. Flinn Safety Certified
24. Discussion
25. Conclusion

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Typical 16 Section GHS Compliant SDS

A It is important that the chemical name on the label match the name on the SDS. Many chemicals have similar names, but very different properties.

B The most important section! Provides an overview of the physical and health hazard risks associated with using the material.

C Signal words, either Danger or Warning, heighten the awareness of the relative risk when using certain chemicals. Danger is the more severe warning!

D Eight pictograms exist in the GHS classification scheme to call attention to physical and health hazards.

E This section includes the formula, formula weight, concentration and CAS#. The CAS# is the single identifying number for each specific substance. CAS# should match the CAS# on the bottle label.

What should I do if a hazardous situation occurs?

Sections 4-6.

F Seek medical attention. These first aid measures are only meant for immediate first aid and should always be followed up with professional medical care.

G This section is written for the firefighter. Flash point (the lowest temperature at which enough vapor is present to form an ignitable mixture with air); upper and lower flammable limits; and the auto ignition temperature are common properties included in this section.

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION				
n-Butyl Alcohol				
Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261				
CHEMTREC Emergency Phone Number: (800) 424-9300				
Signal Word		DANGER		Pictograms
SECTION 2 — HAZARDS IDENTIFICATION				
Hazard class: Flammable liquids (Category 3). Flammable liquid and vapor (H226). Keep away from heat, sparks, open flames, and hot surfaces. No smoking (P210).				
Hazard class: Acute toxicity, oral (Category 4). Harmful if swallowed (H302). Do not eat, drink or smoke when using this product (P273).				
Hazard class: Skin corrosion or irritation (Category 2). Causes skin irritation (H315).				
Hazard class: Serious eye damage or irritation (Category 1). Causes serious eye damage (H318).				
Hazard class: Specific target organ toxicity, single exposure, respiratory tract irritation (Category 3). May cause respiratory irritation (H335).				
Hazard class: Specific target organ toxicity, single exposure, Narcotic effects (Category 3). May cause drowsiness or dizziness (H336). Avoid breathing mist, vapors or spray (P261).				
SECTION 3 — COMPOSITION, INFORMATION ON INGREDIENTS				
Component Name	CAS Number	Formula	Formula Weight	Concentration
n-Butyl alcohol	71-36-3	CH ₃ (CH ₂) ₃ OH	74.12	
Synonyms: 1-Butanol, n-Butanol				
SECTION 4 — FIRST AID MEASURES				
Call a POISON CENTER or physician if you feel unwell (P312).				
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing (P304+P340).				
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing (P305+P351+P338).				
If on skin (or hair): Immediately remove all contaminated clothing. Rinse skin with water (P303+P361+P353).				
If swallowed: Rinse mouth. Call a POISON CENTER or physician if you feel unwell (P302+P301+P312).				
SECTION 5 — FIRE FIGHTING MEASURES				
Class 1C flammable liquid				
Flash point: 37 °C. Flammable limits: Lower: 1.4% Upper: 11.2% Autoignition Temperature: 343 °C				
When heated to decomposition, may emit toxic fumes.				
In case of fire: Use br-class dry chemical fire extinguisher (P370+P378).				
NFPA Code: H-2, F-3, R-0				
SECTION 6 — ACCIDENTAL RELEASE MEASURES				
Remove all ignition sources and ventilate area. Contain the spill with sand or other inert absorbent material and deposit in a sealed bag or container. See Sections 8 and 13 for further information.				
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H The NFPA code is a numerical code established by the National Fire Protection Association to assess the hazard of chemicals.

I How to clean up a spill. Always remove unprotected personnel from the spill area before cleaning up.

SECTION 7 — HANDLING AND STORAGE	
Flinn Suggested Chemical Storage Pattern: Organic #2. Store with alcohols, glycols, amines, and amides. Store in a dedicated flammables cabinet. If a flammables cabinet is not available, store in Flinn Safe-Stor™ can. Keep container tightly closed (P233). Keep cool (P235). Use only in a hood or in a well-ventilated area (P271).	
SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION	
Wear protective gloves, protective clothing, and eye protection (P280). Wash thoroughly after handling (P264). Use only in a hood or in a well-ventilated area (P271). Exposure guidelines: PEL 100 ppm (OSHA) TLV 20 ppm (ACGIH)	
SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES	
Clear colorless liquid. Wine-like odor.	Boiling point: 117.7 °C
Soluble: Water (20%). Miscible with alcohol and ether.	Melting point: -89 °C
	Refractive index: 1.3988
	Specific gravity: 0.81
SECTION 10 — STABILITY AND REACTIVITY	
Avoid contact with aluminum, chromium trioxide, and oxidizing materials. Substance may develop explosive hydroperoxides. Shelf life: Fair, substance may oxidize. See Section 7 for further information.	
SECTION 11 — TOXICOLOGICAL INFORMATION	
Acute effects: Absorbed through skin. Eye, skin, respiratory tract irritation. Dizziness. CNS depression.	ORL-RAT LD ₅₀ : 790 mg/kg
Chronic effects: N.A.	IHL-RAT LC ₅₀ : 8000 ppm/4H
Target organs: Eyes, skin, respiratory system, central nervous system.	SKN-RBT LD ₅₀ : 3400 mg/kg
N.A. = Not available, not all health aspects of this substance have been fully investigated.	
SECTION 12 — ECOLOGICAL INFORMATION	
Data not yet available.	
SECTION 13 — DISPOSAL CONSIDERATIONS	
Please review all federal, state and local regulations that may apply before proceeding. Flinn Suggested Disposal Method #18 is one option.	
SECTION 14 — TRANSPORT INFORMATION	
Shipping name: Butanols. Hazard class: 3, Flammable liquid. UN number: UN1120.	
N/A = Not applicable	
SECTION 15 — REGULATORY INFORMATION	
TSCA-listed, EINECS-listed (200-731-6), RCRA code U031.	
SECTION 16 — OTHER INFORMATION	
The Safety Data Sheet (SDS) information is based upon information at the time of publication. Flinn Scientific, Inc. makes no guarantee of the accuracy or completeness of the data and does not assume any liability for any damage, injury, or loss of property, or for any loss of life or health, or for any other loss or damage, arising out of the use of this product. The user of this product should consult the manufacturer's instructions for safe handling, storage, use and disposal of this product. The user of this product should consult the manufacturer's instructions for safe handling, storage, use and disposal of this product. The user of this product should consult the manufacturer's instructions for safe handling, storage, use and disposal of this product.	
Consult your copy of the Flinn Science Catalog/Reference Manual for additional information about laboratory chemicals.	
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S Regulatory information used by regulatory compliance personnel.

