COVID-19 LABORATORY Research SAFETY PLAN TEMPLATE

on campus Human participant Research

# Introduction

This is a safety plan template and is based on the hierarchy of controls model of risk management. The premise is to prioritize and implement controls that are known to be most effective (removing/eliminating exposure vs using PPE). The image in Figure 1 depicts this model using COVID-19 specific controls.

Least Effective

Most Effective

**Figure 1: Hierarchy of controls as it applies to COVID-19**

# Purpose

This document has been designed to assist principal investigators and lab directors in establishing appropriate protocols to minimize risk for research occurring during COVID-19.

# Instructions for use

To use this template, **insert your instructions in the relevant sections and delete the template instructions provided.** Once complete, review with your research group before submission.

Review involves going through the processes you have established and getting acknowledgement from all members of the work/research group that they understand and will comply with this plan.

Sections in Part A do not require any data to be submitted and **must not be modified**. All sections in Part B must be completed. A diagram of the relevant space is required.

Follow [this link](https://uwaterloo.ca/plant-operations/floor-plans) to access Floor Plans (WatIAM login required).

**Notes**

* You may submit one plan for multiple lab locations if they meet the following criteria:
  + They are solely managed/supervised by you
  + They are all located in the same building
  + The plan contains one complete layout **for each room**
  + The plan contains one table (completed) for surface decontamination **for each room**
  + The plan contains one table (completed) for shared equipment decontamination **for each room**
* All sections in Part B must be completed
* You will need to obtain acknowledgement from all employees and students
* Your signature on the Request Form signifies that you will enact the plan as outlined and be accountable for enforcing this plan

PART A

# 1.0 Researcher Training

Before coming back to campus, employees, students and researchers must complete the following training:

* Mandatory [“Return to Campus Safety during COVID-19” (SO 2036)](https://uwaterloo.ca/safety-office/training/returning-campus-safely-during-covid-19) online training
* Training from the PI on the new practices outlined in this procedure

# 2.0 RESPONSIBILTIES

## 2.1 Supervisors

* Submit an amendment or new application to research ethics – see <https://uwaterloo.ca/research/office-research-ethics/research-ethics-system-login> for instructions. Studies may not begin until an approval notification from researchqueries has been received and ethics clearance has been received.
* Meet with research/group members before allowing them access to the lab. Orientation shall cover all items within this plan and the protocols, including COVID-19 informed consent discussions, and all other study procedures as outlined in the research ethics application.
* Develop this plan to meet Workplace Health & Safety Guidelines for COVID-19.
* Enforce all criteria within this plan and research ethics application procedures including COVID-19 informed consent discussions.
* Ensure appropriate hand hygiene, GPE/PPE, and surface disinfection supplies are provided for employees, students, and study participants.
* Physically visit and inspect the laboratory weekly to:
  + Identify hazards as per the Occupational Health and Safety Act
  + Ensure the adequacy and adherence to this safety plan.

## 2.2 Employees and Students

* Follow all guidance within this plan and the protocols in the research ethics application.
* [Work from home](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/guidelines/work-home-guidelines) for all tasks that do not need laboratory access and only conduct study procedures with study participants in-person that cannot be conducted remotely.
* Notify their supervisor if supplies are not sufficient to maintain hand hygiene. GPE/PPE, and surface decontamination requirements.
* Notify their supervisor of any hazards that are discovered while working.
* Do not come to work if ill and report all illnesses using the process outlined in section 3.2 Illness and Absence Reporting.

# 3.0 Health Protocols

## 3.1 Self-Assessment Screening

To minimize risk, employees, students, and study participants must not come to campus when ill. For this reason, the University requires that employees and students monitor themselves daily for symptoms of COVID-19. Study participants must conduct a self-assessment prior to arrival (day before the study visit) and confirm the results with the researcher. The [COVID-19 self-assessment questionnaire](https://covid19checkup.ca/) from Ontario Health is to be used. Signage posted at building entrances will remind employees, students, and study participants to conduct self-assessments.

