Mini Lab: Organic Smells

Name _____ Date _____

PURPOSE

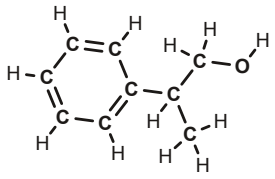
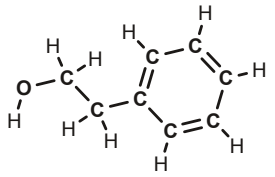
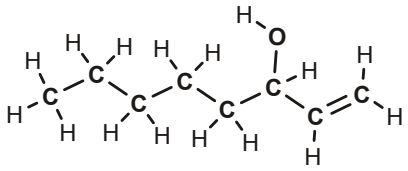
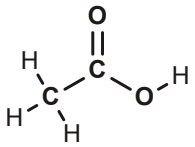
Investigate how differences in the structures and geometries of organic molecules relate to their characteristic smells.

DIRECTIONS, FOR EACH VIAL

1. Waft the way your teacher showed you. Write what you think it smells like.
2. Find every different molecular geometry in the structure.
3. Circle and number one example of each geometry on the structure.
4. Write each number and its geometry name in the last column.

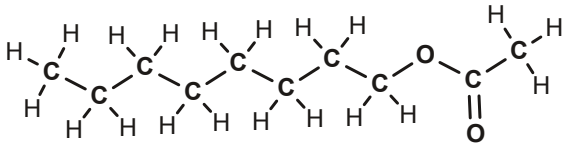
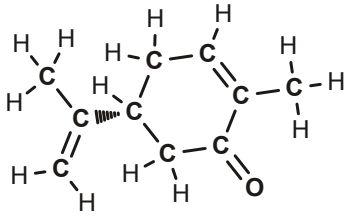
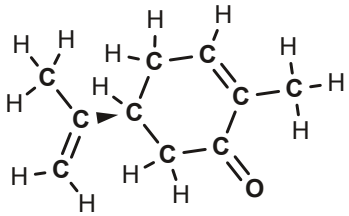
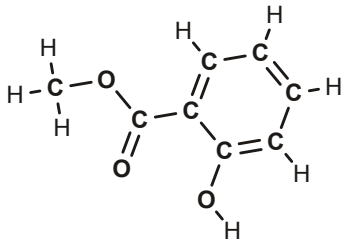
Example only. A molecule with six tetrahedral carbons gets one circle for tetrahedral. If it also has a trigonal planar center and a bent center, circle one of each: 1 Tetrahedral, 2 Trigonal planar, 3 Bent. Count lone pairs even though they are not drawn.

Safety. Goggles on. Waft, never sniff from the vial. Never touch or taste a sample. Cap each vial right away. Feel dizzy or get a headache? Stop and tell your teacher. If you cannot or should not smell the vials, record your lab partner's description instead.

VIAL	COMPOUND NAME	ORGANIC STRUCTURE	SMELL HYPOTHESIS	MOLECULAR GEOMETRIES
A	**2-Phenylpropanol** $C_9H_{12}O$			
B	**2-Phenylethanol** $C_8H_{10}O$			
C	**1-Octen-3-ol** $C_8H_{16}O$			
D	**Acetic acid (5% aqueous)** $C_2H_4O_2$			

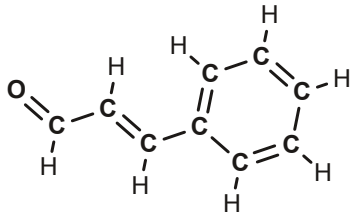
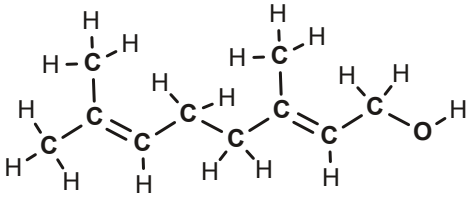
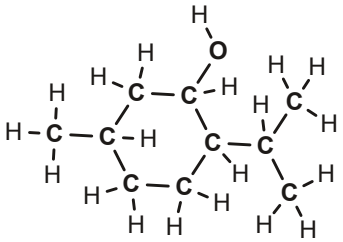
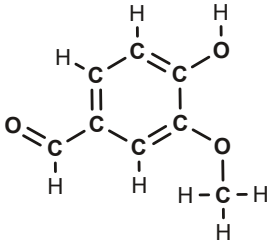
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VIAL	COMPOUND NAME	ORGANIC STRUCTURE	SMELL HYPOTHESIS	MOLECULAR GEOMETRIES
E	**Octyl acetate** $C_{10}H_{20}O_2$			
F	**(R)-Carvone** $C_{10}H_{14}O$			
G	**(S)-Carvone** $C_{10}H_{14}O$			
H	**Methyl salicylate** $C_8H_8O_3$			

