

Unit 1: Introduction to Earth Science Note Packet

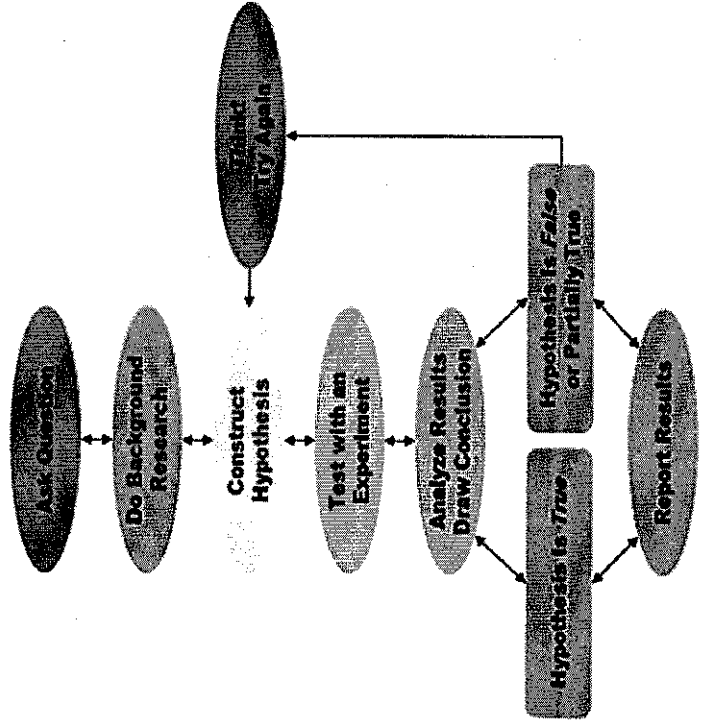
What do you know About the Scientific Method?

Scientific method: Is a process for experimentation that is used to explore _____ about the world.

What are the Steps in the Scientific Method?

- Ask a Question _____
- Do _____
- Construct a Hypothesis _____
- Test with an _____
- Analyze Results & Draw Conclusion _____
- Determine if Hypothesis is Supported or Rejected _____

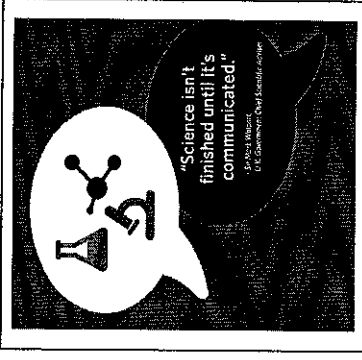
Scientific Method



How do Scientist Communicate Results?

1. _____ journals
2. Present work at science conferences

How are you informed by Science?

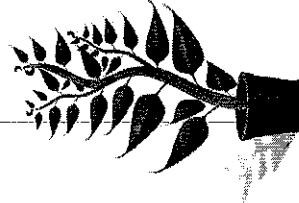
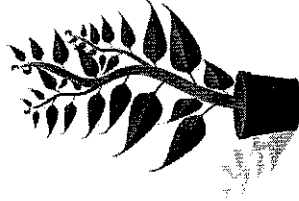


What Other Terms Have you heard of that relate to the Scientific Method?

- Control _____
- Qualitative _____
- Dependent Variable _____
- Data _____

Experiment – Practice

Question: Do plants grow _____ with more fertilizer?



Plant 1 – No fertilizer

Plant 2 – 10 mL of fertilizer

Plant 3 – 50 mL of fertilizer

What did _____ in the experiment?

The _____ is the Independent Variable: the variable controlled and changed by the person conducting the experiment



How did we _____ the results?

The _____ is the **Dependent Variable**: What is measured as a result of the independent variable



What factors stayed the same throughout the Experiment?

- Amount of water given to each plant _____
- Amount of soil each plant was put into _____
- Time the experiment was run on each plant _____

What is the control group in this experiment?

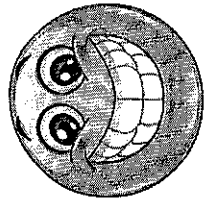
Control: The group that is _____ and will be used as a _____.

_____ because it did not receive any fertilizer

How many times should we conduct our Experiment?

It is important to test an experiment _____ times.

The more times an experiment is tested the _____ the results are.



