
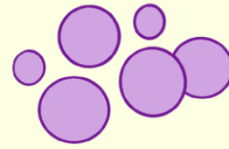

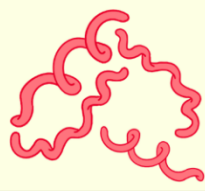
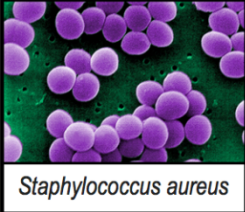

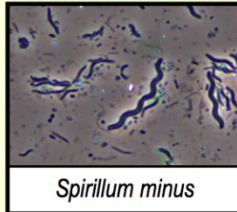


CONCEPT: BACTERIAL CELL MORPHOLOGY & ARRANGEMENTS

- **Cell Morphology:** refers to the overall _____ of *individual* cells.
- **Cell Arrangement:** refers to the _____ or alignment of groups of multiple cells.

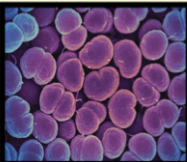

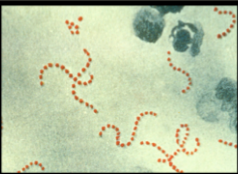

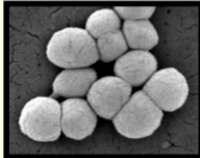

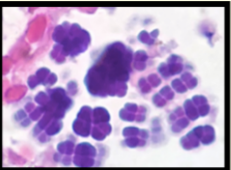

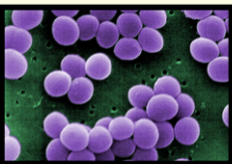

Types of Bacterial Cell Morphology

- Bacterial cells typically range between 0.2–2.0 _____ in diameter & 2–8 µm in _____.
- There are _____ main bacterial cell morphologies:

① Coccus	② Bacillus	③ _____ 
_____ - shaped	_____ - shaped	Corkscrew-shaped
		
		
<i>Staphylococcus aureus</i>	<i>Escherichia coli</i>	<i>Spirillum minus</i>

Cocci Bacterial Cell Arrangements

- **Cocci:** _____-shaped bacterial cells that can be round or flattened (like a hockey puck).
- *Cocci* cells can be _____ (or organized) in many different ways after cell division:

<p>① Diplococci</p> <p>____ cells that remain attached.</p> <div></div> <p><i>Neisseria gonorrhoeae</i></p>	<p>② Streptococci</p> <p>____-like pattern of multiple cells.</p> <div></div> <p><i>Streptococcus pyogenes</i></p>	<p>③ Tetrad</p> <p>Cluster of ____ cells arranged on the same plane.</p> <div></div> <p><i>Micrococcus luteus</i></p>
<p>④ Sarcinae</p> <p>Cluster of 8 cells arranged into a ____.</p> <div></div> <p><i>Sarcina ventriculi</i></p>	<p>⑤ Staphylococci</p> <p>Cluster of many cells in an irregular pattern.</p> <div></div> <p><i>Staphylococcus aureus</i></p>	


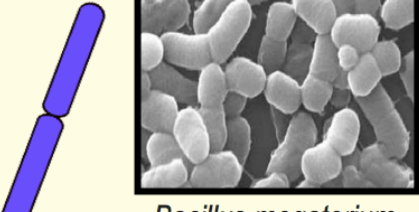
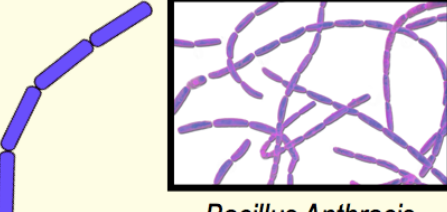

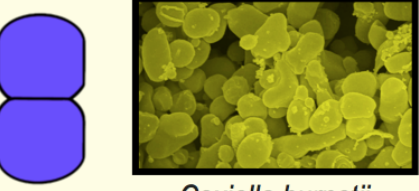
CONCEPT: BACTERIAL CELL MORPHOLOGY & ARRANGEMENTS

PRACTICE: Streptococcus bacteria have what shape?

- a) Single thin cells that are bulbous at one end.
- b) Chain of spiral cells.
- c) Cluster of rod-shaped cells.
- d) Cluster of spherical cells.
- e) Chain of spherical cells.

Bacilli Bacterial Cell Arrangements

- **Bacilli:** _____-shaped bacterial cells that can only divide across their *short* axis.
- Since bacilli can only divide in ____ plane, they have *fewer* possible arrangements than *cocci*:

<p>① Single Bacillus</p> <p>A single cell. (Most common)</p>  <p><i>Escherichia coli</i></p>	<p>② Diplobacilli</p> <p>_____ cells that remain attached.</p>  <p><i>Bacillus megaterium</i></p>
<p>③ Streptobacilli</p> <p>_____ -like pattern of multiple cells.</p>  <p><i>Bacillus Anthracis</i></p>	<p>④ Coccobacilli </p> <p>Short _____ or ovals that can appear as diplococci.</p>  <p><i>Coxiella burnetii</i></p>

PRACTICE: What is the morphology of the cells in the image below?

