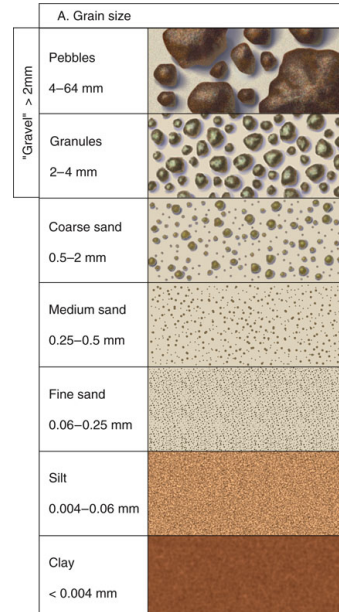


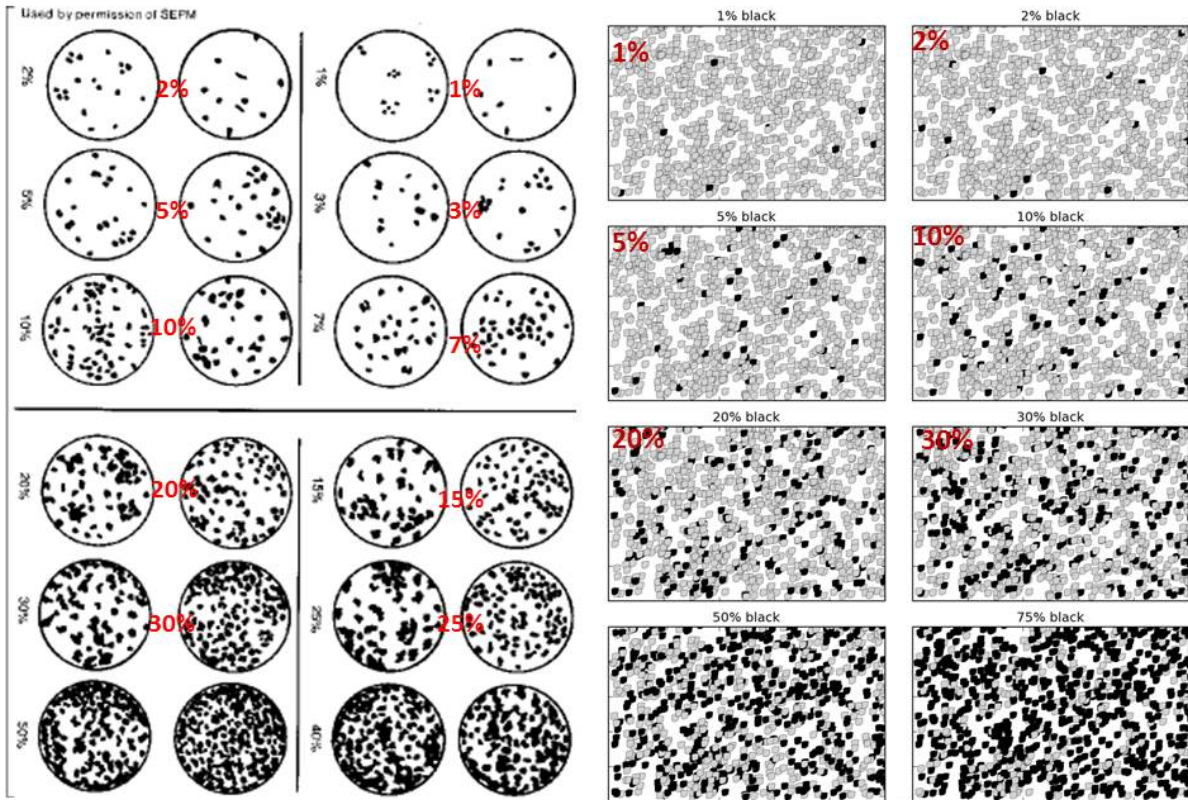
# Grand Ledge Virtual Field Trip Resources

## Grain Size Scales

Millimeters (mm)	Micrometers (μm)	Phi (φ)	Wentworth size class	
4096		-12.0	Boulder	Gravel
256		-8.0	Cobble	
64		-6.0	Pebble	
4		-2.0	Granule	
2.00		-1.0	Very coarse sand	
1.00		0.0	Coarse sand	Sand
1/2	0.50	1.0	Medium sand	
1/4	0.25	2.0	Fine sand	
1/8	0.125	3.0	Very fine sand	
1/16	0.0625	4.0	Coarse silt	
1/32	0.031	5.0	Medium silt	Silt
1/64	0.0156	6.0	Fine silt	
1/128	0.0078	7.0	Very fine silt	
1/256	0.0039	8.0	Clay	Mud
0.00006	0.06	14.0		



