

CHEMICAL HYGIENE PLAN

Clay County School District

Submitted by
Chemical Hygiene Committee
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Clay County Schools Chemical Hygiene Committee

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This plan will be available to all employees for review and a copy will be located in the following areas:

- Principal's Office
- Central Office
- Clay County School's Webpage www.clayschools.org

The Chemical Hygiene Plan will be reviewed annually and updated if necessary by a committee appointed by the superintendent. The committee will be comprised of, at least, the District Chemical Hygiene Officer, a central office administrator, and the Chemical Hygiene Officer from each school. A signature sheet of personnel trained and a copy of the training packet will be maintained by the Chemical Hygiene Officer.

This Chemical Hygiene Plan was submitted to the Clay County Board of Education for a first reading on December 18, 2006 and was approved by the Board on January 29, 2007.

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- 1.1** This chemical hygiene plan (CHP) sets forth policies, operating procedures, equipment, personal protective equipment (PPE) and work policies that are capable of protecting staff and students from health hazards presented by hazardous chemicals used in science laboratories and other settings of Clay County Schools. It is intended to meet the requirements of 29 CFR 1910.1450 (Occupational Exposure to Hazardous Chemicals in Laboratories). The contents of this CHP are general in nature. Specific problems should be referred to the building or district Chemical Hygiene Officer.
- 1.2** To protect staff and students from health hazards associated with the use of hazardous chemicals in our laboratory and other school settings. This will be accomplished through:
1. Identification of hazardous chemicals and minimizing exposure to students
 2. Develop an outline of the responsibilities of the district, department supervisors, chemical hygiene officer, and employees.
 3. Require staff and students to follow laboratory policies and procedures
 4. Assessment of lab facilities and equipment needed for lab operation
 5. Establish procedures for procurement, distribution, and storage of chemicals
 6. Establish a standardized process for recording and retaining chemical hazard records
 7. Establish requirements for posting chemical hazard signs and labels
 8. Development of a written emergency plan to address accidents involving chemicals
 9. Establishment of a Chemical Hazard Training Program for all CCS personnel
 10. Establish procedures for chemical waste disposal program.

- 2.1** The Superintendent, as Chief Executive Officer, has the ultimate responsibility for a Chemical Hygiene Plan (CHP) within the school district. The Superintendent should, with other administrators, provide continuing support for district-wide chemical hygiene programs. The Superintendent shall designate a Chemical Hygiene Officer (CHO) for the district. The district CHO will chair the county CHP Committee.
- 2.2** A Chemical Hygiene Officer is an employee who qualifies by training or experience to provide technical guidance in the development and implementation of the Chemical Hygiene Plan. The district CHO can be a newly hired position, a science teacher, a principal, or anyone holding another position who qualifies. If no CHO is designated, the superintendent or superintendent designee will assume this responsibility. The district CHO will ensure that building principals, school CHOs, and department personnel follow the CHP. They will work with department chairs to develop and implement the plan, conduct lab inspections, maintain training records, provide technical assistance to school employees, determine need for protective equipment, ensure that Material Safety Data Sheets (MSDS's) are in place and ensure the committee reviews the plan annually.
- 2.3** The Principal is responsible for chemical hygiene programs in the local school. The principal should monitor, support, and require school employees' compliance with the CHP. The principal shall designate a CHO for their building. If no building CHO is designated, the principal will assume this responsibility. The school CHO will serve as the building contact person for the CHP. They will ensure training has been received by building employees, provide inspections, coordinate requests from and to the district CHP Officer, coordinate acquisition, inventory and use, if any, of hazardous chemicals within the building. Keeping in mind, chemicals are not just limited to science classrooms. The building CHO will be a member of the County CHP Committee.
- 2.4** Employees shall know and follow the district CHP, know hazards associated with chemicals used, use safety equipment as designed, inform the CHO at building level or district level of chemical problems, maintain storage areas in proper order, and help refine the CHP.
- 2.5** Any students who will be exposed to chemicals shall sign a safety contract.

The Laboratory Standard OSHA Title 29 Code of Federal Regulations, Part 1910.145 requires the Chemical Hygiene Plans include standard operating procedures that detail the criteria that employers will use to reduce employee exposure to hazardous chemicals, including the use of personal protective equipment (PPE) and hygiene practices.

Protective equipment, including PPE for the eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological 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.

Clay County School employees shall provide training to each student who is required by this section to use PPE. Each student 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, and wear PPE
- d. The limitations of PPE
- e. The proper care, maintenance, useful life and disposal of the PPE

Each student shall be given a safety instruction overview at the beginning of each school year and at the beginning of each applicable lab. Students shall sign a safety contract and teachers are responsible for keeping these on file.

*It should be understood that PPE and other protective devices, such as fume hoods, should be used in science activities when deemed necessary by the instructing teacher. ***Protective equipment will not be available in all classrooms.*** For example, a fume hood will only be present in high school classrooms, which routinely use concentrated chemicals. Individual classrooms will be assessed and equipped to fit the needs of the curriculum to be presented.

