1. Choline and serine are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They are alcohols with an ammonium group.
2. Draw an example of the formation of a **phosphate ester**.

(phosphoric acid + alcohol🡪 phosphate ester + water)

* 1. Now, if you add more alcohol to the phosphate ester, a **phosphate diester** will form. Draw this.

1. Draw a cartoon of a **glycerophospholipid**. Next to it, draw an example using steric acid for the fatty acids and ethanolamine as the amino alcohol.
2. A cell membrane is a lipid bilayer made of two rows of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The polar heads face **in / out** while the nonpolar tails face **in / out**.
3. Determine whether the description is either one for DNA or RNA.
   1. \_\_\_\_\_\_\_ Stores genetic information
   2. \_\_\_\_\_\_\_ Is found throughout the cell
   3. \_\_\_\_\_\_\_ Directs cell function
   4. \_\_\_\_\_\_\_ Is found in the cell nucleus
   5. \_\_\_\_\_\_\_ Synthesizes proteins and RNA
4. Label the following descriptions as either **mRNA, rRNA, or tRNA**.
   1. \_\_\_\_\_\_\_ Helps form the structure of the ribosomes
   2. \_\_\_\_\_\_\_ Carries the DNA information from the nucleus to the ribosomes, where protein synthesis occurs
   3. \_\_\_\_\_\_\_ Brings specific amino acids to the ribosomes
5. Give three descriptions of nucleic acid structure: what are they, what is the primary structure, and what is the secondary structure?
6. What are nucleotides and what are the three parts that they consist of?