## 3.2 Illness and Absence Reporting

Do not participate in work or allow a member of your team or a study participant to take part in research activities if exhibiting COVID-19 symptoms. Review and follow the [University’s Health Protocols](https://uwaterloo.ca/coronavirus/return-campus/workplace-health-and-safety-guidance/health-protocols) at all times.

# 4.0 Hand Hygiene

Hand hygiene should be performed regularly throughout the day. At minimum, employees, students, and study participants shall wash hands or perform hand sanitization:

* When entering or leaving a new space
* When they remove gloves
* After using shared equipment

Hand washing is the preferred method of hand hygiene at UW. If hands are soiled (dirt, debris, oils, grease, and other contaminants), hand sanitizers will not be effective. Use soap and warm water in these cases. If the task consistently causes hands to be soiled, hand washing facilities need to be provided and accessible (sink and soap).

Communicate these requirements to your employees, students, and study participants.

# 5.0 Personal PRotective Equipment (PPE)

Physical distancing must be implemented whenever possible. However, even when practicing physical distancing, all researchers and participants must both wear ASTM Level 2 medical masks for the duration of the study. There will only be limited situations where removal of a participant’s mask may be permitted. In order to determine if this is permissible, please provide details of any proposed mask removal in your study design.

In addition, when 2m cannot be maintained between persons interacting for more than 15 minutes (cumulatively over a period of 24 hours), protective eyewear (in addition to masking) is strongly recommended. The reasoning for this is as follows: if one of the persons interacting tests positive, the other individual is considered a “high risk close contact” when eye protection is not worn. High risk close contacts must go through stricter self-monitoring and isolation procedures than contacts.

## 5.1 Exception for Participant Masking

If research involves children below the age of 3, masking is not recommended by public health. In this situation, researchers must wear N95 masks and protective eyewear when work requires the researcher to be within 2m of the child. For school aged children in grade 3 or below, masking is encouraged but not mandatory. Should these children not tolerate masks (fidgeting and constant touching), the researcher should wear an N95 mask and protective eyewear when within 2m of the child. If a researcher is required to wear an N95 mask, they will require fit testing. The researcher is advised to contact the Safety Office for this.

## 5.2 Other Protective Equipment

* Gloves are required where there is human contact. Gloves shall not be used in hallways (this rule has not changed).
* Eye protection can include appropriate safety glasses/goggles or a face shield (available via [Central Stores](https://uwaterloo.ca/central-stores/central-stores-service-stock-catalogue#ClothFaceMasks)) and must:
  + Fit properly and not interfere with the proper fit of a mask
  + Provide a barrier to splashes from the side
  + Not create an additional hazard in relation to the type of work being performed

Face shields, safety glasses and safety goggles must be individually provided and wiped with a disinfectant before and after each use.

* Aprons should be wiped with disinfectant before and after each use.
* Shared computers should have plastic keyboard covers and be wiped with disinfectant before and after each use.
* Lab coats are required for any work involving human participant research. Lab coat use must follow these requirements:
  + Lab coats shall be designated to an individual and NOT shared
  + Lab coats shall be stored in the laboratory in which they are used
  + At a minimum, lab coats shall be washed if they are visibly soiled, known to have been contaminated, or have been used while cleaning up fluids/materials of biological origin. If none of the above apply, lab coats shall be washed after 10 uses.
  + Lab coats may be used for multiple participants provided none of the above have occurred.
* Scrubs may be used in place of lab coats provided the following criteria are used:
  + Scrubs shall be designated to an individual and not shared.
  + Street clothes are worn to the facility, then the individual changes into their scrubs once on-site. Once the study work for the day is complete, the individual will change back into their street clothes and place the scrubs into a plastic bag for transport and laundering.
  + At a minimum, scrubs shall be washed after each day of use. If the scrubs have been visibly soiled, known to have been contaminated, or have been used while cleaning up fluids/materials of biological origin, they shall be changed immediately, and placed into a plastic bag for transport and washing.
  + Scrubs may be used for multiple participants provided none of the above have occurred.
* Researchers are to wear surgical masks, face shields, lab coats or disposable gowns, and gloves for studies that involve taking biological fluids (e.g., spit, blood, other bodily fluids) and the participants are to wear Level 2 masks.

