District Chemical Hygiene Policy/Plan

Black Horse Pike Regional School District

District Chemical Hygiene Policy/Plan

I. General

A. The design of the laboratory facility will provide sufficient space for safe work by the number of persons allowed in the laboratory. Exit doors will be clearly marked and free of obstructions to permit quick, safe escape in an emergency.

B. Staff and students must follow the Chemical Hygiene Plan to minimize their health and safety risks.

C. It is prudent to minimize all chemical exposures, because most laboratory chemicals present hazards of one type or another. Employees will follow general precautions for handling all laboratory chemicals. Specific guidelines for some chemicals, such as those found in the SDSs, will be followed.

D. Employees should not underestimate the risk and exposure to hazardous substances should be minimized. The decision to use a particular substance will be based on the best available knowledge of each chemical's particular hazard and the availability of proper handling facilities and equipment. Substitutions, either of chemicals or experiments, will be made where appropriate to reduce hazards without sacrificing instructional objectives. When the risk outweighs the benefit and no substitute is available, the experiment, procedure, or chemical will be eliminated.

E. Chemicals will not be accepted from a supplier unless it is accompanied by the corresponding SDS, or an SDS from that supplier for that chemical is already on file. All SDSs will be accessible to employees at all times. Employees will be trained to read and use the information found on SDSs.

F. SDS are located in several locations:

1. District Website: Departments Facilities RTK – MSDS-SDS
2. Flinn's Chemventory: Online program for District Inventory
3. Hard copies in facility offices of each building

II. Purchasing

A. Before requesting to purchase chemicals, check with the other two schools if they have a surplus of the chemical.

B. The Chemical Hygiene Officer is responsible for approving all chemicals used in the classroom. The purchasing of chemicals should be guided by the less is better approach. The less chemical inventory, the fewer the problems associated with storage, and the less likely that the school district will face excessive costs to dispose of outdated or surplus chemicals.

C. Any employee wishing to purchase chemicals must send a request to their supervisor for approval.
D. A chemical must not be accepted without the material safety data sheet and an adequate identifying label. When a chemical is received, proper handling, storage, and disposal should be known.
E. First in, First out method will be followed. Over purchasing and stock piling are not permitted. Chemicals should be ordered in quantities that are likely to be consumed in one year and must be purchased only in the quantity sufficient for the declared use. Hazardous chemicals must be disposed of when they are deteriorating or after 5 years if not used.
F. The container must be marked with the full level and date(s) it is received and opened.
G. The least toxic chemical that is still effective for the job is to be selected. SDS should be reviewed to make this determination. This includes selection of cleaning supplies as well as teaching tools for classrooms. Micro and green chemistry are encouraged.
H. Chemicals that shouldn't be purchased according to NJ.Gov

Acrylonitrile	Ammonium Chromate	Aniline	Aniline hydrochloride
Anthracene	Antimony trichloride	Arsenic and its compounds	Asbestos
Ascarite II	Benzene	Benzoyl peroxide	Calcium cyanide
carbon disulfide	carbon tetrachloride	Chloral hydrate	Chlorine
Chloroform	Chloropromazine	Chromium hexavalent compounds	Chromium trioxide
Colchicine	p-Dichlorobenzene	Dimethylaniline	p-Dioxane
Ethylene dichloride	Ethylene oxide	Gunpowder	Hexachlorophene
Hydriodic acid	Hydrobromic acid	Hydrofluoric acid	Hydrogen
Lead arsenate	Lead carbonate	Lead VI chromate	Lithium, metal
Lithium nitrate	Magnesiumm, metal	Mercuric chloride	Mercury
Methyl iodide	Methyl methacrylate	Methyl orange	Methyl red
Nickel, metal	Nickel oxide	Nicotine	Osmium tetroxide

Paris green	Phenol	Phosphorus pentoxide	Phosphorous, red, white
Phthalic anhydride	Potassium, metal	Potassium oxalate	potassium sulfide
Pyridine	Selenium	Silver cyanide	Silver nitrate
Silver oxide	Sodium arsenate	Sodium arsenite	Sodium azide
Sodium chromate	Sodium cyanide	Sodium dichromate	Sodium nitrite
Sodium sulfide	Sodium thiocyanide	Stannic chloride	Stearic acid
Strontium	Strontium nitrate	Sudan IV	Sulfuric acid, fuming
Tannic acid	Tetrabromethane	Thioacetamide	Thioacetamide
Thiourea	Titanium tetrachloride	Titanium trichloride	o-Toluidine
uranium	Uranyl acetate	Urethane	Wood's metal

III. Inventory and Storage

A. Chemical Storage Inventory is stored on Flinn Online Chemventory (New 2021-22)

B. Chemventory updates are conducted according to this schedule. Staff members will update the computer inventory quarterly for all storage areas.

