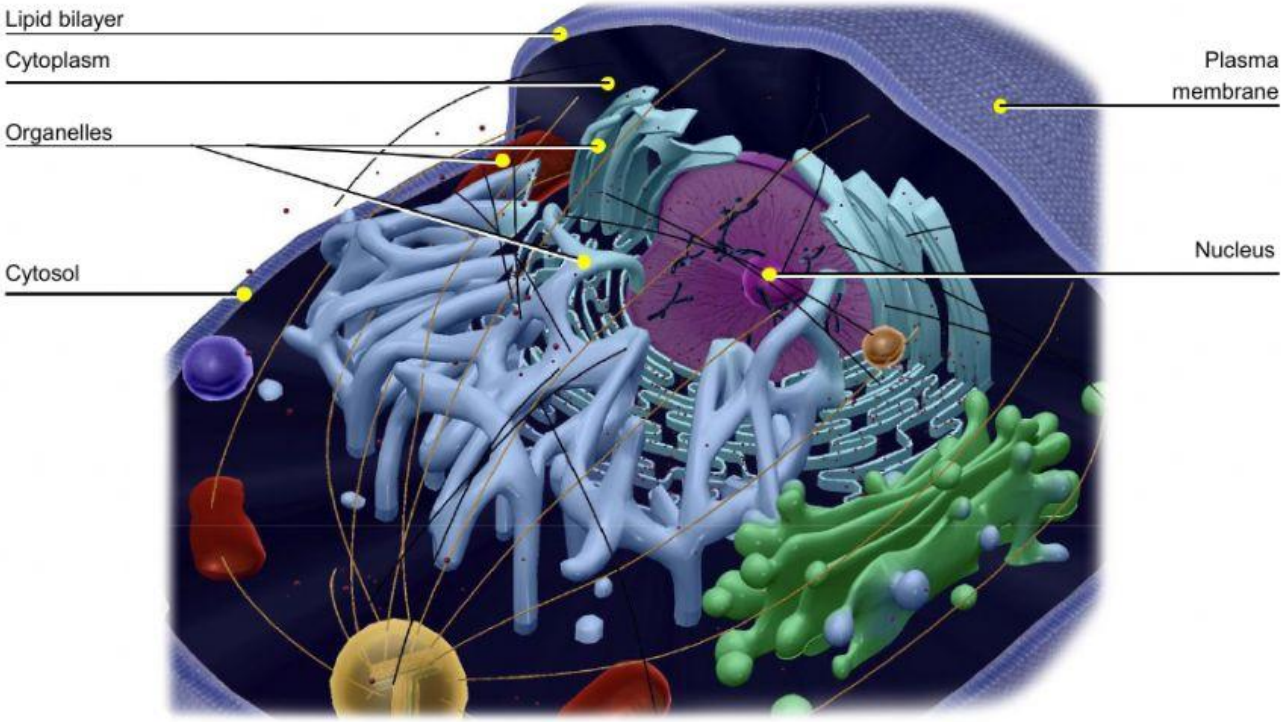
name

IN-LAB EXERCISES

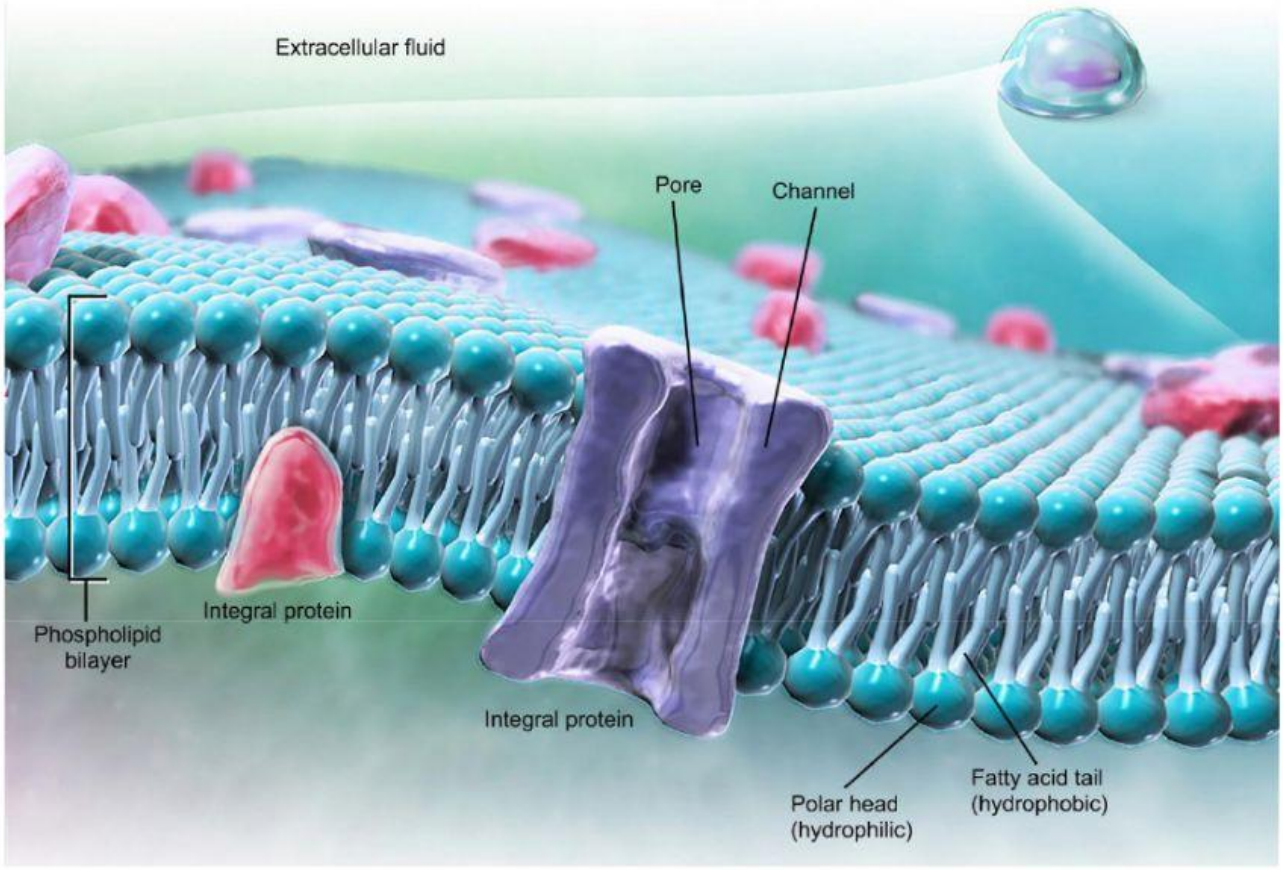
A. Cell Parts and the Plasma Membrane

Explore the 3D anatomical views in Modules 2.1 Parts of a Cell and 2.2 Plasma Membrane and examine the illustration in Module 2.3 Structure of the Plasma Membrane to learn about three major cellular structures. Use these modules to answer the following questions.

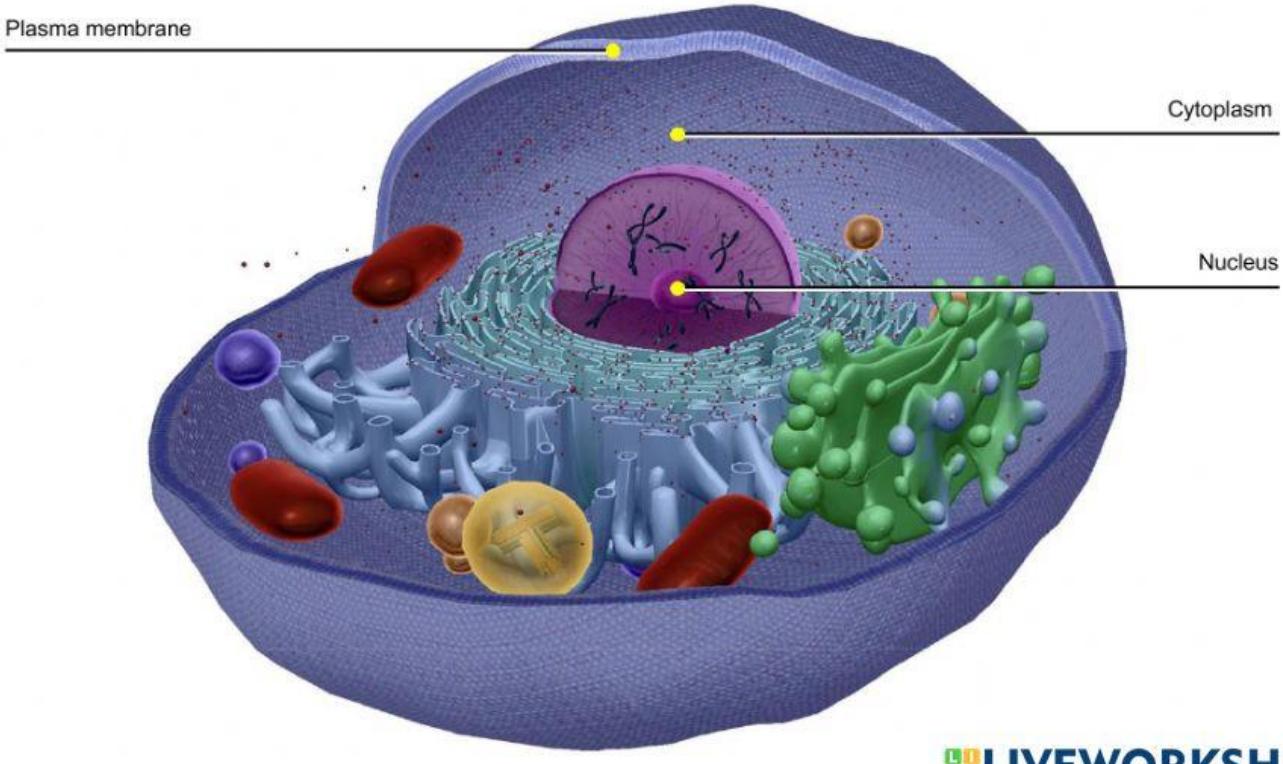
Modules 2.1 Parts of a Cell and 2.2 Plasma Membrane



Module 2.3 Structure of the Plasma Membrane



1. In the following diagram, label the major cellular structures: **the nucleus, cytoplasm**, and **plasma membrane**.



2. Although most cells have the three structures labelled in the previous diagram, there are some rare exceptions. What is an example of a type of cell that is missing one of these structures, and what structure is it?

3. The outer membrane of a cell (plasma membrane) and all the membranes found within a cell are built largely of **phospholipids** that are organized in a bilayer. For your reference, a simplified diagram of a phospholipid is provided below. In the following space, carefully draw a phospholipid bilayer that contains approximately twelve phospholipids. Then, label a hydrophilic **phospholipid polar head** and a hydrophobic **phospholipid fatty acid tail**. Finally, draw and label some membrane **proteins**.

4. Phospholipids in an aqeous (water) solution may spontaneously form bilayers. Why will they spontaneously form these structures?

5. Proteins are found in and around a lipid bilayer. What are some functions of these proteins?