CONCEPT: MEASURING GROWTH BY DIRECT CELL COUNTS

●_____ cell counting can be useful for determining the *total* number of cells in a culture.

□ However, this method does not distinguish between _____ & _____ cells.

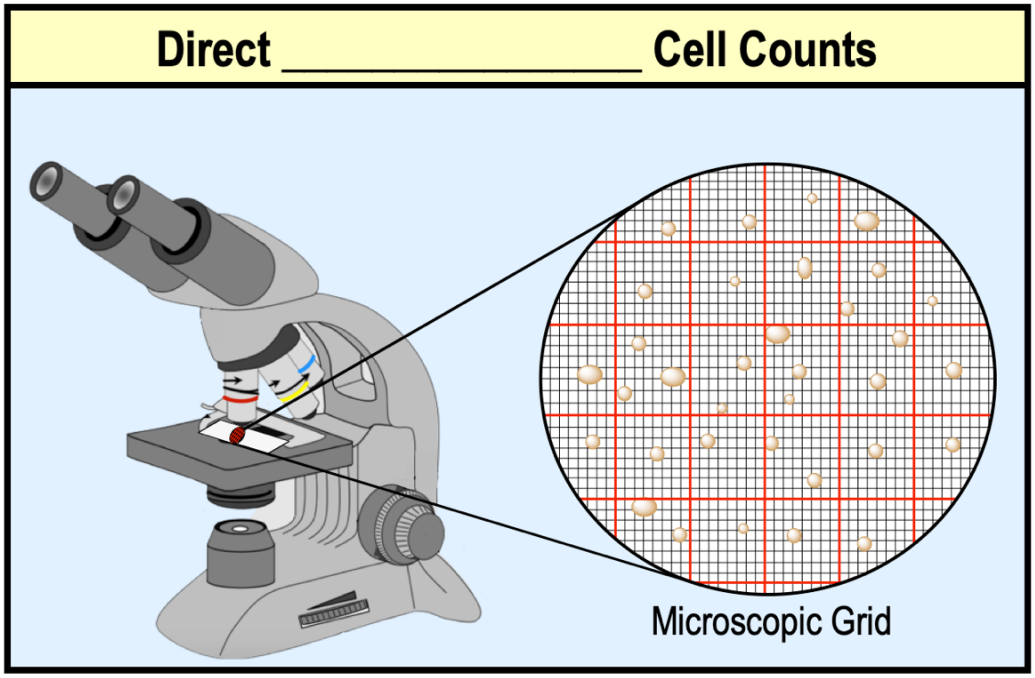
Direct Microscopic Cell Counts

●A very quick method for determining the number of cells in a culture is to use _____ *cell counting.*

□ A known volume of _____ culture is added to a microscope slide.

□ Coverslip is engraved with a _____ that is used to facilitate cell counting.

□ Multiple areas of the grid are counted, then _____ to determine the number of cells per volume.



PRACTICE: Direct microscopic cell counting is a method where the microbiologist counts the number of microbes in a fraction of the microbial culture to:

a) Determine the cell count for the entire microbial culture.

b) Determine the growth rate of the microbial culture.

c) Determine the death rate of the microbial culture.

d) Estimate how large the microbial culture will grow in 10 generations.

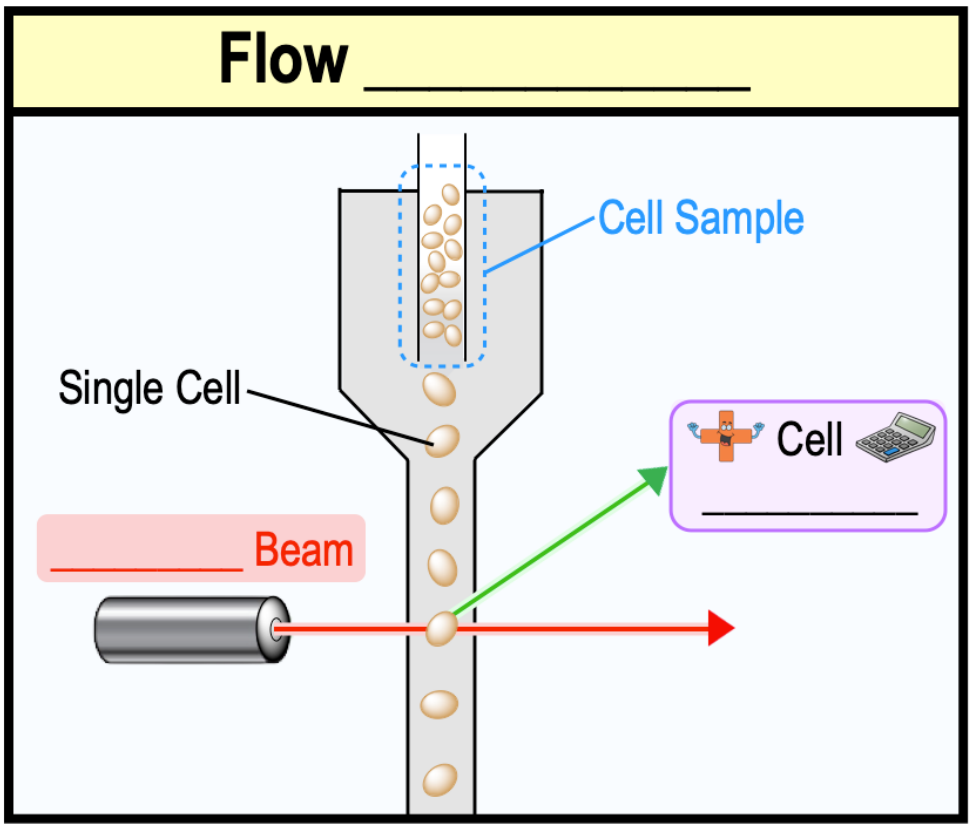
CONCEPT: MEASURING GROWTH BY DIRECT CELL COUNTS

Types of Direct Cell Counting Instruments

●Since counting cells manually is tedious & long, lab *instruments* are designed to directly count cells in a culture.

●**Flow Cytometer:** counts cells moving through a _____ channel that pass across a laser beam.

□ Cells individually pass through the light causing it to _____ which is detected by a *cell counter*.



●_____ **Counter:** like a *flow cytometer* but it electronically detects & counts cells moving through the channel.

PRACTICE: Determining the number of cells within a culture is important. However, counting each and every cell with the human eye is tedious and extremely time consuming. Which of these is a method of cell counting that does not require a scientist to count each and every cell?

a) Flow cytometry.
b) Direct microscopic cell counting.
c) Coulter counting.
d) A and B.
e) A and C.
f) B and C.