# 6.0 Waste Disposal

* Non-hazardous waste will be removed from labs by custodial services as per the schedule used before COVID-19.
* Hazardous waste should be handled and removed according to the [hazardous waste guidelines](https://uwaterloo.ca/safety-office/laboratory-safety/hazardous-waste-standard).

**Note**: Due to COVID-19 and physical restrictions in the Environmental Safety Facility (ESF), open hours no longer exist. Waste must now be scheduled using the online calendar. Information on this calendar can be found [here](https://uwaterloo.ca/safety-office/laboratory-safety/hazardous-waste-standard).

PART B

**Principal Investigator:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Laboratory location(s) (list all rooms):** \_\_\_\_\_

# 1.0 Elimination of non-campus related work

Eliminating the hazard is the best means of ensuring that risk is minimized. Differentiate work activities that will be performed remotely versus work that must occur on campus. **All work that can occur remotely should be conducted remotely. This includes study procedures and data collection activities with study participants. Activities that do not require in-person interactions with study participants are to be done remotely**. List the work here and discuss these expectations with your research group.

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| --- | --- |
| **Remote work** | **Campus work** |
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# 2.0 Adjust the workplace - Physical Distancing

Physical distancing is the next best way to reduce risk. To ensure 2m physical distancing can be maintained, implement these two main tools:

* Occupancy limits and traffic flow
* Scheduling work and visits with study participants to ensure no overlap and to allow adequate time for sanitizing equipment, desks, tables, and other touch surfaces between participant visits

## 2.1 Activities with / by study participants

In the table below, please describe in detail the nature of all activities involved in the study that involve interaction with participants. Be as specific as possible. Be clear which activities if any require a researcher being in close proximity (within 2m) of a participant and provide an estimate of the duration. Activities that require close proximity should be minimized.

The text provided below is an example only – please modify as appropriate. Include all activities or procedures throughout the duration of a participant visit.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Activity or Procedure** | **Proximity** | **Time in close contact (if applicable)** | **Comments about minimizing close contact** |
| 1 | Consent, questionnaire, screening | n/a (done online/phone ahead of time | N/A | Amended to do all screening, consent, etc. ahead of participant arrival. |
| 2 | Placing heart rate monitor | >2m. Rarely within 2m | <15 sec | Almost all participants can put on a heart rate monitor with a description (from distance). Investigators may need to come within 2m VERY briefly (under 15 sec) to assist. Remove on own. |
| 3 | Blood pressure | <1m | <90 sec (three times <30 sec) | Close contact required to fit the cuff around the participants' arm and take the measure. One additional measurement taken during the study. Close contact required to remove. In between, distance is maintained. |
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**Total** estimated cumulative time in close contact: \_\_\_\_\_\_\_\_\_\_\_

## 2.2 Occupancy Limits and Traffic Flow

Before allowing people back into this research space, occupancy limits must be established and communicated. Traffic flow will also have to be considered by completing a thorough review of the work being undertaken in the lab. To do this, consider the following:

* Allot 12.5 m2 / person when determining occupancy in lab spaces. Do not forget to consider office space usage and requirements to determine occupancy if offices are proposed for storage of personal items.
* Provide room dimensions used to support occupancy limit calculations.
* Identify high-frequency use equipment and shared equipment (consider moving this equipment to minimize individual interactions).
* Designate workstations so that only one person is at that station at a time (consider using tape or other markings).
* Assign benches (or areas) for certain types of activities or people.
* If offices are being used for breaks and/or time in between experimental work, include occupancy limits for offices and rules and restrictions of their use. Note, office use should **only** be permitted during a person’s scheduled time on campus for laboratory work.
* Limit children participants to only those participating in the study and their guardian. Do not allow other children (siblings that are not participating) on-site.

Departments need to arrange for a single entrance that will be used by study participants along with space to conduct the health assessment screening at this entrance and in a manner that is as private as possible. Explain how this will be arranged.

Insert a diagram of the research area, with a diagram for **each** **space** as applicable.