1 Flinn Scientific has an ongoing program to update its SDS. As professional chemists, we try our best to provide science teachers with the most accurate and useful safety

1 Use the Flinn Suggested Chemical Storage Pattern to prevent accidents and improve safety. Special storage and usage tips are also included.

K Wear personal protective equipment such as goggles, gloves, and an apron.

L Clear, concise, and useful physical and chemical properties help you learn more about the chemicals you use. The first part describes the material's appearance. If it doesn't look like this, STOP. Do not use it. It may be more or less hazardous.

M Describes the conditions or reactions to be avoided. Also provides some indication about anticipated shelf life.

N More detail on how the material may injure you. Acute (short exposure) and chronic (long-term) effects are listed along with their target organs.

O Oral (ORI), inhalation (IHL), and skin absorption (SKN) toxicity data on test animals is included.

Other useful information. Sections 12-16.

P Ecological impact if large amounts (e.g., tank car) of the chemical spill near a river or lake.

Q Suggested disposal methods for laboratory quantities of chemicals.

R Department of Transportation shipping information is included for your school district, emergency responders, and transport/shipping departments.

What is GHS?

Developed by the United Nations, GHS (Global Harmonized System) :

- Defines and classifies the hazards of chemical products
- Provides health and safety information on labels and Safety Data Sheets (SDS's)
- Goal of GHS: That the same set of rules for classifying hazardous products; the same format and content for labels and SDS's, will be adopted and used around the world



Introducing the GHS Pictograms



Exploding bomb
(for explosion or reactivity hazards)



Flame over circle
(for oxidizing hazards)



Corrosion
(for corrosive damage to metals, as well as skin, eyes)



Health hazards
(may cause or suspected of causing serious health effects)



Environment*
(may cause damage to the aquatic environment)



Flame
(for fire hazards)



Gas cylinder
(for gases under pressure)



Skull and crossbones
(can cause death or toxicity with short exposure to small amt)



Exclamation mark
(may cause less serious health effects or damage ozone layer)



Biohazardous infectious material**
(for organism or toxins that can cause disease)

Typical Manufacturer Label for Sodium Hydroxide Pellets (NaOH)

PICTOGRAM in RED DIAMOND



DANGER! Causes severe skin burns and eye damage. Do not breathe dust. Wear protective gloves and eye protection. Wash thoroughly after handling. PEL: 2 mg/m³.

FIRST AID: IF SWALLOWED: Rinse mouth. Contact POISON CENTER or physician if you feel unwell. IF ON SKIN: Flush affected area with water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present, and continue rinsing.

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FLINN
SCIENTIFIC

“Your Safer Source
for Science”

S0076

2 kg

SODIUM HYDROXIDE

caustic soda, soda lye, pellets, reagent, NaOH,
F.W. 40.00

★ **HAZARD ALERT:** Causes severe skin burns and eye damage. Considerable heat evolves when added to water.



LOT: 999999

STORAGE: Inorganic #4

INORGANIC #4 I

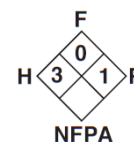
DISPOSAL: #10

SHELF LIFE: Good; keep tightly closed.

SOLUBLE: Water and alcohol.

CAS NO: 1310-73-2

UN1823



Precautionary Statement

Should I Purchase This Chemical?

Are you prohibited from using certain chemicals in your science laboratory? This is a growing problem! Banning chemicals from the school science laboratory without giving thought to how often the chemical is used, or its educational value and hazard level, is similar to banning a textbook from the classroom. Teaching professionals must have available to them every teaching tool possible to educate our nation's young people. Flinn Scientific Canada has adopted the philosophy that:

“Chemicals in any form can be safely stored, handled or used if the physical, chemical and hazardous properties are fully understood and the necessary precautions, including the use of proper safeguards and personal protective equipment, are observed.”

Important Questions Should Be Asked Before Purchasing a Chemical.

Flinn's Big 6 Considerations...

1 What is the relative hazard level of the chemical?

Is the chemical water- or air-reactive? Is it corrosive, flammable or hazardous by inhalation? Is the chemical irritating to body tissue or carcinogenic? In other words, how can this chemical hurt me?

2 How often is the chemical used in laboratory activities such as experiments and/or demonstrations?

Is the chemical commonly used in a high school setting?

3 What is the educational value of using the chemical?

What specific topic or lesson does the chemical help teach or illustrate? If the chemical is commonly used in other laboratory activities, you can generally say it has educational value. If the chemical is infrequently used and extremely hazardous, then we suggest you review the specific laboratory activity to judge its educational value for yourself. Further investigation may identify a less hazardous substitute. Only you, the teaching professional, can ultimately decide the chemical's educational value.

4 Have I used this substance before?

Am I familiar with the use of the chemical? Have I tried the experiment before? Do I feel comfortable using this chemical?