- a) Diplobacilli.
- b) Streptobacilli.
- c) Cocobacilli.
- d) Streptococci.

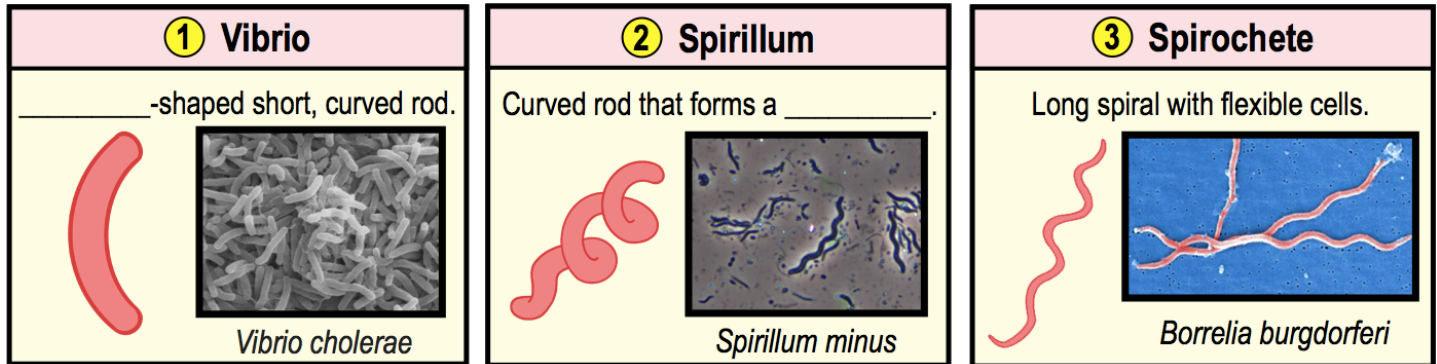


CONCEPT: BACTERIAL CELL MORPHOLOGY & ARRANGEMENTS

Spiral-shaped Bacterial Cells

● **Spiral-shaped** cells can have a few varied morphologies are never *completely* straight.

EXAMPLE: The different morphologies of spiral-shaped cells



PRACTICE: *Vibrio cholerae* causes the disease cholera. Based on the name of the bacterium, what is its shape?

- a) Spherical.
- b) Straight cylinder.
- c) Curved rod.
- d) Chains of cocci.
- e) Chains of rods.

PRACTICE: Which of the following is mismatched:

- a) Vibrio - comma-shape.
- b) Coccobacilli - intermediate between round and rod.
- c) Coccus – round.
- d) Bacillus - flexible and wavy.
- e) Spirillum - corkscrew-shape.

PRACTICE: A chain of rods is referred to as _____, whereas a curve shaped rod is termed _____.

- a) Coccobacilli; bacilli.
- b) Streptobacilli; vibrio.
- c) Streptococcus; comma .
- d) Bacilli; spirochete.
- e) Diplobacilli; vibrio.

CONCEPT: BACTERIAL CELL MORPHOLOGY & ARRANGEMENTS

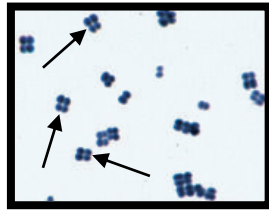
PRACTICE: What type of cell is shown in the image below?

- a) Staphylobacilli.
- b) Streptococci.
- c) Staphylococci.
- d) Streptobacilli.



PRACTICE: What type of cell arrangement is shown in the image below?

- a) Streptococci.
- b) Vibrio.
- c) Sarcinae.
- d) Tetrad.
- e) Single bacillus.



PRACTICE: Match the following cell morphologies with the correct description:

- | | |
|---------------------------|---|
| 1) _____: Diplobacilli | A. Long spiral with flexible cells. |
| 2) _____: Streptococci | B. Single rod-shaped cell. |
| 3) _____: Vibrio | C. 2 rod-shaped cells that remain attached. |
| 4) _____: Diplococci | D. Cluster of 4 spherical cells arranged on one plane. |
| 5) _____: Spirochete | E. 2 spherical cells that remain attached. |
| 6) _____: Tetrad | F. Comma-shaped, short & bent cells. |
| 7) _____: Single Bacillus | G. 2 short rod-shaped (or oval) cells that remain attached. |
| 8) _____: Coccobacilli | H. Chain-like pattern of spherical cells. |
| 9) _____: Staphylococci | I. Cluster of 8 spherical cells arranged like a cube. |
| 10) _____: Spirillum | J. Curved rod that forms a spiral. |
| 11) _____: Sarcinae | K. Chain-like pattern of rod-shaped cells. |
| 12) _____: Streptobacilli | L. Cluster of many spherical cells in a randomized pattern. |