Include the following:

* Occupancy limits (for each area in a suite)
* Designated single occupancy workstations
* Identify shared or frequently used equipment
* Hand hygiene stations or hand washing sinks
* Optional requirements: workflow patterns for one-way travel (if needed)

Figure 2 provides an example lab diagram. This diagram is for one laboratory space or room. The maximum occupancy for the room (as required on the Request Form) is the total of all occupancy limits (14 in this example).



Exit

Entrance

Greeting/Screening Area

**Figure 2: Example laboratory diagram outlining occupancies and traffic flow**

**Legend:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Occupancy Limit |  | Reduced occupancy |
|  | Shared equipment |  | Personal belonging storage - bins |

**Notes:**

* First approximation of occupancy is 9 for the total suite. 9 people at the same time may cause traffic congestion, so this should be lowered to approximately 7. Room occupancies can stay as indicated on floorplan, but **total suite occupancy** cannot exceed 7.
* Even though there are two pieces of shared equipment in the exam rooms, only 1 can be used / booked at any given time.
* The reception area should only be used for greeting / screening people. People should wait in cars or outside the building until called.
* There is one-way flow to minimize person to person interaction from participants. Bins of items can be taken with person from entrance to exit.

## 2.2 Work Schedules

Most research will require schedules to maintain physical distancing. Include a schedule or describe scheduling plans here. The scheduling plan should include:

* Where shared calendars will be located
* How they will be accessed
* How space and shared equipment bookings are made
* Process for approving and enforcing scheduling to ensure occupancy limits are not exceeded
* Name of responsible party for approving, communicating, and enforcing schedule
* Work should be scheduled weekdays between the hours of 8 am and 6 pm, Monday to Friday
  + If evening or weekend hours are required, include a description of how access, safety and cleaning will be managed (this should also be justified in your Request Form)
* Requirements that office work and completion of questionnaires or other activities (e.g, computer based tasks) that can be completed remotely are done by study participants at home
* **Activities that do not require in-person interactions with study participants are to be done remotely**
* **Meetings or contacts with study participants to arrange visits, complete questionnaires, and informed consent discussions should be held virtually or by phone**
* Measures to ensure that [Working Alone guidelines](https://uwaterloo.ca/safety-office/occupational-health-safety/working-alone-guideline) are followed at all times including specific working alone procedures to be implemented within the lab (e.g., delineation of activities that are permitted while working alone, check-in/check-out procedures, etc.).

## 2.3 Other considerations for Physical Distancing

* Post occupancy limits on all lab entrances/exits
* Post hand hygiene procedures on all sinks and hand hygiene stations
* Remove extraneous seating
* Designate single use workstations with floor markings or tape (if needed)
* Ensure hand hygiene stations are present for employees and study participants to use
* Communicate all changes being made due to COVID-19 to all occupants/employees and study participants (in the participant consent letter)
* Personal or street items shall not be stored within the lab. This means coats, bags, and other belongings.
* Provide details regarding proposed **secure and safe** storage of personal items, such as jackets, purses, wallets, knapsacks for study participants (e.g., lockers, bins, other designated storage space).

Standardized posters relevant to COVID-19 controls can be ordered [here](https://uwaterloo.ca/coronavirus/return-campus/workplace-health-and-safety-guidance).

# 3.0 Surface Decontamination

Surface decontamination within the laboratory is the responsibility of the Supervisor or PI. At minimum, surfaces must be disinfected between use by a study participant. Fill out the sections below which outline decontamination plans for the lab.

Researchers should contact equipment manufacturers to ensure COVID-specific cleaning products and procedures do not pose risk of damage to specialized research equipment. If there is a potential risk, the equipment should not be used.

## 3.1 Work surface and equipment Decontamination

Complete the table below regarding disinfection details for the equipment within the laboratory (e.g., treadmill, fitness equipment, etc.). Include 1 table for each separate location.

**Table 1: Shared equipment disinfection details**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Equipment Identifier** | **Disinfectant** | **Concentration** | **Contact time\*** | **Frequency of disinfection** |
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\*Contact time refers to the amount of time that the disinfecting agent is required to be in wet contact with the surface/object to appropriately disinfect. Consult manufacturer’s protocols to determine appropriate contact time for commercially available products (e.g., Lysol wipes).

