

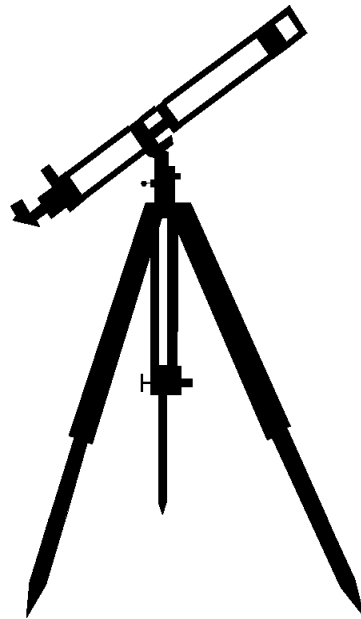


# Universe Cycle

The Search for Our Beginnings



## THIRD GRADE WORKBOOK



student \_\_\_\_\_

## UNIVERSE CYCLE - UNIVERSE (3) LAB

**PROBLEM:** How you derive information from a celestial globe?

**PREDICTION:** \_\_\_\_\_

**MATERIALS:** Inflatable Celestial Globe colored pencils

### PROCEDURE:

1. Look at January and December (between the 4h and 9h) on your celestial globe (look at the Equator) and fill in the diagram below as you answer the questions on the next page. Use the Guide to the Celestial Globe to understand the symbols.

2. Draw and label the celestial equator in BLUE. Draw and label in the +10, +20, +30, +40, 0, -10, -20, -30, and -40 in pencil. Draw and label 4h, 5h, 6h, 7h, 8h and 9h.

3. The edge of the Milky Way Galaxy can be seen in the night sky as a belt across the skies. Color it in PURPLE. What is the Milky Way?

4. Find the following constellations, circle the general area, and label them on your diagram in ORANGE. Orion, Canis Minor, Canis Major, Puppis, Monoceros, Taurus, and Gemini. Make sure you include the major stars.

5. Find the Galactic Equator on the celestial globe and show it to your teacher.

6. Find the following stars and label them on your diagram in RED: Betelgeuse, Pollux, Adhara, Rigel, Sirius, Procyon, and Castor.

