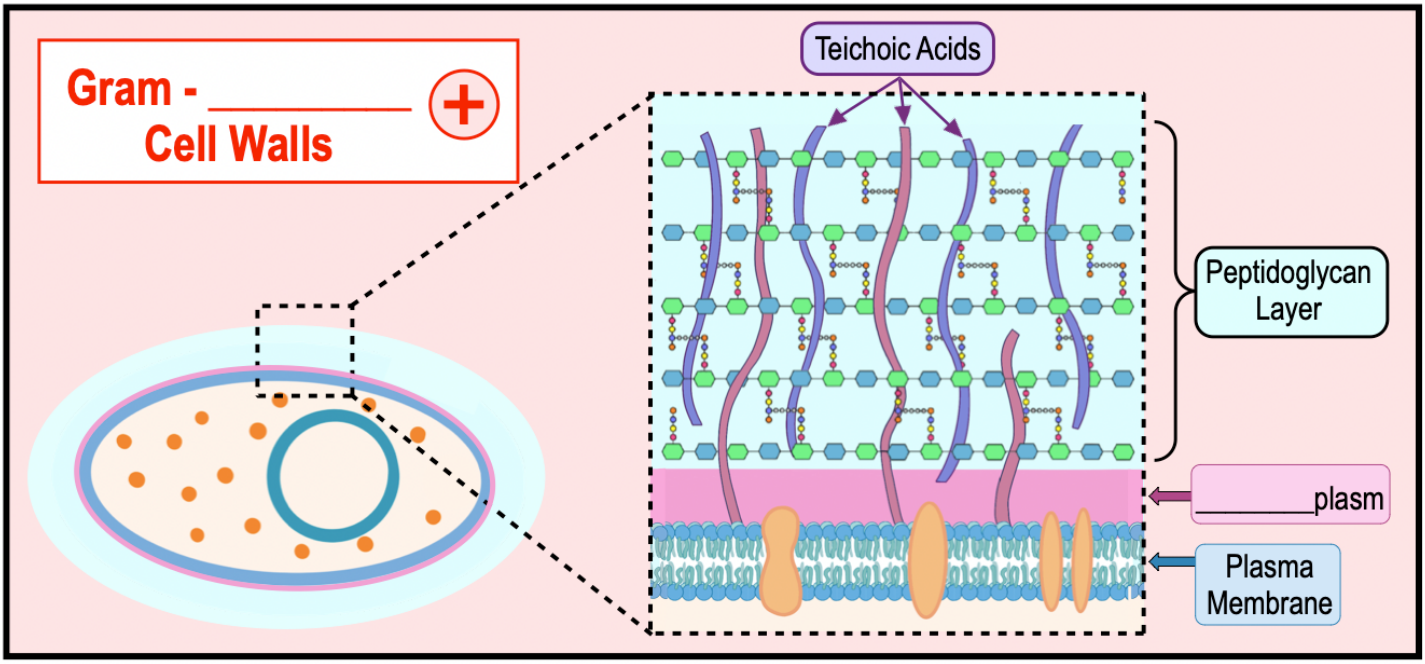
CONCEPT: GRAM-POSITIVE CELL WALLS

- *Recall:* Gram-positive cell walls are made of a _____ layer of peptidoglycan.
  - □ _____ molecules like sugars & amino acids can pass across freely.
- Between the cell wall & plasma membrane is a *gel-like* substance called the _____ *(Periplasmic space).*
- Polymers of sugars called _____ *acids* are also found in the cell wall.

EXAMPLE: Overview of a gram-positive cell wall structure.



PRACTICE: The cell wall of Gram-positive bacteria:

a) Contains a thin layer of peptidoglycan.
b) Contains a thick layer of peptidoglycan.
c) Is an excellent barrier to most small molecules.
d) Contains an outer membrane.

PRACTICE: _____ are sugar polymers found in the cell wall of gram-positive bacteria.

a) Lipoproteins.
b) Lipopolysaccharide.
c) Teichoic Acids.
d) Slime layers.

CONCEPT: GRAM-POSITIVE CELL WALLS

Teichoic Acids

●**Teichoic Acids:** polymers of *glycerol* or *ribitol* connected by *negatively* charged _____ groups.

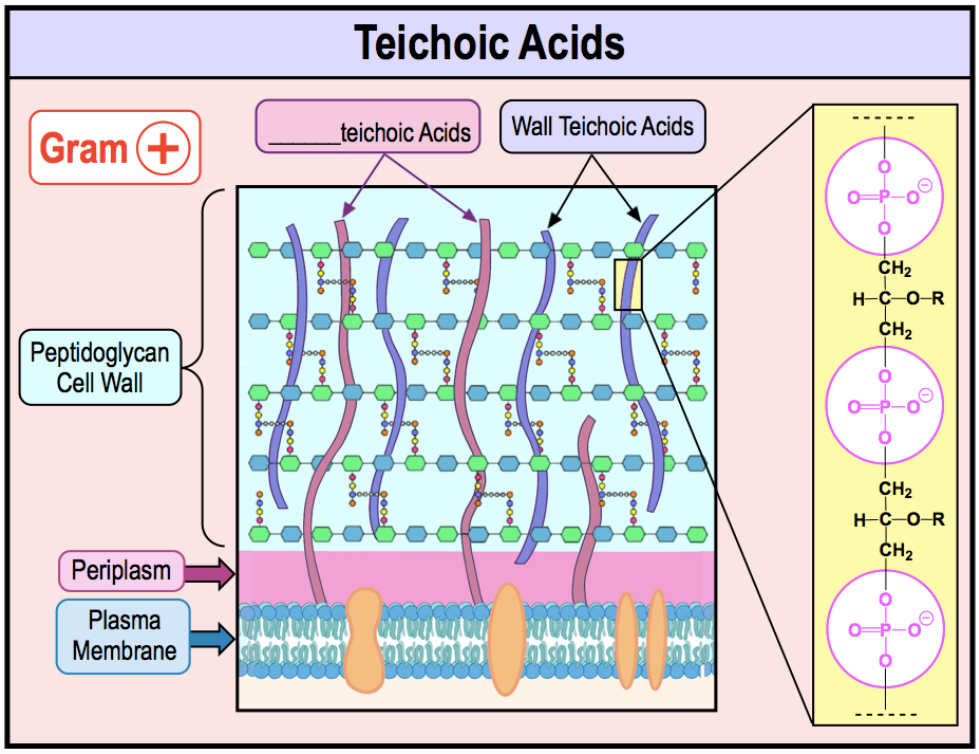
□ Act as cation reservoirs by binding to _____ charged molecules (Ex. Mg^{2+} & Ca^{2+}).

□ "*This will be important for when we talk about the gram stain procedure in detail".*

●There are 2 types of *teichoic acids*:

1) _____ **teichoic acids:** only linked to the peptidoglycan layer.

2) **Lipoteichoic acids:** linked to the cell _____ & spans the *entire* peptidoglycan layer.



●Gram-negative cells do NOT have teichoic acids & are anchored to the membrane using a specific _____.

PRACTICE: Teichoic acids are typically found:

a) In the cell wall of gram-negative cells.

b) The outer membrane of gram-negative cells.

c) In the cell wall of gram-positive cells.

d) The outer membrane of gram-positive cells.