

## Data Set #6

|                              |  |
|------------------------------|--|
| Type of response:            | Non-Source Dependent Response  |
| Grade level:                 | 10   |
| Subject:                     | Biology  |
| Training set size:           | 1797   |
| Final evaluation set size:   | 599  |
| Average length of responses: | 50 words   |
| Scoring:                     | Score1, Score2   |
| Final score:                 | Final score is score 1. Score 2 is for inter-rater reliability purposes. |
| Rubric range:                | 0-3  |

### *Prompt—Cell Membrane Item*

List and describe three processes used by cells to control the movement of substances across the cell membrane.

### *Rubric for Cell Membrane*

#### Key Elements:

- Selective permeability is used by the cell membrane to allow certain substances to move across.
- Passive transport occurs when substances move from an area of higher concentration to an area of lower concentration.
- Osmosis is the diffusion of water across the cell membrane.
- Facilitated diffusion occurs when the membrane controls the pathway for a particle to enter or leave a cell.
- Active transport occurs when a cell uses energy to move a substance across the cell membrane, and/or a substance moves from an area of low to high concentration, or against the concentration gradient.
- Pumps are used to move charged particles like sodium and potassium ions through membranes using energy and carrier proteins.
- Membrane-assisted transport occurs when the membrane of the vesicle fuses with the cell membrane forcing large molecules out of the cell as in exocytosis.
- Membrane-assisted transport occurs when molecules are engulfed by the cell membrane as in endocytosis.
- Membrane-assisted transport occurs when vesicles are formed around large molecules as in phagocytosis.
- Membrane-assisted transport occurs when vesicles are formed around liquid droplets as in pinocytosis.
- Protein channels or channel proteins allow for the movement of specific molecules or substances into or out of the cell.

#### Rubric:

##### 3 points

Three key elements

##### 2 points

Two key elements

1 point

One key element

0 points

Other