7. List 5 galaxies in this region.

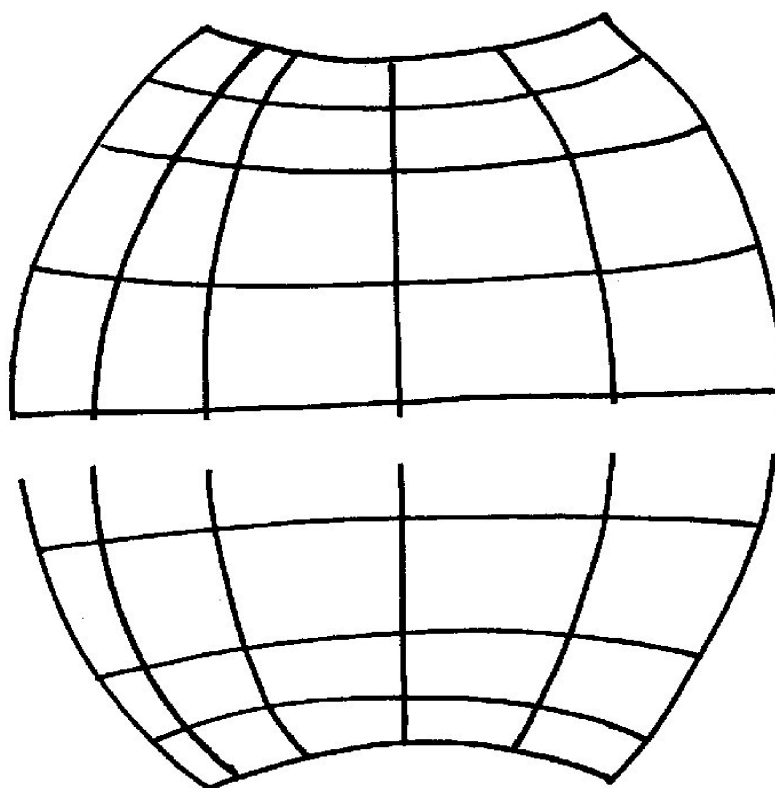
---

---

---

---

---

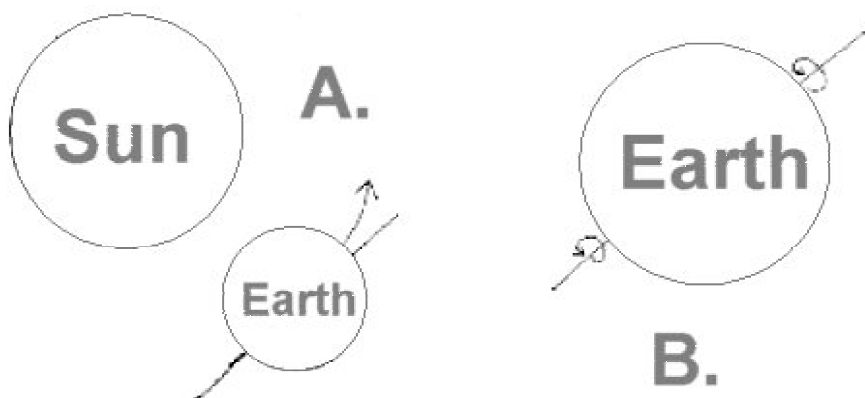


**CONCLUSION:** What type of information can you derive from a celestial globe?

---

## HOW DOES OUR EARTH MOVE?

revolve = to orbit a central point  
rotate = to turn or spin on an axis



1. What is an axis? \_\_\_\_\_
2. The Earth \_\_\_\_\_ around the Sun.
3. The Earth \_\_\_\_\_ on its axis.
4. Does the Earth rotate and revolve at the same time? Does the axis of the Earth move? Explain your answer.

---

---

---

5. Describe and compare the orbits of all of the planets around the Sun.

---

---

---

---

## UNIVERSE CYCLE - SOLAR SYSTEM (3)

### LAB

**PROBLEM:** How do the inner planets orbit the Sun?

**PREDICTION:** \_\_\_\_\_

**MATERIALS:** brads, construction paper, compass or circle templates, scissors

**Directions:**

1. Make circles with the following dimensions.

Mercury orbit - 5 cm

Venus orbit - 10 cm

Earth orbit - 17 cm

Mars orbit - 22 cm

2. Push a brad through a piece of paper, so the sharp end is sticking up. Put the Mars orbit circle on top of it, so that the brad pokes through the center of the circle. Stack The Earth circle on top of Mars the same way, then Venus, then Mercury. Draw a picture of each planet on the edge of its orbit. Use the information your teacher provided.

3. Make the planets revolve by moving the circles. Use the chart below to find the correct direction. Have your teacher check your movements.

	ROTATES	REVOLVES
Mercury	59 days (clockwise)	88 days (counterclockwise)
Venus	242 days (counter)	225 days (counterclockwise)
Earth	24 hours (clockwise)	365 days (counterclockwise)
Mars	24.5 hours (clockwise)	687 days (counterclockwise)

4. Answer the questions below "YES" or "NO".

Mercury revolved faster than the Earth.	
Venus revolves faster than Earth, slower than Mercury	
Mars rotates slower than Earth	

