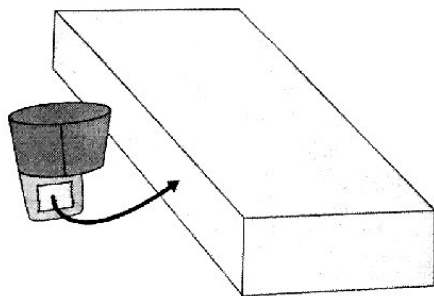
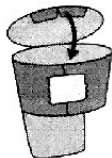
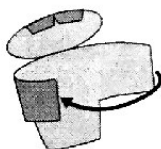
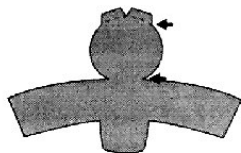
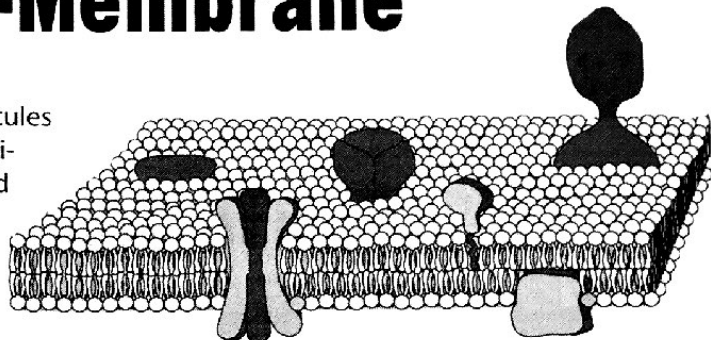


Name \_\_\_\_\_

Date \_\_\_\_\_

# Build-A-Membrane

Cell membranes are made of phospholipid molecules that arrange themselves into two rows called a bilayer. Proteins are embedded in the phospholipid bilayer, through one or both layers. These proteins help other molecules cross the membrane and perform a variety of other functions. Create a model of a small section of cell membrane by following the instructions below.



1. Cut out the phospholipid bilayer (page S2) along the solid lines. Cut all the way to the edges of the paper in the direction of the arrows.
2. Fold the phospholipid bilayer along the dotted lines and tape the edges together to form a fully enclosed rectangular box.
3. Cut out each protein (pages S3 and S4) along the solid black lines and fold along the dotted lines.
4. Form a 3-D shape by joining the protein sides and tops together and tape them in to place. Use the tabs to help you.
5. Tape the 3-D proteins into place along the edges of the phospholipid bilayer.
6. By staggering the transmembrane proteins back and forth along both long sides of the bilayer "box", the whole model will stand up by itself on a table.

# Phospholipid Bilayer

Fold along dotted lines.