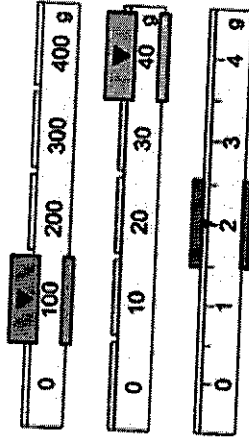
We will always do at least _____ of each experiment in class!

What tools can you use in science to take measurements?

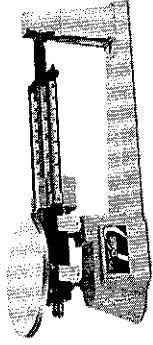
Triple Beam Balance

Used to measure mass in grams or (g)

Can be also be digital called an electric scale



How many grams does this balance show?

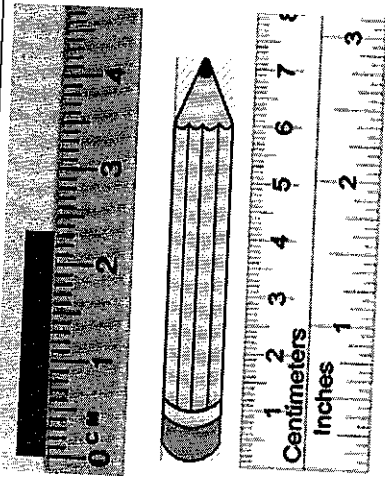


Ruler

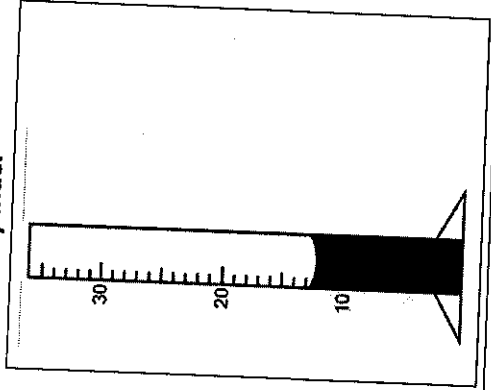
Used to measure length in centimeters (cm) or meters (m)

How many centimeters is the ribbon? _____

How many centimeters is this pencil? _____



Graduated Cylinder



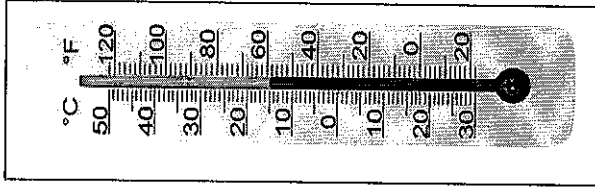
Used to measure volume in liters (L) or milliliters (mL)

How many mL of water is in the graduated cylinder?

Thermometer

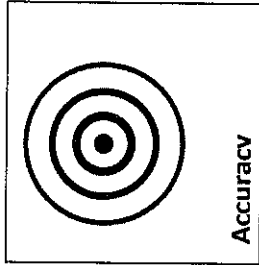
Used to measure temperature in Celsius or (C°)

How many degrees Celsius is shown on the thermometer?

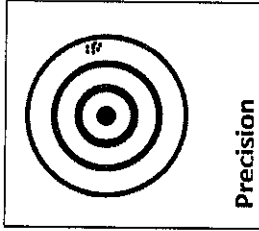


Timer/ Clock

Used to measure time in _____ or (s)



Accuracy



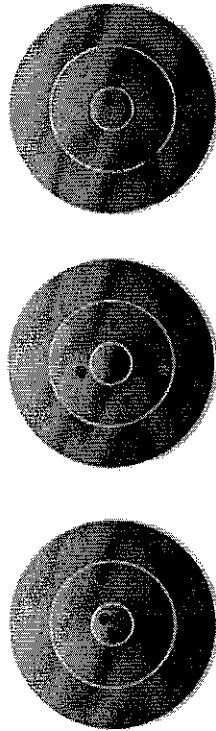
Precision

Is it important to take reliable and accurate measurements?

Accuracy: How close the measurement is to the _____ value

Precision: How close each measurement is _____

Accurate, Precise, or Both?



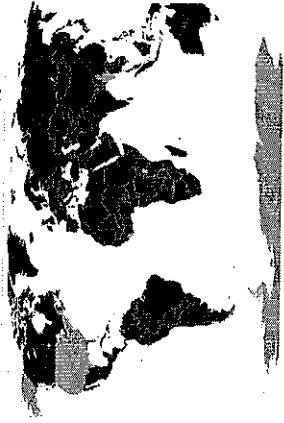
What is the Metric System?