Remember, try all experiments and demonstrations first before using them in the classroom.

5 Is my laboratory facility equipped for the safe use of this chemical?

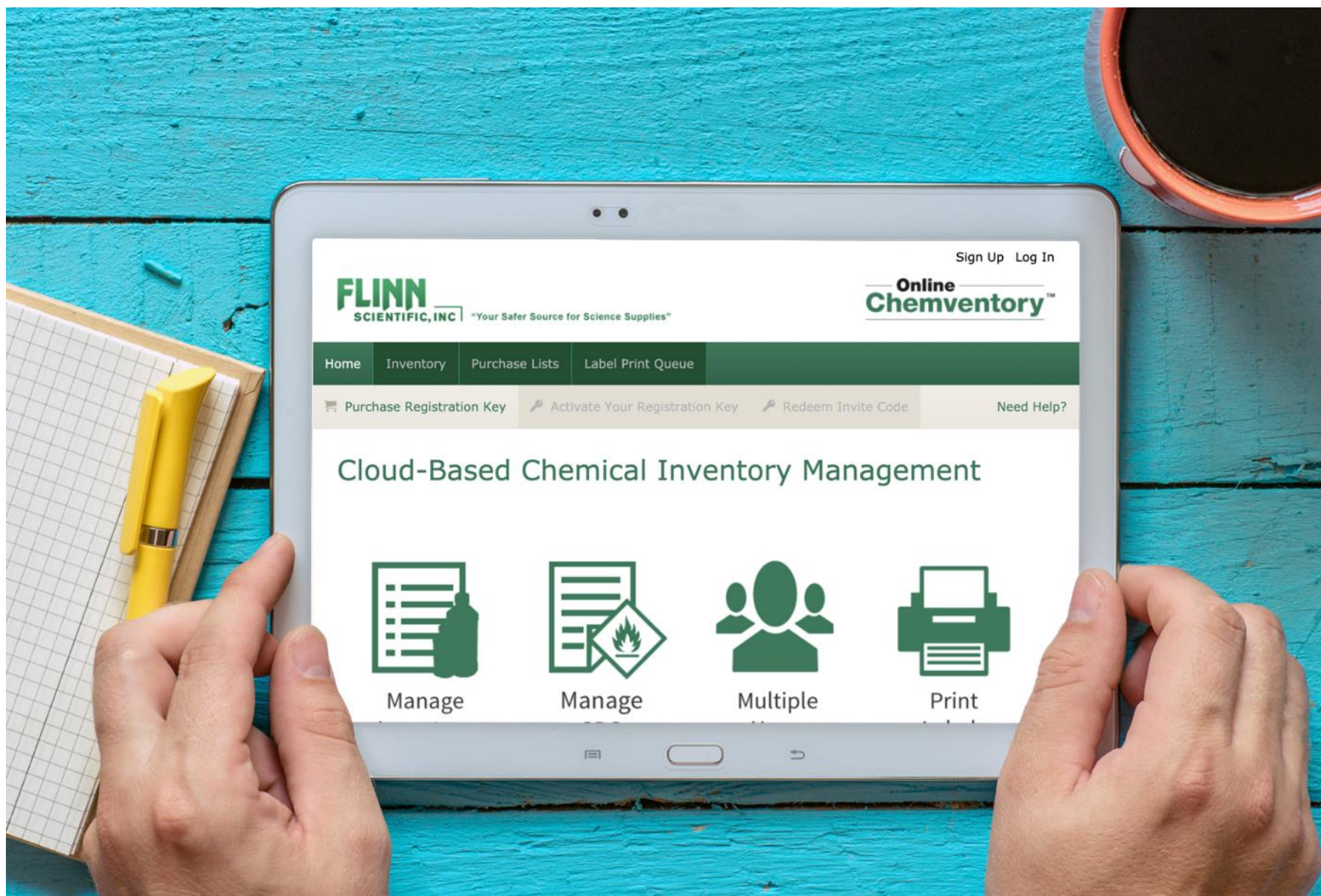
Do I have the correct type and size fire extinguisher? Do I have an eyewash? Is my room properly ventilated, etc.?

