## Data Set #6

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| 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