International System of units (SI units)

Used mostly widely in the World

- Length = _____
- _____ = Grams
- Volume = _____

Metric System Adoption



Countries which have officially accepted the metric system
Countries which have not officially adopted the metric system (US, Myanmar, Liberia)

Moving decimal to left = _____

Moving decimal to right = _____

How do we use the Metric System?

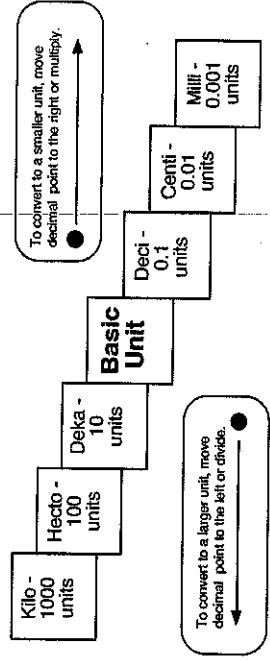
It works on a _____

So you can move the decimal place to the _____ or _____ to convert easily

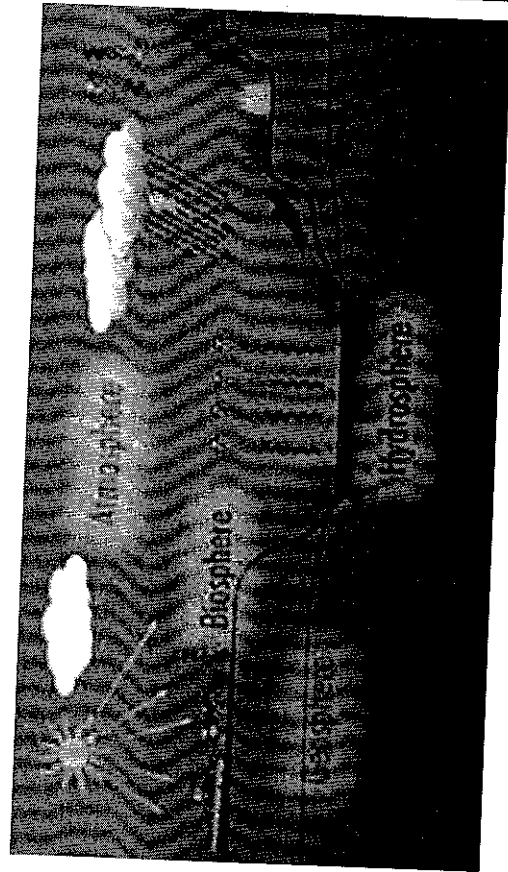
- Kilo = _____
- Hekco = _____
- Deka = _____
- Base = 1 (Meters, Liters, Grams)
- _____ = 1/10 or 0.1
- _____ = 1/100 or 0.01
- _____ = 1/1000 or 0.001

What is an Easy Way to Convert?

Metric Conversion Chart



What are the Four Spheres of the Earth?



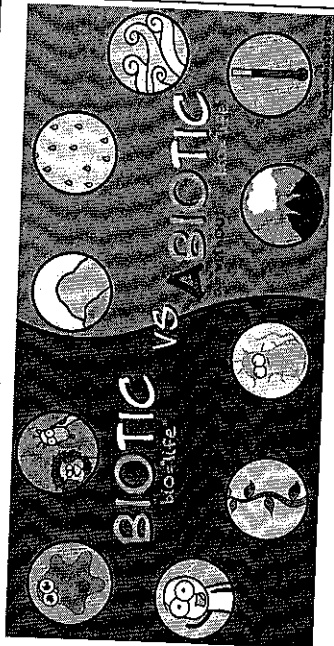
Atmosphere

An _____ blanket of _____ Earth

Supports life on Earth w/ the energy from the Sun and the magnetic field

Biosphere

_____ the _____ found on all regions of Earth
 Example: Plants, Animals, Insects, _____ etc.



Biotic = _____
 _____ =
 living things

Hydrosphere

_____ found on Earth, including oceans, rivers, glaciers, etc.

_____ of Earth is water

Water is universal solvent

Found as solid (_____), liquid (water), and _____ (water vapor)



