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# STEM Sims

#### **Lesson 1: Life Models**

Organic chemistry has been called the chemistry of life since living organisms consist of and rely on so many organic molecules. The vast number of carbon-based molecules result from the combination of carbon with many other atoms. Your challenge is to identify various organic molecules, functional groups, and basic organic reactions. Get ready, get set, go organic!

### **Doing the Science**

#### Part I: Naming Basic Hydrocarbons

- 1. Open the Organic Models simulation.
- 2. Select the practice or test mode based on your instructor's directions.
- 3. If not already selected, choose the hydrocarbons button at the bottom of the screen.
- 4. View the molecule on the left side of the screen. Then select the molecule's correct name from the list on the right side of the screen.
- 5. Select the continue button at the bottom of the screen to view the next molecule. Observe and name a total of 5 molecules in this section.
- 6. If using the practice mode, record your score in Table 1 below.

Table 1. Practice Mode Scores

Part	Score (out of 5)
Hydrocarbons	
Functional Groups I	
Functional Groups II	
Organic Reactions	

#### Part II: Categorizing Functional Groups

- 1. If not already selected, choose the "Functional Groups I" button at the bottom of the screen.
- 2. View the molecule on the left side of the screen. Then select the molecule's correct functional group from the list on the right side of the screen.
- 3. Select the continue button at the bottom of the screen to view the next molecule. Observe and name a total of 5 functional groups in this section.
- 4. If using the practice mode, record your score in Table 1.

#### Part III: Naming Molecule with Functional Groups

- 1. If not already selected, choose the "Functional Groups II" button at the bottom of the screen.
- 2. View the molecule on the left side of the screen. Then select the molecule's correct functional group from the list on the right side of the screen.

- 3. Select the continue button at the bottom of the screen to view the next molecule. Observe and name a total of 5 molecules with functional groups in this section.
- If using the practice mode, record your score in Table 1. 4.

## Part IV: Identifying Organic Reactions

- If not already selected, choose the "Reactions" button at the bottom of the screen. 1.
- View the reaction on the left side of the screen. Then select the reaction's correct type from 2. the list on the right side of the screen. Please note: Some reactions have more than one correct type and all correct types must be selected to receive full credit for a correct answer.
- Select the continue button at the bottom of the screen to view the next reaction. Observe 3. and name a total of 5 organic reactions in this section.

4.	If using the practice mode, record your score in Table 1.
<b>Do Yo</b> 1.	u Understand? What is one major difference between a saturated and unsaturated hydrocarbon?
2.	What are functional groups and why are they important?
3.	What must be present in an organic molecule for the molecule to undergo a successful addition reaction?