

Geology 101 Lab

Week 2:

- Mineral -

- Tools for Identification-

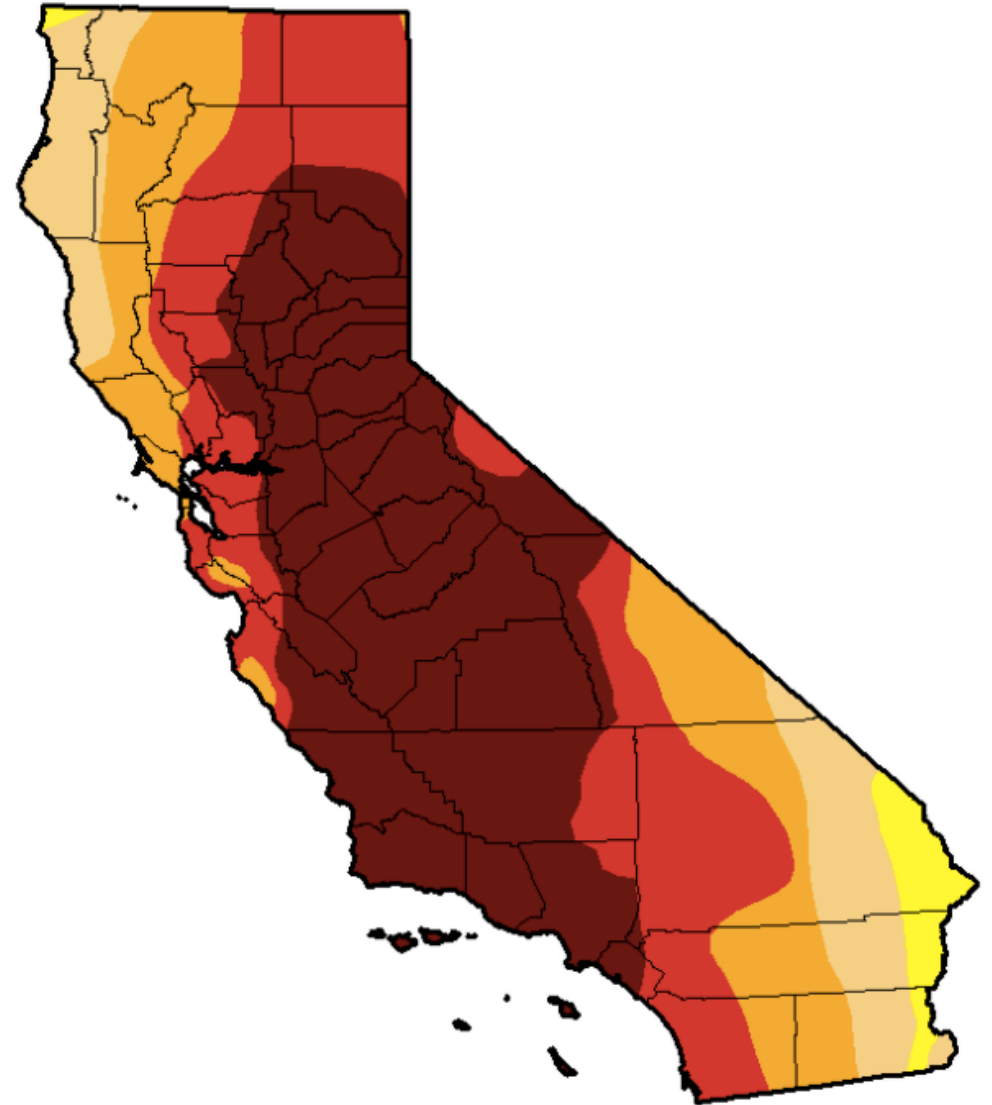
- Mineral Identification -

Geology Lecture Breakdown

- What are you learning?
- Any questions?

