Name _____ Section Day Tu W Th & Time _____

TA Name _____ TA Office Hours: _____

TA Email _____

Lab Orientation & Safety Exercise

Complete during the first lab meeting, check with TA for completeness & credit
KEEP THIS IN YOUR LAB NOTEBOOK AT ALL TIMES

Get to know your space! Work with your lab partner to find the following items in the lab and their corresponding tag. There are some items for which there are multiple locations, such as sinks, but only one tag. Find that tag! Other items may not in the room at all! Make a lab map on the back page and mark the locations by number. Describe the proper use or purpose of each item on the following pages using the instructions provided on the tags. **You must have a complete map & description before leaving the lab.**

Emergency Response

1. Fire Extinguisher (find the closest one in the hallway)
2. Fire Alarm (find the closest one in the hallway)
3. Safety Shower
4. Eyewash Station
5. Evacuation Procedure (find the tag, copy the map, and follow it)
6. First Aid Kit (Go to the stockroom)
7. Broken Glassware Box, Dust Pan & Broom
8. Spill Control Center

Day-to-Day

9. Balance Station
10. Sink
11. Chemical Waste Station
12. Dry Waste Box
13. Chemical Fume Hoods
14. Reagent Station (Chemical Reacting Agents)
15. Disposable Gloves

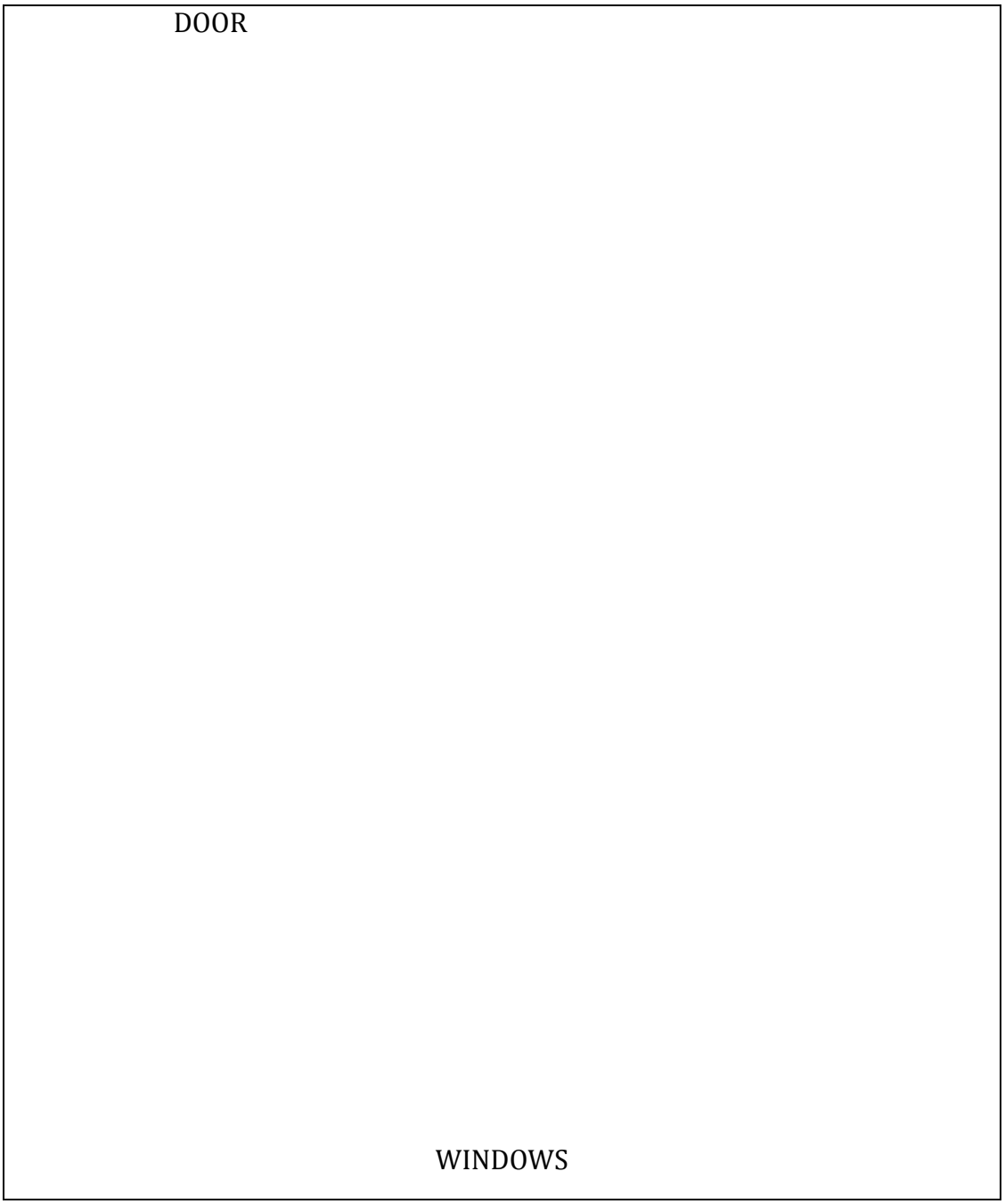
Equipment

16. Equipment Room (GC & IR)
17. Rota-vap
18. Water Re-circulation Pumps (water lines)
19. Ring stands
20. Clamps
21. Vacuum Tubing
22. Hot/stir plates

Other…

23. Your TA – go say hi!
24. One-word hazard definitions & precautions
25. NFPA Labels - Copy and color the NFPA label description from the bulletin board then classify the sample labels posted.
26. Lab coats

LAB MAP, Thimann Labs, Room _____
Add the locations of items to make a map by number (1-26).