3.1 Eye Protection

- 3.1.1 Eye and face protection purchased after July 5, 1994, must comply with ANSI Z87.1-1989, 'American National Standard Practice for Occupational and Educational Eye and Face Protection. 'All major components of protective eyewear (except lenses) must be marked "Z87" to indicate compliance.
- 3.1.2 Eye and face protection devices should protect against the intended hazard and be marked to identify the manufacturer, reasonably comfortable of 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, 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 affected 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.
- 3.1.6 Goggles should seal around the eyes to prevent entrance of aerosols or splashed liquids. Face shields are worn when additional protection is desired around the eyes and neck area. Face shields should be viewed as supplementary protection to goggles for a larger area of the face. They are not replacements for goggles.
- 3.1.7 Goggles, for most science settings, should be of the “splash” 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 of. Goggles with a scratch deep enough to get your fingernail into should be eliminated immediately, as integrity has been seriously compromised.
- 3.1.8 North Carolina OSHA recommends that goggles be disassembled and thoroughly cleansed with soap and warm water. Carefully rinse all traces of soap, and replace defective parts with new ones. Swab thoroughly or completely immerse all parts for 10 minutes in a solution of germicidal deodorant fungicide. Remove parts from solution and suspend in a clean place for air-drying at room temperature or heated air. Do not rinse after removing parts from the solution because this will remove the germicidal residue that retains its effectiveness even after drying. Teachers would need to consider this method carefully before using it with students.
- 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 It is recommended that contact lenses not be used in laboratories unless the student has an eye condition that requires their use. If it is absolutely necessary to wear contacts, the person should wear non-vented, specially marked chemical splash goggles.

3.2 Hand Protection

3.2.1 When chemical exposure is a concern, the choice of an appropriate type of glove should 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 seven basic types of gloves including:

- Neoprene – for sunlight, heat, organic solvents
- Aluminized – for hot or cold materials
- Leather—for glass, bites, sharp objects, heat, cold
- Asbestos—now banned
- Polyethylene – often disposable for solvents, acids, detergents
- Plastic/latex – for general non-hazardous chemicals
- Nitrile – for acids and organic solvents

3.2.2 Wear gloves that offer protection for all hazards you may find in the lab. Test for holes every time you wear your gloves.

3.3 Clothing Protection

3.3.1 Open-toed shoes and shoes with high heels are prohibited in the lab.

3.3.2 Short pants are prohibited in the lab. Neck-ties 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. Remove watch straps that are made of absorbent material.

3.3.3 A full-length lab coat or chemical-resistant apron is required when working with corrosive chemicals. Aprons should protect the torso down to the knees. Basic types of aprons include:

- Plastic—generally effective for oils, acids, solvents, and salts
- Vinyl—best for dilute solutions of chemicals
- Rubber—usually heavier, but protect against acids, solvents, alkalizers, oils, and caustics

3.4 Eye Wash Station

3.4.1 The location of the eyewash station must be identified.

3.4.2 The eyewash station shall deliver aerated, running water for up to 15 minutes.

3.4.3 Eyewash stations are located in strategic locations throughout the lab.

3.4.4 Eyewash stations should be checked weekly for proper operation.

3.5 Drench Shower

- 3.5.1 A working drench shower is located in a strategic location in the lab.
- 3.5.2 Drench shower pull handles should be between 44” and 55” above the floor.

3.6 First Aid Kit

- 3.6.1 First Aid Kits should be mounted in the classroom in a conspicuous location. The kit should be labeled and be available for immediate access.
- 3.6.2 Teachers should be properly trained to recognize and use the contents of the kit for “appropriate” injuries. Use of the kit might be combined with the first aid and CPR training from qualified medical personnel.

3.7 Fire Blanket

- 3.7.1 Wool fire blankets are prominently labeled and strategically located in the lab (30 steps or 15 seconds).

3.8 Fire Extinguisher

- 3.8.1 An appropriate, functioning, fire extinguisher is prominently labeled and strategically located in the lab (30 steps or 15 seconds).
- 3.8.2 Fire extinguishers are checked monthly. The attached red tag should be signed and dated.

3.9 Fume Hood

- 3.9.1 An operational fume hood should be available in all labs when conducting experiments involving hazardous fumes.

4.1 Chemical Inventory

- 4.1.1 A Chemical Inventory List (CIL) shall be kept and updated on location by any staff member responsible for those chemicals. If this is done via a computer based inventory program, backup copies should be maintained in a separate location.
- 4.1.2 Inventory shall include chemical name, amount in storage, and note chemicals with NFPA (National Fire Protection Association) hazard ratings of 3 or 4 in any category.
- 4.1.3 Classroom chemical inventories should leave the room with the teacher on fire drills and in case of an actual fire; the CIL should be provided to local fire departments.
- 4.1.4 Janitorial chemical inventories are kept current and are maintained by The Maintenance Supply Company. An updated copy of the inventory should be kept in the office and the principal is responsible for presenting them in case of a fire.

