



Principles of Biomedical Science

Virtual Learning

9-12 / PLTW[®] PBS

May 11, 2020



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Lesson: May 11, 2020

Objective/Learning Target:

Students will be able to: identify and develop skills in aseptic technique / sterile technique. (*Reference: PLTW[®] 5.1.3 Isolating Bacteria*)



Let's Get Started (Bell Ringer):

Watch the following Videos:

These are both lab aseptic techniques for bacteria

[Aseptic Technique](#)

[Aseptic Technique: Inoculating broth tubes, slant tubes, and stab tubes.](#)



Lesson/Activity:

Let's start by reading over the article from [MedicalNewsToday What is aseptic technique?](#) While you are reading the article focus and take notes in your lab journal or on a separate piece of paper over the four basic types of aseptic technique, include a few details about each type.



Answers:

Use of Barriers:

- sterile gloves
- sterile gowns
- sterile masks
- sterile drapes
- protective wrappers on sterilized instruments

Patient and equipment preparation:

- disinfecting a patient's skin using antiseptic wipes
- sterilizing equipment and instruments before a procedure
- keeping sterilized instruments inside plastic wrappers to prevent contamination before use

Environmental controls:

- keeping doors closed
- minimizing movement in and out of the aseptic field
- limiting entry to necessary personnel only
- permitting only one patient per aseptic field

Contact guidelines:

Once a healthcare professional has washed their hands and donned their sterile barriers, they must follow sterile-to-sterile contact guidelines. These guidelines prohibit any contact between sterile and nonsterile items. This includes individuals, objects and or devices.



Lesson/Activity continued:

According to the following article on [General Aseptic Techniques in Microbiology Laboratory](#) there are 8 major areas of concern when dealing with aseptic techniques. As you read the article write down notes in your notebook/laboratory journal or a separate piece of paper that explain what these 8 areas of concern come from along with details about each area.



Answers:

8 major areas of concern when dealing with aseptic techniques in the laboratory are:

1. Sterile Handling
2. Inoculating agar plates, slopes and cultures
3. Using a wire loop
4. Using a pipette
5. Flaming the neck of bottles and test tubes
6. Disinfecting surfaces
7. The Bunsen Burner
8. The Laminar Flow Unit

Details on these major area can be found on the following link. [Aseptic Techniques](#)



Practice:

Streaking a Bacteria Plate, let's start by watching the following video on [Streaking microorganisms on an agar plate](#) this video focuses on a (T-streak) or a Three Sector Streak which is what we use in class. Once you are done with the video get out your notebook/lab journal or separate piece of paper and practice this technique. Draw out a circle on the paper to represent the petri dish then using a pen or pencil draw in the streaks that represent your loop movement. Practice until you are comfortable.

Answers:

Fig. 1 - Label the bottom of the petri dish. Aseptically get a sample of bacteria from broth.

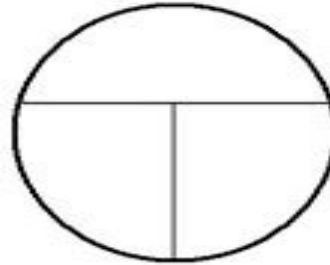
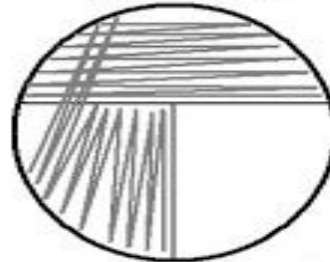


Fig. 3 - Streak the left 1/3 of the plate, beginning at the left and going toward the line in drawn in the middle.



* Reflame the loop and let it cool.

Fig. 5 - A successful isolation.

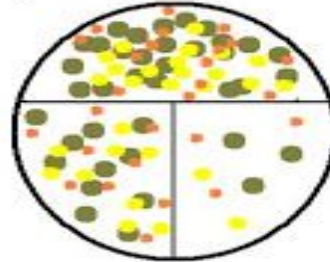
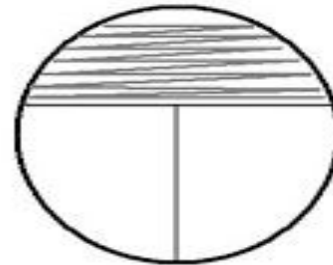
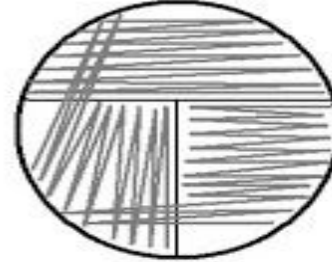


Fig. 2 - Streak the top 1/3 of the plate, beginning at the top and going toward the top of the drawn "T".

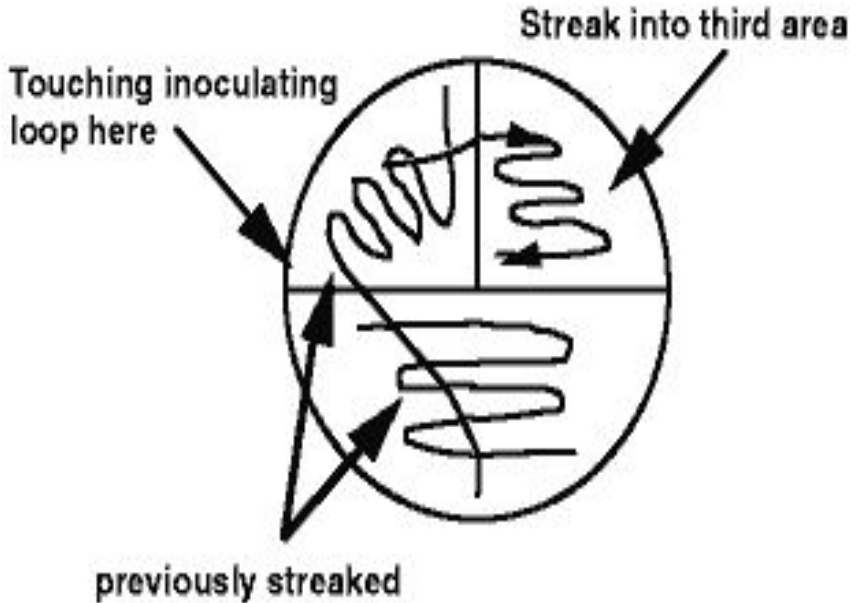


* Reflame the loop and let it cool.

Fig. 4 - Streak the right 1/3 of the plate, beginning at the bottom and going toward the top of the drawn "T".



* Reflame the loop and let it cool.





Additional Practice:

Try out what you remember by taking the following quizzes.

[Aseptic Technique Quizizz](#)



Answers:

Answers are given after quiz is complete