Notes on surface disinfection:

* Ensure the disinfectant chosen is appropriate for the surface being disinfected.
* Ensure there is enough disinfectant to last the workweek.
* All work surfaces should be decontaminated between each study participant. In most situations, this means before the activity begins and once the activity has concluded.
* If commercially available disinfectants are proposed for use, include full product name and corresponding contact time.

## 3.2 High-touch area Decontamination

All high-touch surfaces should be disinfected between study participants. Designate responsible persons and a schedule for this to be done. Complete the table below for your research areas. Include 1 table for each separate location.

**Table 2: High-touch surface disinfection summary table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item Identifier** | **Disinfectant** | **Responsible Person** | **Schedule** | **Frequency of disinfection** |
| Doorknobs, push bars, handles |  |  |  |  |
| Cupboard knobs and handles |  |  |  |  |
| Faucets and tap handles |  |  |  |  |
| Lab phone |  |  |  |  |
| Light switches |  |  |  |  |
| Keyboards and mice |  |  |  |  |
| Desks, tables, and chairs |  |  |  |  |

[Click here](https://www.publichealthontario.ca/-/media/documents/ncov/factsheet-covid-19-environmental-cleaning.pdf?la=en) for more information on the disinfection of surfaces.

# 4.0 Personal hygiene

Please answer the following questions.

1. Are handwashing sinks available for use within each lab for which access is being requested? Yes  No 
   * If “no”, outline what hand hygiene stations you have provided, and identify the location of the nearest accessible sinks for hand washing:

Click or tap here to enter text.

1. Will task specific PPE be used (e.g., gloves, face shields, plexiglass barriers)? Yes  No 
   * If “yes”, specify how this equipment will be used and disinfected (as appropriate) between uses:

Click or tap here to enter text.

1. Are offices available for personal storage? Yes  No 
   * If “yes”, provide details regarding room number and location, occupancy limits, location of hand-hygiene stations, and room dimensions, and ensure that relevant surfaces and high-touch areas are identified in disinfection tables within sections 3.1 and 3.2;
   * If “no”, indicate the alternative method of ensuring personal items are not contaminated within the lab (for example – providing rubber maid bins or storage racks in designated locations with disinfection before/after use):

Click or tap here to enter text.

# 5.0 HUMAN PARTICIPANT CONSIDERATIONS

Review the following situations and outline if they are possible to occur in your study(ies) and how you will minimize risk should they occur:

1. Participants will use props or equipment such as objects, keyboards, tablets, joysticks, blocks, etc. Yes  No

* If yes, outline your methods to ensure segregation and the cleaning of equipment between participants. Consider that all equipment should be disinfected before and after each participant use.

Click or tap here to enter text.

1. Participants will be fitted with monitoring devices, sensors, or other similar equipment. Yes  No

* If yes, outline how risk is minimized while sensors are placed on and removed from the individual. Consider segregation and disinfection of items. You can refer to disinfection table provided this equipment is included in it.

1. Researchers cannot maintain a 2 m distance from the participant. Consider situations such as spotting for exercises, setting up monitors or sensors, and any other situation.

Yes  No

* If yes, outline how risk is minimized for study participant and researchers.

Click or tap here to enter text.

1. Participants will be using equipment or performing activities that involve exertion. Yes  No

* If yes, outline how risk is minimized for study participants and researchers,. Consider required PPE for researchers and the study participants based on the type of exertion and the length of time of the exertion by the participant.

Click or tap here to enter text.

1. Are participants needing to remove their mask at any point throughout the study even for short time?

Yes  No

If yes, outline why? Consider why this is required or how the study can be conducted in another way to avoid removal of a mask.

Click or tap here to enter text.

1. The study involves multiple participants simultaneously performing activities or undergoing treatments or processes.

Yes  No

* If yes, outline how person to person interaction between study participants is controlled.

Click or tap here to enter text.

Click or tap here to enter text.