4.2 Physical Storage

- 4.2.1 Store like chemicals together and away from incompatible groups of chemicals. Do not store chemicals in alphabetical order. An easy way to store chemicals properly is to use the chemical manufacturer's color-coding system (i.e. store reds with reds, blues with blues, etc.) An example is Fisher Five Family Chemical Storage Coding System. It is especially effective for small storerooms where the varieties and types of chemicals are greatly reduced.
- **Red (Flammable)** – Store in areas segregated from flammable reagents.
 - **Yellow (Reactive and oxidizing reagents)**—Chemicals that may react violently with air, water, or other substances. Store away from flammable and combustible materials.
 - **Blue (Health Hazard)**—Chemicals that may be toxic if inhaled, ingested or absorbed through skin. Store in secure areas.
 - **White (Corrosive)** – May harm skin, eyes, mucous membranes. Store away from red, yellow, and blue-coded reagents.
 - **Gray**- Present no more than moderate hazard in any category. For general chemical storage.
- 4.2.2 Stored chemicals should be examined annually for replacement, deterioration, and chemical integrity.
- 4.2.3 All incoming chemical shipments should be opened by school staff personnel only.
- 4.2.4 Chemicals should not be stored under fume hoods.

- 4.2.5 Storage cabinets should be labeled as to identify the hazardous nature of the products stored within.
- 4.2.6 Chemicals should not be stored on the floor except in approved shipping containers.
- 4.2.7 Shelving above any work area, such as a sink, should be free of chemicals or other loose materials.
- 4.2.8 Chemicals should not be stored beyond their manufacturer's shelf life. Harmful synergistic reactions involving excess quantities of dangerous substances should be avoided.
- 4.2.9 Shelving sections should be secured to walls and floors to prevent tipping of entire sections.
- 4.2.10 Storage areas should be ventilated by at least four changes of air per hour. Isolate the chemical storage exhaust from the general building ventilations system.
- 4.2.11 Food should not be stored in a laboratory refrigerator.
- 4.2.12 Only authorized personnel are allowed in the chemical storage area.
- 4.2.13 Labs should store the minimum amount of chemicals needed.
- 4.2.14 Chemicals should be locked in a separate, dedicated storeroom.
- 4.2.15 Storage room door should be locked when not in use.

4.3 Signage

- 4.3.1 Exit signs should be posted above the door inside the storage room.
- 4.3.2 Danger signs should be posted on the door of each entrance to a storage room.
- 4.3.3 If biohazard material is present in the lab area, a biohazard sign should be posted at the entrance of the classroom area.

4.4 Labeling

- 4.4.1 Label all chemical solutions you make with the identity of the contents, storage date, concentration, expiration date, and hazard information.
- 4.4.2 Janitorial chemicals that have been placed in a non-manufacturer's container should also be labeled.

4.4.3 All containers with chemicals should be labeled with the same type of labels. Federal regulations require labels to include the following specific information:

- Identity of the chemical
- Name and address of the chemical manufacturer
- Warnings about the chemical's specific physical and health hazards.

4.4.4 Avoid unknowns. Identifying unknowns is very expensive. If using unknowns in a lab, only use the amount needed for the activities.

4.5 Flammable and Corrosives

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 No more than 60 gallons of flammable or 120 gallons of combustible liquid may be stored in a storage cabinet.

4.6. Compressed Gases

4.6.1 Compressed gases should be handled as high-energy sources and potential explosives.

4.6.2 The cylinder valve 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 areas.

4.7 Reproductive Toxins and Carcinogens

4.7.1 A reproductive toxin is a compound that is described as such on the MSDS or any substance that is identified as such by the Oak Ridge Toxicology Information Resource Center. Examples are organomercurial compounds and ethidium bromide, a reagent used in DNA analysis.

4.7.2 No reproductive toxins should be allowed in the middle school or high school laboratories without written authorization from the CHO.

4.7.3 A carcinogen is a compound that is described as such on the MSDS. Examples are benzene, nickel metal dust, and vinyl chloride. (See Appendix for complete list.)

- 4.7.4 No carcinogens should be allowed in the middle school or high school laboratories without written authorization from the CHO.
- 4.7.5 Substances with a high degree of active toxicity should be not allowed in the middle school or high school laboratories without written authorization from the CHO.

4.8 Mercury

- 4.8.1 To comply with House Bill 1502, Clay County Schools believe that eliminating mercury from our schools is the safest choice. Any amounts of stored mercury will be removed by the district CHO.
- 4.8.2 Thermometers in our classrooms containing mercury will be removed and replaced with a safer alternative such as a digital thermometer.
- 4.8.3 Barometers containing mercury, which are not intended for student use do not fall under this provision.

4.9 Material Safety Data Sheets (MSDS)

- 4.9.1 The teacher shall maintain copies in the classroom of the required material safety data sheets for each hazardous chemical and ensure they are readily accessible during each class.
- 4.9.2 Clay County Schools suggest MSDS be kept in a notebook in the classroom, with another hardcopy in the office. This notebook along with the CIL should go with the teacher during a fire drill or actual fire.
- 4.9.3 If a MSDS is not available when a new chemical is received by the receiving personnel, that chemical should not be used until an MSDS is obtained.
- 4.9.4 The laboratory guidelines on the MSDS may be used by the Chemical Hygiene Officer and the teacher in determining the safety precautions, control measures, and safety apparel that apply when working with that chemical.
- 4.9.5 All employees using chemicals will be trained to read and understand the MSDS sheets.