6 How will I dispose of this chemical?

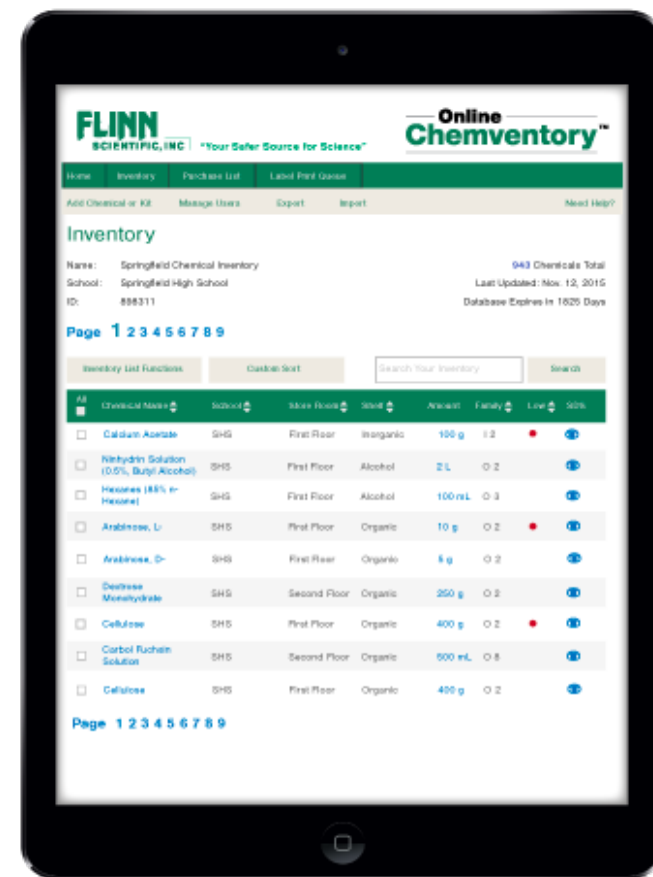
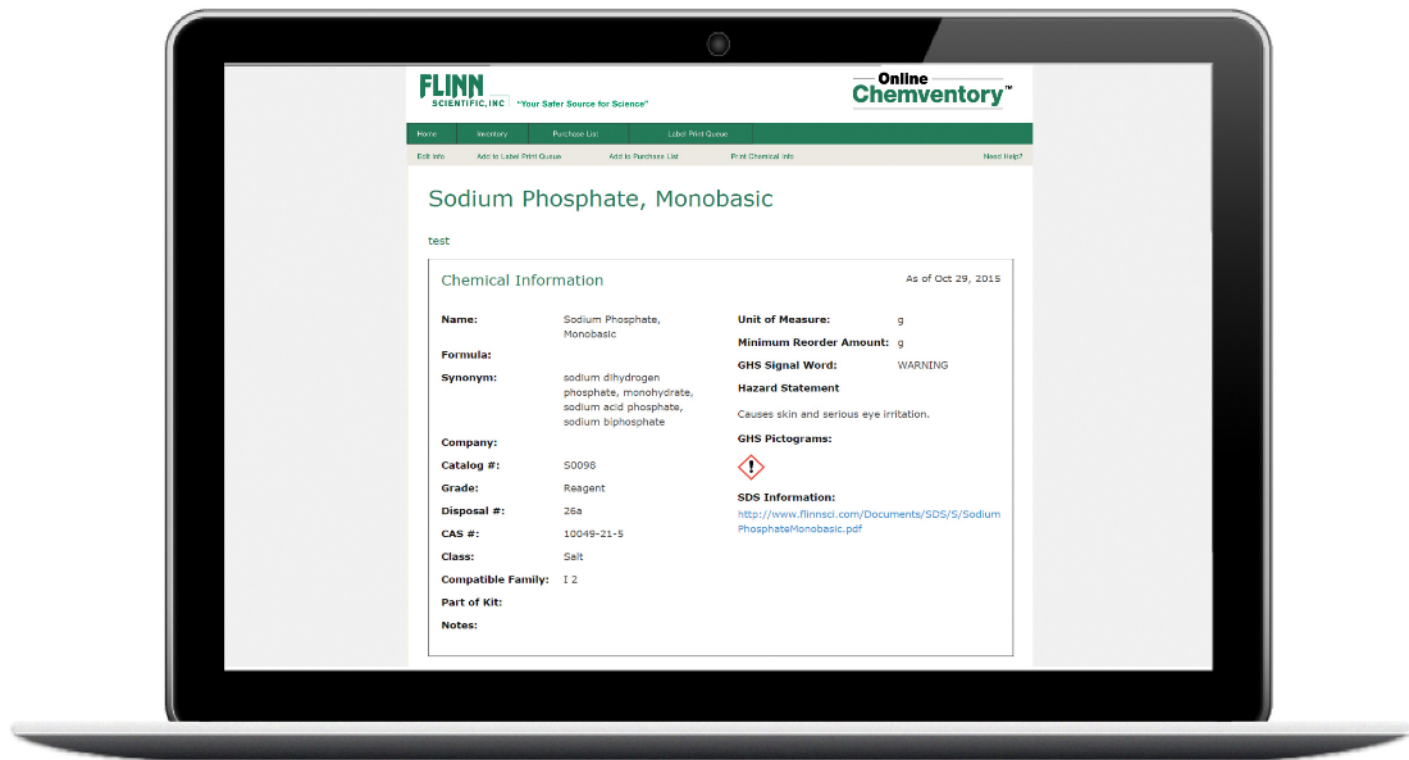
Will this chemical require special disposal procedures and does my school have a waste disposal program in place? Will the chemical have to be disposed of properly by a licenced hazardous waste disposal company?

If you have trouble answering one or more of these six questions, call us. Our technical staff of chemists will be more than happy to give you expert advice!

Chemventory Online Chemical Management Software Service



Chemventory Online Chemical Management Software Service



Organize Your Labs

Keep a clean organized lab and you will be much safer, and your lab will operate significantly smoother.

Be mindful of your purchases and think about the full cradle-to-grave costs with your selection (remember to factor in disposal costs).

Accurate chemical inventory is critical for organizing and managing safety in the science department.

1. [Flinn Chemventory](#)





Broken Glass

As spills occur, one result may include broken glass mixed in the solution.

Never use your bare hands to handle any pieces of broken glass.

Use a dustpan and either a small broom or brush to gather and transport the broken glass to the designated receptacle (Have a designated “Broken Glass Box”)

If the broken glass is mixed with a chemical, it should be disposed of with the chemical and not put in the “Broken Glass Box”



Accidental Injury

Report all injuries at once to the school administration.

Follow your local school board policies on injuries and reporting forms as applicable.

Should a student be injured in the lab, first determine if they are conscious and then take appropriate steps to assist them.



Where or When Do Most Accidents Occur in The Secondary Science Department?

- A 1996 survey was conducted to science teachers across the USA. Dr. Larry Duff from Nebraska commissioned the survey. The results were frightening.
- 70% of ALL accidents in the laboratory occurred in GRADE 9. That is both a concerning and preventable statistic.
- 93% of teachers responded that the grade 9 students failed to properly read and follow safety instructions in the classroom.
- Teachers need to both model and reinforce acceptable safe behaviors in the lab.