## Visual % Estimations



SEPM

all-geo.org

### Grain Sorting

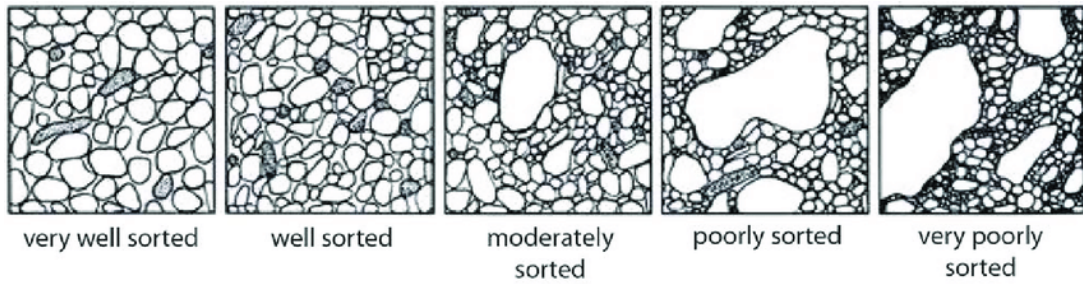


Fig. 1.2, Prothero & Schwab, 2004

### Grain Shape

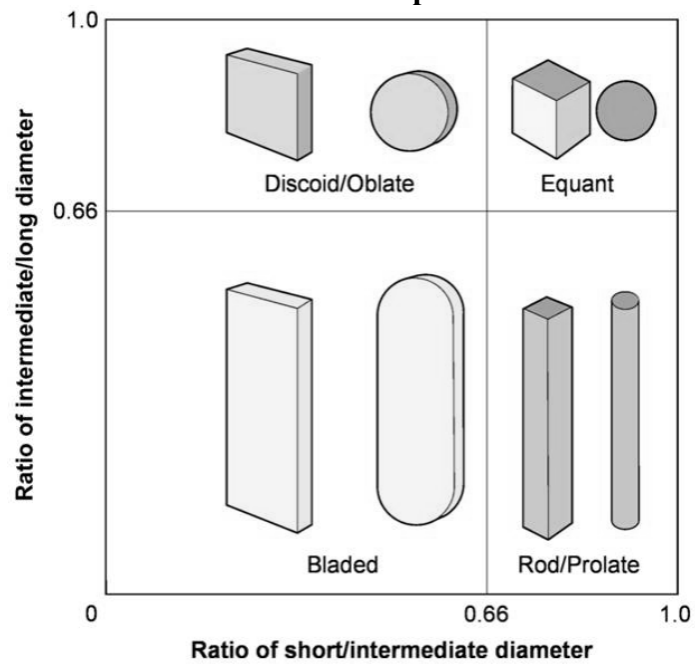


Fig. 2.12, Nichols, 2009

### Grain Rounding and Sphericity

	Well rounded	Rounded	Sub-rounded	Subangular	Angular	Very angular
Low sphericity						
High sphericity						

