Earth Science 11 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Blk: \_\_\_

**EARTH RESOURCES notes**

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1. **Earth Resources from Under the Ground**
	1. Metals – ores mined for a profit.
		1. Ores mined in BC: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Coal – decayed plant material, compressed for millions of years.

 Swamp 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 low-grade = 40% Carbon 85% Carbon high-grade = 95% C

* 1. Petroleum (Oil) and Natural Gas
		1. Oceanic microscopic organisms die, sink to the sea floor, and are buried under layers of clay and mud.
		2. Oil and gas migrate up trough permeable sedimentary rock, and get trapped under impermeable rock (or faults).
		3. Gas separates out above the oil, as oil is denser than gas.



**a. Oil Sands** = Oil trapped in dense sand.

* + - * Expensive to extract, but viable due to higher oil prices.
			* Huge oil sand reserves in Alberta

**b. LNG gas**= Liquefied Natural Gas.

* Gas is extracted out of the ground using fracking. The gas is then dissolved into water to make transport easier.
* Large reserves of gas in BC.
1. **Energy Resources from the Earth**
	1. **Renewable**
		1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy = energy directly from the sun.
		2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy = energy from wind power.
		3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy = energy from water through a dam.
		4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy = energy from deep in the earth.
		5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fuels = energy from wood, crops, and fecal matter – including **ethanol** (fermented wheat and corn) and **biodiesel** (vegetable oil and animal fat)
	2. **Non-Renewable**
		1. Fossil Fuels = energy released from burning:
			* \_\_\_\_\_\_\_\_\_\_\_ = compressed decayed plant matter
			* \_\_\_\_\_\_\_\_\_\_\_ = compressed microscopic oceanic organisms
			* \_\_\_\_\_\_\_\_\_\_\_ = also released from compressed microscopic organism in oceans (layered above oil)
		2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = energy released from the radioactive decay of heavy elements (eg. uranium)
		3. (\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) = energy released from the fusion of hydrogen into helium (like the Sun! Currently not possible).