

Biomanufacturing Module 1

Lesson 5 - Standard Operating Procedure (SOP) Training

Lesson objectives:

Students will understand:

- The difference between a lab protocol and a standard operating procedure (SOP)
- Why SOPs are used in biomanufacturing.

Essential Questions

- What is the purpose of an SOP?
- Why are SOPs used in biomanufacturing?

Materials:

- Importance of SOPs Training Assignment
- SOP Assignment
- p200 Micropipettes
- Tips for p200 micropipettes
- Colored water solution
- 96 well plates
- Documentation file folder for each team

What Students Will Do

- Read the Importance of SOPs training activity document
- Watch the peanut butter sandwich making instructions video
- Discuss the importance of clear instructions (as a team)
- Develop an SOP for micropipetting (as a team)
- Teams test each other's micropipetting SOPs
- Fishing filling out their Team Training Record

Teacher Preparation

- Have the peanut butter sandwich making video ready to show
- Make copies of the Micropipetting SOP assignment

Organizer

Time	Activity	Materials
5 minutes	Read Importance of SOPs training document	Importance of SOPs Training Document
5 minutes	Watch peanut butter sandwich video	Video
10 minutes	Discuss the importance of clear and detailed instructions	
25 minutes	Teams create an SOP for	

	micropipetting	
5 minutes	Complete Team Training Record	Team Training Record Document
25 minutes	Teams test another team's SOP Provide feedback for improvement	Micropipetting SOP documents, Micropipettes, tips, colored water, 96 well plates

Procedure

SOP Training

1. Ask students to read over the 'Importance of SOPs' training document.
2. Play the peanut butter sandwich making video.
<https://www.dailymotion.com/video/x5d16ph>
3. Ask students to discuss the importance of clear and detailed instructions.
4. Teams finish filling out their Team Training Record and file it in their team file.

Writing an SOP (Micropipetting)

5. Ask students to work through the assignment steps 1-5. This can be done as a homework assignment.
6. Ask student teams to write an SOP for micropipetting.
7. Ask each student team to carry out the Micropipetting SOP written by another team
8. Teams give each other feedback on how to improve their SOP

Alternative: Students are introduced to SOPs and read a couple of examples, but do not write an SOP until later in the curriculum.