

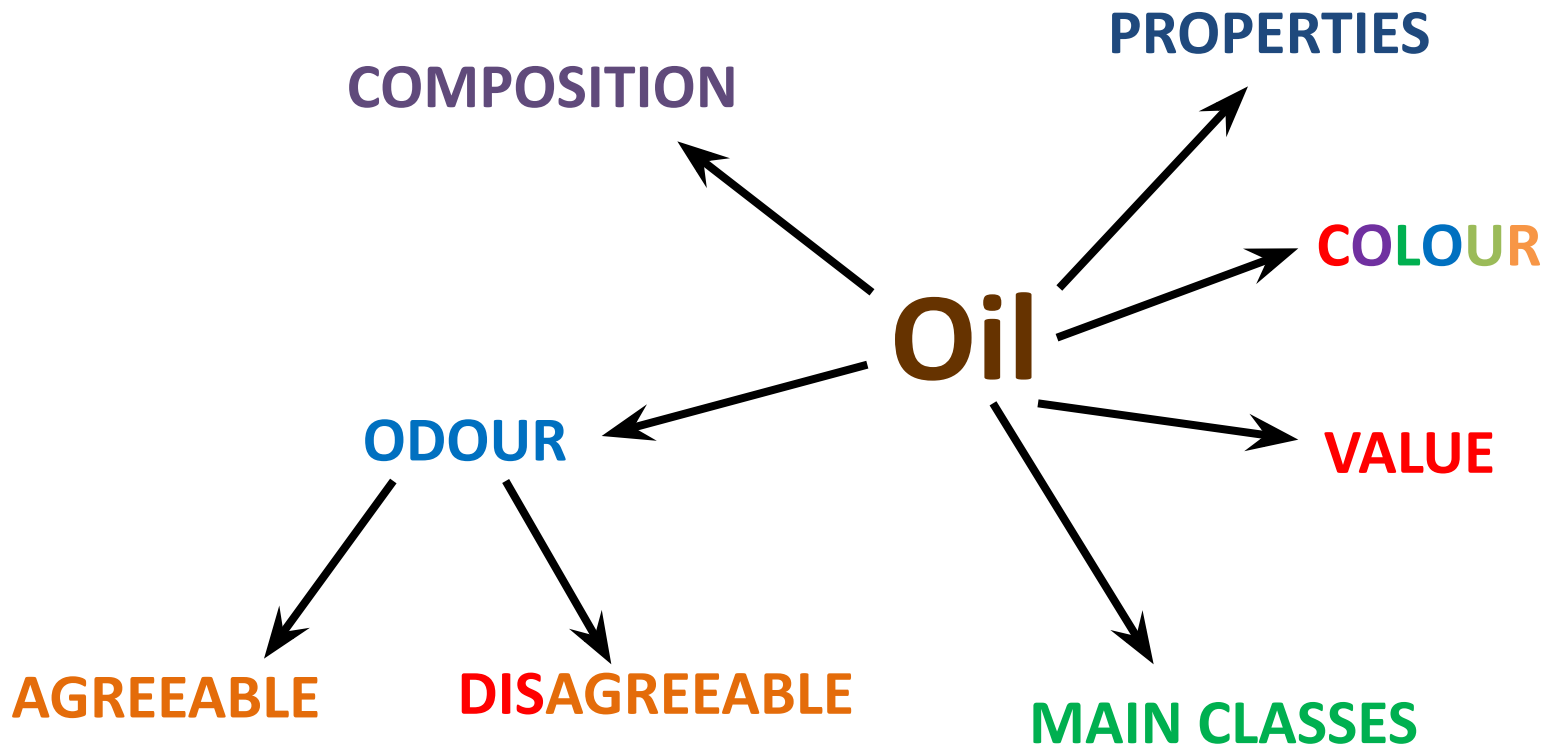




The topic of our lesson is  
**«Oil and oil industry»**

We are going to:

- talk about oil as a mineral and its application in industry
- Practice our speech according to the topic.



1. Petroleum is a valuable raw material.
2. It consists of carbon and hydrogen
3. There are also other compounds which contain oxygen nitrogen and inorganic matter.
4. The physical and chemical properties of different samples of petroleum are not uniform and depend on the properties of oil and presence of impurities.
5. The specific gravity of crude oil is an index of its value.