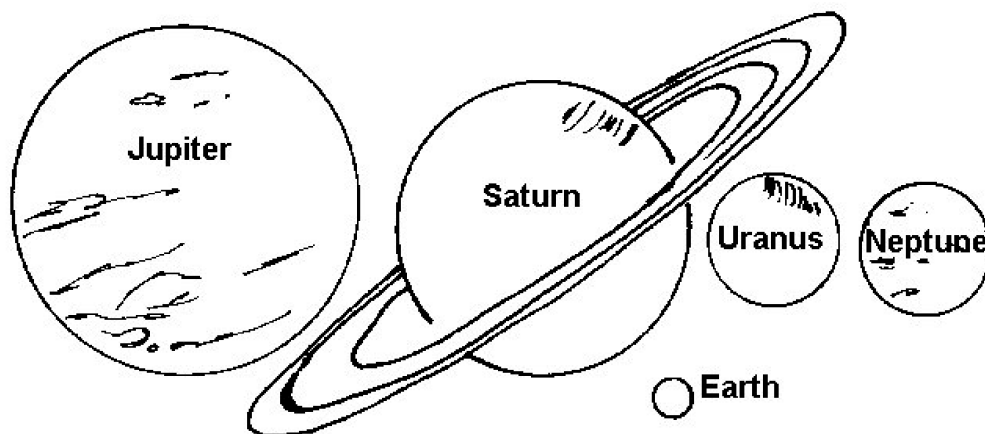
**CONCLUSION:** Describe the orbits of the terrestrial planets around the Sun.

---

---

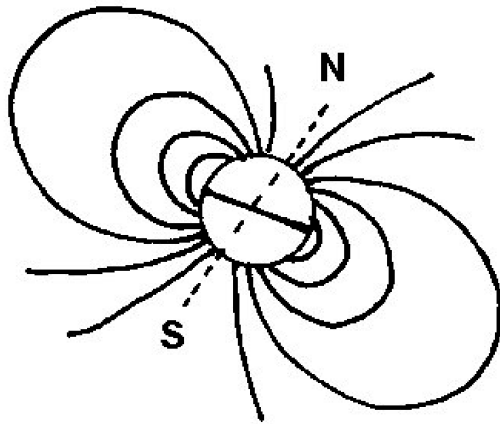
# UNIVERSE CYCLE - SOLAR SYSTEM (3) POST

## RELATIVE SIZES OF THE GAS PLANETS COMPARED WITH EARTH

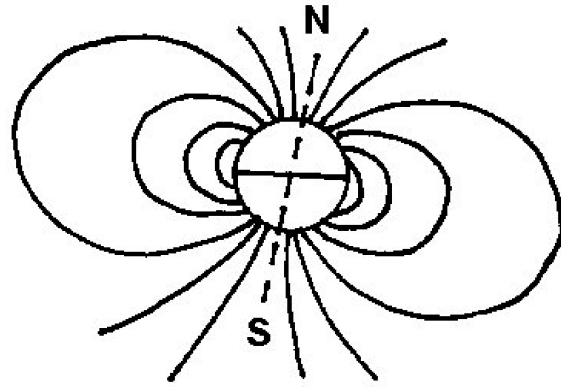


	EARTH	JUPITER	SATURN	URANUS	NEPTUNE
DISTANCE FROM SUN ( $10^9$ KM)	0.1496	0.7783	1.4294	2.8750	4.5043
VOLUME (EARTH=1)	1	1321.3	763.6	63.1	57.7
MASS OF PLANET (EARTH=1)	1	317.892	95.184	14.536	17.148
ROTATION	23.9 hrs	9.9 hrs	10.6 hrs	17.2 hrs	16.1 hrs
TILT OF EQUATOR	23.4	3.08	26.7	97.9	28.8
MOONS	1	16	20	15	8
RINGS	0	1	7	10	4

