Want to Facilitate a Lab in *Your* Class?
-Running *your* Lab-

Lab is an opportunity for students to interact with their field in a hands-on way. Labs come in many forms, depending on their discipline.

Lab At-A-Glance Overview	
Prep	• Prepare all required materials – including both control and experimental conditions • Ensure students are aware of lab safety policies • Provide relevant background information • If students will be working in groups, assign student groups • Provide students with methods before class and check that they have understood them • Prepare for down-time
During	• Break students into lab groups • Confirm that students understand lab safety and methodology • Walk around the class to help students through lab as needed • Keep track of time
After	• Check to make sure students have properly cleaned lab area. • Have students hand in lab reports

Prep

Prepare all required materials – including both control and experimental conditions

- Preparation of lab material varies widely based on lab type. This could range from preparing computer files in an accessible file format for students to work with in a computer lab, to preparing chemical reagents and instruments for a chemistry lab. Make sure to have both control and experimental conditions ready.
- If possible, have a complete run through of the lab on your own before doing it with the students. This will ensure you have all the required equipment and reagents and will allow you to double check that everything works smoothly. It will also point out the challenging areas for you (and what will be for your students)

Ensure students are aware of lab safety policies

- Some labs require lab safety procedures. Refer to your school, department, and building guidelines to make sure any planed labs meet all safety standards. This includes making sure students have required personal protective equipment (PPE), such as goggles or lab coats.
- Labs may also require anonymization of data. Make sure data meets all HIPA or other standards before giving to students.

Provide relevant background information

- Emphasize the relevance of the lab to either student's daily life or class material. Students often struggle to relate lab activities to course work, and can get frustrated or careless when they feel their time is being wasted.

- Ask students to explain the hypothesis of the experiment and make predications about the outcomes

If students will be working in groups, assign student groups

- Depending on the number of students in a class and the availability of equipment, the size of the groups can vary. It is helpful to break into groups before class so that students can get together and plan their experiment together
- Make sure it is clear how groups should work together. While students may do the work together, should they write one group lab report or individual reports.

Provide students with methods before class and check that they understood them.

- Provide students with clear written instructions and have them review instructions before class. Students are more motivated to pre-read lab material if they know their knowledge will be checked before lab begins.

Prepare for down time.

- There are often periods of down time in lab while students wait for a step to finish. Prepare questions or activities to occupy and stimulate discussion during this time.

During

Break students into lab groups

- Break students into groups if not done so before class.

Confirm that students understand lab safety and methodology

- Safety is a priority in labs. Emphasize any specific hazards for the day.
- Check student's understanding lab safety and lab methodology. Examples include:
    - Pre-lab quiz
    - Pre-lab questions to be turned in before class starts
    - Pre-lab flow chart of the methods for the day
    - Instructor demonstration of difficult or hazardous lab segments

Walk around the class to help students through lab as needed

- Float around the class room to help students through the more difficult segments of the lab
- Prompt students to think about what is happening while they are doing it. For example, if a chemical reaction turns a solution blue, rather than marvel at the magic that is science and the beautiful new color, asks students 'Why they think it is turning blue? How does this relate to course material?'

Keep track of time

- It is important to let groups know how much time they have in advance.
- You will be the timekeeper, especially as groups are engaged in hands-on activities. Let them know how they are progressing through the lab with various time checkpoints.

After

Check to make sure students have properly cleaned lab area.

- Make sure all students have properly disposed of any waste and have cleaned their area. Lab spaces are often shared and you do not want to leave a mess for the next group.

Have students hand in lab reports

- Students should hand in a lab report. This can be in many formats such as
    - Short answer questions
    - Formal long format writing
    - Figure making and legend writing

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