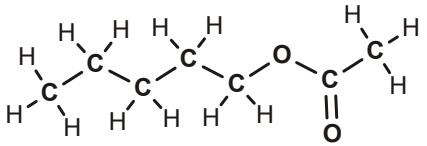
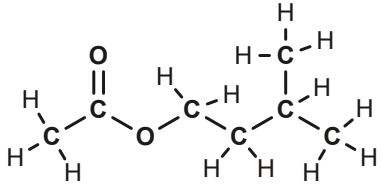
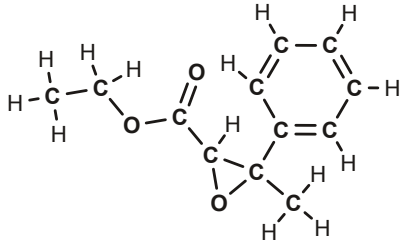
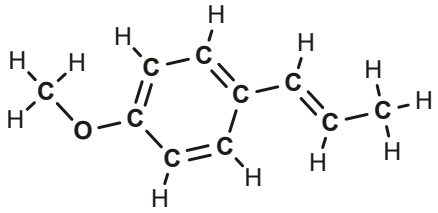
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VIAL	COMPOUND NAME	ORGANIC STRUCTURE	SMELL HYPOTHESIS	MOLECULAR GEOMETRIES
I	**trans-Cinnamaldehyde** C_9H_8O			
J	**Geraniol** $C_{10}H_{18}O$			
K	**Menthol** $C_{10}H_{20}O$			
L	**Vanillin** $C_8H_8O_3$			

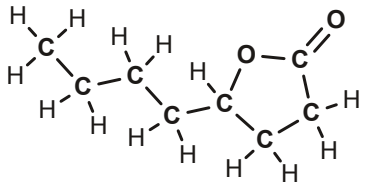
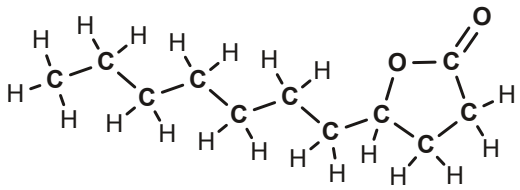
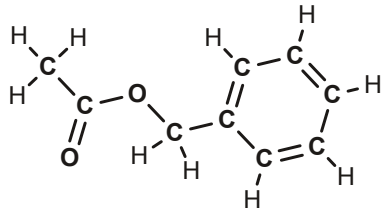
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VIAL	COMPOUND NAME	ORGANIC STRUCTURE	SMELL HYPOTHESIS	MOLECULAR GEOMETRIES
M	**Amyl acetate** $C_7H_{14}O_2$			
N	**Isoamyl acetate** $C_7H_{14}O_2$			
O	**Ethyl methylphenylglycidate** $C_{12}H_{14}O_3$			
P	**Anethole** $C_{10}H_{12}O$			

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VIAL	COMPOUND NAME	ORGANIC STRUCTURE	SMELL HYPOTHESIS	MOLECULAR GEOMETRIES
Q	**gamma-Octanoic lactone** $C_8H_{14}O_2$			
R	**gamma-Undecanoic lactone** $C_{11}H_{20}O_2$			
S	**Benzyl acetate** $C_9H_{10}O_2$			
T	**6-Methylionone** $C_{14}H_{22}O$	