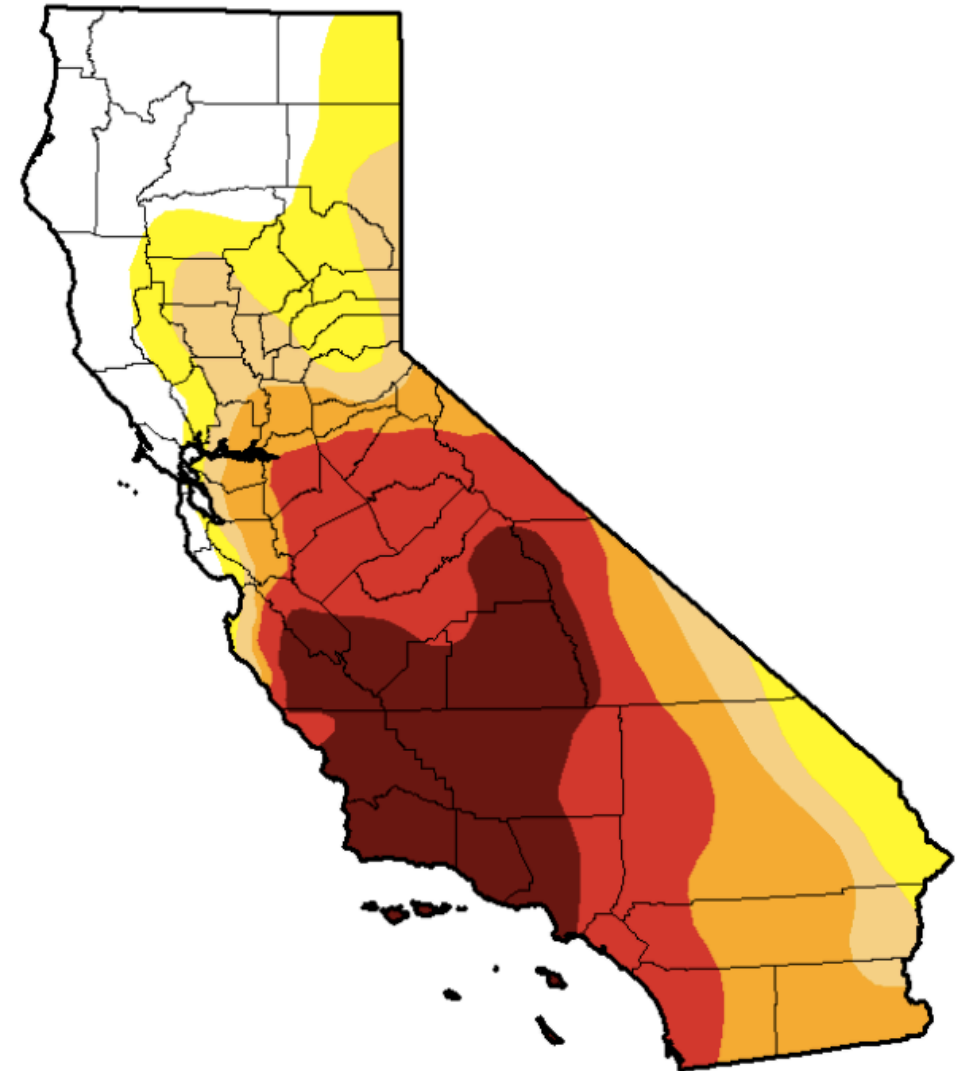
January 19, 2016

CA Drought – 1/19/16



December 27, 2016

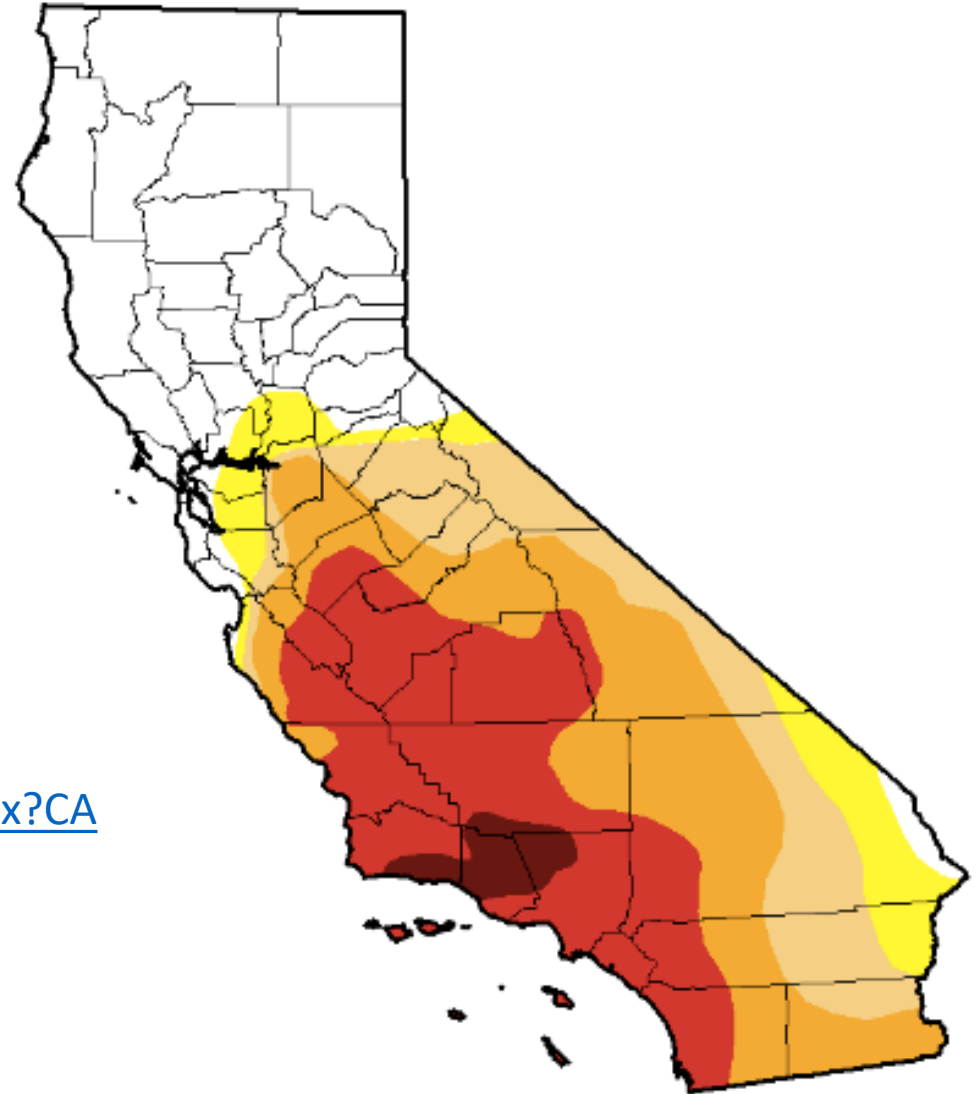
CA Drought – 12/27/16



U.S. Drought Monitor

California

CA Drought – 1/23/17



<http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA>

VC Watershed

Report Issued: 01/23/2017 09:01

Current Rain Totals and Percent of Normal

