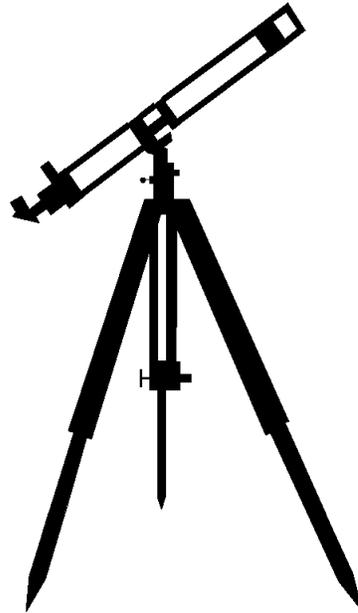




Universe Cycle
The Search for Our Beginnings



FIFTH GRADE
WORKBOOK



student _____

UNIVERSE CYCLE - UNIVERSE (5)
LAB

PROBLEM: How do astronomers make predictions about objects that they cannot sample?

PREDICTION: _____

PROCEDURE:

EXERCISE 1. Put your finger on the fickle foam. Describe what happens.

Rub your hands together 50 times (make them warmer). What happens when you touch the fickle foam now?

Have your partner put one of his or her fingers on the fickle foam without you seeing which one they use. Try to figure out which finger was put on the pad. Record your prediction and reasoning in the box below.

prediction:	why:	actual:
-------------	------	---------

After you predict which finger your partner used, have them tell you if you were right or wrong. Record the actual answer. Could you determine which finger without seeing the finger?

Are there limits to finding the shapes of objects using fickle foam? What are the limits?

EXERCISE 2: Spin the orbiter. Describe what happens to its shape as you spin it.

Spin the orbiter faster and pulsate it. What happens?

EXERCISE 3. Use the stretchy material. Spin it slowly. Describe what happens.

Spin the stretchy material faster. What happens to the shape of its orbit?

CONCLUSION: Can scientists use indirect observations to derive useful information? Will this data always be correct?

UNIVERSE CYCLE - UNIVERSE (5)
POST LAB

COMPARISON OF CONSTELLATION PLACEMAT AND CELESTIAL GLOBE

Look at the Constellation Placemat and the Celestial Globe. Compare how the placemat and globe illustrate the items listed below. If one of them does not distinguish the items, note that as well.

	PLACEMAT	GLOBE
APPARENT BRIGHTNESS		
GALAXIES		
NEBULA		
CLUSTERS		
STARS		

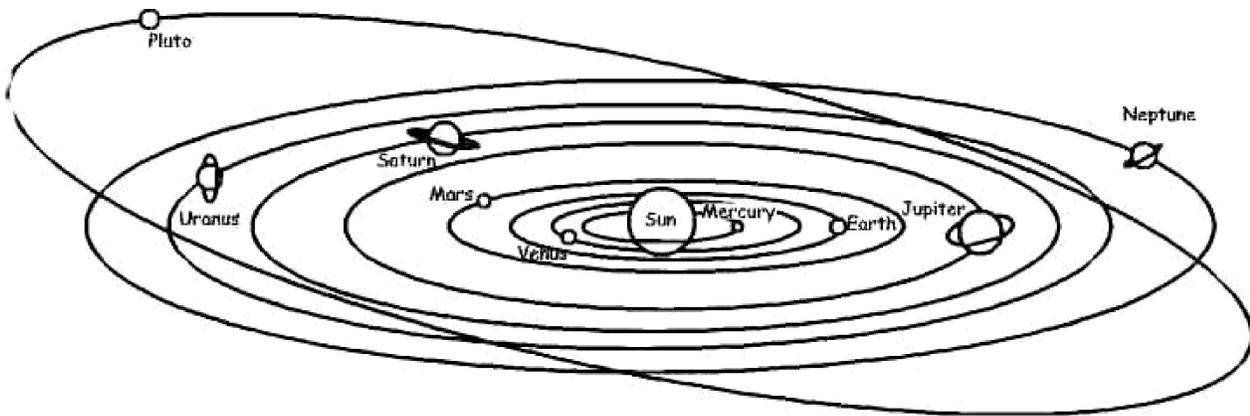
What is the difference between the Constellation Placement and the Celestial Globe?

