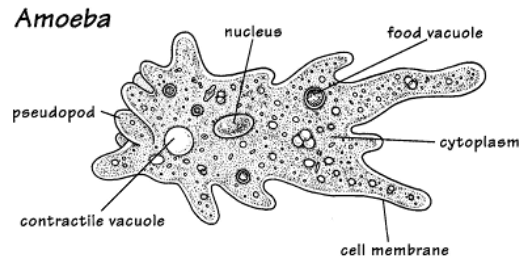


# INDESTRUCTIBLE THE SCIENCE OF ... IT EATS YOU ALIVE! NOTHING CAN STOP IT!



## Should we be worried?

The Blob is a giant single celled organism that came from outer space **engulfing** its prey and crawling along by sending out extensions of **cytoplasm** (jelly like inner fluid found in a cell) called **pseudopods** (False feet).



If you're familiar with the organisms that live in a drop of pond water, you may find one that looks eerily similar. The **protozoan** known as an **Amoeba** was the model for this creature from outer space.

## THE SCIENCE

Cell membranes are the gatekeepers of the cell. They control what can come in and what can leave the cell. The cell membrane is a unique structure that is made of a double layer of phosphates and lipids that create a boundary that is simultaneously water-loving (**Hydrophilic**) and water-fearing (**Hydrophobic**) at the same time, creating a barrier that is **selectively permeable** to the environment around it.

### ACTIVITY 1: WHY CAN'T WE HAVE "BLOB"-SIZED AMOEBAS?

Cell size is limited by the ratio of the available surface area to the cell's volume. The volume of an object increases three times faster than the surface area. Cells rely on a combination of simple **diffusion** and a network of internal membranes to help **transport** gases and nutrients into the center of the cell. But even this has its limitations.

→Fill your hand with some of the bubble solution and blow a bubble using a straw. Insert the straw into the bubble and blow another one inside.

You just created an internal membrane that could function as a way to transport material deep into the cell.

We could never have one as big as The Blob but now you know why!

### Materials needed:

**4 drinking straws:** to make the bubble frame. Insert the end of one straw into the end of another one to make a 4 sided square. Bendy straws work best

**4 oz of Dishwashing liquid** (we recommend Dawn)

**1 Tbs of corn syrup**

**9x9 casserole dish** or other wide shallow dish

### ACTIVITY 2: COULD THE BLOB REALLY EAT A HUMAN?

**Cell membranes** are self healing which means that large objects can conceivably pass through them without damaging the cell.

Say what now? .....Try it!

→Coat your hand with the bubble solution. Create a film of bubble solution inside the straw frame and then carefully push your ENTIRE hand through the film and then pull it back out.

WOW!! You were just "eaten" by The Blob

**Use of models:** You just created a model to test a theory. Models are used by scientists to test and study phenomena that are not easily observed, like the cell membrane. Look around you. Can you find other situations where you could use a model to help you better understand a difficult concept?