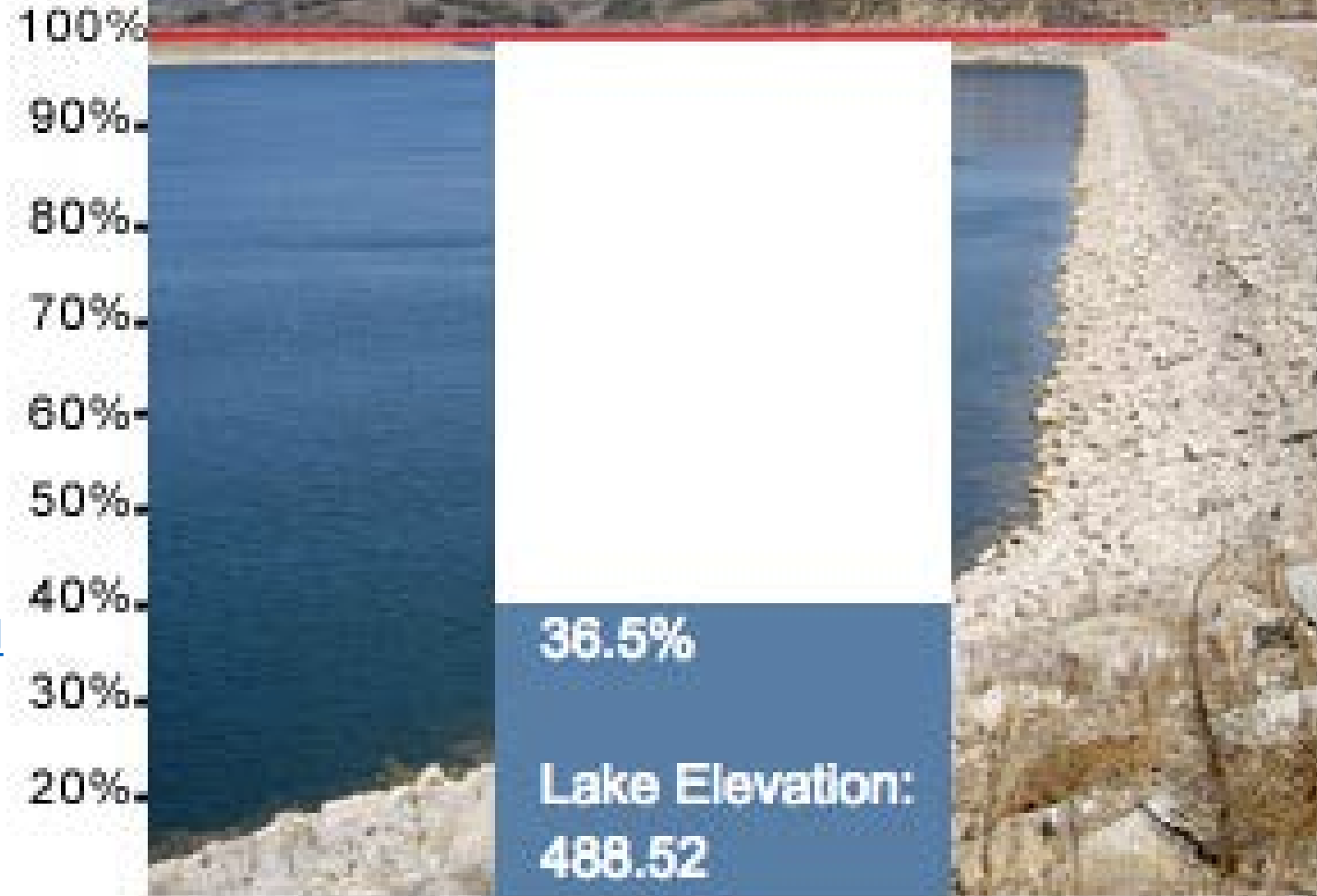
Name	Rain Since 8:00am	24 Hour Amount at 8:00am	Rain Total Last 5 Days	Accumulated Total to Date	Normal to Date	Percent of Normal to Date	Last Year Rain to Date
Camarillo - PVWD	0.04	2.35	4.70	11.91	5.84	203.9%	2.84
Casitas Dam	0.04	1.99	5.78	14.17	10.15	139.6%	6.64
Casitas Station	0.04	2.40	6.73	15.56	9.90	157.2%	6.18
El Rio - UWCD	0.08	1.78	4.72	11.43	6.55	174.5%	3.53
Fillmore Sanitation	0.08	2.23	7.21	15.53	8.37	185.5%	4.30
Lake Piru - Piru Canyon	0.00	3.10	6.05	13.32	8.27	161.1%	4.68
Lake Sherwood	N/A	1.92	5.30	14.18	8.21	172.7%	3.98
Lockwood Valley	0.07	1.15	2.63	6.95	5.42	128.2%	3.76
Matilija Canyon	0.01	4.18	8.90	18.06	14.90	121.2%	5.65
Moorpark - County Yard	0.12	2.25	4.80	12.70	6.39	198.7%	3.37