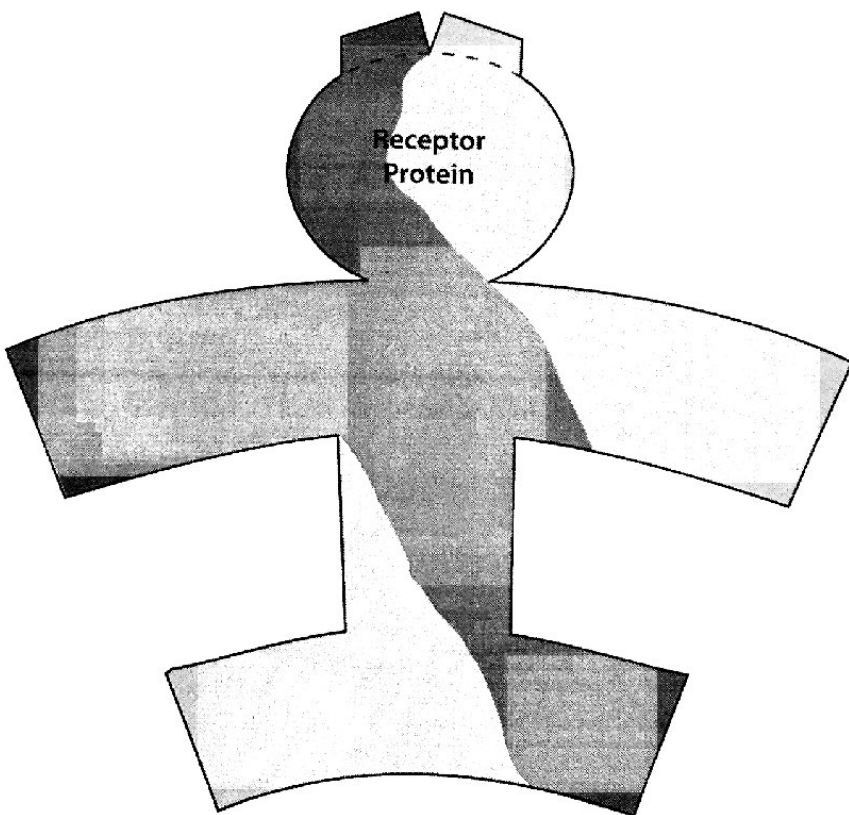
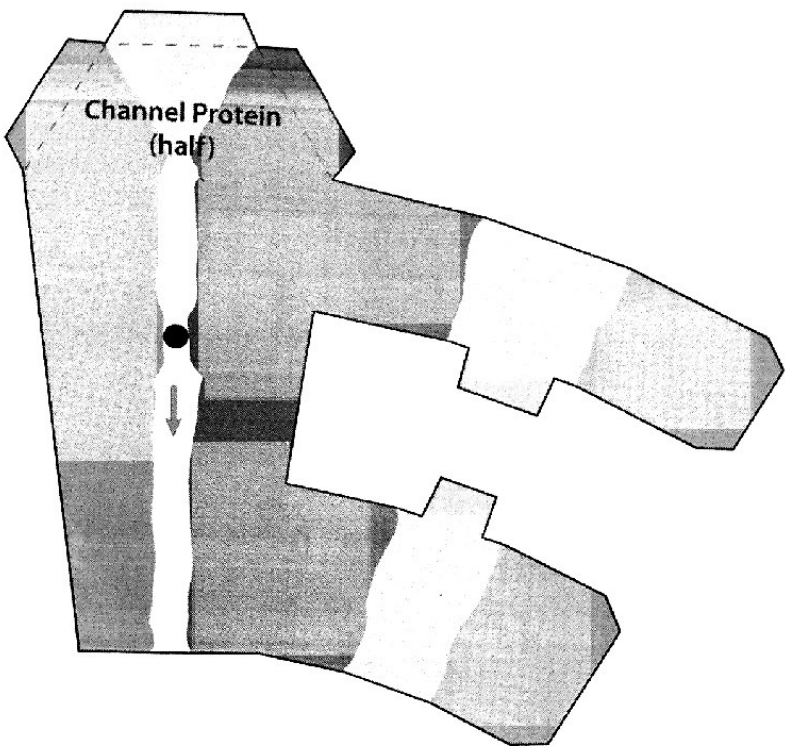
← Cut all the way to the edge

