Section 2: The Plasma Membrane

**MAIN IDEA**
The plasma membrane helps to maintain a cell’s homeostasis.

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Essential Questions

• How does a cell’s plasma membrane function?
• What are the roles of proteins, carbohydrates, and cholesterol in the plasma membrane?
Vocabulary

Review
• ion

New
• selective permeability
• phospholipid bilayer
• transport protein
• fluid mosaic model
Function of the Plasma Membrane

- The process of maintaining balance in an organism’s internal environment is called homeostasis.
- One of the structures responsible for homeostasis is the plasma membrane.
- The plasma membrane forms a thin, flexible boundary between a cell and its environment.
Function of the Plasma Membrane

- Plasma membranes have selective permeability, meaning they allow some substances to pass through while keeping others out.
- Control of how, when, and how much of various substances enter and leave a cell depends on the structure of the plasma membrane.
Structure of the Plasma Membrane

The phospholipid bilayer

- The plasma membrane is composed of **phospholipid bilayer** – two layers of phospholipids are arranged to allow the membrane to exist in a watery environment.
- The phospholipid bilayer has polar heads facing outside and nonpolar tails facing inside the cell, allowing the membrane to keep the internal and external environments separate.
Structure of the Plasma Membrane

Other components of the plasma membrane

- The plasma membrane also contains cholesterol, proteins, and carbohydrates.
- Some proteins called receptors transmit signals to the inside of the cell.
- Some proteins serve as support structures for the membrane.
- **Transport proteins** move needed substances and wastes through the membrane.
Structure of the Plasma Membrane

Other components of the plasma membrane

- Cholesterol prevents the fatty acid tails of the phospholipid bilayer from sticking together.
- Cholesterol contributes to the fluidity of the membrane.
Structure of the Plasma Membrane

Other components of the plasma membrane

- Carbohydrates define the cell’s characteristics
- Help cells identify chemical signals
Structure of the Plasma Membrane

Other components of the plasma membrane

• The **fluid mosaic model** describes the phospholipids in the bilayer as a “sea” in which other components can float and move around.

• The different substances in the plasma membrane create a pattern or mosaic on the surface of the cell.
Plasma Membrane

Animation

Add link to animation from page 190 (Figure 7) here.
Review

Essential Questions

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