

Cabarrus County schools
Chemical Hygiene Plan
4401 Old Airport Road
Concord, NC 28025
2019-2020

In accordance with the regulations established by the United States Department of Labor pursuant to the Occupational Safety and Health Act and the North Carolina Occupational Safety and Health Administration Laboratory Safety Standard, 1910.1450 and Board Policy Code 7265, Cabarrus County Schools will have in effect a Chemical Hygiene Plan (CHP). This Chemical Hygiene Plan is designed to provide safe laboratory procedures that will protect staff members and students from harmful practices and overexposure to hazardous chemicals. Laboratory experiments are crucial to the understanding of science processes and the learning of science content. The laboratory will be a safe learning environment when rules for safety are reviewed and followed. Cabarrus County Schools will ensure the safety in laboratories by providing proper ventilation, eye washes, emergency showers, fume hoods and other associated safety items. The Chemical Hygiene Plan (CHP) for Cabarrus County Schools has been developed to document all regulations, work practices, training staff members and students on hazardous substances, proper use of equipment, chemical procurement, protective safety equipment, storage and disposal of hazardous chemicals, disseminating safety information, and identifying the School Appointed Chemical Hygiene Officer and other responsible personnel that will provide a safe and healthy workplace. Safety must be a part of instruction with staff members providing the modeling of appropriate safety protocols. Properly storing and dispensing chemicals is the responsibility of the School Appointed Chemical Hygiene Officer. The CHP will be reviewed, reevaluated, and updated annually by the District Chemical Hygiene Officer and District Chemical Hygiene Plan review committee and will be made available to all staff members, students and visitors for review.

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Chapter 1

Purpose

This chemical hygiene plan sets forth policies, operating procedures, equipment, personal protective equipment and work policies that are capable of protecting staff and students from health hazards presented by hazardous chemicals used in science laboratories of Cabarrus County schools. It is intended to meet the requirements of OSHA 29 CFR 1910.1450 (Occupational Exposures to Hazardous Chemicals in Laboratories).

- 1.2 To protect staff and students from health hazards associated with the use of hazardous chemicals in our laboratories. This will be accomplished through:
 - 1.2.1 Identification of hazardous chemicals and then minimizing exposure to students
 - 1.2.2 Development of an outline of the responsibilities of the district, department supervisors, principals, chemical hygiene officers, and employees
 - 1.2.3 Require staff and students to follow laboratory policies and procedures
 - 1.2.4 Assessment of lab facilities and equipment needed for lab operation
 - 1.2.5 Establish procedures for procurement, distribution, and storage of chemicals
 - 1.2.6 Establish a standardized process for recording and retaining chemical hazard records
 - 1.2.7 Establish requirements for posting chemical hazard signs and labels
 - 1.2.8 Development of a written emergency plan to address accidents involving chemicals
 - 1.2.9 Establishment of Chemical Hazard Training Program
 - 1.2.10 Establish procedures for chemical waste disposal

Chapter 2

Scope and Applicability

- 2.1 The LEA Chemical Hygiene Officer shall have the knowledge and authority to develop, implement, and enforce Cabarrus County Schools' Chemical Hygiene Plan. In CCS' this is divided between three individuals or groups:

- **School Representatives**
- **CCS Science Instructional Specialist**
- **Risk Management**

****From here on, this team will be named the CHP Committee****

- 2.2 As to knowledge, the CHP Committee shall have the following responsibilities in relation to CHP:

- a. Assist in writing/development of the CHP (Chemical Hygiene Plan)
- b. Coordinate the district CHP with school level CHO
- c. Maintain records (SDS-safety data sheets), inspections, accident reports, training, etc....
- d. Conduct lab inspections with appropriate personnel
- e. Ensure training of employees for CHP compliance through online platform, **Safe Schools**.
- f. Stay abreast of legislation and current information that may affect laboratory safety
- g. Approve purchase of all chemicals for the LEA; refer to **Appendix i**
- h. Conduct ongoing evaluation of chemicals being used
- i. Provide technical assistance to schools and employees on the CHP
- j. Work with school level CHOs (Chemical Hygiene Officer) to monitor procurement, usage, disposal of chemicals
- k. Ensure that SDS records are maintained for all chemicals at each school
- l. Coordinates CHP annual review and updates

2.3 As to authority, the **LEA Chemical Hygiene Officer, Level Directors, and Science Teacher**

Designee shall have the following responsibilities in relation to the CHP:

- a. Ensure the principals, school level CHOs, and other school employees comply with Cabarrus County Schools CHP (1 meeting per year)
- b. Identify funding for required safety materials, equipment, and renovations

2.4 School District **Principals and the administrative team** shall have the following responsibilities in Relation to the CHP:

- a. Monitor school employee compliance with the plan
- b. Work closely with the district and school CHO
- c. Designate a school level CHO by [Google form](#). This will likely be the Assistant Principal over Facilities/Safety who will work with the Science Department Chair or Science Representative
- d. Give the authority and support for the school level CHO to enforce the school level CHP

2.5 School level Chemical Hygiene Officers or designee shall have the following responsibilities in relation to the CHP:

- a. Act as the school contact person for the CHP
- b. Ensure that training has been received by employees
- c. Provide housekeeping inspections
- d. Ensure that chemicals are stored appropriately and are in containers with labels
- e. Ensure that **only authorized chemicals** are used; refer to Appendix I
- f. Coordinate requests from and to the district CHO
- g. Coordinate acquisition, inventory and use, if any, of hazardous chemicals within the building with the district CHO; refer to Appendix I
- h. Review chemical hygiene plan annually
- i. Work with district level CHO and High School Education Director to monitor procurement, usage, and disposal of chemicals
- j. Update and maintain **Safety Data Sheets** in [MSDS Online database](#) as chemicals are ordered and received

2.6 All employees of Cabarrus County schools shall have the following responsibilities in relation to the CHP:

- a. Know location of and comply with the district CHP
- b. Know hazards associated with chemicals used
- c. Use safety equipment as designed
- d. Inform the chemical hygiene officer of chemical problems
- e. Maintain storage areas in proper order
- f. Help refine the CHP annually
- g. Know the location of Safety Data Sheets (SDS)
- h. Safety guidelines and precautions will be represented during each lab experiment.

Chapter 3

Protective Equipment

The Laboratory Standard OSHA Title 29 Code of Federal Regulations, Part 1910.1450 requires that Chemical Hygiene Plans include standard operating procedures that detail the criteria that employers will use to reduce employee exposures to hazardous chemicals, including the use of personal protective equipment and hygiene practices.