5.1 Accident Notification

- 5.1.1 All accidents should be reported immediately to school administrators.
- 5.1.2 An accident report should be filled out on every accident and kept on file.
- 5.1.3 The lab instructor should be notified of all accidents and chemical spills. Students should be moved to a safe location.
- 5.1.4 The Environmental Health and Safety Office shall be notified for accidents involving student injury or major chemical spills.

5.2 Chemical Clean Up Procedures

- 5.2.1 All spills should be cleaned up promptly. Any individual at risk of involvement should be warned about the spill.
- 5.2.2 In a spill, chemicals often spread increasing the damage, so absorbent material should be used to surround the spill area. After the spill has been contained, it can be cleaned up with appropriate tools, including commercial spill control kits, for example.
- 5.2.3 Provide appropriate materials and procedures for cleanup of hazardous materials in a readily accessible location.
- 5.2.4 When cleaning areas, appropriate PPE should be worn.
- 5.2.5 Students should not be permitted to clean chemical spills.
- 5.2.6 If the spill is an acid or base, it may be neutralized by an appropriate solid:
 - Sodium bisulfate will neutralize bases
 - Sodium bicarbonate will neutralize acids.
 - For halogen spills, sodium thiosulfate should be used for decontamination.

5.2.7 Special care should be taken when cleaning mercury. The Environmental Health and Safety Office should be notified for all mercury spills. In the event that the mercury must be contained immediately the teacher should:

- Obtain the proper PPE (gloves, apron, face shield)
- Retrieve the mercury with an aspirator or mercury vacuum device
- Cover droplets with sulfur to reduce volatility

5.2.8 When dry, the spilled material must be treated as chemical waste.

5.3 Emergency Medical Response

5.3.1 For the purpose of emergency response, there should be a telephone with access to an outside line in any classroom using chemicals (not limited only to science, for example, art).

5.3.2 When responding to chemicals in the eyes:

- Flush the eye immediately with potable water for 15 minutes. The eyelids should be held away from the eyeball while the eyeball is moved up, down and sideways to wash behind the lid.
- Do not try to neutralize with acids or bases.
- If contact lenses are being used the water should wash them away. If lenses adhere to the eye do not try to remove. Get immediate expert medical assistance.
- Contact administration for emergency medical personnel.

5.3.3 When responding to chemicals on the body:

- Rinse the affected area with water for 15 minutes. If the affected area is on the head or over the large portion of the body, the drench shower should be used.
- For spills on clothing and whenever necessary, the clothes should be removed as quickly as possible.
- No creams, salves, or lotions should be placed on the burn.
- Do not try to neutralize acids or bases.
- Keep victim warm with fire blanket if needed.
- Contact administration for emergency medical personnel.

5.4 Emergency Equipment

- 5.4.1 Clay County School District, the CHO, and laboratory instructors should ensure that adequate emergency equipment is available in the laboratory.
- 5.4.2 Equipment should be inspected periodically to ensure it is functioning properly.
- 5.4.3 Laboratory personnel should be properly trained in the use of each item.
- 5.4.4 Students should also be instructed to use safety equipment.
- 5.4.5 Safety equipment that should be available in classrooms which routinely use chemicals to conduct investigations include:
 - Eyewash fountain
 - Appropriate type fire extinguisher
 - Safety drench shower
 - Telephone with access to outside phone line
 - Identification signs

6.1 Disposal of Chemical and Hazardous Materials

- 6.1.1 A list of all chemicals to be removed must be submitted to the CHO and The Environmental Health and Safety Division.
- 6.1.2 Containers to be disposed should be labeled indicating their contents.
- 6.1.3 Unknowns should be avoided. Their removal is costly because of precautions necessary to transport and because of expenses involved in identifying the material.
- 6.1.4 Bio Hazardous solid waste should be placed in the proper bio bag and box with no more than 30 pounds of waste per box.
- 6.1.5 Bio Hazardous liquid waste should be kept in the original container until removed.
- 6.1.6 Sharp containers should be placed in a Bio Hazard box with no exposed sharps.
- 6.1.7 Chemicals to be removed are not to be transported by any of Clay County Personnel.

6.2 Records of Waste Disposal

- 6.2.1 Clay County School District shall maintain records of waste chemicals, chemicals and products from reactions or processes that are transferred to an authorized and/or certified chemical disposal agent, and chemicals that are transported to a new site.
- 6.2.2 Records should conform to requirements of the State Environmental Protection Agency and Department of Transportation, either of which may have jurisdiction involved in these types of transfers.

