

Name: _____

Date: _____ Period: _____

22.1 – Hydrocarbons

1. What is organic chemistry?
2. Hydrocarbons are compounds made of _____ and _____.
3. How many times can a carbon atom bond? Why?
4. What is an alkane?
5. Name, write the molecular formula, and draw the structural formulas (as in figure 22.1) of the first 10 straight-chain alkanes.

#	Name	Formula	Drawing
1.			
2.			
3.			
4.			
5.			

#	Name	Formula	Drawing
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6.

7.

8.

9.

10.

6. The names of all alkanes end with the suffix _____.

7. What is the general formula for any alkane?

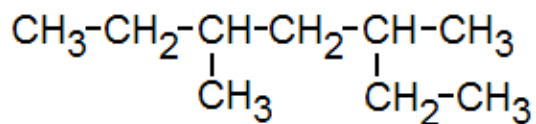
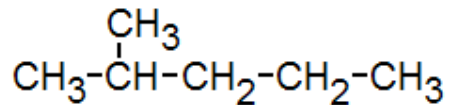
8. What makes up an alkyl group?

9. Draw **and** name, using the IUPAC system, the following branched-chain alkanes:

5 carbon chain with 1 carbon alkyl group branched off the 3rd carbon...

7 carbon chain with a 1 carbon alkyl group off the 2nd carbon, and a 2 carbon alkyl group off the 4th carbon...

10. Write the names of the following branched-chain alkanes using the IUPAC system.



11. What are three characteristics of a hydrocarbon?

22.2 – Unsaturated Hydrocarbons

12. What is the difference between a saturated and unsaturated compound?

13. How are alkenes structurally different from alkanes?

14. How are alkynes structurally different from alkanes?

15. Name and draw the structural formulas of an alkane, alkene, and alkyne with 2 carbons.

Alkane

Alkene

Alkyne

22.3 – Isomers

16. What is an isomer?
17. How do the properties of structural isomers differ from their straight-chain alkanes?
18. Explain how the two molecules in figure 22.7 are similar and different.

22.4 – Hydrocarbon Rings

19. How do you name cyclic hydrocarbons?
20. What are two uses of aromatic hydrocarbons?

22.5 – Hydrocarbons from Earth's Crust

21. What are the components of natural gas?

22. What are the components of crude oil?

23. How is crude oil distilled?

24. What is the benefit of cracking?

25. How was coal formed?

26. What is the environmental impact of burning coal over other hydrocarbons?