Protective equipment, including personal protective equipment (PPE) for eyes, face, head, and extremities, protective clothing, protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reasons of hazards of processes or environment, chemical hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

Cabarrus County schools shall provide training to each employee who is required by this section to use PPE. Each such employee shall be trained to know at least the following:

- a. When PPE is necessary
- b. What PPE is necessary
- c. How to properly don, doff, adjust, wear and sanitize PPE
- d. The limitations of the PPE
- e. The proper care, maintenance, useful life and disposal of the PPE

3.1 Eye Protection

- 3.1.1 All eye protection must meet **ANSI Z87.1 Plus** Standard
- 3.1.2 Eye and face protection devices shall protect against the intended hazard and be marked to identify the manufacturer, reasonably comfortable and proper fit, durable, capable of being disinfected, easy to clean and in good repair.
- 3.1.3 The teacher shall ensure that each affected student shall use appropriate eye and face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors or potentially injurious light radiation.
- 3.1.4 Teachers shall ensure that each affected student shall use eye protection that provides side protection when there is a hazard from flying objects.
- 3.1.5 The teacher shall ensure that each student who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or protective lenses.

- 3.1.6 Goggles should seal around the eyes to prevent the entrance of aerosols or splashed liquids.
- 3.1.7 Goggles, for all school science settings, should be of the “splash + impact” type. They should seal comfortably to the face. Ventilated frames, or specially coated lenses, are generally required to prevent fogging. Scratched faceplates compromise goggle integrity and should be disposed. Goggles with deep scratches should be eliminated immediately, as integrity may have been compromised.
- 3.1.8 North Carolina OSHA recommends that goggles may be thoroughly cleansed with soap and warm water, alcohol, or UV radiation.
- 3.1.9 Visitors to laboratories shall be furnished with and required to wear eye safety devices while experiments are in progress.
- 3.1.10 Face shields are for teachers’ use only. Face shields should be viewed as supplementary protection to goggles for a larger area of the face. They are not replacements for goggles. No experiments shall be performed in the lab that requires use of more than indirect vented chemical splash goggles for students.
- 3.1.11 Students that wear contact lenses must wear indirect or non-vented chemical splash goggles. They may choose to wear glasses on laboratory days.

3.2 Hand Protection

- 3.2.1 Appropriate hand protection shall be used “when employees’ hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.” OSHA 29 CFR 1910.138. Hand protection shall be based on the chemical compatibility charts supplied by the glove manufacturers. These charts typically provide the performance characteristics in response to particular chemicals with regards to material degradation rating, breakthrough time and permeation rate.

There are six basic types of gloves including:

- a. Neoprene- for sunlight, heat, organic solvents
 - b. Leather- for glass, bites, sharp objects, heat, cold
 - c. Polyethylene- often disposable for solvents, acids, detergents
 - d. Plastic or latex- for general non-hazardous chemicals (non-latex gloves shall be available for those with allergies)
 - e. Nitrile- for acids and organic solvents
- 3.2.2 Gloves shall be worn that offer protection for all hazards found in the lab. Gloves shall be inspected before wearing to check for tears and punctures.

3.3 Clothing Requirements

- 3.3.1 Students shall wear appropriate clothing as designated by the Cabarrus County schools' Dress Code. Open-toed shoes should not be worn in the lab.
- 3.3.2 Neckties should be removed when in the lab area. Loose jewelry is prohibited in the lab area. Long hair should be tied back when working in the lab area.
- 3.3.3 A chemical-resistant apron is required when working with hot liquids, corrosive chemicals, or when there is a chemical spill or splash hazard present. Aprons should protect the body torso down to the knees.

Basic types of aprons include:

- Plastic- generally effective for oils, acids, solvents, and salts (Caution-plastic aprons tend to accumulate static electricity and should not be used around flammable solvents, explosives, or materials that can be ignited by static discharge).
- Vinyl-best for dilute solutions of chemicals
- Rubber- usually heavier, but protect against acids, solvents, alkalis, oils, and caustics.

3.4 Eye Wash Station

- 3.4.1 The locations of eyewash stations must be identified with appropriate signage.
- 3.4.2 Eyewash stations shall deliver aerated, running water for up to 15 minutes
- 3.4.3 Eyewash stations should be located in strategic locations throughout the lab (general rule is accessibility within 10 seconds or 75 feet/30 steps from any location in the room). In locations where this doesn't exist consideration should be given to install additional safety showers as needed during future renovation activities.
- 3.4.4 Eyewash stations shall be flushed and checked monthly for proper operation.
- 3.4.5 Employees must be trained to use the eyewash properly. Training must include instruction in holding the eyelids open and rolling the eyeballs so water will flow over the eyeball and under the eyelid.

3.5 Drench Shower

- 3.5.1 Working drench showers shall be located in strategic locations (10 sec or 75 ft/30 steps).
- 3.5.2 Drench shower pull handles shall be between 44" and 55" above the floor.
- 3.5.3 Drench showers must be identified with appropriate signage.
- 3.5.4 Drains or non-skid floor mats shall be located beneath the shower.
- 3.5.5 Drench showers shall be flushed and checked monthly for proper operation by staff.

3.5.6 Employees must be trained to use the emergency shower.

3.6 First Aid Kit

3.6.1 First aid kits may be in the classroom in a visible location. The kit shall be labeled and available for immediate access.

3.6.2 Teachers shall refer students requiring first aid to the school nurse.

3.7 Fire Blanket

3.7.1 If available, wool fire blankets shall be visibly labeled and strategically located in the lab (30 steps or 15 seconds).

3.8 Fire Extinguisher

3.8.1 A tri-class ABC dry chemical fire extinguisher shall be visibly labeled and strategically located in the lab (30 steps or 15 seconds)

3.8.2 Monthly inspections shall be conducted by Cabarrus County schools Custodial Service school staff and the inspection record maintained. OSHA 29 CFR 1910.151

3.9 Fume Hood

3.9.1 An operational fume hood shall be available in high school labs when conducting experiments involving hazardous fumes that meet the standard of ASHRAE standard 110. It should have a face velocity of 60-100 linear feet/min, vented to the outside of the building.

3.9.2 Materials shall not be stored in fume hoods.

3.9.3 Insure adequate air flow. Monitor periodically. Records of fume hood face velocity shall be maintained. While it is important to have a face velocity between 0.3 m/s (60 fpm) and 0.5 m/s (100 fpm), velocities higher than this are actually harmful. When face velocity exceeds 0.6 m/s (125 fpm) eddy currents are created which allow contaminants to be drawn out of the hood, increasing worker exposures. Check with local safety regulations on the maximum face velocity before using the hood.

Chapter 4

Chemical Storage Procedures

4.1 Chemical Inventory

- 4.1.1 School name, address, telephone number
- 4.1.2 Name of person(s) compiling the inventory
- 4.1.3 Date of Inventory
- 4.1.4 Alphabetical listing of all chemicals
- 4.1.5 Approximate quantity of each chemical
- 4.1.6 Storage location (room number)
- 4.1.7 Fiscal year each chemical arrived at the school

**** [A sample chemical inventory is linked here](#) ****

4.2 Chemical Labeling

- 4.2.1 All chemical containers must be properly labeled with the chemical name, purchase date, manufacturer or supplier, GHS Pictogram-Red Diamond and health physical hazards.
- 4.2.2 Damaged chemical labels shall be promptly replaced. Replacement labels may be printed from the manufacturer's website.
- 4.2.3 Unlabeled containers of chemicals and solutions shall be treated as unknowns and undergo prompt disposal. (See section 6)
- 4.2.4 Label all chemical solutions you make with the identity of the contents (full name rather than formula only), storage date, concentration, and hazard information.