FIRST AID REVIEW



Do you have adequate First-Aid training?



How recent was your last review?



Who are your designated first responders?



Location of First Aid kit in classroom / prep area and contents of the kit



What are limits of First-Aid in the school?



Contact Administration / Emergency Services



PPE Considerations

Often, certain Personal Protective Equipment products are overlooked and not truly inspected for safety and compliance.

- Are your Safety Goggles ANSI Z87.1 certified? Are they functional?
- Do you have a Safety Shield for chemical Demonstrations?
- Use proper “Broken Glass” Boxes—Not used empty pails!
- Science Safety Manual / Chemical Hygiene Plan—annually updated?

Personal Protective Equipment



- ANSI Z87.1 certified goggles (chemical splash/impact resistant)
- Gloves (based on 8-hour exposure immersed in chemical)
- Aprons / Lab Coats --- Teacher and Student?
- Face Shield
- Ear protection
- Respirator – fitted properly & replacement cartridges



Mandatory Safety Equipment

- Eye wash station – plumbed in every lab
- Drench shower (one in department)
- First Aid kit – aligned to the # of people in lab (25/50)
- Safety chemical cabinets / storage
- Fume hood (minimum 100cfm face velocity)
- Fire Blanket in each room with gas jets
- Fire Extinguisher (ABC type, wall mounted)
- Safety Signage in each lab area
- Comprehensive Chemical Spill kit (Acid/Base/Solvent)

Engineering Control / Preventions

- Fume Hood
- Eyewash
- Drench Shower
- Chemical Safety Cabinets
- Chemical Spill Kit





Fire Safety

- Fire Extinguisher – type / location / PASS / training (local FD involvement)
- Fire Blanket – location / type / training
- Fire Detection – smoke alarm in lab / prep area (NFPA rules)
- Fire Alarm – location / functional
- Fire Suppression System – sprinkler vs powder vs carbon dioxide
- Emergency Signage posted and practice drills documented





Employee Training Program

Have the teachers been trained in the following areas?

- Chemical labelling (GHS) and SDS management
- Chemical storage (compatibility issues / space / location..)
- Chemical handling & dispensing techniques (solution dilution)
- Chemical disposal process and storage of hazardous wastes
- Chemical spills (acid / base / solvent)
- Fire / Flood / Broken Glass / Accidental Injury
- CHP Review and Updating annually – including administration
- First Aid
- Fire Extinguisher & Fire Blanket Safe and Proper Use
- Identifying hazards and prevention



Best Practices in the Science Department

Being consistent is critical to the on-going safety and success in the school science department.

- Current inventory of chemicals on-site and a manageable effective storage system
- All chemicals labelled according to GHS
- Organized lab areas – no clutter or leftover lab activities for weeks
- Safety training and compliance for ALL employees

Best Practices Continued...

- Always use (model) PPE when in the lab
- Use of a Lab Safety Contract with students to reinforce behavior.
- Follow procedures from the CHP / school district safety manual / DOE policy documents
- Ordering chemicals in smaller amounts in the lowest concentration possible to minimize storage and disposal



Common Concerns about Safety Regulatory Compliance

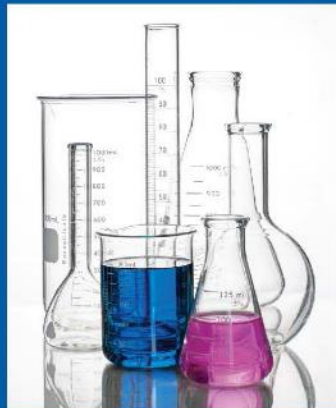
- Do we have the 'right' chemical storage cabinets?
- Do we have hazardous chemicals? (risk exceeds value)
- Do we have an accurate inventory?
- Do we have GHS labels on the chemicals?
- Do we have a Chemical Hygiene Plan in place? How current?
- Do we have a Chemical Hygiene Officer? Who is it?
- Do we have the necessary PPE? (Goggles / respirator / gloves etc.)
- Do we have a functional fume hood / eyewash / shower?
- Do we have an ongoing safety training program for employees?
- Do we have a Banned list of chemicals / activities that is communicated?





Compliance Concerns Continued...

- How do we make a Chemical Hygiene Plan?
- Who will be the Chemical Hygiene Officer?
- How do we label ALL of our chemicals for GHS compliance?
- How do we create an accurate inventory of our chemicals & SDS?
- How do we inspect PPE? (Goggles / respirator / gloves, etc.)
- How do we inspect our fume hood / eyewash / shower?
- How do we engage in an ongoing safety training program for employees?
- How do we create Banned list of chemicals / activities?
- How much is this going to cost?
- How long does this laboratory safety compliance take to implement?
- How do we start the process?



Flinn Scientific is Here to Help

Flinn Scientific has all of the resources you need to be as safe as possible and offer a very rigorous science program. We are here as a trusted lab partner to accelerate the culture of safety awareness in your school.

FLINN

Science Catalog & Reference Manual

2020

Flinn Scientific Checklist for Lab Safety 101

CRITERIA	YES	NO
1. Do you have only 'new' chemicals in the lab? (less than 3 years old)		
2. Is there a current chemical inventory? Are the new SDS's accessible to all?		
3. Are chemicals labelled and stored properly? (GHS labels & organized safely)		
4. Is there adequate PPE in the lab? (goggles/gloves/aprons etc.)		
5. Are there proper chemical storage cabinets? (acid, corrosive, flammables cabinets)		
6. Are teachers properly trained in safety protocols and procedures? (recertification?)		
7. Is a Safety Contract used with students in the lab?		
8. Is there adequate fire safety equipment in each room? (extinguisher / blanket etc.)		
9. Is there a current Chemical Hygiene Plan in place? Is there a CHO designated?		
10. Is there a hazardous waste procedure in place / scheduled pick-up for disposal?		
11. Is there a Banned/Restricted list of chemicals?		
12. Do you feel comfortable with the accountability for safety in the science department?		



