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Topic: Endocytosis Activity

Summary: Students try to figure out how to put Hershey candies into a paper bag without exposing the inside of the bag.

Goals & Objectives: Students will be able to demonstrate how cells perform endocytosis, called phagocytosis.

Standards: MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.

Time Length: 20 minutes

Prerequisite Knowledge: cell membrane, passive and active transport, vesicles, knowledge of endocytosis and exocytosis.

Materials:

- Paper lunch bags – for every student
- 10 cm of string – for every student
- Hershey Kisses or other items acting as food – for every student
- Scissors – for every student

Procedures:

1. Give each student the supplies. Let students share if there are not enough scissors.

2. Tell the students they are to pretend that the bag is like a cell. The paper part of the bag is like the cell membrane and the air inside the bag is like the cytoplasm. The cell needs to eat a large molecule, like a protein or a starch.

3. The students need to figure out how to get the large molecules into the bag without exposing the inside of the bag to the air. Students cannot put the molecules through the top of the bag but can stick their hand in through the top.

4. Remind students that they will need to use all the supplies given and that they are performing endocytosis, not exocytosis.

5. Students may attempt to punch a hole through the bag, turn the bag inside out, etc. This is a great time to remind students that the inside of the cell may never be exposed to the outside. Let students try to figure out the activity on their own for at least 5 minutes without hints. Give students a new bag if they end up creating a hole in the bag.

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6. If no one has figured it out after 5 minutes, give a demonstration hint by holding one hand in the bag, while the other hand pushes the chocolate into the side of the bag. Wait another 3 minutes and then give the students the hint that the string and the scissors must be used inside the bag. Once one student has figured out the answer, they show you their results and not tell any other students. The goal is for students to figure this out by themselves. Once a student has finished, they can eat their food molecule.

Accommodations: Student with physical limitations can verbally participate by offering advice to their lab partner. Students with an IEP should be partnered with a strong science student.

Editable DOCX File and Answer Key:

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