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L'Quan Thomas
Lesson Plan - Functional Groups

[Slide 1] Can anyone describe what a molecule is?

A group of atoms bound together. Ex: Water (H₂O)

Today we're going to learn about molecules that consist of Carbon and Hydrogen bonds.

[Slide 2-3] Does anyone know what functional groups are? Can you name a few? Can you point out a functional group in a molecule?

A particular part attached to the carbon chain that help determine some of its properties.

In regards to (organic) chemistry, a functional group is a portion of a molecule that is a recognizable/classified group of bound atoms. The functional group gives the molecule its properties, regardless of what molecule contains it. The functional groups within a molecule need to be identified when naming.

****Here is a molecule can you point out the functional group? (3D model)**

[Slide 4] There are many functional groups but today I will only focus on five: Alcohol, Ketone, Ester, Amine and Carboxyl also called Carboxylic Acid.

**** Usually the functional group that a molecule contains helps in naming that molecule.**

[Slide 5-6] For instance, based on the five functional groups that I have listed can you tell me what functional group Fenchol contains? Think about the ending of this molecule, does it match the ending of any of the Functional groups?

****Fenchol contains an Alcohol functional group, you can tell by its -ol ending. ****

[Slide 7] Molecules may contain more than one functional group – Amino Acid is a great example. Can you guess which two functional groups it contains based off of its name? The amino group as well as the carboxyl group. ******

[Slide 8] Here is a list of the five functional groups that we will be exploring today and what they look like.

Note: The 'R' stands for the Hydrogen's and Carbons that the functional group is connected to.

[Slide 9] We will also explore the different smells that certain functional groups contain. Is everyone familiar with Vicks Vapor Rub? How would you describe the

smell? Do you know the active ingredient that it contains? Based off of that can you guess which functional group it contains? So now what can you tell me about alcohols and the way that they smell? **

[Slide 10] There are 5 Possible smells for the functional groups that we will be looking at today: sweet, minty, pine, fishy and putrid.

**So now I will give you a worksheet to complete. For each molecule on the worksheet, you need to circle the functional group, write the name of that functional group and then you will determine the smell (by smelling the vials) and answer the questions last. Then we'll go over the questions together.

**The number on vials matches the #of the model number for the molecule that it corresponds to. The first few have been done for you.