**UNIVERSE CYCLE - SOLAR SYSTEM (5)
PRE LAB**

1. Fill in the information from using the Planets Placemats, lecture, or other sources.

	diameter (km)	length of day	length of year	* low temp C°	*high temp C°
MERCURY					
VENUS					
EARTH					
MARS					
JUPITER					
SATURN					
URANUS					
NEPTUNE					
PLUTO					

2. Is this diagram accurate in respect to the orbits. Clue: Are the distances the correct proportion?



**UNIVERSE CYCLE - SOLAR SYSTEM (5)
LAB**

PROBLEM: What type of Earth rocks do meteorites resemble?

PREDICTION:

MATERIALS: samples of granite, basalt, obsidian, sandstone, and schist; meteorite, hand lens or microscope, ruler.

EXERCISE 1. Look at your meteorite samples. Describe it by using the hand lens and ruler.

EXERCISE 2. Describe the different Earth rocks that you have at your station. Describe color, texture, density, size of minerals, or other components you see.

	DESCRIPTION
granite	
basalt	
obsidian	
sandstone	
schist	

Compare your meteorite to the samples of Earth rocks. Which rocks does it resemble? Explain.

CONCLUSION: Can you tell the type of rock that the meteorite may have come from? What might that suggest about the origin of the meteorite?

UNIVERSE CYCLE - SOLAR SYSTEM (5)
POST LAB

COMPARISON OF PLANETARY ATMOSPHERES

As your teacher discusses the different planets, record the composition of their atmospheres. After the lecture, determine which planets have similar atmospheres using the information you have recorded.

PLANET	ATMOSPHERE	SIMILAR PLANETS
MERCURY		
VENUS		
EARTH		
MARS		
JUPITER		
SATURN		
URANUS		
NEPTUNE		
PLUTO		

UNIVERSE CYCLE - EARTH (5)

LAB

PROBLEM: What forces carve the landscape in different parts of the world?

PREDICTION: _____

MATERIALS: inflatable world globe or other world maps, colored pencils or crayons

PROCEDURE:

EXERCISE 1: Examine the inflatable globe with your partner. Answer the following :
Name 5 areas that may be influenced by:

wind	water	ice

EXERCISE 2: Examine the globe again. On the map, color the areas that are influenced by water blue, the areas effected by ice green, and the areas effected by wind red.



CONCLUSION:

When you are done, answer the following question: Do you see any pattern to where areas influenced by wind, ice, or water are located? Explain your answer.

UNIVERSE CYCLE - GEOGRAPHY (5)
LAB

PROBLEM: Can a topographic map help us determine the landscape of an area?

PREDICTION: _____

MATERIALS: 5 topographic maps

PROCEDURE: Answer the following questions as you look at the maps on the next several pages.

1. Which map has the highest mountains?

2. Which map has the most creeks? _____

3. Which maps shows you details about the roadways? _____

4. List the scale of each map.

5. Which map or maps show oceans? _____

6. What is the highest mountain shown on one of the maps? Give the map name and its name and elevation.

7. Which map has the most mountains? _____

8. Which map has the flattest landscape? _____

9. Which one has the most lakes? _____

10. Which one has the driest climate? _____

11. What map has the most forest? _____

12. Which map has the most water? _____

13. Describe the landscape of each map. (For example, has mountains, many rivers)

CONCLUSION: Can you describe the general landscape of an area using topographic maps?

**UNIVERSE CYCLE - GEOGRAPHY (5)
LAB**

TOPOGRAPHIC MAP SYMBOLS

Primary highway, hard surface.....	
Secondary highway, hard surface.....	
Light-duty road, hard or improved surface.....	
Unimproved road.....	
Trail.....	
Railroad: single track	
Railroad: multiple track	
Bridge	
Drawbridge	
Tunnel.....	
Footbridge.....	
Overpass - Underpass	
Power transmission line with located tower...	
Landmark line (labeled as to type)	<u>TELEPHONE</u>
Dam with lock	
Canal with lock	
Large dam.....	
Small dam: masonry - earth	
Buildings (dwelling, place of employment, etc.)	
School - Church - Cemeteries.....	
Building (barn, warehouse, etc).....	
Tanks: oil, water, etc. (labeled only if water).....	
Wells other than water (labeled as to type).....	
U.S. mineral or location monument - Prospect.....	
Quarry - Gravel pit	
Mine shaft - Tunnel or cave entrance	
Campsite - Picnic area	
Located or landmark object - Windmill	
Exposed wreck	
Rock or coral reef.....	
Foreshore flat.....	
Rock: bare or awash.....	
Horizontal control station.....	
Vertical control station.....	
Road fork - Section corner with elevation.....	
Checked spot elevation.....	
Unchecked spot elevation	

UNIVERSE CYCLE - GEOGRAPHY (5)