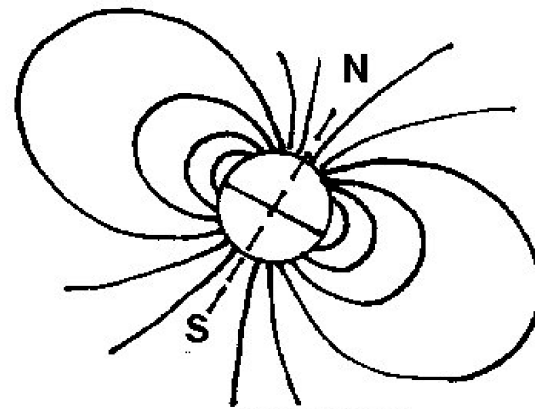
MAGNETIC FIELDS OF THE GAS GIANTS COMPARED TO EARTH



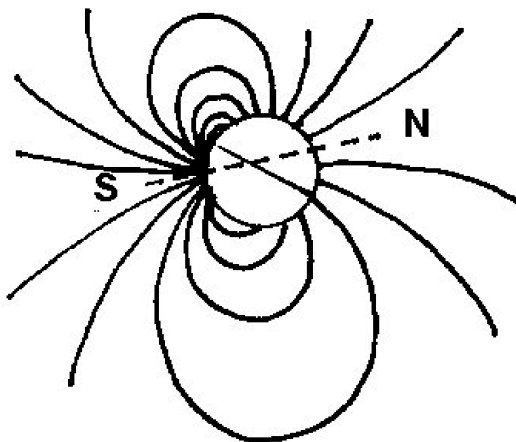
**EARTH**



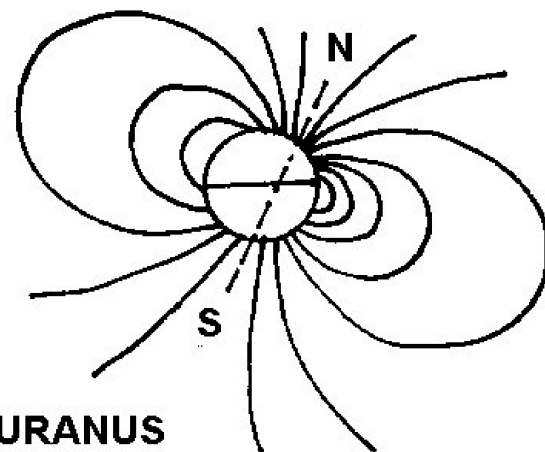
**JUPITER**



**SATURN**



**NEPTUNE**



**URANUS**

## UNIVERSE CYCLE - EARTH (3)

### LAB

**PROBLEM:** How does nature change the Earth's surface over time in areas where it is extremely cold?

**PREDICTION:** \_\_\_\_\_

#### PROCEDURE:

**EXERCISE 1.** Look at the maps on the next two pages. Compare their landscapes.

1. Write the name of the location of each map.

--	--

2. Which map has more snow and ice? \_\_\_\_\_ How can you tell?

3. Which map has more lakes and ponds? \_\_\_\_\_  
How can you tell? \_\_\_\_\_

4. Which area has been more effected by ice and snow? Explain your answer.

#### EXERCISE 2.

**MATERIALS:** 2 trays, sand, 2 small clay slabs, beaker, water and ice cubes

1. Place one slab of clay into a tray. Try to "carve" a landscape in one of the slabs of clay by pouring about 100 ml of water on it.

Is there any way that you can make the water "cut" the clay? Explain your answer.

2. Remove the clay from the tray. Take 250 ml of sand and pour it into the tray, making a hill. Pour 100 ml of water on the top of the sand hill. Record what happens.

3. Now put the second slab of clay into a tray. Using a piece of ice, try to "carve" a landscape in it. Does the ice cut the clay? Can you actually make a landscape?