C. Chemical Storage Rules and Procedures

1. If the chemical has been transferred to a secondary container, the new container must be appropriately labeled.
2. Maintain an updated inventory of all chemicals, their amounts and location. Stored chemicals should be examined annually for replacement, deterioration, and chemical integrity.
3. Label all chemical solutions you make with the identity of the contents, date, concentration, hazard information and your name. Labels can be create through Flinn's Chemventory
4. Maintain a separate and secure storage area for chemicals.
5. Do not allow incoming shipments of chemicals to be opened and transported by school personnel other than qualified science teachers. The special and expensive shipping containers used are frequently discarded and would prove valuable for chemical storage.
6. All chemicals should be stored in chemically compatible families (See Flinn Chemical Catalog/Reference Manual for details)
7. Store the minimum amount of chemicals needed.
8. Store corrosives in appropriate corrosives cabinets.

9. No flammable materials should be stored outside an approved flammables storage cabinet unless in safety cans.
10. Do not store chemicals under a fume hood.
11. If possible, keep certain items in the original shipping package, e.g., acids and bases in the special and expensive Styrofoam cubes.
12. The storage area and cabinets should be labeled as to identify the hazardous nature of the products stored within. This will allow fire department officials to quickly see a potentially hazardous area.
13. Shelving above any work area, such as a sink, should be free of chemicals or other loose miscellany.
14. Shelving sections should be secured to walls or floor to prevent tipping of entire sections.
15. Shelves should be equipped with lips to prevent containers from rolling off.
16. Chemicals should not be stored on the floor except in approved shipping containers.
17. Never store food in a laboratory refrigerator.
18. Store all poisons in a locked cabinet.
19. Only authorized personnel are allowed in the chemical storage area. Students should never be allowed in this area.
20. Chemical exposure to heat or direct sunlight should be avoided.

D. Storage Requirements—Compressed Gas Handling Instructions

1. A compressed gas is defined as any material or mixture having in the container either an absolute pressure greater than 276 kPa (40 lb/in 2) at 21 °C, or non absolute pressure greater than 717 kPa (104 lb/in 2) at 54°C or both, or any liquid flammable material having a Reid vapor pressure greater than 276 kPa (40 lb/in 2) at 38°C.
2. Compressed gasses should be handled as high-energy sources, and therefore, as potential explosives.
3. Always protect the cylinder valve stem.
4. Avoid exposure of cylinders to heat. Do not store gas cylinders in direct sunlight.
5. Never lubricate, modify, force or tamper with a cylinder valve.
6. Cylinders of toxic, flammable or reactive gas should be used only under a fume hood.
7. Do not extinguish a flame involving a combustible gas until the gas is shut off—otherwise it can reignite—possibly causing an explosion.
8. Gas cylinders must be stored securely. They must be protected to prevent valve damage that may be caused by falling.

E. Storage Requirements—Flammable Chemicals Handling Instructions

1. Store all flammables in a dedicated flammables cabinet.

a. Cabinets are inspected during quarterly inventory. Damage and corrosion is reported to the Science Supervisor who will replace the cabinet.

2. Keep cool, between 55°F and 80°F, at all times.
3. Store away from all sources of ignition.
4. Store away from all oxidizers.
5. Never store flammables in refrigerators unless the refrigerator is explosion proof.
6. Avoid storing any chemicals, especially flammable materials in direct sunlight.