LAB

VARIATIONS WILL BE FOUND ON OLDER MAPS

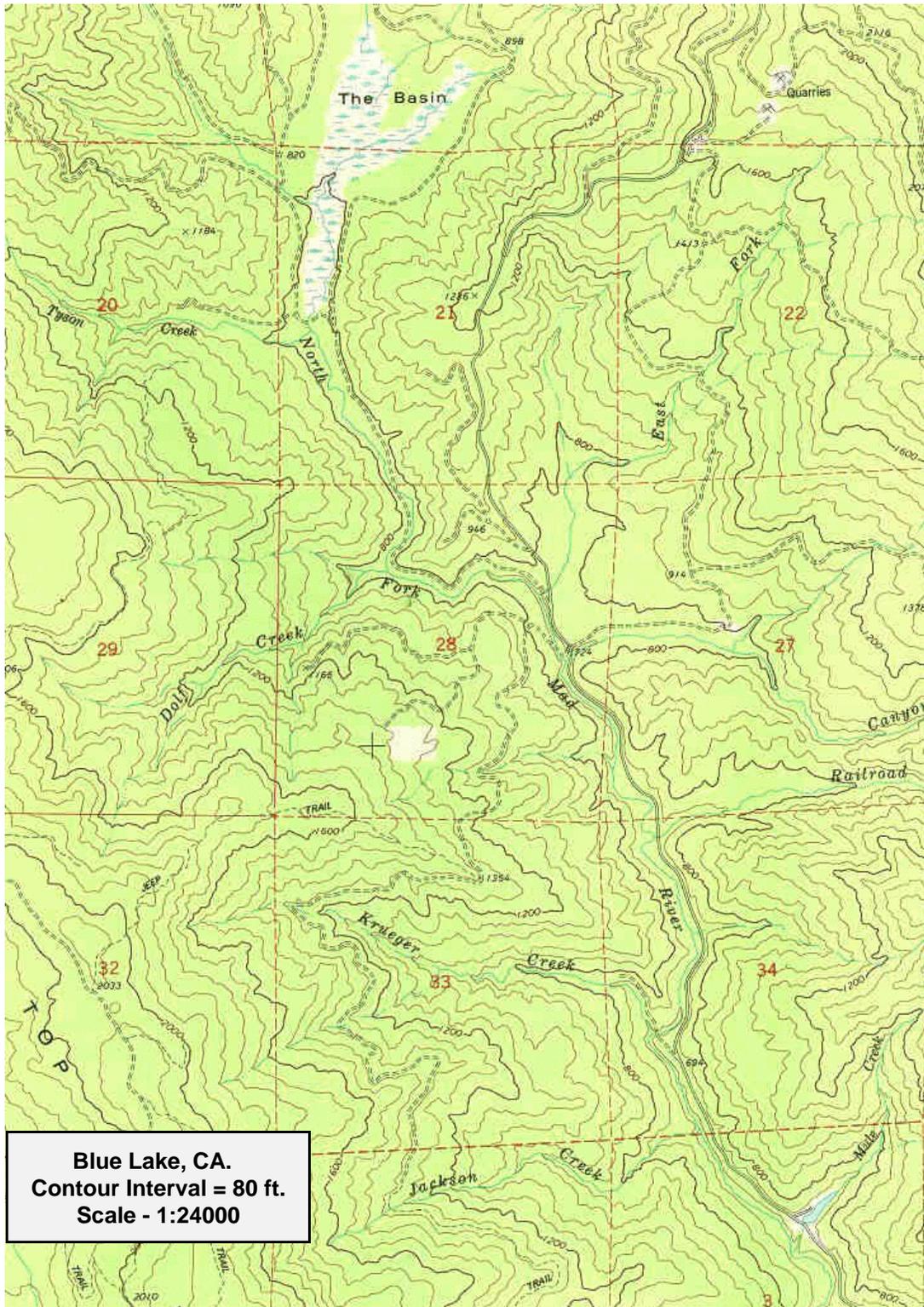
Boundary: national	
State	
county, parish, municipio.....	
civil township, precinct, town, barrio.....	
incorporated city, village, town, hamlet.....	
reservation, national or state.....	
small park, cemetery, airport, etc.....	
land grant.....	
Township or range line, U.S. land survey....	
Section line, U.S. land survey.....	
Township line, not U.S. land survey.....	
Section line, not U.S. land survey.....	
Fence line or field line.....	
Section corner: found - indicated.....	
Boundary monument: land grant - other.....	

