

# Chemistry of Petroleum

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Using the resources found on the Chemistry of Petroleum E-Sheet, answer the questions found on this student sheet.

Chemistry of Petroleum E-Sheet:

<http://www.sciencenetlinks.com/Esheet.cfm?DocID=181>



Read the articles *What is Organic Chemistry?* (<http://www.chemheritage.org/scialive/julian/activities/2b.html>) and *Organic Chemistry: An Introduction* ([http://www.visionlearning.com/library/module\\_viewer.php?mid=60](http://www.visionlearning.com/library/module_viewer.php?mid=60)). As you read, consider these questions. You will share your answers with the class.

- What does the term "organic" mean to chemists?
- What is an organic compound?
- How is the term "organic" used among farmers and food stores today?
- Why are carbon-based compounds lumped together as a separate subject within the study of chemistry?
- Is carbon a metal or a nonmetal?
- Carbon's atomic number is six. What does that tell us about any carbon atom?
- What is carbon's electron shell configuration?

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- How many valence electrons does carbon have?
- Will carbon as an atom interact with other atoms to form ionic or covalent bonds?
- In order to fill its outer shell, how many bonds will carbon make?
- What are hydrocarbons?
- Are hydrocarbons organic or inorganic molecules? Why?
- Why can carbon form so many different types of compounds?
- What is the difference between an alkane, alkene, and alkyne?

Read the Fossils into Fuels resource (<http://www.moorlandschool.co.uk/earth/earthresources.htm>). As you read, consider these questions. You will share your answers with the class.

- How do crude oil and natural gas differ from one another in their hydrocarbon content?
- What does it mean to “refine” crude oil or petroleum?

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- Why does crude oil/petroleum have to be refined?
  
- Why are hydrocarbons referred to as a good “chemical feedstock”?

Read pages four to six on Chemistry: Useful Products from Oil

([http://www.bbc.co.uk/schools/gcsebitesize/chemistry/usefulproductsoil/oil\\_and\\_oilproductsrev5.shtml](http://www.bbc.co.uk/schools/gcsebitesize/chemistry/usefulproductsoil/oil_and_oilproductsrev5.shtml)). As you read, consider these questions. You will share your answers with the class.

- What are some trends that we notice about hydrocarbons as they increase in size?
  
- In a fractional distillation tube, will smaller or larger hydrocarbons be located at the top? Why?
  
- Are smaller or larger hydrocarbons more useful as fuels? Why?
  
- What is the process of cracking?
  
- Why is cracking used in crude oil/petroleum refinement?