4.3 Chemical Storage

- 4.3.1 Chemicals will be shelved and/or placed in appropriate cabinets by the (NIOSH) National Institute for Occupational Safety and Health or Fisher Storage System.
- 4.3.2 Stored chemicals shall be examined annually for replacement, deterioration and chemical integrity by the CHO.
- 4.3.3 All incoming chemical shipments shall be opened by school staff personnel only.
- 4.3.4 All chemicals shall not be stored under fume hoods.
- 4.3.5 Chemicals shall be stored on shelves at or below eye level if possible.
- 4.3.6 Storage cabinets shall be labeled as to identify the hazardous nature of the products stored within.

- 4.3.7 Chemicals shall not be stored beyond their manufacturer's suggested shelf-life. Its recommended to only purchase a 2-year supply of chemicals at one time.
- 4.3.8 Chemicals shall not be stored on the floor except in approved shipping containers.
- 4.3.9 Shelves shall be equipped with lips to prevent containers from falling off.
- 4.3.10 Shelving above any work area, such as a sink, shall be free of chemicals or other loose materials.
- 4.3.11 Shelving sections shall be secured to walls or floors to prevent tipping of entire sections.
- 4.3.12 Chemical storage shelves should be appropriate for the materials being stored (wood, metal, etc.).
- 4.3.13 Food shall not be stored in laboratory refrigerator.
- 4.3.14 Only authorized personnel (no students) are allowed in the chemical storage area.
- 4.3.15 Labs shall store the minimum amount of chemicals needed.
- 4.3.16 Chemicals shall be locked in a separate, dedicated storeroom.
- 4.3.17 Storage room doors shall be locked when not in use.
- 4.3.18 Chemical re-shelving procedures shall be established by the school level CHO.
- 4.3.19 Each time a new chemical is opened for the first time a color-coded sticker will be used based on the fiscal year the chemical is opened. Chemical should be added to the removal list once it is past the manufacturer's shelf life.

4.4 Signage

- 4.4.1 All appropriate safety signs shall be visibly posted in accordance with [NC OSHA Requirements](#). Signs obtained from DPI are recommended.

4.5 Flammable and Corrosive

- 4.5.1 Corrosives should be stored in appropriate cabinets.
- 4.5.2 Flammable materials should be stored inside an approved flammable storage cabinet.
- 4.5.3 Candles used for high school laboratory procedures must kept away from students when not in use. (Open flames are not allowed in Middle/Elementary School Labs)

4.6 Compressed Gases

- 4.6.1 Compressed gases should be handled as high-energy sources and potential explosives (High School Only).
- 4.6.2 The cylinder valve stem should always be protected.
- 4.6.3 Avoid exposure to heat. Do not store cylinders in direct sunlight.
- 4.6.4 Never lubricate, modify, force or tamper with a cylinder valve.

4.6.5 Gas cylinders must be secured in place. They must be protected to prevent valve damage caused by falling.

4.6.6 Compressed gas cylinders should be labeled to indicate their contents.

4.6.7 Compressed gas cylinders are not stored in the lab area.

4.7 Safety Data Sheets

4.7.1 The teacher shall maintain a copy of the required Safety Data Sheets (SDS) for each hazardous chemical and shall ensure that they are readily accessible **during each lesson** when a chemical(s) is in use. (Electronic access, Google Drive by cell phone, and other alternatives to maintaining paper copies for the Safety Data Sheets are permitted **as long as there are no barriers to immediate access** in each lab are created by such options.)

4.7.2 SDS for all chemicals used must be available in the storage area (digitally or physically) where chemicals are stored.

4.7.3 If the Safety Data Sheet is not provided with a shipment that has been labeled as a hazardous chemical, the teacher shall obtain one from the chemical manufacturer or the importer as soon as possible.

4.7.4 School CHO's shall replace all SDS with updated SDS as they become available.

Chapter 5

Accident Procedures

5.1 Accident Notification

- 5.1.1 Students shall notify the lab instructor of all accidents and chemical spills. Students should be moved to a safe location and the school nurse or first responder should be notified.
- 5.1.2 All accidents shall be reported immediately to school administrators. Accident forms found on the Finance Department Intranet site shall be completed for employees. Use the Cabarrus County Schools [Student Accident Google](#) form for student injuries.
- 5.1.3 School administrators shall notify appropriate emergency services (911) of accidents involving student injury or major chemical spills.
- 5.1.4 School administrators shall notify the Assistant Superintendent of Student Services, Risk Management and the Director of High School Education.

5.2 Chemical Clean Up Procedures

- 5.2.1 All chemical spills shall be cleaned up immediately and thoroughly. Follow SDS for approved cleanup procedures. Spills should be cleaned by teacher and/or custodian. A bucket of vermiculite, kitty litter, sand or other absorbent material shall be available to aid in providing traction on a slippery floor. A neutralizer (such as vermiculite) shall be available in the event of a chemical spill.
- 5.2.2 Appropriate materials and procedures shall be in place for cleanup of hazardous materials and accidents.
- 5.2.3 When cleaning areas where there is a danger of biohazard infection proper PPE should be worn and the area cleaned in accordance with Cabarrus County Schools' Bloodborne Pathogen Plan.
- 5.2.4 Mercury is not permitted in Cabarrus County Schools. In the event that mercury is encountered, notify the High School Education Director and Risk Management.

5.3 Emergency Medical Response

- 5.3.1 When responding to students with chemicals in the eyes the teacher should:
 - A. Notify the school nurse while immediately flushing the eye with potable water for 15 minutes
 - B. Do not try to neutralize acids or bases.
 - C. If contact lenses are being used the water should wash them away. If lenses adhere to the eye do not try to remove.
 - D. Contact administration for emergency medical services.

5.3.2 When responding to students with chemicals on the body the teacher should:

- A. If victim is conscious give large amounts of water to dilute the chemical.
- B. Refer to SDS before proceeding further.
- C. Contact administration for emergency medical services.

5.3.3 When responding to students who have inhaled chemicals the teacher should:

- A. Immediately remove the affected person from exposure area to fresh air.
- B. Perform artificial respiration, if breathing has stopped.
- C. Keep the student warm and quiet.
- D. Contact administration for emergency medical services.

5.3.4 When responding to students who have been burned the teacher should:

- A. Not apply medication.
- B. Flush the area with large quantities of water.
- C. Cover with clean gauze or a clean sheet.
- D. Contact Administration for emergency medical services.

5.4 Medical Consultation and Examination

5.4.1 Employers shall provide all employees who work with hazardous chemicals an opportunity to receive medical attention, including follow-up exams, when... (29 CFR 1910.1450):

- A. They develop signs or symptoms associated with a hazardous chemical to which the employee may have been exposed.
- B. Exposure monitoring reveals an exposure level routinely above the action level of the chemical.
- C. An event takes place, such as a spill, leak, explosion, or other occurrence, that results in the likelihood of a hazardous exposure.

