Physical Geology
Igneous Rocks

All Igneous Rocks Cool and x-tallize from a melt. Therefore the x-tals in the rocks are randomly arranged (there is no pattern to the x-tal arrangement) and are intergrown with each other.

Igneous Environments

<u>Extrusive</u> Volcanic

1. Pressure released
   - *Volatiles* (H_2O, CO_2, SO_x) released as gas bubbles
     - Bubbly (*Scoria*) or foamy (*Pumice*) texture results
2. Uninsulated, heat carried away quickly by *convecting* fluids (air or water)
   - Rapid cooling and x-tallization
     - Formation of many small x-tals (no time for atoms to "find partners")
     - Extremely rapid cooling forms glassy (*Obsidian*) texture

<u>Intrusive</u> Plutonic

1. High pressure
   - *Volatiles* (H_2O, CO_2, SO_x) remain dissolved in magma
2. Well insulated, heat carried away slowly by *conduction* into surrounding solid rocks
   - Slow cooling and x-tallization
     - Formation of few large x-tals (Lots of time for atoms to "find partners")
     - Extremely slow cooling and high mobility of atoms forms very large x-tals (*Pegmatite Texture)*