- Raw material;
- This substance is formed together with hydrocarbons of gaseous type at a certain depth (mainly from 1.2 to 2 km);
- The maximum number of oil deposits is located at a depth of 1 to 3 km;
- Using at the moment, 48% of the energy consumed on the planet is oil (mineral);
- The growth of oil consumption led to an increase in price for it and to gradual depletion of mineral resources.

1. What is oil used as a raw material for?
2. Why is oil (mineral) called black gold?
3. What depth is this substance formed together with hydrocarbon of gaseous type?
4. What depth is the maximum number of oil deposits?
5. Do you remember the percentage of oil consumed as energy?



# The main oil fields in Russia

Field name	Opening date	Recoverable reserves	Oil production regions
Samotlorskoye	1965	2.7 billion tons	Khanty-Mansiysk AD
Romashkinskoye	1948	2.3 billion tons	Republic of Tatarstan
Priobskoye	1982	2.7 billion tons	Khanty-Mansiysk AD
Arlanskoe	1966	500 million tons	Republic of Bashkortostan
Lyantorskoye	1965	2 billion tons	Khanty-Mansiysk AD
Vankor	1988	490 million tons	Krasnoyarsk Territory
Fedorovskoe	1971	1.5 billion tons	Khanty-Mansiysk AD
District Russian	1968	410 million tons	Yamal-Nenets AD
Mamontovskoe	1965	1 billion tons	Khanty-Mansiysk AD
Tuymazinskoye	1937	300 million tons	Republic of Bashkortostan

# Physical properties

- Oil varies greatly in color: brown, colorless, dark brown, almost black
- Density: light 0,65-0,7g/cm<sup>3</sup> to heavy 0,98-1,05g/cm<sup>3</sup>
- Boiling point – above 280C, pour point +300-600C
- Specific heat – 1,7-2,1kJ/kg, heat of combustion 43,7-46,2mJ/kg, dielectric constant 2-2,5
- The flash point - -35 to 1200C

# Physical properties

- Is oil lighter or heavier than water?
- Is it soluble in water? What does it form with water?
- Does it have a certain boiling point?
- What is the initial boiling point?
- What does the pour point depend on?



# Application of oil

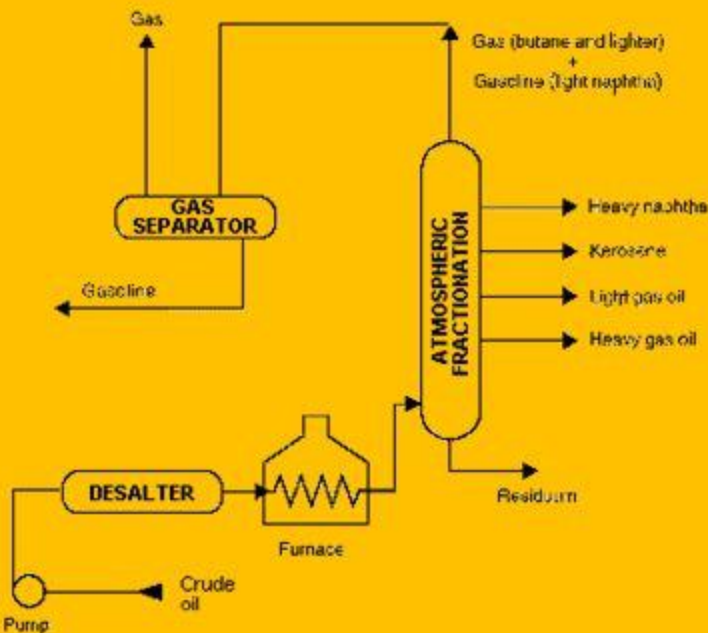
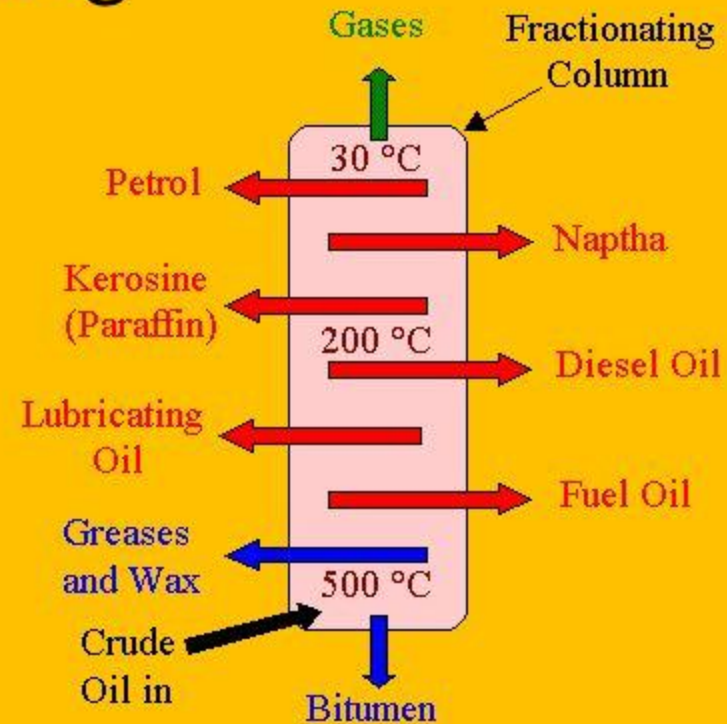
**True** or **False**:

- People began to use oil only in our era.
- Asphalt and bitumen were used in the construction of the walls of Babylon.
- King Nebuchadnezzar drowned an enormous furnace with oil.
- At present, the list of products obtained from oil is estimated in dozens.
- Petroleum products have found application in education, reading, playing instruments.

# Fractional Distillation of Crude Oil

## Industrial Cracking

- ↳ Thermal Cracking
- ↳ Catalytic Cracking



By Andrew Ingham

The formation of hydrocarbons is resulted in the molecule with a \_\_\_\_\_ number of carbons.

- a) larger                                  b) smaller

Raw materials are also \_\_\_\_\_ as the processing mode.

- a) different                                  b) same

The cleavage process is carried out at \_\_\_\_\_ temperatures.

- a) lower          b) higher

When cracking, the oil undergoes \_\_\_\_\_ changes.

- a) physical                                  b) chemical

These reactions are \_\_\_\_\_ when catalysts are introduced into the apparatus.

- a) enhanced          b) decreased

## New words

*derrick* - буровая вышка

*framework* - каркас

*borehole* - скважина

*drill through* - бурить сквозь (через)

*natural flow* - естественный поток

*Pressure* - давление

*to obtain* - получать

*Prerevolutionary* - дореволюционный

*to prospect* - разведывать

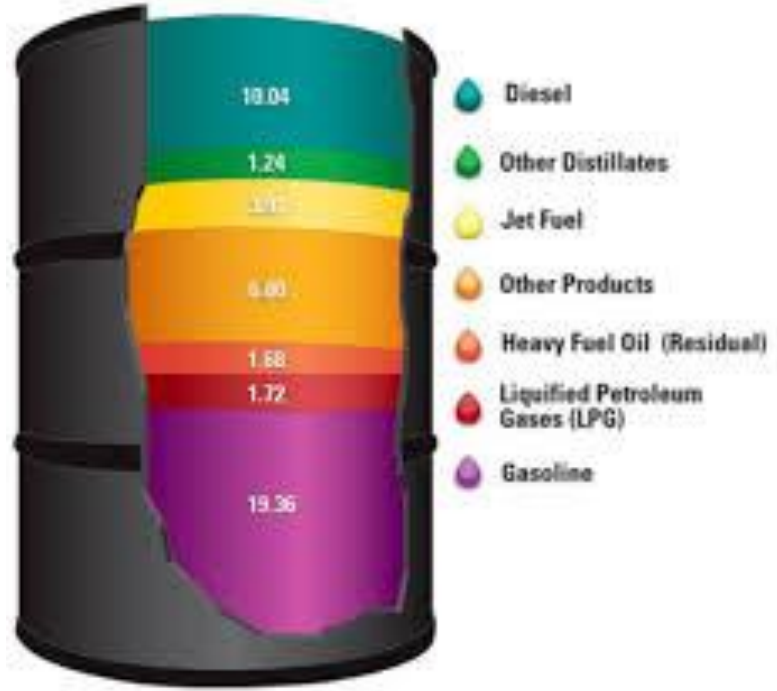
*backbreaking labour* - изнурительный труд