5.4.2 Medical consultation: A consultation between an employee and a licensed physician to determine what medical examinations or procedures are appropriate in cases where a significant exposure to a hazardous chemical has occurred.

5.4.3 All medical examinations/consultations "shall be performed by or under the direct supervision of a licensed physician and shall be provided without cost to the employee, with loss of pay and at a reasonable time and place."

5.4.4 The following information shall be provided to the physician:

- A. The identity to the chemical to which the employee was exposed.
- B. The conditions under which the exposure occurred and exposure data, if any.
- C. Description of the signs and symptoms of overexposure that the employee is experiencing.

5.4.5 Employer shall obtain a written opinion from the attending physician that includes:

- A. Results of medical examination and tests.
- B. Recommendations for further follow-up.
- C. Identification of any medical condition which places the employee at greater risk as a result of exposure to chemical.
- D. A statement that the employee has been informed by the physician of the results of the examination/consultation.
- E. Shall not include identification of conditions unrelated to exposure to chemical.

Chapter 6

Chemical and Hazardous Material Disposal

6.1 Disposal of chemical and hazardous materials

- 6.1.1 A list of all chemicals (with container capacities) to be removed must be submitted to the school CHO and Risk Management.
- 6.1.2 Specimens for disposal shall be identified by container size and by storage solution name (i.e. formalin, formaldehyde, etc....)
- 6.1.3 Containers to be disposed of shall be labeled indicating their contents. The chemicals on the disposal list shall be separated from other chemicals to facilitate the disposal process.
- 6.1.4 Broken glassware should be placed in a sharps/rigid container with no exposed edges.
- 6.1.5 The school level CHOs should be available when the disposal process takes place.
- 6.1.6 The Maintenance Director, Risk Management and the LEA CHO shall keep records to document chain of custody for chemical disposal.
- 6.1.7 Do not treat hazardous waste on site. Contact professional, licensed hazardous waste haulers/transporters that will insure appropriate disposal.

Chapter 7

Laboratory Environment

7.1 Laboratory Environment

- 7.1.1 Students shall never be left unattended in the lab when experiments are being conducted.
- 7.1.2 A portable workstation will be provided to accommodate handicapped and disabled students.
- 7.1.3 Ground Fault Interrupters (GFI/GFCI) should be considered during future renovations and placed on all electrical outlets within arm's reach of faucets.
- 7.1.4 The room shall have a functioning intercom/phone system.
- 7.1.5 Emergency procedures shall be clearly posted.
- 7.1.6 All laboratory participants shall wash their hands after handling laboratory materials, after removing gloves, and before leaving the laboratory. Each science classroom should provide running water, hand soap, and paper towels.
- 7.1.7 Food shall only be stored outside the work area in cabinets or refrigerators designated and used for food only.

- 7.1.8 All broken glass shall be discarded in a sharps/rigid container.
- 7.1.9 It is recommended that laboratory aprons be worn to prevent contamination or soiling of street clothes. All science classes will provide a sufficient number of aprons for students to wear in lab classes.
- 7.1.10 Gloves shall be worn appropriate to the laboratory activity. Alternatives to powdered latex gloves shall be available. Science classes that perform labs shall provide gloves for science classrooms.

7.2 Animals

- 7.2.1 Only laboratory approved specimens may be used for dissection. Other dead animals shall not be brought into the classroom.
- 7.2.2 Heavy gloves shall be available for the handling of animals. It is recommended that only the teacher handle any animal that may bite.
- 7.2.3 Some animals may be utilized for instructional purposes according to [CCS Board Policy Code: 3240/4204 Animals for Instructional Purposes](#).
- 7.2.4 No experimental procedure shall be conducted on live vertebrate animals.
- 7.2.5 Students shall not perform dissections except under direct supervision of a teacher. Dissection materials shall only be obtained from reputable scientific supply companies. Proper goggles shall be worn while dissecting preserved specimens.
- 7.2.6 Teachers shall ensure that living animals entering the classroom are healthy and free of transmissible disease or other problems that may endanger human health. Since most supply houses are required to quarantine animals and check them for disease before sale, obtain study animals only from these dealers. If any are purchased locally, check for general health of all animals before purchase.
- 7.2.7 Animal quarters shall be clean and spacious, not crowded. Food shall be appropriate to the animal's normal diet and of sufficient quantity and balance to maintain good standard of nutrition at all times. Provisions shall be made for care and feeding of animals when schools close out session.
- 7.2.8 Pet Birds shall never be allowed to fly in a classroom.
- 7.2.9 All animal cages shall be locked and restricted to an area designated by the principal or administrator.
- 7.2.10 Disposable gloves shall be worn when cleaning aquariums. No children will be allowed to clean aquariums.
- 7.2.11 It is recommended that children not be allowed to feed pets directly from their hands.
- 7.2.12 Small animals such as rabbits, hamsters, gerbils, and mice shall be handled with rubber gloves.

- 7.2.13 Animals shall not be allowed in the vicinity of sinks where children wash their hands, or in any area where food is prepared, stored, or served, or in area used for the cleaning or storage of food utensils or dishes.
- 7.2.14 Children are not allowed to handle or clean up any form of animal waste (feces, urine, blood, etc.). Animal wastes shall be disposed of where children cannot come in contact with them, such as plastic bag or container with a lid or via the sewage system for feces. Food handlers should not be involved in the cleanup of animal waste.
- 7.2.15 Teachers must inquire about student(s) allergies associated with animals before allowing animals in the classroom.

7.3 Plants

- 7.3.1 Teachers shall inquire about student allergies associated with plants.
- 7.3.2 Plants shall not be used that present hazards from oils (poison ivy, poison oak, poison sumac, poinsettia other local plants); hazards if eaten (some fungi-mushrooms, belladonna, herbane, pokeweed, foxglove, jimson weed); other local plants (azalea, castor bean, holly, milkweed, mistletoe, nightshade); or hazards from saps (oleander, stinging nettle, and other local plants).
- 7.3.3 Students shall wash hands after handling any plants during a lab.

7.4 Standard Operation Procedures

- 7.4.1 Appropriate Work Practices- General
 - A. Know the hazards of the specific chemical that you are using in lab.
 - B. Minimize all chemical exposures.
 - C. Avoid underestimation of chemical hazard risk.
 - D. Provide adequate ventilation when working with the chemical.
 - E. Never work alone in the lab (always ask someone to in on you periodically).
 - F. Wear protective safety equipment as indicated by the hazards of the chemical.
 - G. Know the location of and how to use lab safety equipment such as eyewash stations, safety shower, fire extinguisher, etc.
 - H. Know the location of and how to use master utility controls to shut off gas, electrical, and water supplies. Make sure you have quick access to master utility controls.
 - I. Know the proper procedures for spills, accidents, and chemical waste disposal.
 - J. Know which students' allergies or medical problems and which students have wear contact lenses.
 - K. No unauthorized experiments or visitors should be allowed in the lab.

