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KEY QUESTIONS FOR TEACHING ASSISTANTS TEACHING IN LAB SETTINGS

WHAT IS MY ROLE?

Good questions to ask of the instructor & other TAs:

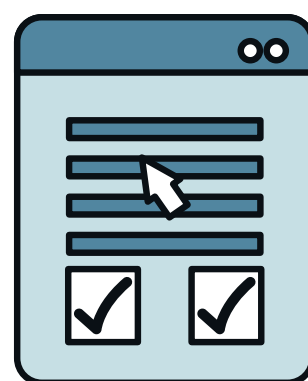
- Who will introduce the lab to the students?
- Who will facilitate the lab and how?
- When should I answer questions and when should I encourage students to think through the answers themselves?



Who will grade students work and how? Prepare for marking by reviewing assignment details, assessment policies, and rubrics. Use grading schemes and rubrics for consistency.

HOW CAN I PREPARE?

- Know what the students are to learn (the intended outcomes of the lab) and *why*
- Study the theory/content on which the experiment(s) are based
- Try out the lab exercise or procedure –



Where do you anticipate stumbling blocks?

HOW CAN COMMUNICATION BE IMPROVED?

- Focus on enabling clear communication...
first with the teaching team → **then with your students**
- Clarify lab policies on:
 - late, missed assignments
 - collaboration/plagiarism
- Plan/. know contingencies for session disruptions



HOW CAN WE BE SAFE?

- What are the safety and emergency protocols in the lab?
- How can I model safety protocols myself?
- Scan the lab environment with safety in mind
- Draw attention to lab safety rules at the beginning and throughout the lab



What does safety look like for online and take-home lab activities?

TA-ing IN THE SCIENCE LAB:

STARTING. DURING. ENDING. AFTER.

the lab

STARTING *the lab:*



Address students in a pre-lab talk

- Clarify the learning outcomes of the lab - what will students will be able to know or do by the end of the lab?
- Review previous labs and connect to today's activities
- Outline the lab activities/key steps. Break down the demonstration (of equipment, the experiment process or both) into several meaningful steps
- Review safety issues for the lab
- Ask for questions

Welcome students and address any violations of safety protocols as they come into the room

DURING *the lab:*

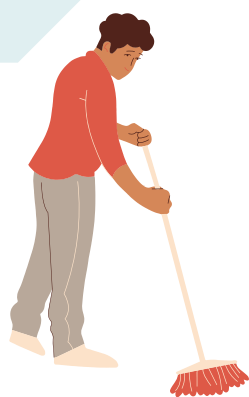


Circulate and check in on students

Facilitate learning through an inquiry approach:

- Use process questions to help students identify the problem and devise solutions together
- If results are not as expected, encourage students to speculate why
- Ask specific questions to monitor students' progress
- Provide positive and constructive feedback
- Encourage questions
- Rather than answering the same individual questions repeatedly, address the class (or small group) as a whole
- If you don't know or are unsure of an answer, it's ok to say you will find out - research and return with follow up

ENDING *the lab:*



Address students in a post-lab talk, by summarizing:

- the important results of lab activities, key takeaways
- what the students have said and learned
- highlight major learning points

Leave time for clean up: ensure students leave the lab clean, with equipment put away properly.

Does the department/course have a checklist for ending labs?

- Follow routine guidelines for closing up the lab.
 - ✓ Turn off lights, lock up equipment, check air, gas, steam taps, etc.
 - ✓ Lock up the laboratory and take submitted student work.

AFTER *the lab:*



Review students work for common errors: Provide a recap during the next lab session and/or follow up with the instructor with feedback

Read, evaluate, and return lab reports in a timely manner with constructive feedback:

- **Specific:** feedback helps the receiver reflect on their logic and/or behaviour
- **Balanced:** feedback provides information about what worked as well as suggestions for development
- **Actionable:** Providing a manageable amount of feedback that can be targeted in the next assignment

Routinely reflect and seek feedback on your lab-based teaching: Self-reflection, checking in with TA colleagues, and seeking feedback from your students are all ways to reflect on what's going well and how you might continue to improve!