7.1 Classroom Environment

- 7.1.1 Students are never left unattended in the lab when experiments are conducted.
- 7.1.2 Workstations will accommodate handicapped and disabled students.
- 7.1.3 Accommodations should be made for pregnant students. Be sure and consult MSDS when using chemicals, which may affect the health of the mother or the health of the unborn child.
- 7.1.4 Science classrooms are never used for any purposes other than science instruction for which they are designed.
- 7.1.5 Only qualified chemistry teachers shall conduct labs involving hazardous chemicals.
- 7.1.6 Ground Fault Interrupters are placed on all electrical outlets within arms reach of faucets.
- 7.1.7 The room has a functioning phone system.
- 7.1.8 Emergency procedures are clearly posted.
- 7.1.9 Persons wash their hands after they handle viable materials, after removing gloves, and before leaving the laboratory.
- 7.1.10 Food is not permitted in science laboratories. It is stored outside the work area in cabinets or refrigerators designated and used for this purpose only.
- 7.1.11 Policies for the safe handling of sharps are instituted.
- 7.1.12 A biohazard sign shall be posted at the entrance to the laboratory whenever infectious agents are present.
- 7.1.13 It is recommended that laboratory coats, gowns, or uniforms be worn to prevent contamination or soiling of street clothes.
- 7.1.14 Gloves should be worn if the skin on the hands is broken or if a rash is present. Alternatives to powdered latex gloves should be available.
- 7.1.15 Students should not apply cosmetics in any chemical laboratory.
- 7.1.16 Mouth pipetting is strictly forbidden in all USA laboratories.
- 7.1.17 Wastes should be placed in appropriate, correctly labeled receptacles. Wastes must be disposed of by methods consistent with state and federal requirements and within mandatory state timelines.

7.1.18 Access to emergency equipment, showers, eyewashes, and exits should never be blocked by anything, not even temporarily parked cart.

7.2 Animals

7.2.1 Do not allow dead animals in the room, as the exact cause of death may not be determinable. This of course does not include preserved specimens for dissections. Many warm blooded animals carry and transmit diseases to humans through ticks, mites, and fleas.

7.2.2 Be certain that adequately sized and clean cages are provided for all animals. Cages should be locked and in safe comfortable areas.

7.2.3 Heavy gloves should be available for the handling of animals, which might bite.

7.2.4 Animals that are **UNACCEPTABLE** for schools:

- Wild Animals – Wild animals pose a risk for transmitting rabies as well as other zoonotic diseases (diseases which can be transferred from animals to man) and, therefore, should not be brought to schools or handled by students.
- Poisonous Animals – Spiders, venomous insects, and poisonous snakes, reptiles, and lizards should be prohibited from being brought onto school grounds.
- Baby Chicks and Ducks – Because of high risk of salmonellosis and campylobacteriosis among baby chicks and ducks, and because it is unlawful to sell such animals as pets, they are inappropriate in schools. This does not include chicks hatched in the school environment with an incubator.

7.2.5 No experimental procedure shall be attempted on mammals, birds, reptiles, amphibians, or fish that cause the animal unnecessary pain or discomfort.

7.2.6 Students shall not perform dissections except under direct supervision of a teacher.

7.2.7 Teachers should try to ensure that living animals entering the classroom are healthy and free of transmissible disease or other problems that may endanger human health.

7.2.8 Food for the animals shall be appropriate to the animal's normal diet and of sufficient quantity and balance to maintain a good standard of nutrition at all times.

7.2.9 Pet birds should never be allowed to fly free in a classroom.

7.2.10 All animals should be restricted to the area designated by the principal.

- 7.2.11 Disposable gloves should be worn when cleaning aquariums.
- 7.2.12 Animals should 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 an area used for the cleaning or storage of food utensils or dishes.
- 7.2.13 Children should not be allowed to handle or clean up any form of animal waste.
- 7.2.14 Teachers should do an allergy assessment to determine which students maybe affected by animals in the classroom.

7.3 Plants

- 7.3.1 Teachers should inquire about student allergies associated with plants.
- 7.3.2 Do not use plants that present hazards from oils (poison ivy, poison oak, poison sumac, poinsettia, and other local plants); hazards if eaten (some fungi—mushrooms, belladonna, herbane, pokeweed, foxglove, jimson weed, azalea, castor bean, holly, milkweed, mistletoe, nightshade, and other local plants); or hazards from saps (oleander, stinging nettle, and other local plants).
- 7.3.3 Never allow plants to be tasted without clear instructions for the teacher.
- 7.3.4 Students should wash hands after handling plants.

8.1 Employees Trained

- 8.1.1 All employees will receive general instruction about the CHP when they are hired.
- 8.1.2 Detailed training should be provided to science teachers who actually work in science classrooms and laboratories.
- 8.1.3 Employees who are responsible for receiving and handling shipments of new chemicals and wastes as well as other employees whose assignments may require that they enter a laboratory where exposure to hazardous chemicals might occur should be informed of the potential hazards and appropriate protective measures.
- 8.1.4 Maintenance staffs responsible for maintaining the physical plant need training to safely work with hazardous materials.
- 8.1.5 Administrators that need to insure that employees comply with government regulations, fund compliance costs, and support needed changes, should understand the requirements of Chemical Hygiene regulations.
- 8.1.6 Students should receive training by teachers appropriate to their level of chemical handling and potential exposure. The education of students is particularly important, since they are near the beginning of their experience with science, chemicals, and chemical safety. As an educational institution, it is a fundamental responsibility of the School District to train all students about the potential chemical hazards they will likely encounter in their lives, and of appropriate protective measures.

8.2 Training Program

- 8.2.1 All employees should be trained on the applicable details of the Chemical Hygiene Plan, its location and availability.
- 8.2.2 All employees are trained at their initial employment, and at their initial assignment to a laboratory, and prior to assignments involving new exposure situations.
- 8.2.3 Principals or building CHO will notify the district CHO when a new employee or transfer needs training.
- 8.2.4 Employees should be familiar with the emergency procedures adopted by the Clay County School District, including response to spills, fires, explosions, evacuation, and decontamination.
- 8.2.5 The training program should describe appropriate sections of the Standard Operating Procedures, particularly those procedures that require prior approval of the Chemical Hygiene Officer.