- L. Lab should be locked when not in use.
- M. Never leave students unsupervised in lab.
- N. Keep work area clean, dry and uncluttered.

7.4.2 Emergency Procedures

- A. Practice emergency plans for labs.
- B. Call for help or send a designated runner for help as necessary.
- C. Emergency telephone number should be posted at every phone. Know school procedures regarding contact of medical personnel.
- D. Do not block emergency equipment or master utility controls.
- E. Correct or report unsafe conditions.

7.4.3 Evacuation Procedures

- A. Check your school's Critical Incident Response Plan
- B. Know where to go during an evacuation.
- C. Grab your SDS book and Emergency Go Kit.
- D. Keep aisles clear.
- E. Have an alternate route of egress.
- F. Do not block fire exits.
- G. Exits must be marked.

7.4.4 Lab Rules and Procedures

- A. Insure that safety acknowledge forms are understood and signed by students and parents.
- B. Avoid behavior such as running, horseplay, or practical joking that may confuse, startle or distract others in the lab.
- C. Do not sit on lab tables.
- D. Students conduct labs only with the supervision of a qualified science teacher. **No substitute teachers should conduct lab experiments.**
- E. **Students are not allowed in the chemical storeroom.**
- F. Equipment such as power stirrers, hot plates, water condensers and heating mantles should not be allowed to run overnight.
- G. Do not inhale gases such as carbon monoxide, helium, nitrogen, argon, or hydrogen in high concentrations.

7.4.5 Personal Hygiene Guidelines

- A. Do not drink from glassware or other lab vessels.
- B. Do not taste chemicals.
- C. Never bring food, drinks, or chewing gum into an area with hazardous chemicals.
- D. Do not apply cosmetics where chemicals are present.
- E. Never pipette by mouth.
- F. Avoid skin contact with hazardous chemicals.
- G. Keep hands away from face, scratches or cuts.
- H. Wash hands thoroughly after chemical exposure and before leaving the lab.
- I. Never smell chemicals directly; waft odors to your nose using your hand
- J. Avoid wearing contact lenses in the lab. If they must be worn, special precautions must be taken. Do not handle contact lenses in the lab.

7.4.6 Lab Rules and Procedures- Glassware

- A. Inspect all glassware before use. Do not use chipped, cracked, or etched glassware. Damaged glassware poses a breakage hazard when heated.
- B. Use only borosilicate glassware, including test tubes, when heating. (Kimax or Pyrex Brands). Heat shock may cause common glass to break, shatter, or explode.
- C. Never expose glass to sudden temperature changes.
- D. When heating liquids in glassware over a burner flame, use a wire gauze or ceramic-centered wire gauze to protect glassware from direct contact with the flame.
- E. Treat all glassware as if it were hot. Use a rubberized mitt or heat-resistant glove for protection.
- F. Assemble any lab apparatus away from the edge of the lab counter.
- G. Follow proper lab procedure when inserting glass tubing into rubber stoppers or fire-polishing glass tubing.
- H. Shield or wrap evacuated glass containers to contain chemicals and fragments in case of implosion.
- I. Use only thick-walled glassware in a vacuum system.
- J. Place guards or a demo shield around glass containers involved in a vacuum setup.
- K. Wearing gloves, clean glassware immediately after lab using soap or lab-grade detergents and hot water.

- L. Broken glass should be placed in a Sharps/rigid container labeled "BROKEN GLASSWARE ONLY"

7.4.7 Lab Rules and Procedures- Burners and Hot Plates

- A. When handling hot objects, use appropriate tools including test tube holders, tongs, heat-resistant gloves or rubberized mitts, and aprons.
- B. Know the proper procedure for lighting a Bunsen Burner.
- C. Make sure no flammables are near when lighting a flame.
- D. Never leave a lighted burner unattended.
- E. Never heat substances in a closed container.
- G. When heating chemicals in a test tube, gently move the test tube back and forth through the flame and turn it away from yourself and others in the lab.
- H. Never heat flammable liquids directly with a flame. Always use a hot water bath.
- I. Make sure the gas is turned off when the lab is complete.
- J. Whenever possible, use a hot plate in place of a gas burner.
- K. Hot plates surfaces look the same regardless of the temperature. Always assume they are hot and take appropriate precautions. Place a HOT caution sign in front of the burner after use.
- L. No open flames or candles are permitted in Middle School.

7.4.8 Lab Rules and Procedures-Chemical

- A. When diluting acids, always pour the acid slowly into the water.
- B. Never mix unknown substances.
- C. To avoid contamination, do not return unused chemicals to the reagent bottle.
- D. Use a spatula or scoopula to remove a solid reagent from the bottle; do not touch chemicals by hand
- E. Glycerin should be available only to the teacher. Its use should be carefully monitored.
- F. Deposit chemical waste, including reaction products, byproducts, and surplus chemicals, in appropriately labeled containers, separated by chemical family, and follow chemical disposal plan.
- G. Dispose of all chemicals properly following the SDS guidelines.
- H. Never put chemicals in the sink or down the drain unless instructed to do so by your teacher. Do not pour chemicals down the drain (unless authorized by a local sewer authority)
- I. Contaminated paper or paper towels must be treated as hazardous waste.

- J. Volatile and flammable liquids should be used in small quantities away from open flames and in a well-ventilated lab.
- K. When heating alcohol, use a water bath heated by a hot plate. Make sure the top of the alcohol container is below the top of the water bath container.
- L. Operations involving corrosive, toxic, irritating or flammable chemicals should be conducted in a fume hood.

7.4.9 Lab Rules and Procedures-Electrical Safety

- A. Beware of electrical hazards
- B. Do not operate electrical equipment with wet hands or while standing on a wet floor.
- C. Keep all work areas dry.
- D. Cover electrical outlets when not in use.
- E. Use only 3-pronged service outlets and 3-prong grounding plugs.
- F. Do not overload circuits.
- G. Inspect plugs on electrical equipment to make sure they are not loose, bent or damaged.
- H. Inspect cords on electrical equipment to ensure that they are not worn, or frizzled, tattered, cracked, or damaged.
- I. Extension cords shall be used for temporary purposes, not permanent installation.
- J. Report an electrical failure or overheating of electrical equipment immediately.

7.4.10 Protective Clothing Requirements

- A. Everyone in the lab must wear the required personal protective equipment, including visitors.
- B. Inspect all protective safety equipment before use. Report defective items.
- C. Do not wear shirts exposing torso. Long pants are preferred.
- D. Low-heeled shoes should be worn in the lab. No sandals, open-toed, or perforated shoes of any kind should be worn.
- E. Confine long hair, loose clothing, jewelry, or neckties.
- F. Do not wear an absorbent watch band.
- G. Synthetic fingernails are flammable. Use caution near heat sources.