Cut all the way to the edge →

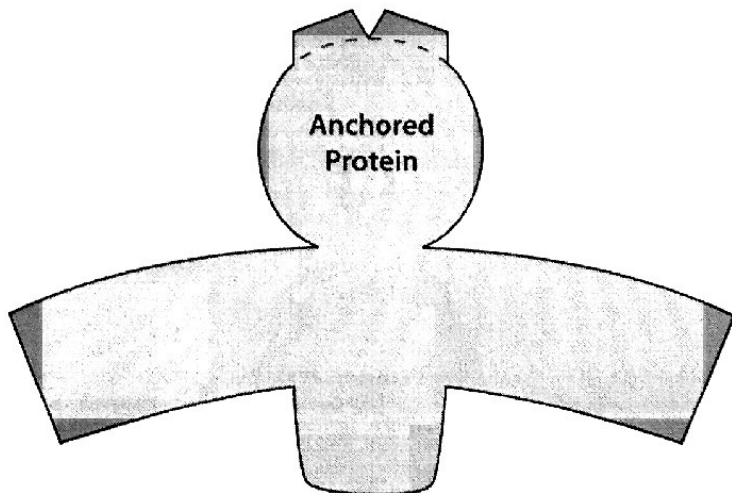
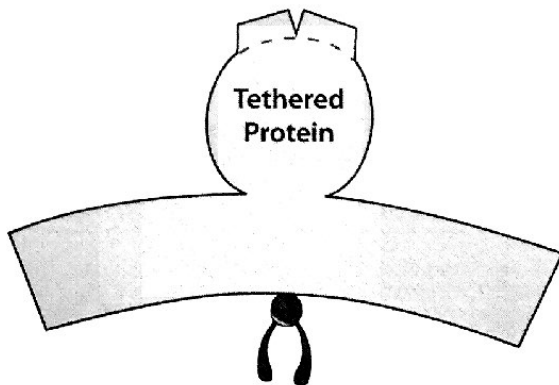
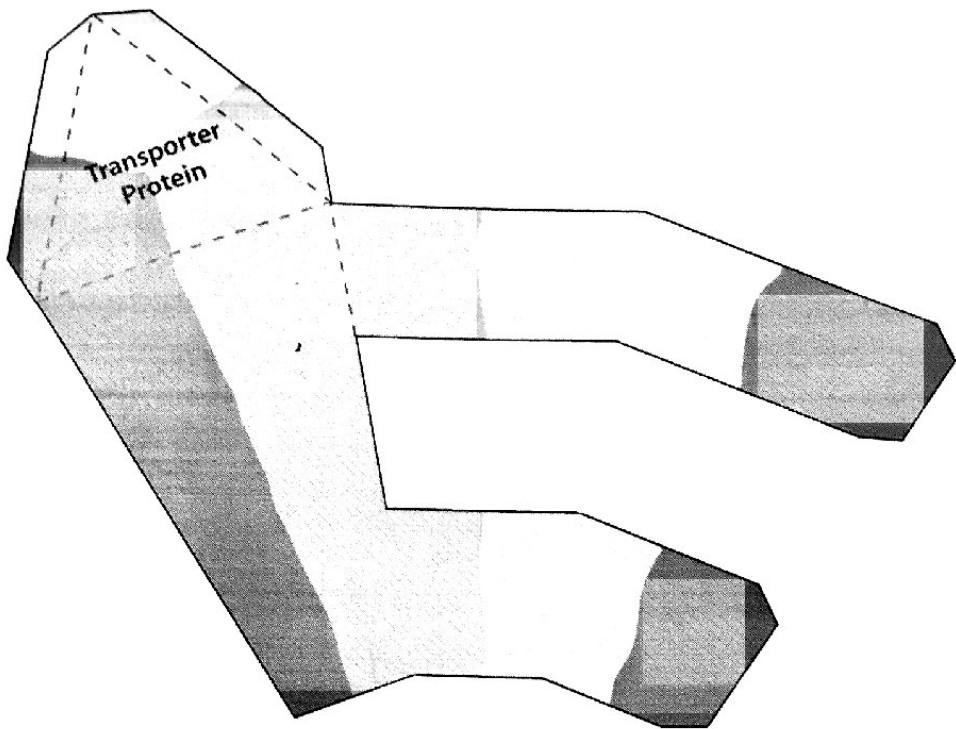
← Cut all the way to the edge

Cut all the way to the edge →

## Protein Cut-outs



## Protein Cut-outs



Now that you've constructed your model answer use it and your text book to answer the following questions:

1. Describe the chemical properties of a phospholipid:
2. Using your models and the answer to number one, explain how the structure of the cell membrane controls what goes in and out of the cell.
3. Describe the role or potential role of each of the proteins you've attached to you cell membrane model.
4. Explain what happens to the cell membrane when diffusion and osmosis occurs.
5. Explain what happens with the cell membrane when facilitated diffusion occurs.
6. Explain what happens to the cell membrane when active transport occurs.

Make sure your name is on your model and the paper you've answered these questions on and turn it in.