- 8.2.6 Employees should be informed as to the responsibilities of the Chemical Hygiene personnel, particularly the Chemical Hygiene Officer responsible for the school in which they work.
- 8.2.7 Employees should be trained in measures they may take to protect themselves from exposure to hazardous chemicals, including the location and proper use of protective apparel and emergency equipment.
- 8.2.8 Any staff member in contact with chemicals should be trained on the use and location of MSDS. Training to refresh their working knowledge should be provided on an ongoing basis.

8.3 Student Training

- 8.3.1 Clay County School District requires students receive instruction in laboratory safety practices appropriate to their potential exposure to hazardous chemicals.
- 8.3.2 Training should vary based on their grade level, courses of study, and other factors.
- 8.3.3 At the beginning of each school year, teachers should discuss safety and require all students involved in scientific investigations to sign a safety contract. Teachers should keep a copy on file and allow the parent to keep a copy. (See appendix for a sample contract.)
- 8.3.4 Students will not be allowed to participate in labs involving hazards until a safety contract is signed. An alternative activity will be given.
- 8.3.5 Prior to laboratory activities involving chemicals, teachers should go over MSDS data with students in the form of a handout or dry erase poster.

8.4 Record Keeping

- 8.4.1 Clay County Schools will maintain the records of annual employee training.
- 8.4.2 Employees will maintain a personal record of all training.
- 8.4.3 Teachers will maintain a record of student training by keeping on file a copy of the safety contract each year and by documenting the dates MSDS data is covered. This may be done by notation in their lesson plan book.

Appendix A

Guidelines for Managing HIV Infection and AIDS in School

Acquired Immune Deficiency Syndrome (AIDS) was first recognized in 1981. The Human Immunodeficiency Virus, the causative agent, is transmitted through direct exposure to blood and blood products, sexually, and perinatally by infected mothers to their infants at or prior to birth and/or through breast-feeding. This virus is not transmitted by casual contact, a fact attested to by the absence of cases in household contacts of AIDS patients who were neither sexual partners nor needle sharers. HIV infection is more difficult to acquire than hepatitis B, which is transmitted in the same manner.

As noted above, children may acquire HIV infection perinatally from infected mothers or through transfusion of contaminated blood or blood products. While some of these children may be too ill to attend school, many others will be well enough to do so.

1. Most children with AIDS or HIV infection represent no threat for HIV transmission in the classroom and should be provided an education in the usual manner.
2. Screening for HIV antibodies is inappropriate as a condition for school attendance.
3. Children with HIV infection who have behavioral abnormalities (e.g., aggressive and/or destructive behaviors, biting others), or who have open oozing wounds or sores which cannot be adequately covered, may pose a risk for HIV transmission to others. If the attending physician of a child infected with HIV believes that the child may pose a risk of transmission in the classroom, the physician shall notify the local health director as required by 1 5A NCAC 19A .0201(3). The local health director and the school superintendent shall then act in accordance with public health regulations to determine whether the child can safely attend school, and if necessary define an appropriate alternative educational setting.
4. Confidentiality must be strictly protected by the school system for all children known to have HIV infection.
5. School officials should notify parents of children known to have AIDS or HIV infection when illnesses that may represent a threat to immune-suppressed children are occurring in the school. These include chickenpox, measles, whooping cough, meningitis, and influenza.
6. Guidelines for cleaning up blood or body spills should be followed at all times (see 'Universal Precautions: Guidelines for Handling Body Fluids'). These provisions will prevent infection with HIV, hepatitis C, herpes virus, and other infectious agents.
7. School personnel should receive training in how HIV/AIDS and other infectious diseases are acquired, how transmission can be prevented, and how to handle body fluids in schools.
8. North Carolina law requires that public schools educate students about AIDS and how they can protect themselves from acquiring HIV infection (G.S. 115c-81(e)).

Recommendations Concerning School Attendance of Students with HIV Infection and AIDS

The following public health recommendations address the school attendance of children with AIDS or with HIV infection, which causes AIDS. These recommendations follow guidelines developed by the United States Public Health Service.

1. Risk of transmission of HIV infection is virtually non-existent in the normal unrestricted school setting, since the primary pathways of HIV infection do not exist in school activities. For this reason, children with AIDS or HIV infection should be allowed to attend school and after-school day care without restriction, except when medical or behavioral impairments exist which are severe enough to be a hazard to the infected child or to his/her classmates or teachers.
2. Infected children who may be neurologically impaired, lack control of body functions, bite, or have uncoverable oozing lesions should be educated in restricted settings until their medical or behavioral problems improve. Educational settings should minimize exposure of other children to bloody or body fluids. This should be carried out in accordance with administrative code NC 15A NCAC 19A.0202(3).
3. The decision to limit the educational setting for any particular child because of medical or behavioral reasons should be made jointly by the child's physician, public health personnel, the child's parent or guardian, and appropriate personnel associated with the particular school. Decisions should be made on a case-by-case basis after weighing risks and benefits to the infected child as well as to others in the school or day care setting.
4. Teachers or other employees, including food handlers, who may have AIDS or HIV infection, should be under no work restrictions. They present no appreciable infectious risk to school children or other employees under normal school work conditions.
5. Persons providing care and education for children with AIDS or HIV infection should respect each child's right to privacy, including maintaining confidentiality. The number of personnel aware of the child's condition is governed by parents and should be kept to a minimum (NC 130A-143).