Chapter 8

Training Requirements

8.1 Training

- 8.1.1 Chemical Hygiene safety training will be conducted for all employees using the Safe Schools online course or during new teacher orientation. The training program will be an on-going process with as-needed updates.
 - 8.1.2 The training an employee receives should be determined by the nature of their work assignment and potential for exposure.
 - 8.1.3 Employees must understand the laboratory standards, SDS, and the LEA and site-specific CHP.
 - 8.1.4 Employees must be trained in measures they may take to minimize chemical exposure.
 - 8.1.5 Students will be provided instruction and must demonstrate proficiency in laboratory safety. (Safety Contracts)
- (English: [HS Safety Contract](#) & [MS Safety Contract](#)) (Spanish: [HS Safety Contract](#) & [MS Safety Contract](#))
- 8.1.6 Depth of laboratory safety instruction will be aligned with age, the NC Standard Course of Study for Science, facilities/equipment, LEA and school site CHP and policies.
 - 8.1.7 The content of the SDS must be part of laboratory safety instruction.
 - 8.1.8 Prior to laboratory work, instructional time must be devoted to laboratory safety.
 - 8.1.9 Train employees on new label elements and SDS format prior to mid-year.
 - 8.1.10 Suggest employees to review the [School Chemistry Laboratory Safety Guide](#).
 - 8.2.11 Review Dot Labeling procedure for chemicals beginning 2019-20

Appendix

- A. Emergency Contact Numbers
- B. Format for Chemical Inventory
- C. Format for Chemical Disposal
- D. Science Safety Inspection Checklist
- E. Instructor's Pre-Inspection Checklist
- F. Student Safety Acknowledgements and Tests
- G. Middle & High School Chemical Hygiene Officers
- H. LEA Safety Committee
- I. Hazardous Chemical List
- J. Acronyms and Definitions of Applicable Standards

Appendix A

Emergency Contact Numbers

- 1. Poison Control 1-800-222-1222
- 2. Maintenance
- 3. Deputy Superintendent
- 4. Fire/Police/EMS 911 (Principal Notification Required)
- 5. MSDSOnline

Appendix B

[Chemical Inventory Format](#)-Use Online Chemical Inventory provided by CCS Risk Management Spreadsheet- For Elementary, Middle & High Schools

Chemical Management System- For All High Schools

Appendix C

Cabarrus County schools

Sample Chemical Disposal Form

	Chemical Name	Container Size	Amount (Grams)	# of Containers	Reason for Disposal
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
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27					
28					
29					
30					

School_____

Room Number_____

Employee Name_____

Date_____

Appendix D

General/Lab Safety

Inspection Checklist

Name of School _____

Room Number _____ Date _____

	Description	Yes	No	Comments
	General (Lab, Shops, Art, etc..)			
1.	The room is well lit			
2.	There is a functioning intercom system to secure aid in an emergency			
3.	There are sufficient electrical outlets to prevent the necessity for extension cords			
4.	Only three-pronged grounded electrical outlets are available in the room.			
5.	Approved surge protectors are used instead of multipurpose plugs for electrical appliances			
6.	Electronic equipment and chemicals are stored in separate rooms			
7.	Emergency telephone numbers are posted by telephones and near the storage area			
8.	The room/storeroom is maintained in a neat, orderly condition.			
9.	A fire alarm system is available for emergencies			
10.	Fire doors separate the room from the school			
11.	Fire extinguishers are prominently labeled and strategically located in the room (30 steps or 15 seconds)			

12.	Access to all emergency equipment (eyewashes, showers, exits) is kept clear.			
13.	Charts document that eyewashes are flushed monthly and filters are cleaned.			
14.	Charts document that showers are flushed monthly			
15.	Aisles are sufficiently wide to accommodate handicapped student needs (4 ft)			
	Description	Yes	No	Comments
16.	Spill cleanup materials are readily available and appropriate for the chemicals being used.			
17.	First Aid Kit is available for teacher use.			
18.	The chemical storeroom is always clearly marked and secured when not in use.			
19.	Safety Data Sheets (SDS), are available for all chemicals used in a convenient and accessible format.			
20.	All chemicals are dated and initialed by recipient upon receipt.			
21.	All chemicals are appropriately labeled.			
22..	A permanent chemical inventory is maintained and updated at least annually.			
23.	All chemical storage cabinets are properly labeled.			
24.	No chemicals are stored under sinks or fume hoods.			
25.	Chemicals are only stored in locked chemical stockrooms.			
26.	All chemical containers have NFPA hazard information affixed to them.			
27.	Chemicals with NFPA codes of 3 or greater in any category or any that are deemed hazardous from the SDS, shall be kept in appropriate lockable storage.			

28.	Appropriate warning signs are posted. NFPA signs are posted on the chemical storeroom door and front of the building that houses the chemical storeroom.			
29.	ANSI Z87.1 approved eye protection equipment is provided.			
30.	Proper eye protection sterilization and storage is provided			
31.	Shelves are deep enough to accommodate the chemicals placed on them and with a lip to prevent dislodging.			

	Laboratory	Yes	No	Comments
1.	Safety Contracts are signed by students and parents and are on file			
2.	Only an appropriately certified teacher supervises activities in the lab.			
3.	All science lab station electrical outlets are GFI/GFCI protected.			
4.	All chemicals are to be stored by the Fisher or NIOSH Chemical Storage System			
5.	If food and beverage are present separate storage is provided.			
6.	Caustic, or dangerous chemicals are stored in containers or refrigerators appropriate for their protection.			
7.	Caustic chemicals are kept in appropriate sized containers which are easily handled.			
8.	Flammables and acids are stored separately, in appropriate cabinets.			
9.	Volatile chemicals are stored away from sunlight, heat and electrical sources.			

10.	Labs contain appropriate fire extinguishers which are strategically located for access.			
11.	"Hands-free" eyewashes are strategically located, and provide 15 minutes continuous, aerated water. (30 steps or 15 seconds)			
12.	An exhaust hood is provided and is vented separately from the total school system.			
13.	A functioning drench shower is provided in laboratory. (30 steps or 15 seconds)			
14.	Master cut-off switches/valves are located within each laboratory in one secure location.			
15.	Gas is turned off when not in use.			
16.	An enclosed, labeled sharps container is provided for disposal of broken glassware.			

	Description	Yes	No	Comments
17.	If plants are present in the laboratory, they do not include plants with poisonous oils (poison ivy, poison oak, poison sumac, other local plants) or plants which are poisonous when eaten (some fungi-mushrooms, foxglove, jimson weed, pokeweed, rhubarb leaves, other local plants).			
18.	If animals are present in the laboratory, they do not include poisonous species.			
19.	If animals are present in the laboratory, they are secured in cages that are lockable, clean, and of sufficient size.			
20.	If insects are present in the laboratory, they are secured in clear glass or plastic containers with secure lids.			