F. Storage Requirements—Corrosive Materials Handling Instructions

1. Store corrosives in appropriate corrosives cabinets.
2. Cabinets are inspected during quarterly inventory. Damage and corrosion is reported to the Science Supervisor who will replace the cabinet.
3. Working with corrosive materials requires special eyewear. Wear a chemical splash face shield when handling corrosive materials.
4. At least every three months inspect all shelf clips in your acid cabinet to check for possible corrosion. These shelf clips are the only thing between you and a collapsed shelf. They require special attention.

G. Procedure Specific Safety Rules and Guidelines (for extremely hazardous chemicals)

1. Use a fume hood when the permissible exposure limit for a chemical is less than 50 ppm as indicated on the chemical MSDS.
2. Avoid using carcinogens, mutagens, teratogens and allergens or use only under a fume hood.
3. Handle toxic, corrosive, flammable and noxious chemicals under a fume hood.
4. Do not expose flammable liquids to open flame, sparks, heat or any source of ignition.
5. Do not use flammable solids (sodium, potassium, lithium, etc.)
6. Use extreme caution when handling finely divided (dust-like) material. Finely divided materials may form explosive mixtures with air.
7. Glycerin should be available only to the instructor.

IV. Spills

A. There is an emergency plan with names and numbers in each room with chemicals. Follow the plan depending on the situation that takes place.
B. If the chemical involved in the spill is judged to present an immediate hazard, call 911 immediately. The area must be isolated until a HAZMAT team arrives, and evacuation must occur.
C. If hazardous vapors are present, call 911 immediately and isolate the area. Only persons trained in the use of respirators may enter the area. This will frequently mean waiting for the arrival of a HAZMAT team.

D. If a volatile, flammable material is spilled, immediately extinguish flames, turn off all electrical apparatus, and evacuate the area. Consult the SDS for appropriate cleanup procedures. If the quantity exceeds the employee's ability or training to handle the spill, seal the area until appropriately trained personnel arrive.
E. If there is no immediate danger (flammability, toxicity, reactivity, corrosively) to personnel, containment should be accomplished by use of spill pillows, towels, rolls, or other devices that will keep the spill from spreading.
F. If there is no immediate danger, cleanup procedures listed on the SDS will be followed. Appropriate personal protective equipment will be used.
G. A spill kit must be centrally located, accessible, and for the exclusive use of the Science Department. The kit must include:
    1. Inert absorbents such as vermiculite, clay, sand, or kitty litter
    2. Neutralizing agents for acid spills such as sodium carbonate and sodium hydrogen carbonate
    3. Neutralizing agents for alkali spills such a sodium hydrogen sulfate and citric acid
    4. Quantities of cleanup materials sufficient for the largest anticipated spill.
    5. Large plastic scoops and other equipment such as brooms, pails, bag, and dust pans.
    6. Appropriate personal protective equipment
H. If the spill material was a hazardous chemical, all of the materials involved in the cleanup will usually be considered to be hazardous waste and must be disposed of as such.
I. If a spill occurs which cannot be cleaned-up safely by yourself, notify your Supervisor and Principal or Administrator-in-Charge. Hazardous cleanup shall only be undertaken by individuals trained in HAZMAT procedures

V. Waste Disposal

A. The School District and the Chemical Hygiene Officer shall ensure that disposal of laboratory chemicals is in compliance with all applicable local, state, and federal regulations.
B. Utilize the methods found online at Flinn Scientific for disposal
C. Unwanted, unused and outdated chemicals should be identified on a regular basis but at least annually. These identified chemicals should be marked for disposal by being placed in the yellow disposal container (most chemicals) if they cannot be disposed of by sink or regular garbage.
D. The district used Strategic Environmental Consulting Inc. for disposal and consulting on chemicals.

VI. Safety Factors

A. Safety Glasses
    1. N. J. State Statute 18A: 40-12.1 states that: *The board of education of every school district shall require each pupil and teacher in the public schools of the districts to wear industrial quality eye protection devices while attending classes in which caustic or explosive chemicals, hot*

liquids or solids, hot molten metals, or explosive chemicals and other materials are used in which welding of any type, repair or servicing of vehicles, heat treatment or tempering of metals, or any similar dangerous process is taught, exposure to which might have a tendency to cause damage to the eyes. Visitors to such classrooms or laboratories shall also be required to wear such protective devices.