Flinn's Exclusive Seven-Star Science Safety System

Science Essentials

- Science Safety Training & Certification (online & free)
- Science Room Safety Inspections (online & free)
- Chemical Storage & Inventory (Chemventory™)
- Student Safety Contracts (Flinn sample)
- Departmental Safety Notes (Flinn sample)
- Safety Calendar of To-do's (Flinn sample)
- Annual Safety Reviews

Purchase Guide (Safety First)



Flinn's Exclusive Seven-Star Science Safety System

Science Safety Training & Certification (online & free)

- 7-hour modular safety awareness course
- High School & Middle School Specific
- 20 Minute – Re-certification every 2 years
- Certified for Professional Learning File
- Addresses New Hires / New-to-Science
- Adult Learning Style – with Competence Confirmation and assessment built-in
- Custom PD training sessions in-person or on-demand specific to your safety needs



Flinn's Exclusive Seven-Star Science Safety System

Science Room Safety Inspections (online & free)

- 220 Point Self-Inspection Safety Audit
- Used as Mock Physical Inspection / Audit to benchmark location needs
- Communication of Remediation Needs
- Creates an Expectation Standard
- Customizable for your schools
- Duty of Care Document



Flinn's Exclusive Seven-Star Science Safety System

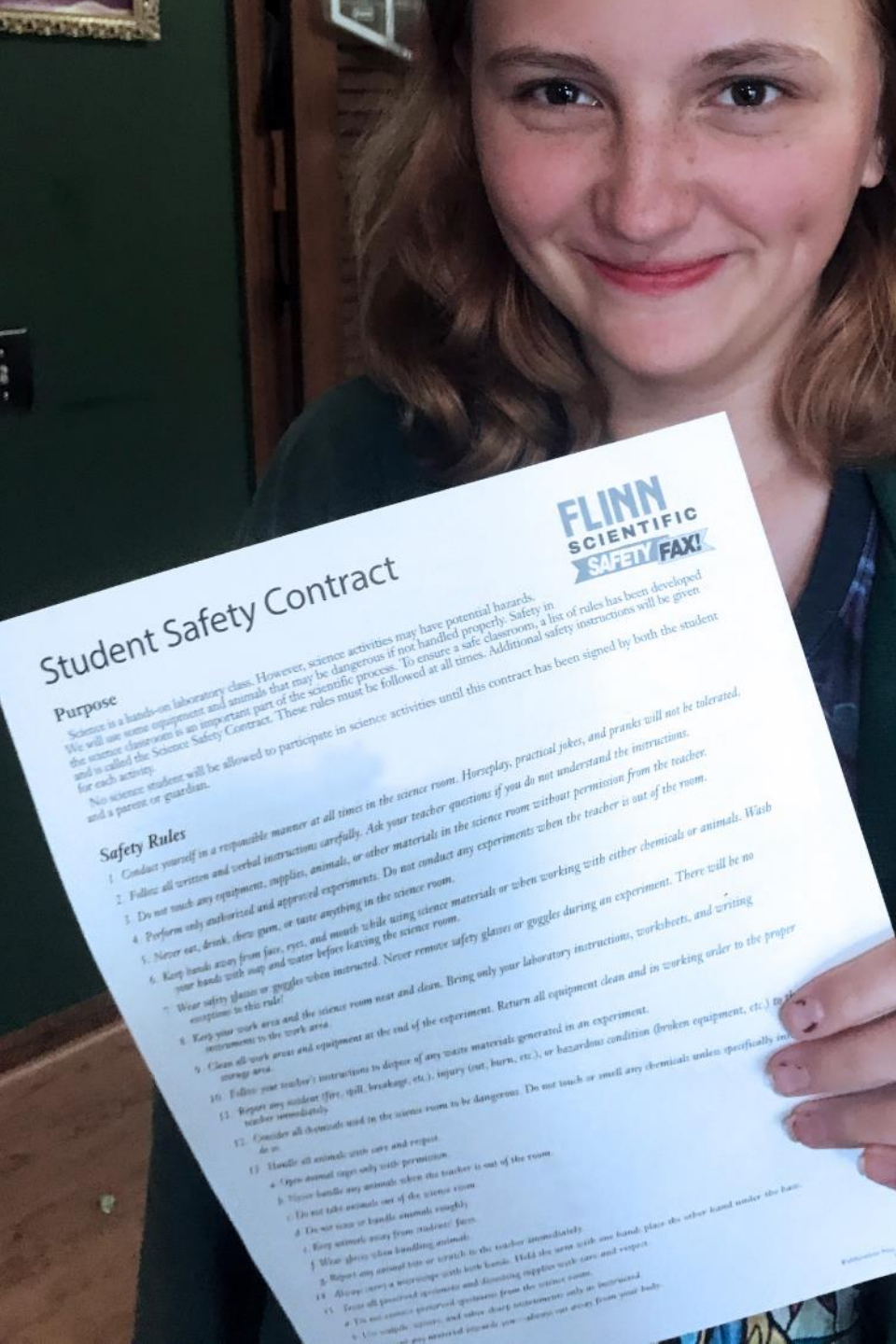
Chemical Storage & Inventory (Chemventory™)

- OSHA Compliant Inventory Accessible & Updated
- SDS & GHS Output – Custom pdf for each School
- Fast & Easy Loading of Real-time Inventory
- Granted Access Permission from Users
- Administration, First-Responders, and Colleagues
- Multiple Chemical Storerooms

Flinn's Exclusive Seven-Star Science Safety System

Student Safety Contracts (Flinn sample)

- Confirms Student Review & Parent Consent
- Establishes Safety Expectations
- Documentation for Compliance & Duty of Care
- Establishes Standard of Expectation
- Preparations and Preventative Measures for Safety
- Reproduceable for Teachers
- Record of Responsibility



Student Safety Contract



Purpose
Science is a hands-on laboratory class. However, science activities may have potential hazards. We will use some equipment and animals that may be dangerous if not handled properly. Safety in the science classroom is an important part of the scientific process. To ensure a safe classroom, a list of rules has been developed and is called the Science Safety Contract. These rules must be followed at all times. Additional safety instructions will be given for each activity.
No science student will be allowed to participate in science activities until this contract has been signed by both the student and a parent or guardian.