Index contour.....		Intermediate contour.....	
Supplementary count.....		Depression contours.....	
Cut - Fill.....		Levee	
Mine dump.....		Large wash.....	
Dune area.....		Trailing pond	
Sand area.....		Distorted surface.....	
Tailings.....		Gravel beach.....	
Glacier.....		Intermittent streams.....	
Perennial streams.....		Aqueduct tunnel.....	
Water well - Spring.....		Falls.....	
Rapids.....		Intermittent lake.....	
Channel.....		Small wash.....	
Sounding - Depth curve.....		Marsh (swamp).....	
Dry lake bed.....		Land subject to.....	
		controlled inundtion	
Woodland.....		Mangrove.....	
Submerged marsh.....		Scrub.....	
Orchard.....		Wooded marsh.....	
Vineyard.....		Bldg. omission area..	

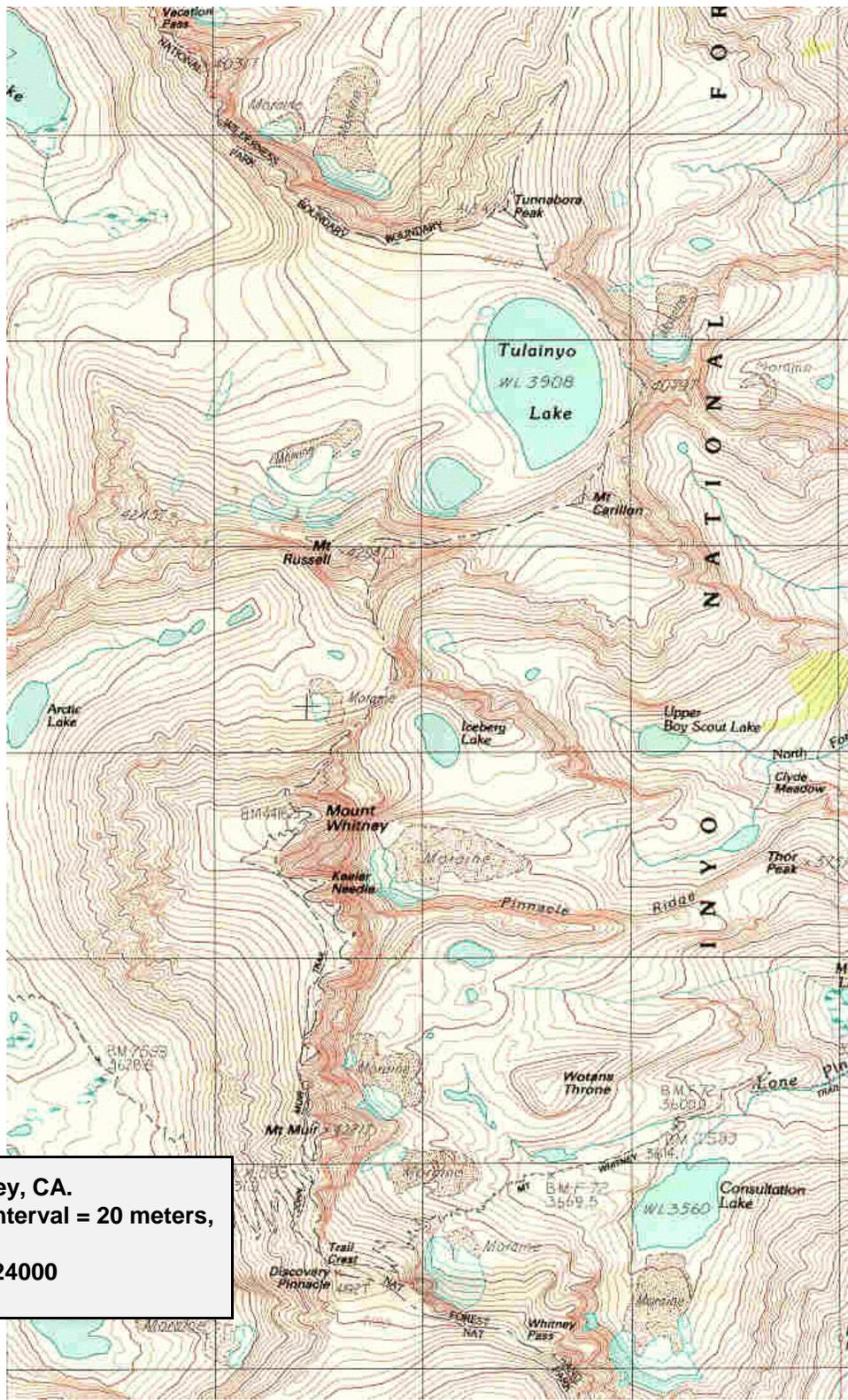
**UNIVERSE CYCLE - GEOGRAPHY (5)
LAB**



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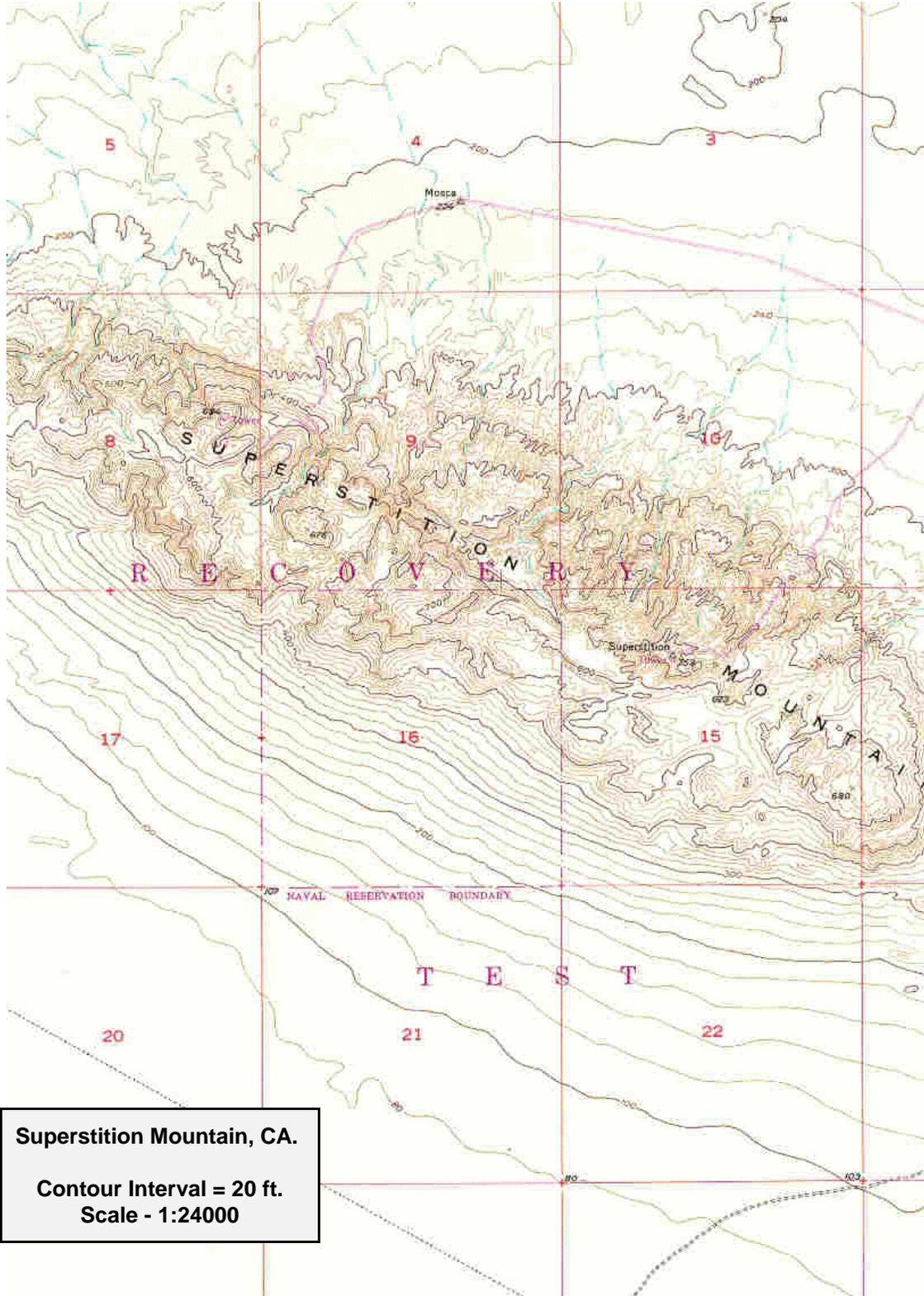


UNIVERSE CYCLE - GEOGRAPHY (5) - LAB



Mt. Whitney, CA.
Contour Interval = 20 meters,
or ~67ft.
Scale - 1:24000

**UNIVERSE CYCLE - GEOGRAPHY (5)
LAB**



**UNIVERSE CYCLE - GEOGRAPHY (5)
LAB**