Appendix B

Universal Precautions: Guidelines for Handling Body Fluids

Universal Precautions is defined as an approach to infection control to treat all human blood and certain body fluids as if they were known to be infectious for HIV, Hepatitis B and C viruses, and other bloodborne pathogens. Body fluids (vomitus, feces, urine, blood) may contain a variety of germs (bacteria and viruses), which is why it is important for all school personnel to know how to clean them up properly to prevent the spread of infection to students, school personnel, and to themselves.

While body fluids often contain various germs, it is unusual for illnesses to be spread in this manner when ordinary hygiene practices are observed. In order to cause disease, germs must find their way to the part of the body they infect through a specific route (e.g., the mouth, nose or break in the skin). They must also enter in sufficient numbers to cause infection. Most body fluids contain too few germs to cause infection unless they are placed directly into the blood stream or people fail to wash their hands after contamination and then place their hands or other contaminated objects into their mouths. Though this is unlikely to occur, it is important for all blood and body fluid spills to be regarded as potentially infectious since many germs may be carried in the body without symptoms (e.g., those causing hepatitis A and B, HIV infection, and Salmonella). Therefore, these guidelines should be followed in all cases, regardless of whether the source is known or appears to be infected. By following a few simple steps, clean-up can be an effective and safe procedure.

1. Disposable gloves should be worn when cleaning up blood, feces, vomitus, and urine. This is to be done in addition to, not as a substitute for, hand washing. Using non-latex gloves decreases the possibility of becoming latex-sensitive and protects those who are.
2. Hands should be washed thoroughly as soon as it is practical following exposure to body fluids such as blood, vomitus, feces, urine, saliva, nasal or other respiratory secretions. Proper hand washing requires the use of soap and vigorous washing under a stream of running water for at least 10 seconds.
3. Wiping of body fluids is an essential step and may be done with paper towels. Drying or sanitary absorbing agents may be used with large volumes of body fluids (e.g., vomitus). These products are not, however, disinfectants. All disposable clean-up materials should be placed in a sealed plastic bag for discarding. Non-disposable items such as dustpans and brooms should be cleaned with one of the disinfectants listed below.
4. Hard surfaces like desks, walls, and floors should be washed with one of the following disinfectants:
 - a. Household bleach (sodium hypochlorite) diluted 1:10 with water or ½ cup household bleach in 1 gallon of water, freshly prepared each time it is used.
 - b. Phenolic germicidal detergent solution (follow the product label for use dilution).
 - c. Ethyl or isopropyl alcohol (70 percent solution).
5. Carpets stained with body fluids should be wiped clean, followed by shampooing with a commercially available rug shampoo.

6. Clothing or throw rugs contaminated with body fluids should have the fluids wiped away with a paper towel and then should be laundered.

The following table provides examples of particular germs that may occur in body fluids of children and respective transmission concerns. With the exception of blood, which is normally sterile, the body fluids with which one may come in contact usually contain many organisms, some of which may cause disease. Many germs may be carried by individuals who have no symptoms of illness. These individuals may be at various stages of infection: incubating disease, mildly infected without symptoms, or chronic carriers of certain infectious agents including the AIDS and hepatitis viruses. Because simple precautions are not always carried out, transmission of communicable diseases is more likely to occur from contact with infected body fluids of unrecognized carriers than from contact with fluids from recognized individuals.

Transmission Concerns in the School Setting

Body Fluid Source of Infectious Agents

Body Fluid-Source	Organism of Concern	Transmission Concern
Blood <ul style="list-style-type: none"> • Cuts/abrasions • Nosebleeds • Menses • Contaminated needle 	Hepatitis B Virus HIV virus Cytomegalovirus Hepatitis C virus	Bloodstream inoculation through cuts and abrasions on hands; direct bloodstream inoculation
Feces <ul style="list-style-type: none"> • Incontinence 	Salmonella bacteria Shigella bacteria Rotavirus Hepatitis A virus	Oral inoculation from contaminated hands
Urine <ul style="list-style-type: none"> • Incontinence 	Cytomegalovirus	Bloodstream and oral inoculation from contaminated hands
Respiratory secretions <ul style="list-style-type: none"> • Saliva • Nasal discharge 	Mononucleosis virus Common cold virus Influenza virus	Oral inoculations from contaminated hands

Appendix C

Student Safety Contract

7th Grade Science

I will:

- Follow all instructions given by the teacher.
- Read directions thoroughly before beginning a laboratory investigation.
- Review all safety guidelines indicated in each laboratory investigation before beginning.
- Follow all safety guidelines outlined in the laboratory investigation.
- Protect eyes, face, hands, and body as directed while conducting a laboratory investigation.
- Know the location of first-aid, fire-fighting equipment, and emergency phone.
- Conduct myself in a responsible manner at all times during laboratory situations.