Safety Rules

1. Conduct yourself in a responsible manner at all times in the science room. Horseplay, practical jokes, and pranks will not be tolerated.
2. Follow all written and verbal instructions carefully. Ask your teacher questions if you do not understand the instructions.
3. Do not touch any equipment, supplies, animals, or other materials in the science room without permission from the teacher.
4. Perform only authorized and approved experiments. Do not conduct any experiments when the teacher is out of the room.
5. Never eat, drink, chew gum, or taste anything in the science room.
6. Keep hands away from face, eyes, and mouth while using science materials or when working with either chemicals or animals. Wash your hands with soap and water before leaving the science room.
7. Wear safety glasses or goggles when instructed. Never remove safety glasses or goggles during an experiment. There will be no exceptions to this rule!
8. Keep your work area and the science room neat and clean. Bring only your laboratory instructions, worksheets, and writing instruments to the work area.
9. Clean all work areas and equipment at the end of the experiment. Return all equipment clean and in working order to the proper storage area.
10. Follow your teacher's instructions to dispose of any waste materials generated in an experiment. (Broken equipment, etc.) to the teacher immediately.
 - (1) Report any accident (fire, spill, breakage, etc.), injury (cut, burn, etc.), or hazardous condition (broken equipment, etc.) to the teacher immediately.
 - (2) Consider all chemicals used in the science room to be dangerous. Do not touch or smell any chemicals unless specifically instructed to do so.
 - (3) Handle all animals with care and respect.
 - a. Open animal cages only with permission.
 - b. Never handle any animals when the teacher is out of the room.
 - c. Do not take animals out of the science room.
 - d. Do not touch or handle animals roughly.
 - e. Keep animals away from students' faces.
 - f. Keep animals away from handling animals.
 - g. Wear gloves when handling animals.
 - h. Report any animal bite or scratch to the teacher immediately.
 - i. Wear gloves when handling animals.
 - j. Hold the area with care and respect.
 - (4) Always clean a workspace with both hands.
 - (5) Report any animal bite or scratch to the teacher immediately.
 - (6) Report any animal bite or scratch to the teacher immediately.
 - (7) Report any animal bite or scratch to the teacher immediately.
 - (8) Report any animal bite or scratch to the teacher immediately.
 - (9) Report any animal bite or scratch to the teacher immediately.
 - (10) Report any animal bite or scratch to the teacher immediately.
 - (11) Report any animal bite or scratch to the teacher immediately.
 - (12) Report any animal bite or scratch to the teacher immediately.
11. Treat all purchased specimens and laboratory equipment from the science room.
 - (1) Treat all purchased specimens and laboratory equipment from the science room.
 - a. Do not touch, smell, or taste any chemicals unless specifically instructed to do so.
 - b. Use samples, gloves, and other safety instructions only as instructed.
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 - d. Use samples, gloves, and other safety instructions only as instructed.
 - (8) Treat all purchased specimens and laboratory equipment from the science room.
 - a. Do not touch, smell, or taste any chemicals unless specifically instructed to do so.
 - b. Use samples, gloves, and other safety instructions only as instructed.
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 - (9) Treat all purchased specimens and laboratory equipment from the science room.
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Discussion and Notes

Keep a copy of these safety notes and a signed attendance sheet to verify regular safety training. Regulatory inspectors will usually request proof of safety training.

Did you know? The SDSs for all Flinn chemicals may be downloaded from the Flinn Scientific website at www.flinnsci.com/sds

Science instructors are the most visible and important role models for safety in the lab. Wear goggles whenever you are working in the lab, even (or especially) when class is not in session. Students learn by your good example.

General Safety Rules for Demonstrations and Labs

The following general safety rules and procedures form a strong “backbone” to improve safety in your lab.

1. Carefully plan lab activities. Practice experiments and demonstrations beforehand and review the science and procedure before performing a lab activity. Never perform a demonstration for the first time in front of the class. Evaluate the safety of the demonstration, identify possible hazards and practice, practice, practice!
2. Review the properties and hazards of all chemicals before use by reading their Safety Data Sheets (SDSs).
3. Reduce exposure to hazardous chemicals. Avoid contact of all chemicals with eyes and skin, and make sure appropriate ventilation is available when using respiratory irritants and inhalation hazards.
4. Do not underestimate chemical hazards and risks—few chemicals are without any potential hazards. Even for chemicals with no known hazards, exposure should be kept to a minimum.
5. Read all chemical labels prior to use.
6. Provide a basic set of safety rules for all science activities and explain the rules to the students. Review the safety rules frequently and enforce them consistently. Demand compliance!
7. Wear appropriate eye protection at all times and enforce the goggle policy. The simplest policy will be the most effective: “Goggles must be worn any time chemicals, heat or glassware are used in the laboratory.”
8. Train students on how to use safety equipment (e.g., eyewash, safety shower). Show students and employees where the safety devices are located so they can be found quickly in an emergency.
9. Only authorized personnel are allowed in the chemical storeroom. The door to the chemical storeroom should be locked at all times.
10. Wear appropriate personal protective equipment at all times, especially when you are working in the lab before or after school.
11. Develop good “chemical hygiene” practices and habits. Never eat in the lab or drink out of laboratory glassware. Always wash your hands thoroughly before leaving the lab area.
12. When leaving the lab, even for a short period, make sure the prep area and laboratory doors are locked. You must make every effort to prevent theft.
13. Know appropriate emergency procedures in the event of a chemical spill, fire, injury or power failure.
14. Review the school’s first aid policy. If an accident occurs and you don’t know what to do, call 911 without hesitation.
15. Know where a telephone or some other means of emergency communication is located. Post emergency telephone numbers by each phone.
16. Do not block fire exits. Keep all aisles clear. Have an alternative evacuation route in the event your primary route becomes blocked.
17. Practice your emergency plans.