*to usher* - объявлять, возвещать

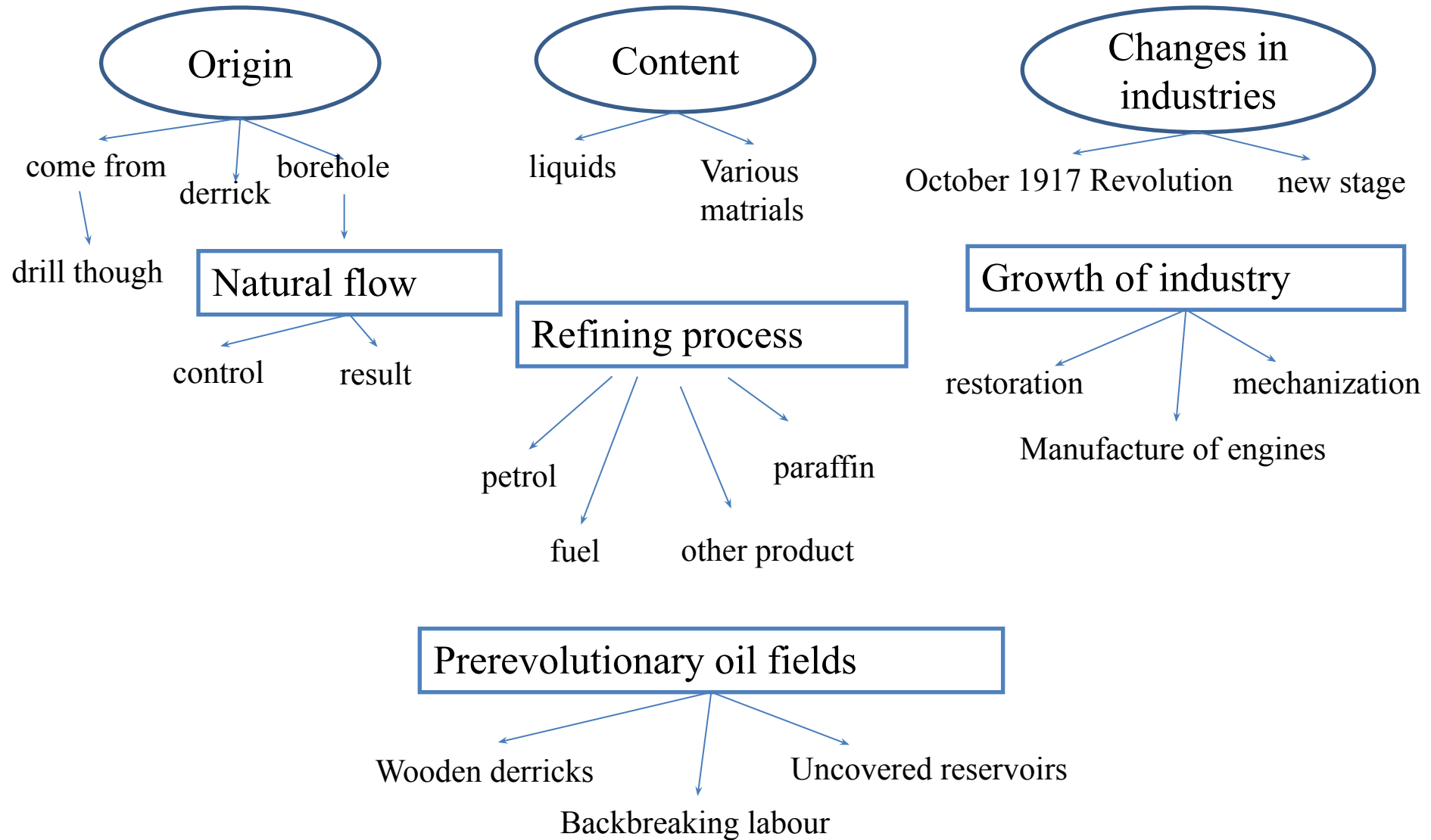




Offshore oil wellhead, Western Siberia, Tomsk region.  
Source: Michael '021 GeoMedia, Inc.



# Oil and oil industry





At home you should complete your own topic "Oil and oil industry". Use the questions as a plan.

*Good luck!*

