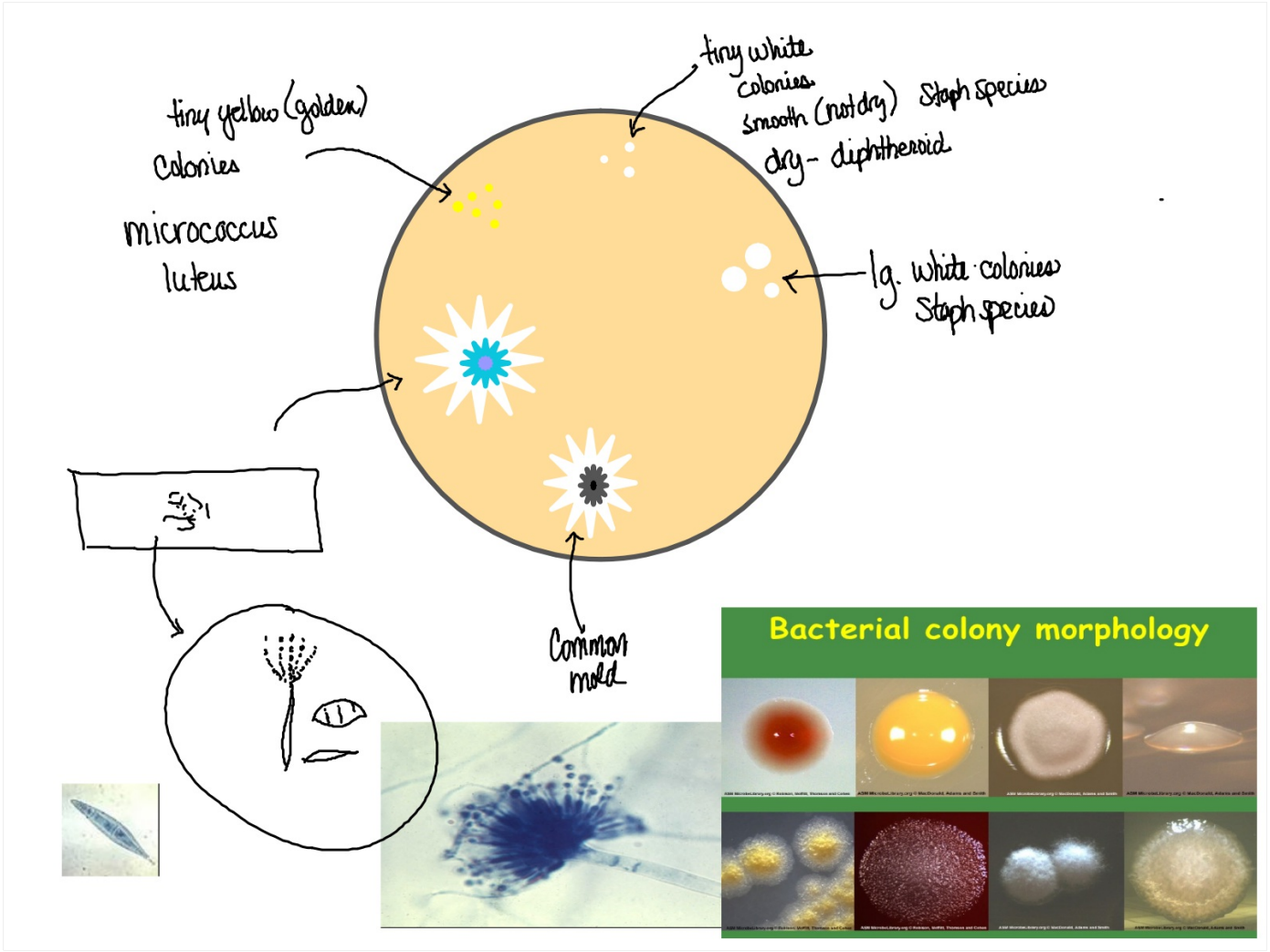
tiny yellow (golden) Colonies
micrococcus luteus
tiny white colonies smooth (not dry) Staph species
dry - diphtheroid
lg. white colonies Staph species
Common mold
Bacterial colony morphology

2/28/16

pg 74 1. 1μm = 0.000001m
1nm = 10^{-9}m
1μm = 1000nm

2. a) light, Compound
b) dark field
c) phase constrast
d) fluorescent
e) electron
f) bright field or Diff. interference contrast (DIC)

3. a) ocular lens
b) objective lens
c.) diaphragm
d.) condenser
e.) illuminator (light source)

4. 10x • 100x = 1000x

5. beams of e⁻, magnets, TV screen or photo plate

6. Compound 2000x 0.2μm
electron 100,000x 0.0025μm

7. Bacterial cells have a net negative charge & the colored positive ions of a basic dye are attracted to the negative charge of the cell. Acid dyes do not stain a bacterial cell.

8. a. simple is used to determine cell shape & arrangement.
b. differential stain is used to distinguish kinds of bacteria based on their reaction to the differential stain.
c. a negative stain does not distort the cell & is used to determine shape, size & presence of a capsule.
d. flagella stain is used to determine the # and arrangement of flagella.

9. The mordant in a gram's stain is the gram's iodine, it combines with the crystal violet making a large complex that will not wash out of the cell.

10. The purpose of a counterstain is to add color to the cells that have lost the initial stain & the cells can be visualized

11. decolorizer gram⊖ = (wash) decolorize 1° stain from cells
acid fast = remove the stain from non-acid fast cells

12. endospore stain = safranin
gram's = safranin

Gram's Stain

1° stain – crystal violet (30-60seconds) stains all bacteria
mordant – gram's iodine
decolorizer – opens pores on gram neg. bacteria allowing the C.V. complex to leave. the C.V. complex remains in gram⊕
counter stain – safranin adds color to the now colorless gram⊖

gram's ⊕ = purple gram's ⊖ = pink

Prokaryotes -

Archaea - cells that lack peptidoglycan, tend to live in harsh environments. (Extremophiles)

a) methanogens: produce methane as a result of respiration
b) halophiles: live in areas of extreme salinity
c) thermophiles: live in extremely hot water
d) others can survive in pH extremes)
e) barophiles: live in areas of extreme pressure

Bacterial Cell Structure

Structure	Function
cell wall	• protect cells against osmotic shock • protect against physical damage • help regulate "in/out" of cell
Cytoplasmic membrane	• regulation of substance transport into & out of cell.
Chromosome	• contain genome
plasmid	• contains supplemental genetic information such as resistance to antibiotics, production of toxins, and tolerance to toxic environments
Ribosome	• take part in protein synthesis)
flagella	• movement of cells
inclusion body	• mineral storage of cells
pili	• attachment & exchange of genetic material
endospore	• tough, heat resistant structure that help bacteria survive adverse conditions.