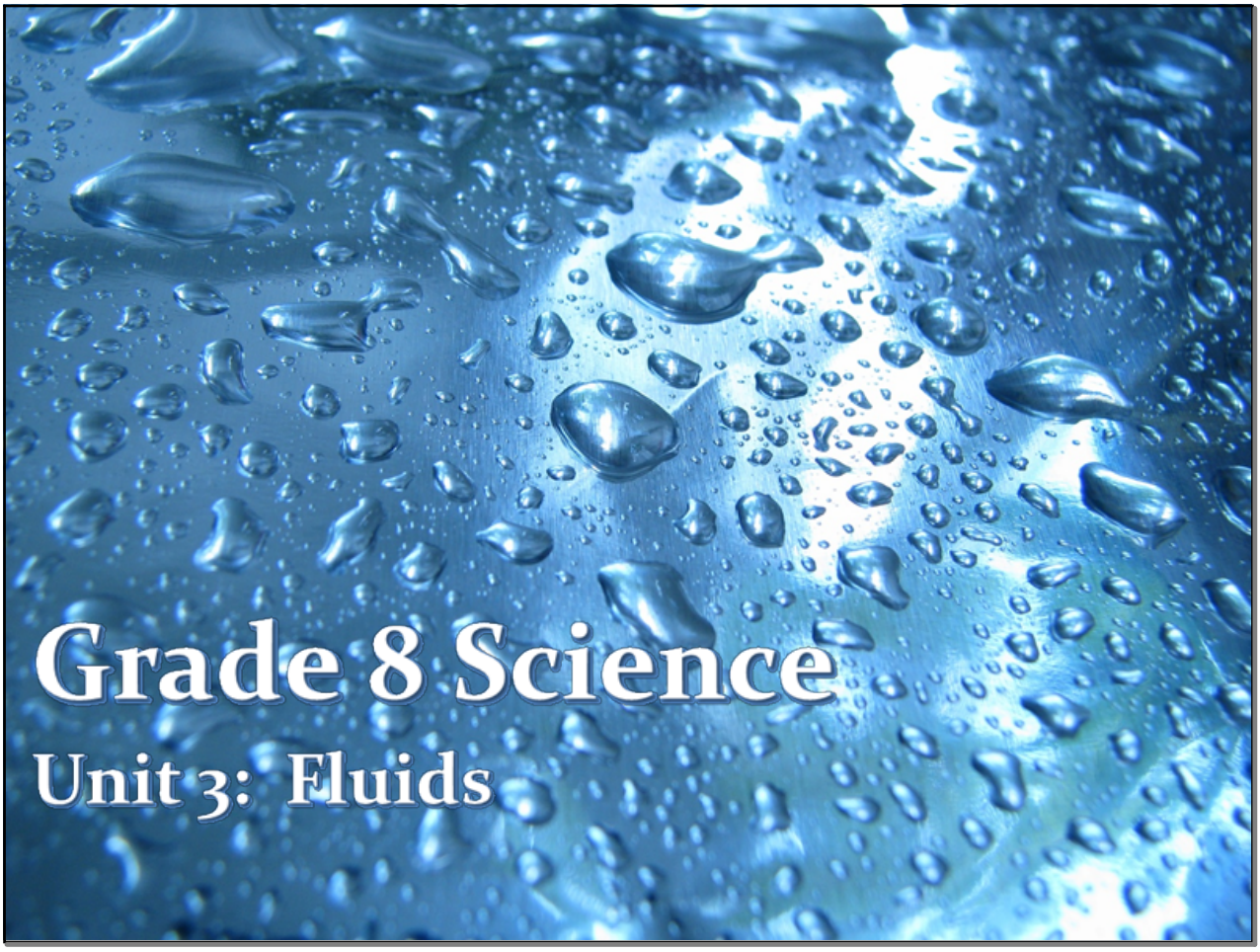


Oil

What is oil?

Surprisingly, explaining what oil is is not as straight forward as one may think. Many different liquids are referred to as oil. The commonality amongst these fluids seems to be that all oils are viscous, yet slippery, liquids at room temperature, that are insoluble in water, but highly attracted to other oils. Oils have a high carbon and hydrogen content, and most are flammable. Oils also contain a lot of stored energy.

Where do we get oil?

Much of what we think about when we think "oil" comes from petroleum, the left-over remains of organisms that died millions of years ago. However, oils can be produced from any form of life, most commonly is vegetable oil, an oil extracted from the seeds of many plants.

Oil

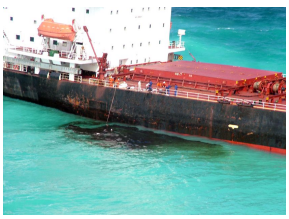
Why is oil important?

