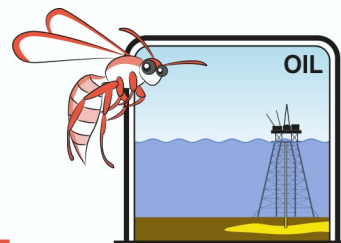


## Migration To A Reservoir - Teacher Background



**Migration is triggered by:**

- A. Compaction of source rock**
- B. Processes of oil and gas formation**

Both oil and gas move in response to overlying pressure and to fluid movement. Most sediment deposited in ocean basins is made of a mixture of fragments of rock and water. As pressure from above hardens it to become rock, some water is squeezed out. If the rocks also contain oil and gas this is also expelled oozing through pore spaces to migrate upwards to area of lower pressure. Movement may only be a few centimetres per year. Even so, cumulatively, over millions of years, large reservoirs build up when the migration is halted and the hydrocarbons trapped.

**Porous rocks** e.g. sandstone and pumice have holes or voids between their grains. If the holes are not interconnected water or gas cannot migrate through them e.g. volcanic pumice is full of holes but they are not interconnected so oil and gas cannot travel through. Pumice floats in the bath precisely because gas remained trapped inside it when it erupted and solidified. This makes it less dense than water.

**NOTE** most commercial pumice “stone” is reconstituted compressed pumice dust stuck together by cement. There are no sealed pores full of gas. This sinks!

**Permeable rocks** have holes or spaces that are interconnected. These allow liquids and gases to enter and migrate through them.

Reservoir rocks must also be highly porous and permeable.



It can be difficult to use petroleum or methane gas in experiments in school laboratories due to fire and health issues. We substitute water and air to demonstrate how oil or gas would behave in these WASP7 activities.