# 6.0 Related Plans that must be referenced

## 6.1 Laboratory Shutdown PLan

A Laboratory Shutdown Plan is one that assigns responsibility to various individuals within your group to ensure the tasks in the [Laboratory Ramp-Down & Temporary Shutdown Checklist](https://uwaterloo.ca/research/news/laboratory-ramp-down-and-temporary-shutdown-checklist#:~:text=Turn%20off%20appliances%2C%20hotplates%2C%20ovens,Remove%20regulators%20and%20use%20caps.) can be accomplished on short notice. This is to ensure a laboratory can be closed for an extended period of time.

Briefly describe your laboratory shutdown plan. This should include statements such as “Work can be shut down within X hours” “During shutdown, only the Y,Z machine(s) will need regular maintenance” “This will be the responsibility of [name person].” Consider the safety of participants who are taking part in the study by outlining any follow-up visits that may be needed to check on their health and how these will be conducted (e.g., virtually or in-person)

Click or tap here to enter text.

## 6.2 Working alone plan

Depending on the work being undertaken, and if employees or students will be expected to work alone with a study participant, a working alone plan may be required. To determine if you need a plan refer to UW’s [Working Alone Guide](https://uwaterloo.ca/safety-office/occupational-health-safety/working-alone-guideline).

State which of the following is applicable:

1. All work in this laboratory is deemed low risk and can be done alone, following the above plan, and providing that the research group has implemented a periodic check-in protocol; OR,
2. A working alone protocol is established and formalized as a Standard Operating Procedure SOP. The SOP should include what materials, equipment and equipment are deemed high-risk and cannot be utilized while alone; and, include information security measures that are in place to protect against theft, property damage, or personal injury due to an intruder. All individuals approved to work alone must be trained on the SOP.

Click or tap here to enter text.

# 7.0 post-approval checklist:

The following actions must be completed upon approval of this safety plan prior to conducting any research activities in the laboratory. You will be required to complete this checklist after your plan has been approved (before posting in your lab).

It is also available at https://uwaterloo.ca/coronavirus/research-information

* I have posted approved occupancy limits on all lab entrances/exits.
* I have posted hand hygiene procedures on all sinks and hand hygiene stations.
* I have removed extraneous seating from the spaces in this plan.
* I have designated single use workstations with floor markings or tape (if needed).
* I have established hand hygiene stations for employees and study participants to use.
* I have communicated all changes being made due to COVID-19 to all occupants/employees including study participants (in the participant consent letter).
* I have communicated that all personal or street items shall not be stored within the lab. Where required, I have arranged for secure lockers or office space.
* I have planned for the safe shutdown of my workspaces should another extended shutdown of campus be required. This plan is available for review.
* I have completed a Working Alone Assessment and have implemented this plan where required. This plan is available for review.
* I have one-time use water bottles or water coolers with disposable paper cups available for study participants as needed.
* I will require participants to use a ASTM Level 2 medical mask provided by my research group for the duration of the study. Participants will be asked to not participate in the study if they are unable to wear the provided mask.
* I have amended or am working on amending my research ethics application(s) as appropriate.
* I have arranged for secure storage of participant information for contact tracing and will use this information only for this purpose and have outlined this in my research ethics application(s)
* My department has arranged for a single entrance for study participants and space to conduct the health assessment screening at the entrance in a manner that is as private as possible.

# 8.0 Acknowledgements

**Employee and student acknowledgements**

By printing and signing my name in the table below, I acknowledge that I have been trained on the procedures outlined in this document, that I have been consulted and have no reservations with the safety precautions and processes that will be in place to conduct research described in the request to be in on campus.

|  |  |  |
| --- | --- | --- |
| **Employee Name** | **Signature** | **Date** |
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**Principal Investigator Acknowledgement:**

* I will not schedule study participants for a visit until I have received an approval email from researchqueries AND I have received ethics clearance for the study(ies) my team will conduct as stated in my request form.
* I acknowledge that I am responsible for the implementation of all procedures outlined in this document to reduce infection risk of COVID-19. Those found not following these directives may be **subject to corrective action up to and including disciplinary measures and suspension of research ethics clearance** for all studies.

**Principal Investigator Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Principal Investigator Signature:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Date:** \_\_\_\_\_\_\_\_\_