Fig. 2.21, Nichols, 2009

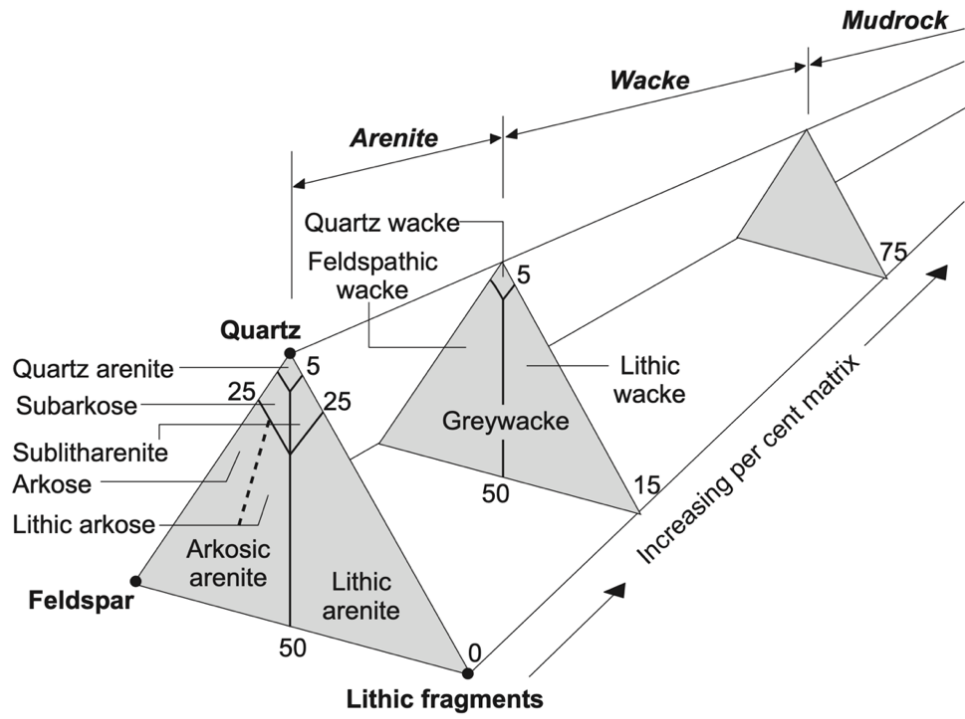
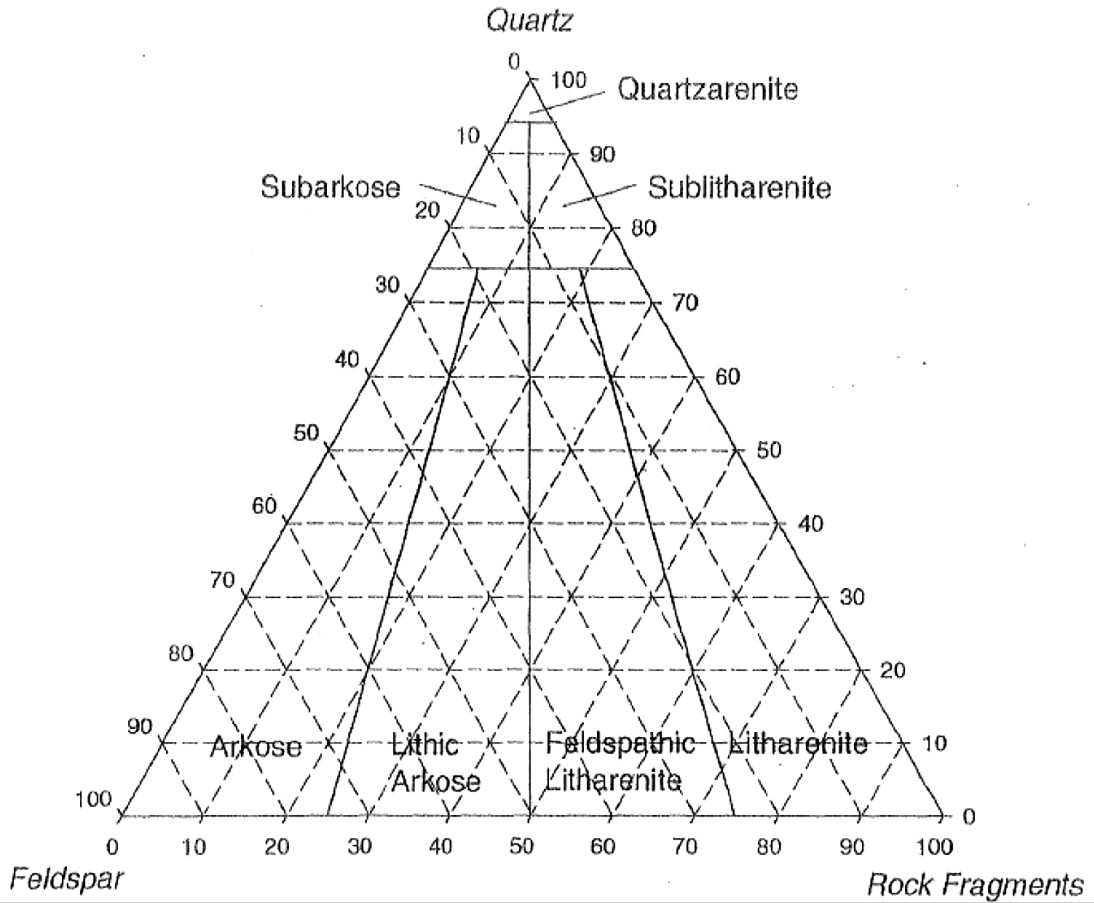







































Fig. 2.16, Nichols, 2009

### Sedimentary Structure Symbols (a selection)

- |   |  |
|---|--|
| <p> flute cast</p> <p> groove cast</p> <p> tool marks</p> <p> load casts</p> <p> shrinkage cracks</p> <p> striations/lineations</p> <p> symmetrical ripples</p> <p> asymmetrical ripples</p> <p> parallel lamination</p> <p> wave-ripple lamination</p> <p> cross lamination</p> <p> cross bedding - tabular</p> <p> cross bedding - trough</p> <p> cross bedding - herringbone</p> <p> cross bedding - low angle</p> | <p> flaser bedding</p> <p> lenticular bedding</p> <p> normal</p> <p> reverse</p> <p style="text-align: right;"><b>graded bedding</b></p> <p> imbrication</p> <p> slump structures</p> <p> convolute bedding</p> <p> nodules/concretions</p> <p> stylolites</p> <p> slight</p> <p> intense</p> <p style="text-align: right;"><b>bioturbation</b></p> <p><b>Bed Contacts</b></p> <p> sharp, planar</p> <p> sharp, irregular</p> <p> gradational</p> <p><b>Paleocurrents</b></p> <p> azimuth</p> <p> trend</p> |
|---|--|

- |   |  |
|---|--|
| <p> CONGLOMERATE</p> <p> SANDSTONE</p> <p> MUDROCK</p> | <p> CARBONATE</p> <p> MUDDY SANDSTONE</p> <p> SANDY/SILTY MUDROCK</p> |
|---|--|

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