Flinn’s Exclusive Seven-Star Science Safety System

Departmental Safety Notes (Flinn sample)

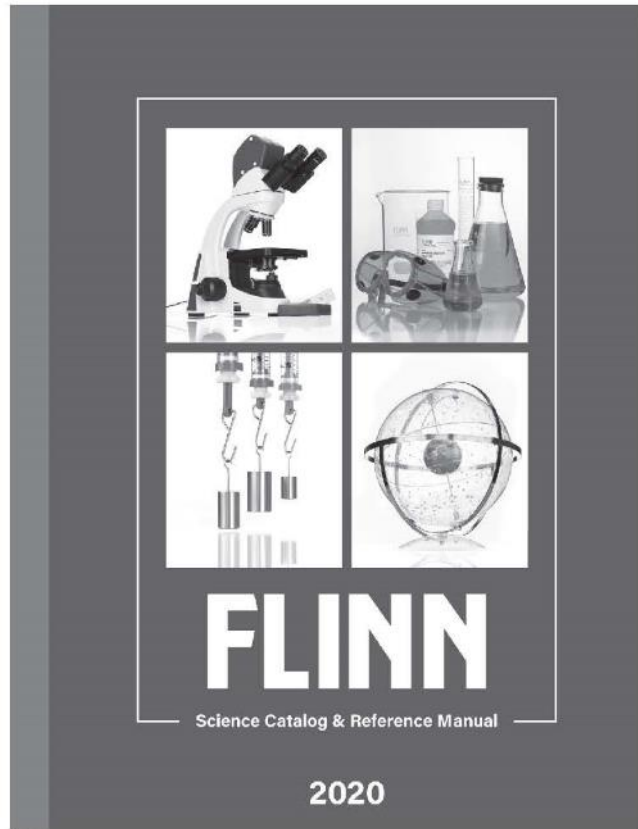
- Makes Safety a Departmental Concern
- Creates professional cadence of Safety Discussions
- Reviews dissemination of timely information
- Past issues archived on FlinnSci.com Resources website
- Retained for future reference & recall
- Informative Ongoing Professional Development
- Addresses Professional Expectation Standards



Flinn's Exclusive Seven-Star Science Safety System

Safety Calendar of To-do's (Flinn sample)

- Shows tasks to complete and when
- Annual, Monthly, Weekly and Daily Responsibilities
- Holds accountability for safety with completions
- Establishes Professional Expectation & Standards
- Prompts on what & when actions are needed



PURCHASE GUIDE

A Quick and Easy Checklist of Science Essentials

2020

Flinn's Exclusive Seven-Star Science Safety System

Science Essentials Purchase Guide (Safety First)

- Features Teacher's Choice Products
- Begins with Science Safety for Annual Needs
- PPE – Personal Protective Equipment
- Communicates Needs to Administration
- Prompts on Items – Inventory, Grants, Reviews
- Addresses Equipment & Supply Standards



Flinn's Exclusive Seven-Star Science Safety System

Let FLINN be your trusted lab partner in your schools.

No other company has the resources, talent and experience that can assist you with making your labs and educators safer and more compliant with federal and state regulatory.

Please let FLINN know how we can help you achieve your science and safety objectives.

How can we help you?



What else do I need to worry about in the science lab?

You need to be aware of your surroundings and be aware of what to do in the preceding situations should they arise.

BY staying up to date on best safety practices, you are now better prepared to tackle the challenges these events and others may present in your classroom.



Becoming Flinn Certified

You owe it to yourself, your family, and your students to be as safety conscious as possible and Flinn Scientific wants to recognize you as an advocate of science lab safety. Flinn has developed a very comprehensive series of Safety sessions (40 Smart Modules) that go into details about the topics covered here and more. Please visit www.flinnsci.com to register for this self-paced online course. Be smart. Be safe. Be Flinn Certified. **(....and YES it's 100% FREE!!!!)**



Get Flinn Certified in Laboratory Safety Today for Free!

Make your laboratory a safe environment for both students and instructors. Choose from one of our 9 certificated courses below to gain an in-depth knowledge of laboratory safety for science educators.

High School and Middle School Certification Courses



Flinn Certified Lab Safety Course— On-line

You can participate in the Award-Winning Lab Safety Certification from Flinn—On-Line and FREE.

8-hour modular course covering every topic in the science lab in a practical and direct way.

You must pass each unit before proceeding—there are built-in evaluations to ensure knowledge transfer—and grow your safety awareness level.

Certificate of Completion provided and Re-certification course available as well. High School and Middle School versions are available.

[Flinn Lab Safety Courses](#)

FLINN SCIENTIFIC

Ask about our custom district solutions designed to support a safe return to school:

- Custom safety and professional development/learning proposals to ensure full school safety
- Full PPE for students, faculty, and support staff
- Blended science learning solutions that provide continuity of lab instruction for both onsite & remote learners