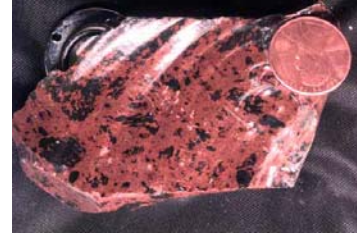


# Bowen's Reaction Series and Igneous Rock Classification Based on Texture/Cooling History and Color/Composition



## Phaneritic

Crystals large enough to be seen by eye unaided. This ranges from small to very large crystals.



## Glassy

No minerals; glassy appearance; hard, smooth, slick, often with conchoidal fracture.



## Aphanitic

No crystals can be seen. Looks fine grained and uniform.



## Cellular

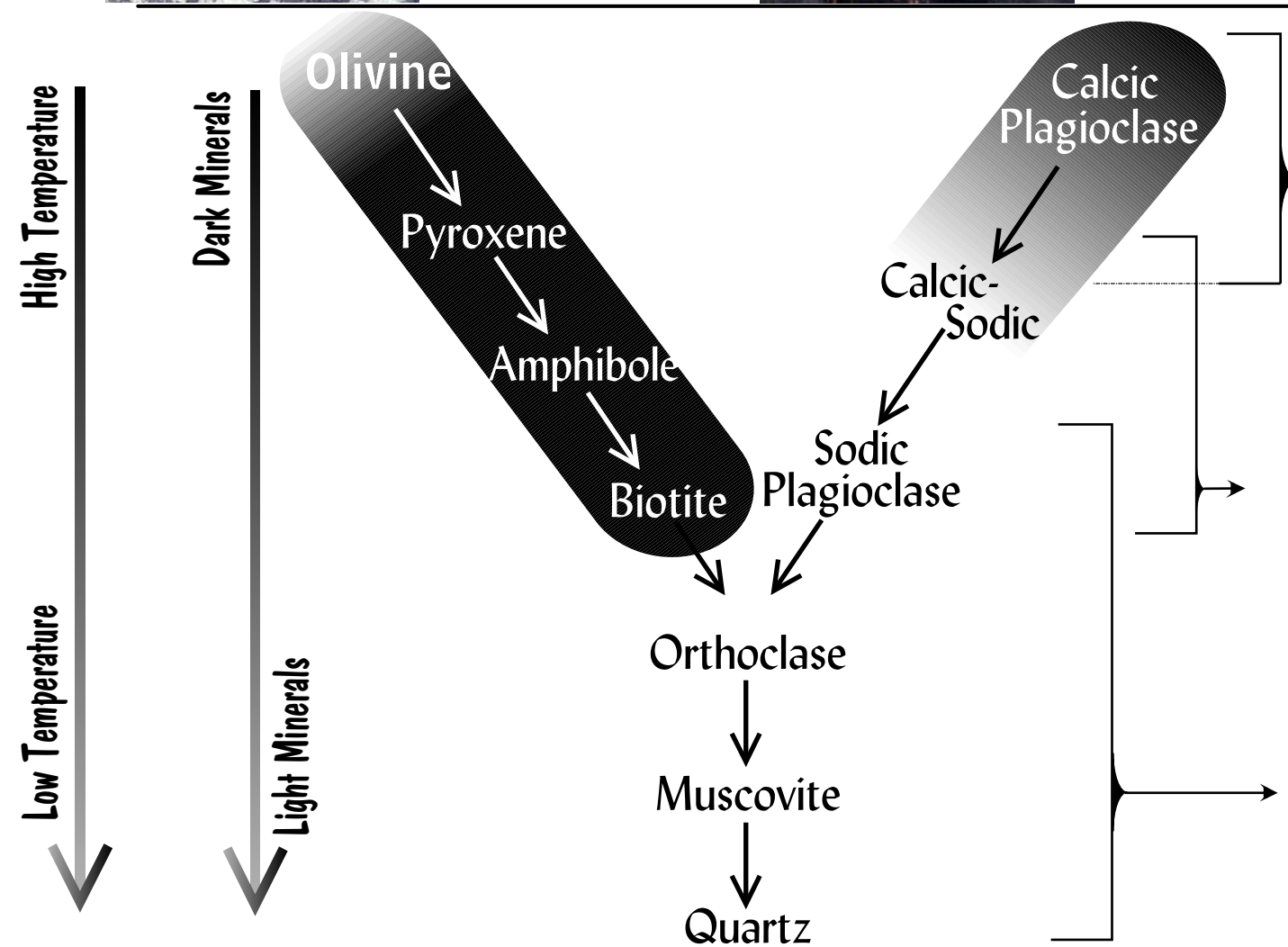
Porous, from tiny to quite large. Rock usually feels light weight. Colors typically gray to red or black.



## Porphyritic with phenocrysts

Two crystal sizes, one large enough to be seen, imbedded in a fine grained (aphanitic) groundmass

COOLING HISTORY		
SLOW (Thousands of Years or more)	FAST (and Two Stage) (Days to weeks or months)	VERY FAST (Hours to days)
TEXTURE		
PHANERITIC	APHANITIC	GLASSY/CELLULAR



<b>MAFIC</b> Dark Color	<b>Gabbro</b>	<b>Basalt</b> (porphyry)	<b>Scoria</b>
<b>INTERMEDIATE</b> Intermediate Color	<b>Diorite</b>	<b>Andesite</b> (porphyry)	
<b>FELSIC</b> Light Color	<b>Granite</b>	<b>Rhyolite</b> (porphyry)	<b>Pumice</b> <b>Obsidian</b>