Lithosphere/Geosphere

_____ outermost shell on Earth

Includes crust and upper _____

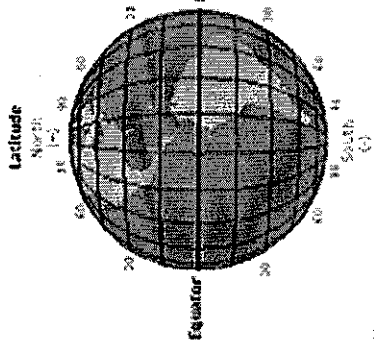
Earth is made up of lithospheric plates



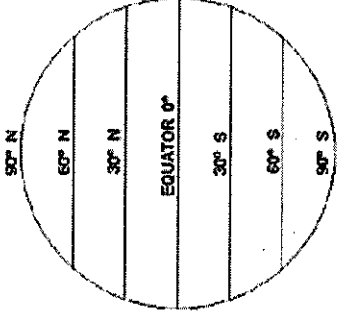
SYSTEM	KEY WORD	SYSTEM FEATURES (list 3 features)
Atmosphere		1) Dust storms 2) _____ 3)
Hydrosphere	Land	1) Mountains 2) Volcanoes 3)
	Life	1) Lakes 2) _____ 3)
		1) Plankton 2) Coral Reefs 3)
Word bank:	Glaciers Forests	Hurricanes Biosphere Water Impact Craters Clouds Air Oceans Litho/Geosphere

What is latitude?

Latitude is a measurement of distance in degrees _____ and _____ of the equator.



Latitude lines: Like the rungs of a ladder.



There are _____ of latitude from the equator to each of the poles, north and south.

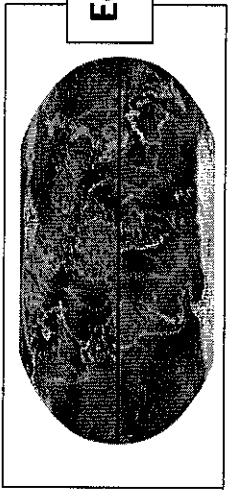
Latitude lines are the _____ distance apart.

The Equator

Equator is the _____ of all of the latitude lines.

It is an _____ that divides the Earth in half.

A _____ latitude.



Practice

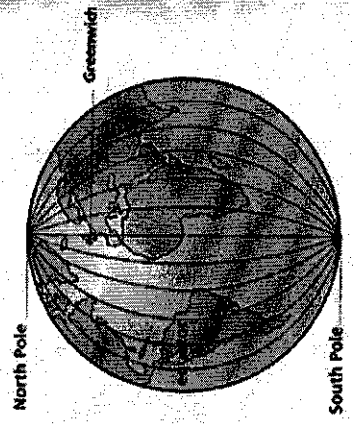
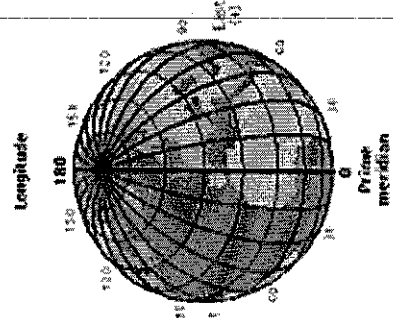
1. Lines of latitude are _____ to the equator.
2. There are _____ degrees of latitude north and south of the equator.
3. The equator is _____ degrees.

What is longitude?

A measurement of distance in degrees _____ of the prime meridian.

Line of longitude, including the _____, pass through the north and south pole.

Makes the Earth look like a _____.



The Prime Meridian

The prime meridian _____ the earth in half too.

It is also 0°. It passes through Greenwich, _____.

The International Date Line

There are _____ of longitude on each side of the prime meridian.

On the opposite side, the prime meridian is not zero, but _____.

It is called the _____.

Practice Questions

1. Longitude lines connect the _____ pole with the _____ pole.
2. The line of 0° longitude is called the _____.

- Longitude gives directions _____ and _____ of the prime meridian.
- There are _____ degrees of longitude on each side of the prime meridian.

Using Latitude & Longitude

Latitude and longitude can be used to _____ your exact _____.