21.	Only Pyrex or Kimax borosilicate glassware is provided for laboratory use.			
22.	Appropriate gloves are available for lab use.			
23.	Cracked or chipped glassware has been discarded			
24.	Only alcohol or Enviro-Safe thermometer are used in the lab.			
25.	A sturdy lab cart (with sides) is available for transporting chemicals and equipment.			
26.	Defective or inoperable equipment is repaired, replaced, or removed from the lab.			
27.	Hot plates are used as alternative heat sources. (alcohol lamps are not allowed)			
28.	Ceramic centered wire gauze is used in place of asbestos heating pads.			
29.	Air in the room is regularly turned over and mixed with outside air.			
30.	Wool fire blankets are prominently labeled and strategically located in the lab. (30 steps or 15 seconds)			
31.	Fire blankets and fire extinguishers are to be located near the exit.			
32.	Fire Extinguishers are not lower than 6 inches off the floor nor higher than 5 ft.			

School: _____

Inspector: _____ Date: _____

LEA CHO: _____ Date: _____

Principal: _____ Date: _____

Appendix F

Student Safety Acknowledgement & Exams for Elementary, Middle and High School

Please have acknowledgements and exams on file and store on Google Drive. Contracts and Tests are available – English/Spanish

(English: [HS Safety Contract](#) & [MS Safety Contract](#)) (Spanish: [HS Safety Contract](#) & [MS Safety Contract](#))

Recommendation: Student Safety test- Elementary, Middle and High School teachers will develop their own safety quiz/test to reinforce the Safety Acknowledgement.

Appendix G

Middle and High School Chemical Hygiene Officers

School	Chemical Hygiene Officer

Commented [1]: need to get names in here from schools

Appendix H
Chemical Hygiene Plan Committee

Title	Committee Member	Department/School
Director Risk Management	Dan Collins	Risk Management
Science Instructional Specialist	Jessica Enlow	Curriculum & Instruction
MS Assistant Principal of Facilities	Bill Shapcott	Hickory Ridge MS
HS Assistant Principal of Facilities	Larry Sullivan	Mount Pleasant HS
MS Science Teacher	Kelly Browning	Northwest Cabarrus MS
HS Science Teacher	Ashlyn Jordan	Mount Pleasant HS

Appendix I

Hazardous Chemical List

The American Chemical Society's document, Reducing the Risk to Students and Educators from Hazardous Chemicals in a Secondary School Chemistry Inventory, includes a list of chemicals that it believes should not be found in a secondary chemical inventory. Our goal is to remove and/or limit these chemicals in our schools only for extreme cases where they have increased educational utility. You can access the document at:

[Reducing the Risk to Students and Educators for Hazardous Chemicals in a Secondary School Chemical Inventory](#)

CHP

Appendix J

I. Acronyms and Definitions of Applicable Standards

ACRONYMS

ACCGIH	American Conference of Governmental Industrial Hygienists
ADA	American Disability Act
ANSI	American National Standards Institute
CAS	Chemical Abstracts Service
CDC	Centers for Disease Control and Prevention
CFM	Cubic Feet per Minute
CHO	Chemical Hygiene Officer
CHP	Chemical Hygiene Plan
DOT	Department of Transportation
EPA	Environmental Protection Agency
GFI	Ground Fault Interrupter
GS	General Statute
HAZCOM	Hazard Communication Standard
HEPA	High Efficiency Particulate Air
HVAC	Heating, Ventilation, and Air Conditioning
IARC	International Agency for Research on Cancer
IDEA	Individual Disabilities Education Act
IR	Infrared
LASER	Light Amplification Stimulated Emission of Radiation

LEA	Local Education Association
SDS	Safety Data Sheet
NAS	National Academy of Sciences
NCDOL	North Carolina Department of Labor
NFPA	National Fire Protection Association
NIH	National Institutes of Health
NIOSH	National Institute of Occupational Safety and Health
NC	North Carolina
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PPM	Parts Per Million
PPE	Personal Protective Equipment
SOP	Standard Operating Procedures
SBOE	State Board of Education
TLV	Threshold Limit Value
TWA	Time Weighted Average
UL	Underwriters Laboratory
UV	Ultraviolet

OSHA STANDARDS

29 CFR 1910.1030 (1991) Bloodborne Pathogens Standard

29 CFR 1910.1450 Occupational Exposure to Hazardous Chemicals in Laboratories

29 CFR 1910.1200 Hazard Communication Standard (HazCom Standard)

29 CFR 1910.132 Personal Protective Equipment, General Requirements

29 CFR 1910 Subpart E Means of Egress

29 CFR 1910 Subpart K Medical and First Aid

29 CFR 1910.157 Portable Fire Extinguishers

29 CFR Subpart Z Toxic and Hazardous Substances

40 CFR 261 Environmental Protection Agency

NORTH CAROLINA GENERAL STATUTES

NC GS §115C Elementary and Secondary Education Act

NC GS §115C-166, 167, 168, 169 Eye Protection

NC GS §115C-301 Allocation of Teachers; Class Size

NC GS §115C-307 Duties of Teachers

NC GS §115C-521 Erection of School Buildings

NC GS §115C-105.47 NC BOE Policy Safe, Orderly and Caring Schools Assessment

HSP-F-017 NC SBOE Safety Policy

PROFESSIONAL ORGANIZATIONS

ACS - [American Chemical Society](#)

NCSLA - [North Carolina Science Leadership Association](#)

NCSTA - [North Carolina Science Teacher Association](#)

NSTA - [National Science Teacher Association](#)

NEA - [National Education Association](#)

NSELA - [National Science Education Leadership Association](#)

NCAE - [North Carolina Association of Educators](#)

DEFINITIONS

Acute Exposure – Short durations of exposure to high concentrations of hazardous materials in the workplace.

Allergen – A chemical substance that induces an immediate or delayed adverse reaction by the immune system.

Asphyxiant – A substance that can cause suffocation.

Carcinogen – A substance that causes the development of cancerous growths in humans or is considered capable of causing cancer in humans. A substance is considered a carcinogen if:

- 1) It has been evaluated by the International Agency for Research on Cancer (IARC) and has been found to be a carcinogen or potential carcinogen;
- 2) It is listed in the National Toxicology Program's (NTP) Annual Report on Carcinogens as a carcinogen or potential carcinogen;
- 3) It is an OSHA-regulated carcinogen;
- 4) One study has been published which positively identifies the substance as a carcinogen.

Caustic Material – A material that has a pH greater than 12 and has a corrosive or irritating effect on living tissue at the point of contact.

Chemical Abstracts Service (CAS) Registration Number – A unique number that is assigned to a chemical to identify the material.

Chemical Hygiene Officer (CHO) – An employee who is qualified, through training, education, and experience, to oversee the implementation of and subsequent reviews of the Chemical Hygiene Plan, per OSHA 29

CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories.

Chemical Hygiene Plan (CHP) – A written plan that is designed to protect laboratory workers from occupational exposure to hazardous chemicals, per OSHA 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories.

Chronic Exposure – Continuous exposure over a long period of time to low concentrations of hazardous materials in the workplace.

Chronic Toxicity – Adverse health effects that can be a result of long-term exposure to hazardous materials.

Combustible Material – A substance (solid, liquid, or gas) that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

Corrosive Material – A substance that has a pH less than 2 or greater than 12 which can cause visible destruction of or irreversible alteration on physical contact with living tissue.

Embryotoxin – A material that is harmful to a developing embryo at a concentration that does not have adverse effects on the pregnant female.

