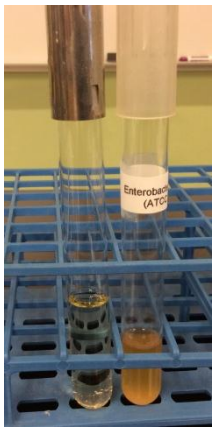
LABORATORY BASICS FOR MICROBIOLOGY

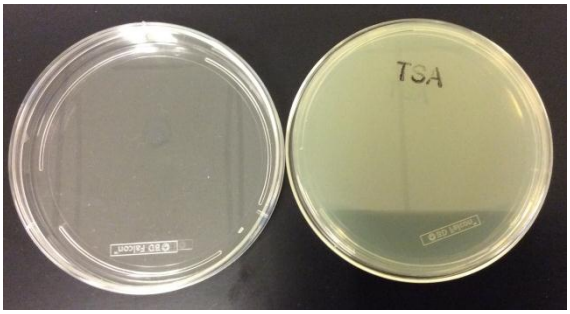
How do we grow microorganisms?

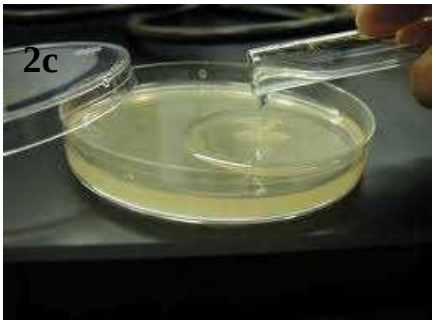
Culture: the growth of bacteria (or any microorganisms) for the purpose of study

Culture medium: *sterile* mixture of nutrients (much like soup) for growing microorganisms



1. Liquid (broth)
2. Solid (agar)
   a. Agar slants
   b. Agar deeps
   c. Agar plates





Questions:

1. What is the advantage of solid medium vs. liquid?

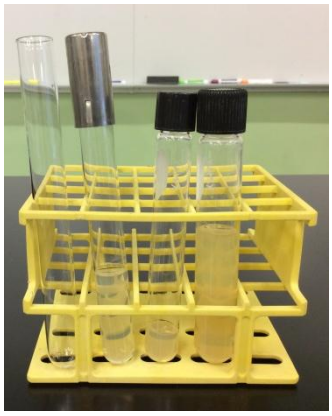
2. What is the use of an agar slant and agar deep?

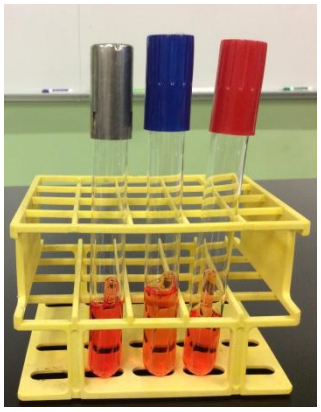
3. Which container would provide the most surface area for growing bacteria?

4. What types of containers/culture vessels do we use?

5. In which container would you put liquid medium?

6. In which container would you put solid medium?





Microbiological test tubes with various closures:

A. Metal cap (notice tiny holes) pulls off:
B. Screw cap
C. Plastic cap (no holes/pulls off):
D. Open tube (No cap)

Write one use for each of the followings:

Test tube with soft agar:

Test tubes with screw cap

Test tube with very little agar at the bottom:

Test tubes with colored broth:

Test tubes with different color tops:

Test tubes with durham tube:

Empty test tube with no cap:

7. Which container would you GUESS to be the best for bacteria which cannot tolerate air?

8. What would be the DISADVANTAGE of the screw cap?

How do we transfer liquids and microorganisms from one container to another

Transfer liquids:

Pipettes (glass/plastic)

Pipetters/Pipette aid

Transfer microorganisms:

Spreader

Inoculating loop

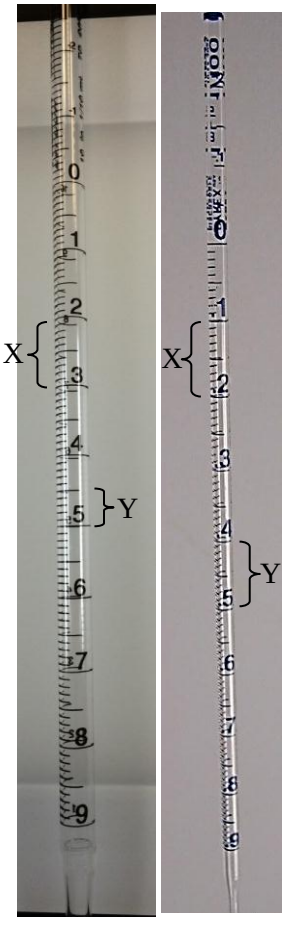
Inoculating needle

Spreader

Sterile swabs

Questions:

A: 10.0ml **B: 1.0ml**



9. What is the *total* volume you can transfer with pipette **A** ?

10. What is the *total* volume you can transfer with pipette **B** ?

11. How does the bracketed section **X** of pipette **A** differ from that of pipette **B**?

12. What is the difference between each line marked by section Y of pipette A vs. pipette B?

13. Which of the two pipettes, A or B should be used to accurately measure 0.1 ml?