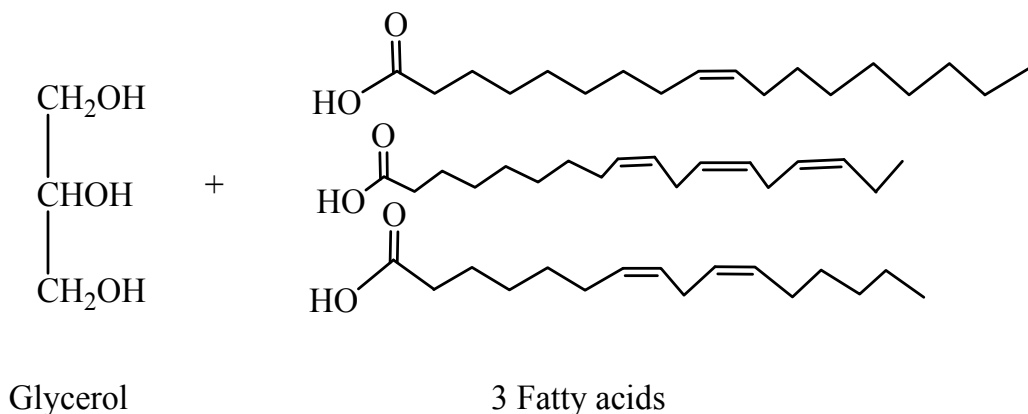


4.



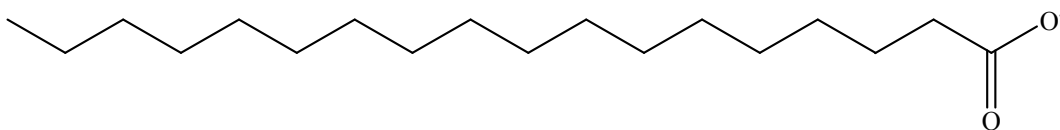
5. No. It is mostly nonpolar and is fairly insoluble in water. It does not follow the Golden Rule of Solubility.

Part 2. Distinguishing a Fat and an Oil

1. The oil has more unsaturated bonds than the fat.
2. Oil
3. The fat must make more contacts between the chains than the oil. The unsaturated fatty acids do not stack as closely as the saturated fatty acids and are easier to melt (less contacts, lower melting point).

Part 3. Hydrogenation of Dietary Fats

1.



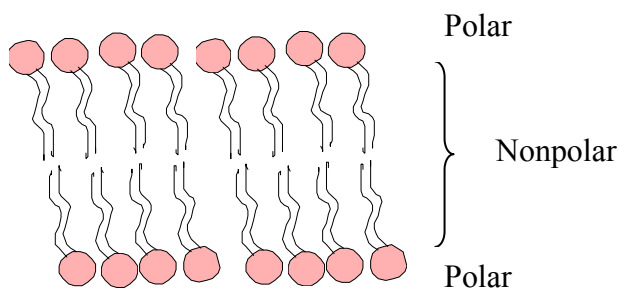
2. The natural oils contain unsaturated cis double bonds, which are much more reactive than saturated bonds. They will react with oxygen in the air, which degrades them (causing rancidity).

Activity 27: Skill Development—Hydrogenation of Dietary Fats

1. a. 3 b. 5 c. 6

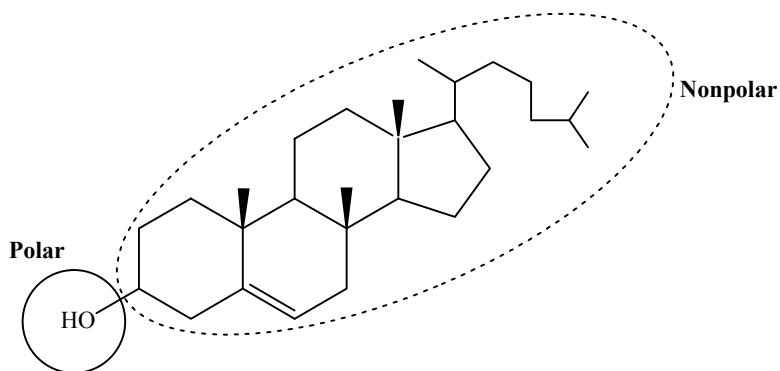
Part 4. Phospholipids and Bilayers

1. A phospholipid contains fatty acids bonded through esters to a glycerol molecule like a triglyceride. The phospholipid only contains two fatty acid chains. The third fatty acid chain is substituted with a phosphate group.
2. No. A phospholipid has a large nonpolar part and a large polar part, which does not make it very soluble in water.
3. Aqueous solution above and below the bilayer



Part 5. Cholesterol

1. Because it is mostly nonpolar, cholesterol is a lipid.
- 2.



3. An essential nutrient must be obtained in the diet. Since humans synthesize their own cholesterol, it is not essential.

Activity 27: Skill Development—Phospholipids and Bilayers, Cholesterol

1. The exterior of the bilayer is polar and has attractive forces in common with the water, the interior of the bilayer is nonpolar and would keep polar molecules (with the exception of water) and ions from freely crossing the cell membrane. The interior of the phospholipid bilayer also has attractive forces in common with water, so the aqueous contents of a cell are accommodated inside.
2. Small oval with OH is cholesterol. It is about half the length of a phospholipid.