I, _____, have read and agree to abide by the safety regulations as set forth above and also any additional written or verbal instructions provided by the teacher during class.

Student's signature

Appendix D

Laboratory Safety

By and large most laboratory equipment is safe, however, ANY lab equipment can be dangerous if handled incorrectly. The classroom lab can be an enjoyable, exciting place to work but it can be dangerous if it is not approached with maturity and respect. Read and learn the safety rules below before you begin the laboratory work that is a vital and rewarding part of this course.

Skills and Objectives

- To **describe** laboratory safety precautions
- To **identify** safety equipment in your Earth Science laboratory
- To **classify** laboratory behaviors as safe or unsafe

Safety Rules

1. Follow all instructions carefully. Use special care when you see the word **CAUTION**.
2. Familiarize yourself with the location of all safety equipment in your classroom laboratory.
3. Never eat, drink, or chew gum in a science laboratory.
4. Never run, push, throw objects, or engage in horseplay of any kind in the laboratory.
5. Report all accidents or injuries to your teacher immediately.
6. Use the equipment only as directed. Do not attempt to use equipment in unauthorized ways or perform unauthorized experiments.
7. Replace equipment where and as you found it. Dispose of used materials as your teacher instructs.
8. Keep your work area clean and uncluttered. Leave the area clean when you are finished.
9. Dress properly for the laboratory:
 - a. Don't wear loose-fitting sleeves or bulky outerwear.
 - b. Wear shoes that cover the foot – not sandals.
 - c. Tie back long hair.
 - d. Wear safety goggles when using any glassware, chemicals, hot liquids, or burners, or when using a rock hammer.
 - e. ***It is recommended that you not wear contacts when working with chemicals. The student assumes responsibility upon wearing contact lenses in lab.
 - f. Wear a lab apron when working with chemicals or hot materials.
10. Be careful when using heat or fire:
 - a. Never leave a hot plate, lit Bunsen burner, or other hot object unattended.
 - b. Never reach over an exposed flame.

- c.** Use tongs or pot holders to handle hot laboratory equipment.
 - d.** Use only Pyrex glassware for heating.
 - e.** Never point the mouth of a test tube towards anybody at any time.
 - f.** Set hot plates at the specified temperature, not at their maximum setting.
- 11.** Use care working with chemicals:
 - a.** Never taste or touch substances in the laboratory without specific instructions.
 - b.** Never smell substances without specific instructions. Avoid inhaling fumes directly.
 - c.** Wash your hands with soap and water after using chemicals.
 - d.** Notify your teacher immediately of all spills.
- 12.** Use care working with laboratory equipment:
 - a.** Do not use chipped or cracked glassware.
 - b.** When performing scratch or streak tests, place the glass plate or streak plate on a flat surface. Never do a scratch or streak test while holding the plate in your hand.
 - c.** Never look directly at the sun. Damage to your eyes can occur.
 - d.** Handle mineral and rock specimens with care. While many are tough, others are fragile. Do not test the strength of a mineral or rock unless directed to do so.
 - e.** Never take equipment apart. Precision equipment can be ruined by tampering.
 - f.** When electrical equipment is used, never touch the equipment with wet hands. Keep the work area around the equipment dry and free of flammable equipment. Never insert metal objects into power outlets.
 - g.** Do not pick up broken glass with your bare hands. Use a dustpan and brush.
 - h.** Use care in handling sharp equipment, such as drawing compasses.

Student Safety Contract

Below is a Student Safety Contract that was developed by the National Science Teachers Association. Read it. Write your name in the first blank, then fill in the date and sign it.

-
- I will:**
- Follow all instructions given by my teacher.
 - Protect eyes, face, hands, and body while conducting lab activities.
 - Carry out good housekeeping practices.
 - Know the location of first-aid and fire-fighting equipment.
 - Conduct myself in a responsible manner at all times in the laboratory.

I, _____, have read and agree to abide by the safety regulations as set forth above and also any additional printed instructions provided by my teacher and/or school district. I further agree to follow all other written and oral instructions given in class.

_____	_____
Date	Signature

Exercises

1. Divide the list of safety rules into things you should and should not do in the laboratory. Write these rules in your notebook.
2. You should be familiar with the use and location of all safety equipment in your Earth Science lab. Check off each of the items listed below that you can find and know how to use. If you cannot find an item or do not know how to use it, ask your teacher. On a separate sheet of paper, draw a map of your science laboratory room. Show the location of all safety equipment and exits. Keep your map in your notebook.
 - a. Safety/Fire blanket
 - b. Eye wash station
 - c. First aid kit
 - d. Emergency electrical/gas shut off
 - e. Storage closet
 - f. Fan (for ventilation)
 - g. Gloves/eye goggles
3. Below are descriptions of student behavior in the laboratory. In the space following each description, write whether the behavior is *safe* or *unsafe*.
 - a. *A student sniffed some ammonia to see if it had a strong smell*

 - b. *Two students removed their safety goggles to see what they were heating.*

 - c. *A student went to get a brush and dustpan to pick up*

broken glass.

d. *A student ate lunch in the laboratory.*

e. *A student picked up a beaker of hot water using
two test-tube holders.*

f. *A group of student used Pyrex glassware to heat liquids*
