

quartz feldspars are Aluminium silicates, these weather out to form clays, which give the metamorphic rocks their Al_2SiO_5

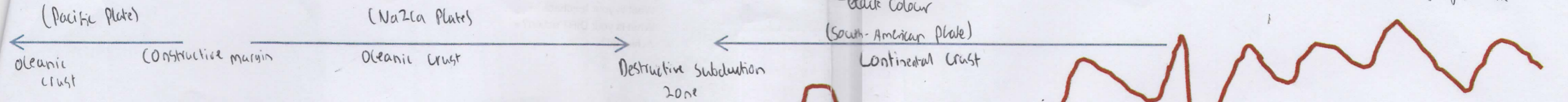
Olivine only forms when magma is undersaturated in silica

Mica (Muscovite) - only found in very silicic rocks
↳ "mosaic" = white

Orthoclase = Potassium feldspar (K)
↳ Pink colour

Mica (Biotite) = found in intermediate / silicic
↳ black colour

Plagioclase = Sodium feldspar (Na)
↳ grey / white



Silica - 45%

Crystal grain size	Ultrabasic 45% (Ultra mafic)	Basic (Mafic) - Ferro magnesium (Iron / magnesium) Silica - 45% - 52%	Intermediate Silica 52% - 66%	Acidic (Silicic) (High in Silica) Silica > 66%		
Glassy		Tachylyte	Obsidian			
Volcanic			Colour can be misleading as it looks black to the eye but it is clear in thin sections and is a silicic rock			
Fine < 1mm in size, individual crystals can't be identified by eye	Basalt	Andesite	Trachyte	Dacite	Rhyolite	
Medium 1-5mm, can be seen by eye	Dolerite	Microdiorite	Microsyenite	Micrgranodiorite	Microgranite	
Coarse > 5mm seen and identified by eye (Plutonic)	Peridotite	Gabbro	Diorite	Syenite	Granodiorite	Granite
minerals (essential)	Pyroxene - (Augite) 50% (Olivine) 50% "ferromagnesian minerals" No quartz	Plagioclase (100% Ca 0% Na) box. Pyroxene 40 (Augite) No quartz	Plagioclase (75% Ca rich 25% Na rich) Mica (biotite) Pyroxene 30 Hornblende (amphibole)	Quartz 5 Orthoclase (Potassium Feldspar) 55 Plagioclase 50% 50% Na / Ca Mica (biotite) Pyroxene 15 Hornblende	Quartz 20 Orthoclase 20 Plagioclase 25% Ca 75% Na Mica (biotite) Hornblende	Quartz 30 Orthoclase 45 - Pink Plagioclase 100% Na 0% Ca Mica (biotite) Mica (muscovite) Hornblende ↳ Grey / white

cooled quicker
crystals

slower cooling

Other properties: Silica % is not the same as mineral quartz. Although quartz is made entirely of silica (SiO_2), the Silica % includes the silica in all the rock forming minerals. A rock with no quartz will contain silica because it is contained within silicate minerals like olivine.