1. Fire Alarm * Located at second floor building entrance and exit left of the elevator. * Pull this alarm if there's a fire…'cuz that's what a fire alarm is for! * If there's a fire, yell "FIRE!" really loud. Don't be shy! * Individuals can also notify the fire department simply by calling x911.	**2. Fire Extinguisher** * Located in the hallway between rooms 257/261 and 271A/275. * Report the fire, collect belongings and EXIT the building. * Only trained individuals should attempt to extinguish a fire (…so you should probably not be using this, but it's good to know where it is).
3. Safety Shower * To be used if a student spills or is splashed with a chemical. * DO NOT pull it to test it! Only do it if you need it. It puts out a lot of water. * If needed, strip and stand under the shower for 10-15 min to wash away the chemical and reduce contact. * Call x911 for severe cases.	**4. Eyewash Station** * You shouldn't need this because your wearing goggles! * Proper use involves holding open the eyelid under the running eyebath for 10-15 min. * Call x911 if the injury requires further medical attention.
5. Evacuation Procedure * Instructions for where to go in the case of an earthquake or other evacuation-necessitating emergency… * Please remember when evacuating the building, always take the stairs. * Draw the evacuation map in the blank space at the end of this activity. Follow the map to the rendezvous point and bring back evidence!	**6. First Aid Kit** * Sufficient for minor cuts or abrasions. * All injuries must be reported to the TA followed by the completion of an "Incident Report Form" attained from the stockroom staff. * For extensive injuries, the student should be escorted to the Cowell Health Center if it is before 5pm, or immediately call x911 after 5pm.
7. Broken Glassware Box, Dust Pan & Broom * Disposal container for all or any broken glassware. * Please use the dust pan and broom to sweep up any tiny glass pieces. * If it's not broken glassware, it doesn't go in here!	**8. Spill Control Center** * All spills must be reported to the TA. * Bicarbonate will neutralize solutions that are acidic / basic. Vermiculite or sorbent pads should be used for solvents. * For spills larger than a few milliliters, it may be necessary to evacuate and call x911.