Explosive Material – A material that will exhibit a rapid chemical change when subjected to a suitable ignition source (i.e. detonation, heat, friction, or impact.)

Flammable – A term commonly used to describe a gas, solid, vapor, or liquid that easily ignites and rapidly burns.

Flash Point – The lowest temperature at which a flammable liquid produces sufficient vapor to form a readily ignitable mixture with air, either at its surface or in a container.

Hazardous Chemical – A chemical for which there is statistically significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may occur in exposed persons.

Hazard Warning – A label on a chemical container that includes text and/or symbols to convey the hazards of the material.

High Efficiency Particulate Air (HEPA) filter – An air filter that has a 99.97% removal efficiency for 0.3-micron particles.

Immediately Dangerous to Life and Health (IDLH) – The maximum concentration of a hazardous substance from which a worker can escape within 30 minutes without irreversible health effects. **IDLH** is used to determine respirator selection.

Incompatible Materials – Materials which, when mixed, could result in the formation of toxic gases or hazardous conditions (i.e. an explosion.)

Irritant – A substance that produces an inflammatory effect on contact with living tissue.

Lachrymator – a substance that has an irritating or burning effect on skin, eyes, and respiratory tract.

Material Safety Data Sheet M(SDS) – A document which contains relevant information about a material, as referenced by OSHA 29 CFR, Part 1910.1200. For consistency purposes, a 16-section standard format has been established by ANSI:

1. Material identification
2. Composition
3. Hazards identification
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls and personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Additional information

Mutagen – A material that produces genetic mutations in chromosomal DNA.

Oxidizing Agent – A substance that may react violently upon contact with reducing materials.

Non-flammable – A material that is not easily ignited; a DOT hazard class for compressed gases that are not classed as flammable gases.

Permissible Exposure Limit (PEL) – Weighted Average), STEL (Short-Term Exposure Limit), and C (Ceiling Value.) The maximum acceptable concentration of a chemical in the workplace air. Commonly used exposure limits include TLV-TWA (Threshold Limit Value-Time - Time Weight Average).

Personal Protective Equipment (PPE) – Protective equipment (i.e. gloves, safety goggles, laboratory coat or apron, respirators) that is worn by laboratory workers to protect them from direct exposure to hazardous materials.

Physical Hazard – A substance that is a hazard of physical origin (i.e. a burn): A material that is flammable, explosive, water-reactive, pyrophoric, or unstable; a combustible liquid, a compressed gas, an organic peroxide, or an oxidizer.

Poison – A substance that may injure or kill an organism, even in relatively low doses.

Pyrophoric Material – Any liquid or solid which will ignite spontaneously in air below 54 degrees C (130 degrees F.)

Reactive Material – Any explosive material, organic peroxide, pressure-generating material, or water-reactive material that vigorously polymerizes, decomposes, condenses, or becomes self-reactive when subjected to pressure, shock, or temperature changes.

Select Carcinogen – Defined in OSHA 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories, as a substance that:

- 1) Is regulated by OSHA as a carcinogen;
- 2) Is listed by the NTP as “known to be carcinogen”;
- 3) Is listed on IARC lists as Group 1, “carcinogenic to humans”; or
- 4) Is included on the IARC lists as Group 2A or 2B, “reasonably anticipated to be carcinogen”, because it causes statistically significant tumor incidence in animals according to the criteria that are listed in Section 2, Paragraph b.

Stench – Material that emits an extremely offensive odor.

Teratogen – A substance that causes growth abnormalities in embryos.

Threshold Limit Value – The ACGIH term that is used to express the maximum airborne concentration of a substance to which most workers can be exposed during a normal 8-hour workday or normal 40-hour workweek with no adverse health effects.

TLV-Ceiling Limit – The exposure concentration of an airborne substance that must not be exceeded at any time.

TLV-Short Term Exposure Limit (STEL) – The maximum concentration of an airborne substance for a continuous exposure period of 15 minutes, with the following guidelines:

- 1) There will be a maximum of four 15-minute periods per day.
- 2) There will be at least 60 minutes between exposure periods.
- 3) The daily TLV-TWA will not be exceeded.

TLV-Time Weighted Average – The ACGIH term that is used to express the maximum allowable time-weighted average concentration of an airborne substance for a normal 8-hour workday or 40-hour work week.

Toxic Material – A poisonous substance that has the ability to cause adverse health effects upon exposure.

Appendix K.

District Level Appointment

Chemical Hygiene Officer

In compliance with the Federal Laboratory Standard and the North Carolina State Department of Public Instruction policies and recommendations, _____

Is hereby appointed to assume the responsibilities as Cabarrus County schools' Chemical Hygiene Officer and to assist us in our comprehensive laboratory science program.

We implement the attached Chemical Hygiene plan to assist in the safety program.

_____ Is acknowledged to have the knowledge and authority to implement and enforce the Chemical Hygiene Plan during the _____ school year, July 1 to June 30 fiscal year.

Contact Information:

Email _____
Phone _____ Fax _____
Address _____

Superintendent's Signature

Date

Appendix L.

**School Level Appointment
Chemical Hygiene Officer**

For: _____ School

In compliance with the Federal Laboratory Standard and the North Carolina State Department of Public Instruction policies and recommendations, _____

Is hereby appointed to assume the responsibilities as Chemical Hygiene Officer for the school and to assist us in our comprehensive laboratory science program.

We will implement the currently adopted Chemical Hygiene Plan to assist in our safety program.

This individual is acknowledged to have the knowledge and authority to implement and enforce the Chemical Hygiene Plan during the time period effective with the date of this appointment to June 30 of the current school year.

Contact Information for School's Chemical Hygiene Officer:

e-mail _____

Phone _____ Fax _____

Address _____

Submit a copy of this form to:

The Chemical Hygiene Officer for Cabarrus County schools

Risk Management

Appendix M.

Science Teacher's Acknowledgement of Responsibility

Cabarrus County schools

Chemical Hygiene Plan

I have read and understand the current Chemical Hygiene Plan. I will follow the safety procedures and precautions and incorporate these into my standard operating procedures when working with hazardous materials in the laboratory. If I should have any questions regarding the Chemical Hygiene Plan, I will contact _____, our schools' current Chemical Hygiene Officer.

Teacher Name (Signature)

Date

Teacher Name (Print)

Date

Please return this form to your school's Chemical Hygiene Officer.

Appendix N.
Science Teacher Maintenance Log(s)

Maintenance Log for Eyewash:

School:

Room:

Date Inspected	Condition	Flow Pattern	Initials

Maintenance Log for Safety Shower:

School:

Room:

Date Inspected	Condition	Initials

Maintenance Log for UV Goggle Cabinet

School:

Room:

Date Inspected	Condition	Initials

Maintenance Log for Goggles

School:

Room:

Date Inspected	Condition	Initials

Maintenance Log for Chemical Storage Area:

School:

Date Inspected	Conditions	Initials

Maintenance Log for Fume hood

School:

Name:

Date Inspected	Condition	Initials