2. Therefore, safety glasses must be worn by students, teachers, and visitors at all times as stated in the above regulation. This includes the heating of water (if one student has a burner in use, etc., all students, teachers, and visitors in the room must wear safety glasses).
3. Each science room should be equipped with thirty-five safety glasses. Please check these and contact the supervisor if additional glasses are needed. Glasses should be stored in the cabinets provided and sterilized after each use.

B. **Eye Wash Stations**
   1. Eye wash stations have been installed in all the science laboratories. Please instruct students as to the proper usage of these facilities. Please check eye wash stations on a monthly basis to ensure proper flow of water and cleanliness. A card has been attached, initial indicating that you have done it. Thank you.

C. **Fire Blankets**
   1. Each science classroom is equipped with a fire blanket. Please instruct students as to the location and use of the fire blanket in your classroom.

D. **Laboratory Aprons**
   1. Thirty-five laboratory aprons have been provided for each science classroom. They should be available for student use. They must be worn whenever a laboratory exercise involves use of open flames, caustic materials, stains, dyes, or other hazardous materials to the skin and/or clothing.

E. **Alcohol Burners**
   1. Alcohol burners are NOT to be used. Use a hot plate, butane portable burner or the gas jet and a Bunsen burner.

F. **Fire Extinguishers**
   1. Each science room is equipped with a fire extinguisher. Become familiar with its operation and periodically check the extinguisher to see that it is correctly charged. No laboratory exercise involving open flames should be conducted without a fire extinguisher available. This also applies when flammable materials are being used. The supervisor should be notified in writing immediately of any laboratory fires: cause, people involved, extent of damage, location, and method used to extinguish the fire. (A copy of the report will be given to the appropriate vice-principal.)

G. **Fire/Evacuation/Lockdown Drills**
   1. Please refer to the correct fire drill procedures in the Faculty Handbook and inform students of the nearest exit to use and the outside location

where they are to meet you for attendance purposes. Be certain that all open flames are extinguished and use the master control to turn off the electricity before leaving the room and the gas if it has been turned on for the period. Please refer to the Emergency Management Handout procedures and carry your card with you.

VII. Lab Procedures

A. Eating, drinking, gum chewing, application of cosmetics, manipulation of contact lenses, or other such activities cannot be done in the laboratory. This applies even when the laboratory is being used as a classroom, since residual chemicals may be present
B. Follow written first aid policy; 5141.1 - Accidents - contact the school nurse.
C. The laboratory should be well ventilated. If you feel that this is not the case in your room – contact the science supervisor.
D. Post emergency telephone numbers in the chemical stores area.
E. Do not use chipped, etched or cracked glassware. Glassware, which is chipped or scratched, presents a serious breakage hazard when heated or handled.
F. In the event of an accident, when time allows, fill out an accident report describing the event in detail.
G. Read all labels carefully—the names of many chemicals look alike at first glance.
H. Do not operate electrical equipment with wet hands.
I. Know location and procedure for fire extinguishers. Tri-class ABC and Halon fire extinguishers are appropriate for laboratories. Fire extinguishers should be inspected every six months.
J. Do not block fire exits.
K. Have an alternative evacuation route in the event your primary route becomes blocked.
L. Enforce safety rules and remind students of the importance of practicing emergency plans.
    1. Do not drink from lab glassware or other lab vessels.
    2. No food in the laboratory. Do not eat, drink or chew gum in the laboratory.
    3. Do not apply cosmetics in areas where laboratory chemicals are present.
    4. Keep all aisles clear.
M. No unlabeled products should be stored anywhere in the science facility.
N. Be thoroughly familiar with the hazards and precautions for protection before using any chemical. Study the precautionary label and review its contents before using any chemical substance.
O. Safety showers or body drenches should be tested every year. Promptly report any shower or body drench that does not meet the water flow requirements of ANSI Z358.1 and fill out a repair request.