4. Draw your top and side views of your ice-carved landscape on the next page.

TOP VIEW	SIDE VIEW

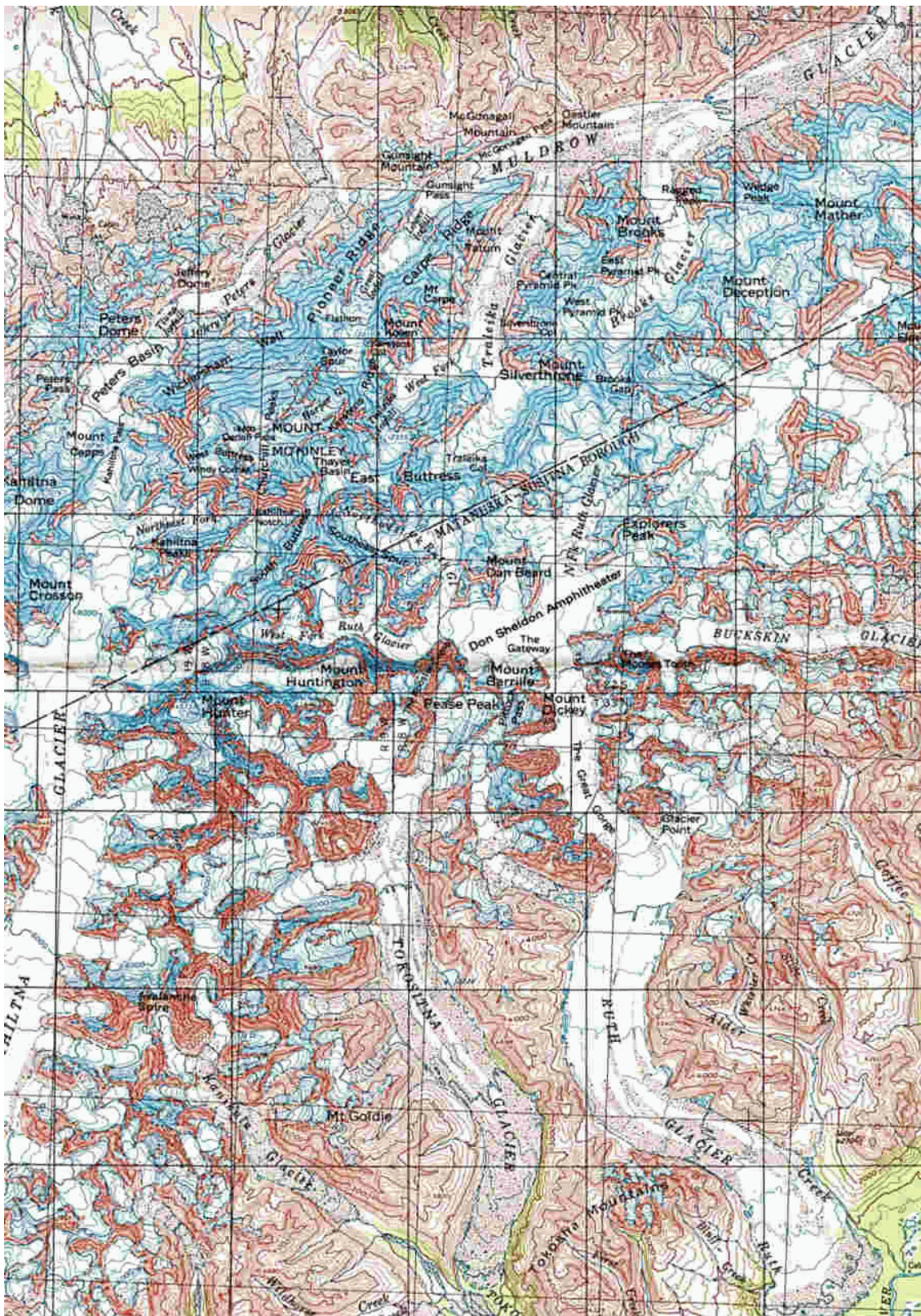
**CONCLUSION:** Is water or ice the main agent of erosion in areas where it is extremely cold? What do you think is the major agent of erosion in warm areas?