- Crude oil is the fluid from which we get gasoline for cars/planes/ etc
- It powers factories/machinery
- Oil produces heat
- It can be used as a lubricant
- We use oil in cooking
- Oil is a key component in makeup
- Oil is used to make plastic
- It is a key component of detergents
- Many food products contain oil products

Oil

What are some down sides to the use and extraction of oil?

- The burning of oils creates pollution and greenhouse gases
- Oil is hazardous to wildlife, it sticks to their bodies, and can be deadly if consumed
- To obtain petroleum we have to dig up the earth, destroying habitats
- It requires a lot of equipment to obtain the oil, creating even more pollution
- We are not always in full control, things can go wrong and the oil can spill into the environment.



Deepwater Horizon Oil Spill

On April 20th 2010 there was a mechanical failure of a shut off valve on the Deepwater Horizon oil rig. The failure of this shut off valve led to, possibly, the worst man made environmental catastrophe of all time.

The following article explains what happened:

Deepwater Horizon oil spill of 2010

Oil spill, Gulf of Mexico

Written by: **Richard Pallardy**

Deepwater Horizon oil spill of 2010, also called **Gulf of Mexico oil spill of 2010**, largest marine oil spill in history, caused by an April 20, 2010, explosion on the Deepwater Horizon oil rig—located in the Gulf of Mexico, approximately 41 miles (66 km) off the coast of Louisiana—and its subsequent sinking on April 22.

The explosion

The Deepwater Horizon rig, owned and operated by offshore-oil-drilling company Transocean and leased by oil company BP, was situated in the Macondo oil prospect in the Mississippi Canyon, a valley in the continental shelf. The oil well over which it was positioned was located on the seabed 4,993 feet (1,522 metres) below the surface and extended approximately 18,000 feet (5,486 metres) into the rock. On the night of April 20 a surge of natural gas blasted through a concrete core recently installed by contractor Halliburton in order to seal the well for later use. It later emerged through documents released by Wikileaks that a similar incident had occurred on a BP-owned rig in the Caspian Sea in September 2008. Both cores were likely too weak to withstand the pressure because they were composed of a concrete mixture that used nitrogen gas to accelerate curing.

Once released by the fracture of the core, the natural gas traveled up the Deepwater rig's riser to the platform, where it ignited, killing 11 workers and injuring 17. The rig capsized and sank on the morning of April 22, rupturing the riser, through which drilling mud had been injected in order to counteract the upward pressure of oil and natural gas. Without any opposing force, oil began to discharge into the gulf. The volume of oil escaping the damaged well—originally estimated by BP to be about 1,000 barrels per day—was thought by U.S. government officials to have peaked at more than 60,000 barrels per day.

*Read to end of 4th paragraph in "Leaking Oil" section

Deepwater Horizon Oil Spill

Following the worst marine oil spill in history, was the attempt to contain and clean the damaging oil. The following video discuss some of the methods used in this attempt:

Youtube Link

Deepwater Horizon Oil Spill

Although there were thousands of people helping to contain and clean this disaster, their efforts were not able to stop the oil spill from having disastrous consequences to the environment. The following video shows just how bad some areas were hit:

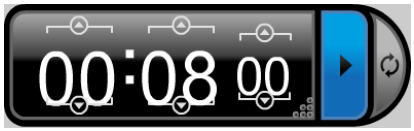
Youtube Link

Deepwater Horizon Oil Spill

It has been over 6 years since the explosion on the Deepwater Horizon oil rig. However, the effects of the oil spill are not gone.

In a group of ~4 I would like you to get a computer and do some quick research into the overall and lingering effects of the oil spill in the Gulf of Mexico. Look up things, such as:

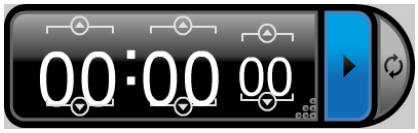
- How much oil was spilled
- How much oil was recovered
- What was the cost of clean up
- What were the areas affected
- Who were the people involved
- How is the environment still affected
- How are the animals still affected
- How are the locals still affected

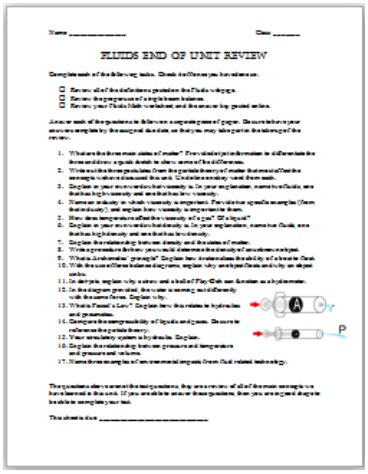


At this point, please number your selves 1 through 4. You will sit with a new group to discuss what you have discovered.

Fluids End of Unit Test

You may use any remaining time to work on your end of unit review. Please recall that we will be taking up the answers next class.





FLUIDS END OF UNIT REVIEW

Attachments

3-20 End of Unit Review.pdf