biology

module: Cells and Cell Processes
unit: Cell Transport

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TEKS

4B Investigate and explain cellular processes, including homeostasis, energy conversions, transport of molecules, and synthesis of new molecules

11A Describe the role of internal feedback mechanisms in the maintenance of homeostasis

instructional content:

- Cell membrane structure
  - Fluid mosaic model
  - Role of membranes in organelles
  - Selective permeability
- Passive transport
  - Concentration gradient
  - Diffusion
  - Osmosis
  - Types of solutions: hypertonic, hypotonic, isotonic
  - Facilitated diffusion
- Active transport
  - Endocytosis (phagocytosis, pinocytosis)
  - Exocytosis

learning outcomes students will:

- Use all content and scientific process skills learned earlier in the course
- Describe the functions of the cell membrane
- Identify the structural components of the cell membrane
- Describe and explain the fluid mosaic model of membrane structure
- Explain selective permeability
- Differentiate between diffusion and osmosis
- Define hypertonic, hypotonic, and isotonic
- Determine a cell's response to a concentration gradient
- Describe how facilitated diffusion transports molecules
- Identify when and where osmosis, diffusion, and facilitated diffusion occurs in a cell
- Describe the principles involved with active transport
- Differentiate between passive and active transport
- Compare and contrast endocytosis and exocytosis
- Differentiate phagocytosis and pinocytosis as a form of active transport

Incorporate scientific process skills during the instruction of all Biology concepts.
Look for this icon at wardsci.com/TEKS for more information on scientific process skills.

Recommended Ward's Science products with item numbers for easy online searching:

science tools:

The Cell Membrane Microslides **269240**
Dialysis Tubing **6141701**
Dialysis Tubing Funnels **144618**
Dialysis Tubing Closure, 50 mm **154522**
Plastic Slide and Coverslip Lab Pack **143558**
Ward's Biomembrane Model **810142**

instructional resources:

Fluid Mosaic Magnetic Chalkboard Model **4748100**
Interactive Whiteboard Science Lesson CD: Osmosis & Diffusion **745164**
EggCellent Cell Membrane Activities **4785400**
Ward's Osmosis and Diffusion Lab Activity **365405**
Ward's Plasmolysis in Plant Cells Lab Activity **366065**
Ward's Why Cells Shrink and Swell Lab Activity **366207**
Osmosis and Diffusion Lab Activity **367111**
Osmosis in Action Kit **4554400**
Science Take-Out Experiments: Just Add Students! **367335**

The Plus is Us. Your Texas Personal Account Managers: **mary.ingle@vwr.com** **holly.ahern@vwr.com** **jill.lewis@vwr.com**

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