P. Access to exits, emergency equipment and master utility controls should never be blocked.
Q. All accidents or near accidents (close calls) should be carefully analyzed with the results distributed to all who might benefit.
R. Never pipette by mouth. Always use a bulb or other device for suction
S. Never perform unauthorized laboratory experiments.
T. Employees or students must not work alone in the lab unless other employees are in the vicinity and are aware that someone is in the laboratory.
U. Personal Hygiene Guidelines
    1. Wash and dry your hands thoroughly after any chemical exposure or before leaving the laboratory.
    2. Never smell chemicals directly; always waft the odors to your nose using your hand.
V. Protective Clothing Requirements
    1. Wear gloves that offer protection for all hazards you may find in the lab. Test for holes every time you wear your gloves.
    2. Wear a full-length lab coat or a chemical-resistant apron.
    3. Wear low-heeled shoes. Do not wear open-toed shoes or sandals of any kind. Always wear socks in the laboratory.
    4. Tie back long hair.
    5. Do not wear hanging jewelry.
    6. Do not wear long or loose neckties.
    7. Do not wear an absorbent watch strap.
    8. Inspect all protective safety equipment before use. If it is defective, do not use it.

VIII. Students in the Laboratory

A. All students must submit a safety agreement to their teacher before they are able to perform any labs
B. Must read lab directions before the lab and follow all verbal and written instructions
C. Shall perform only authorized experiments
D. Must report all accidents or injuries to the instructor at once, no matter how trivial it may seem
E. Shall have the instructor clean up broken glass or major chemical spills
F. Must work in a laboratory under the direct supervision of a teacher

IX. Housekeeping practices

A. Keep chemicals in the chemical prep and storage area. If chemicals are moved to the classroom for the lab, they must be returned to their proper storage location at the end of the day's laboratory periods.
B. Place all wastes in appropriate, segregated receptacles that are properly labeled. c. Sinks are to be used only for disposal of water and those solutions designated by the instructor. Other solutions must be placed in the

appropriate labeled waste container. Do not store items in the fume hood. The storage of items in the fume hood is a fire hazard and decreases the efficiency of the fume hood.

C. Label all chemicals with names and hazards, even solutions.
D. Never block access to exits or emergency equipment.
E. Clean up all spills properly and promptly.
F. Work and floor surfaces should be cleaned regularly and kept free of clutter.
G. Tabletops are to be swept clean and washed at the end of the lab activity.
H. Store chemicals and equipment properly. Chemicals must not be stored in the long-term (beyond 24 hours) in aisles, on the floor, in stairwells, on desks, or laboratory tables.
I. Before leaving the laboratory, turn off services (gas, electricity, water)

X. Administrative Controls - prior approval

A. Prior approval must be obtained from the Chemical Hygiene Officer whenever a new or not previously reviewed laboratory experiment or test is to be carried out. This prior approval must also be sought for experiments that have not been performed recently or for which the potential for harm is present. The potential for harm may be affected by a change in the amounts of materials being used, the conditions under which the experiment is to be conducted, or the substitution, deletion, or addition of a chemical

XI. Communication - If you are unsure of a situation please follow the following Chain of Communication:

A. Triton: Contact **Jennifer Gramble (2300), Christina Durante (2003) i**f she is not available, one of the other VP's (2002/2004/2005), who will contact the general office (2000), who will notify Ms. Sheppard (2001) , maintenance (2057), and call the fire department, etc. as needed.
B. Highland: Contact **Jennifer Gramble (4300), Dan Beaver (4004)**, or, if he is not available, one of the other VP's (4002/4003/4005), who will contact the general office (4000), who will notify Mr. Varga (4001) , maintenance (4112), and call the fire department, etc. as needed.
C. Timber Creek: Contact **Jennifer Gramble (6300) Andrea Duncan (6003)** if he is not available, one of the other VP's (6002/6004/6005), who will contact the general office (6000), who will notify Mrs. McKenzie (6001) , maintenance (6064), and call the fire department, etc. as needed.
D. County Hazmat Unit: 24/7 phone - 856-783-4808 ext. 6200. County OEM Coordinator - Christopher Costa - Phone - 609-685-5258

XII. Staff - Current staff who utilize chemicals

A. Highland
    1. Heather McCracken
    2. Kelly Harvey
    3. Michael Nealis
    4. Tyler Sheilds
    5. Kristen Gauthier
B. Triton
    1. Stacey Kind

2. Chris Dunkley
3. Ryan Hughes
4. Tyler Sheilds

C. Timber Creek
    1. David Ackley
    2. Sabrina Taylor
    3. Jacob Emig
    4. Christina Guida