9. Balance Station * Use piece of tare paper or a weigh boat. * Fold tare paper in half to help transfer. * Bring the container you're transferring into – DO NOT walk around the lab with a weigh boat or tare paper! * *Always* brush the balance pan and wipe down the counter. NO SNOW STORMS of chemical powder here!	**10. Sink** * This is NOT a waste bin. Only water and soap down the drain! * After properly disposing of chemical waste, wash your glassware with soapy water, then rinse twice with DI water.
11. Chemical Waste Station * Waste bottles are kept here in secondary containment. * *Read the waste label* – there may be more than one type of liquid waste. * Pour *into* the waste bottle using the funnel provided (not onto the bottle. Yes, someone's done that before. Not cool). * Let your TA know if a waste bottle is full. Don't let the containers overflow.	**12. Dry Waste Box** * For solid waste from experiments such as filter paper, TLC plates, and chemical solids. * DO NOT put paper towels or glass in the dry waste box. * If it's not dry, it doesn't go here! * Ask your TA if you are unsure of what goes in the dry waste box AFTER reading the guidelines above.
13. Chemical Fume Hoods * Minimizes your exposure to volatile chemicals * Work with the chemicals at least 6 inches into the hood * Hood cover/sash should be lowered to the indicated level…or else! * DO NOT put your head in there! * Keep surfaces clean	**14. Reagent Station** * Take only what you need from bottles * Prevent contamination - DO NOT return unused reagents to containers * Keep surfaces clean – clean up spills! * Bring your measuring device (pluringe/pipet) and container (flask) – DO NOT walk around with a full pipet! * Carefully read labels twice * Your report may be penalized if you mistakenly take the wrong chemical. * Carefully read labels twice
15. Disposable Gloves * This is a very thin, primary line of defense * Gloves do not make your hands invincible! * Change gloves if you get chemicals on them * Let your TA know if a box is empty…also, be a good human and place said empty box in the recycling bin!	**16. Equipment Room** * GCs can be hot! Don't leave samples/standards/acetone on top * Keep GC/IR kits tidy (as you found them) when in use * Clean up spills when they happen * Read #23 then ask your TA to show you around the instrument room so you know what's what!

17. Rota-vap * Used to concentrate samples: Round-bottom flask is attached, rotation prevents boiling over as vacuum is applied to remove solvent, which is collected in the cold trap. * Your TA will demo proper use and/or set up for you the first couple times. * There are several hoses; double check they are connected correctly * Please turn off when not in use. * Be respectful – clean that rotavap trap!	**18. Water Pump & Water Lines** * Don't let pumps run dry, check frequently * Know your in's and out's – blue is cold water in, red is warm water out * Water lines run near electrical outlets – watch where you point those things! * Don't leave rubber bands, etc. on tubing, only the clamps to adjust flow should stay on all the time
19. Ring Stands * Take only what you need * Put them away neatly * Remove all clamps before returning	**20. Clamps** * Anything that isn't a clamp (rubber band/connector/flask) doesn't belong in this drawer * If a clamp stops being clampy, please bring it to the stockroom so we can try to fix it
21. Vacuum Tubing * Thick, red tubing for (you guessed it) connecting a vacuum line. * Ask your TA where to connect to the house vac (that's how the cool kids say it). * Return tubing when you are finished. * No hose fights! * Not for water. For vacuum.	**22. Hot/Stir Plates** * Make sure you turn on 'heat' and not 'stir' if you want heat * Mind where the cord is going to prevent melting * Set the heat on or below a medium setting. These hot plates get ridiculously (and unsafely) hot on high! * When finished, put them away neatly, no leaning towers of hot plates please.
23 – student introduces themselves (see front page) **24** – hazard definitions & precautions on next page **25** – NFPA key and example, attached	**26. Lab Coats** * Worn over appropriate lab attire. * Must be buttoned closed and worn during all experimentation and cleaning. * Contaminated lab coats are considered waste. Notify your TA and bring the coat to the stockroom if you spill on your lab coat. * Lab coats are shared with many sections – be considerate and do not leave personal belongings, chemicals, vials, spatulas, etc. in the pockets!

24. Hazard Definitions

Copy the following precautions to be taken when handling the following types of chemicals.

- *Irritant* – irritates the skin; minimize chemical exposure, wear gloves & goggles
- *Flammable* – keep away from open flame & potential spark sources, handle in fume hood with goggles & gloves
- *Lachrymator* – induces tears; wear gloves & goggles
- *Carcinogen* – linked to cancerous tumor growth; minimize chemical exposure, wear gloves & goggles, handle in fume hood
- *Corrosive* – minimize chemical exposure, wear gloves & goggles

In the case of exposure to any chemical, rinse the affected area immediately for 10-15 minutes with water and notify your TA.

National Fire Protection Association (NFPA)
Hazard Classifications