# UNIVERSE CYCLE - EARTH (3)

## LAB

Map 1: Denali National Park, Alaska

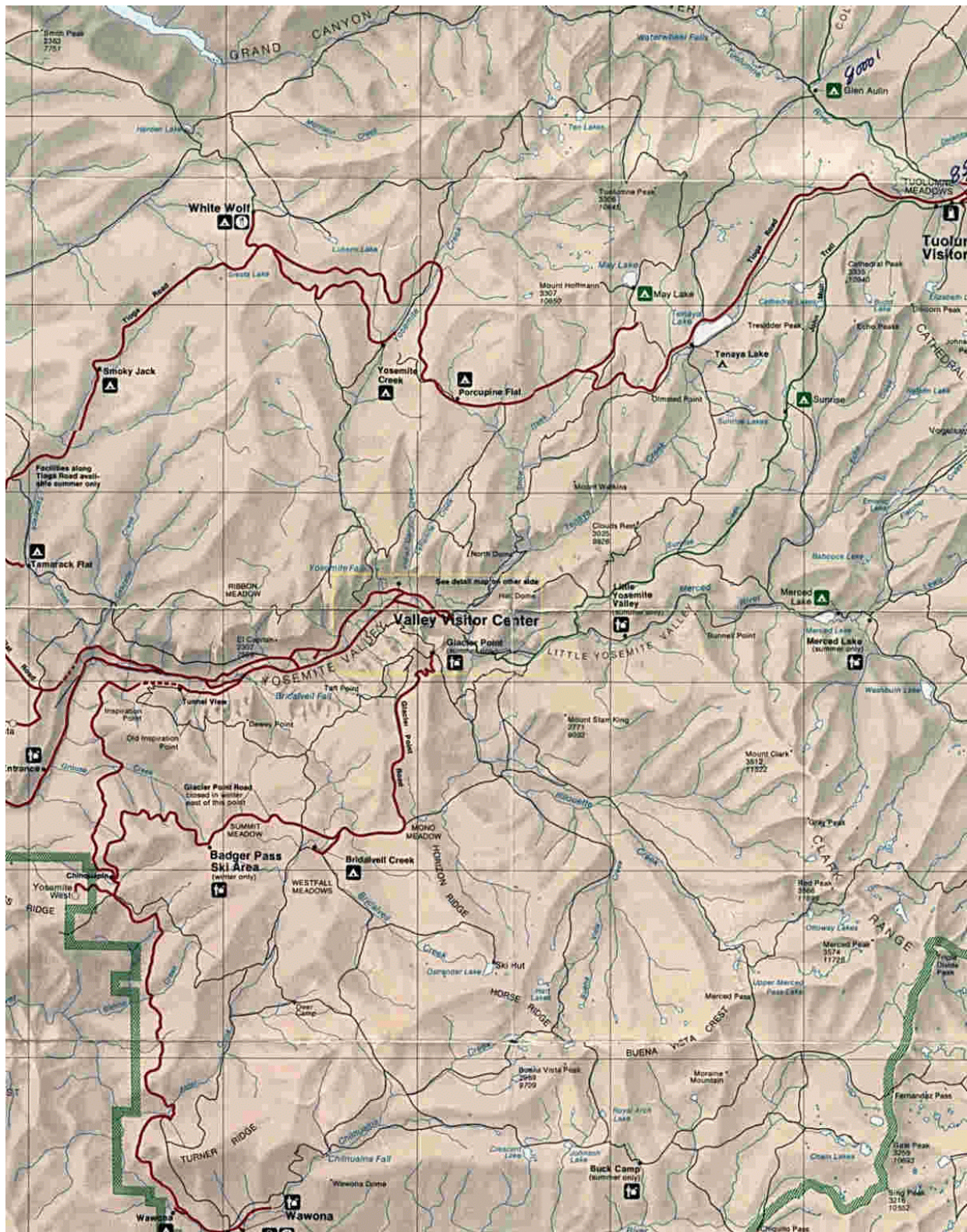




## UNIVERSE CYCLE - EARTH (3)

### LAB

Map 2: Yosemite National Park,  
California



## UNIVERSE CYCLE - GEOGRAPHY (3)

### LAB

**PROBLEM:** Can you construct a map that someone can use?

**PREDICTION:** \_\_\_\_\_

**PROCEDURE:**

**EXERCISE 1.** Look around the classroom and find three different kinds of maps. In the spaces below, describe what kind of map they are and what they are used for.

TYPE OF MAP	WHAT THEY ARE USED FOR

**EXERCISE 2.** Work with a partner. Get two bookmarks from your teacher. Perform the following steps:

1. Write your partner's name on the back of your bookmark.
2. Have your partner close their eyes while you hide the bookmark somewhere in the classroom.
3. Draw a map of the classroom in the box on the next page. Mark the hiding spot with an X. Use the space below the word "Legend" to label the shapes on your map.
4. Give the map to your partner and see if they can find it on their own.

### CLASSROOM TREASURE MAP

LEGEND:

**CONCLUSIONS:** Were you and your partner successful? \_\_\_\_\_  
Describe any problems that you had in reading or making your map.