VC Watershed

032A - Oxnard - Civic Center														
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	SEASON TOTAL	SEASON %
Normal	0.30	1.87	2.02	2.81	3.28	2.66	0.99	0.09	0.04	0.01	0.06	0.31	14.44	
Current WY 2016 - 2017	0.45	1.13	2.85	8.69	---	---	---	---	---	---	---	---	13.12	90.9%
2015 - 2016	0.44	0.02	0.33	3.16	0.55	1.99	0.23	0.00	0.00	0.00	0.00	0.00	6.72	46.5%
2014 - 2015	0.01	0.71	4.72	1.76	0.43	0.59	0.10	0.10	0.19	0.36	0.00	0.70	9.67	67.0%
2013 - 2014	0.00	0.54	0.23	0.01	3.79	1.02	0.17	0.00	0.00	0.00	0.02	0.00	5.78	40.0%
2012 - 2013	0.00	1.34	1.90	1.13	0.11	0.93	0.11	0.12	0.01	0.01	0.01	0.01	5.68	39.3%
2011 - 2012	0.99	1.35	0.35	1.74	0.06	2.24	2.20	0.02	0.00	0.00	0.06	0.05	9.06	62.7%

Lake Casitas Water Level – 1/23/17

<https://www.casitaswater.org/lower.php?url=lake-level>



***Latest update on 01/23/2017**

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Minerals

- There are over 3000 known minerals on Earth.
- Elements make minerals, minerals make rocks.
- Minerals are used throughout our daily lives.

Minerals and their uses

- Metals are extracted from ores. ie: Copper, Gold, Silver
- Gemstones for jewelry and electronics. ie: Diamond, Sapphires, Ruby
- Building materials. ie: Gypsum

Mineral Properties

- Color
- Luster
- Hardness
- Streak
- Cleavage vs Fracture
- Crystal Form
- Other Diagnostic Properties

Mineral Properties: Color

- Color is not a great identifier.
- A lot of minerals have a variety of colors.



Mineral Properties: Luster
















- Luster is the way light interacts with the surface of a mineral.
- There are two main categories of Luster:
 - Metallic
 - Non-Metallic
 - Vitreous
 - Waxy
 - Pearly
 - Earthy
 - Greasy



Mineral Properties: Hardness

- Hardness is measured in exact and relative terms.
- We will use the following to measure:
 - Fingernail
 - Penny
 - Glass

Mohs Hardness Scale

	Mineral Name	Scale Number	Common Object
↑ Increasing Hardness	 → Diamond	10	
	 → Corundum	9	 Masonry Drill Bit (8.5)
	 → Topaz	8	
	 → Quartz	7	 Steel Nail (6.5)
	 → Orthoclase	6	
	 → Apatite	5	 Knife/Glass Plate (5.5)
	 → Fluorite	4	 Copper Penny (3.5)
	 → Calcite	3	
	 → Gypsum	2	 Fingernail (2.5)
	 → Talc	1	

Mineral Properties: Streak

- Streak is the color of a mineral or other substance after it has been ground to a fine powder.
- Streak test is performed with a unglazed porcelain tile.



Mineral Properties: Cleavage vs Fracture

- Fracture refers to any break of a mineral that does not occur along a cleavage plane.
 - Conchoidal – glass like break.
- Cleavage is the tendency of some minerals to break (cleave) along flat, parallel surfaces.
 - Cleavage can happen on 1, 2, or 3 planes.



Mineral Properties: Crystal Form

- Every crystal form can be classified into one of six crystal systems.
 - (See page 79 in the lab manual)



Mineral Properties: Other Diagnostic Prop.

- Magnetism
- Effervescence
- Striations
- Specific Gravity



Tools in Ziplock Baggie

- Streak Plate – Black
- Streak Plate – White
- Nail
- Magnet
- Penny
- Hand Lens