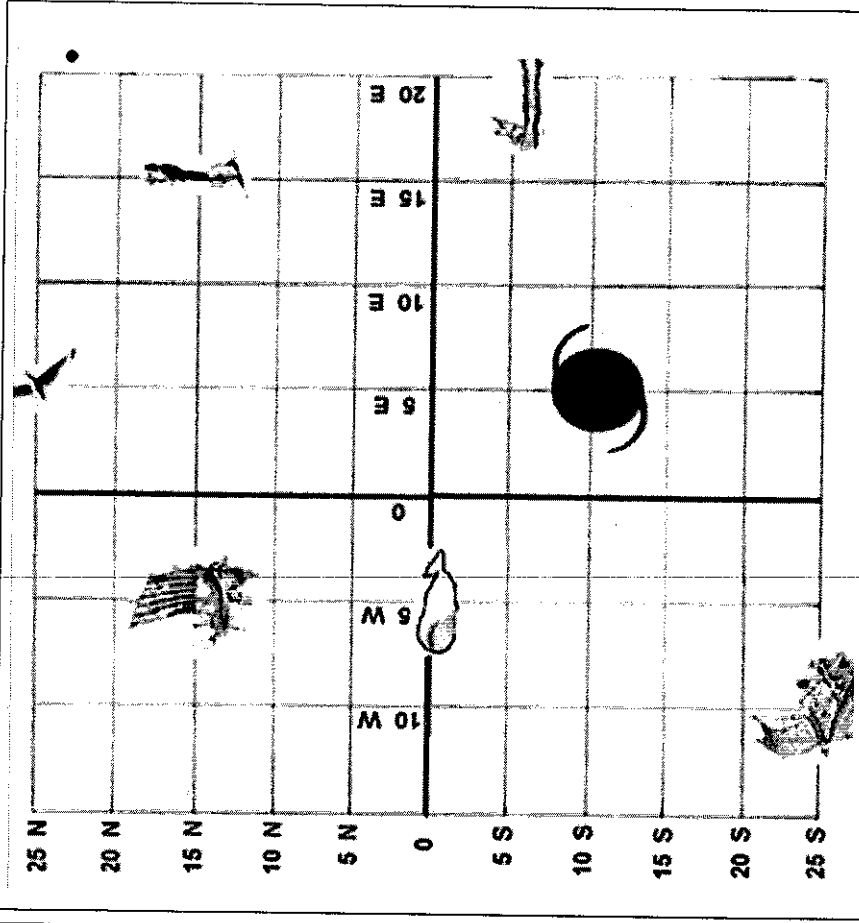
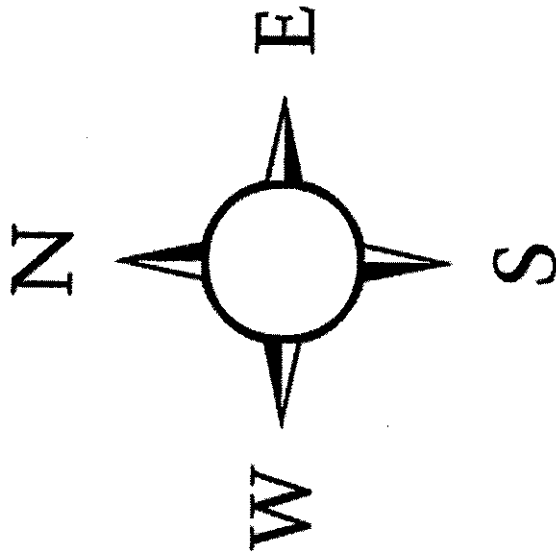
You write _____ followed by longitude.

Example:

- Miami, Florida is located at 25° North and 80° West.
- Or 25° N 80° W

Compass Rose

A figure on a map or compass used to show _____ : North, Earth, South, & West



Practice

Hurricane _____

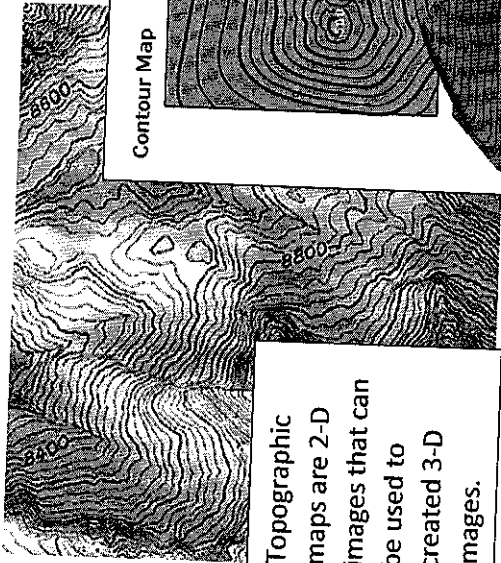
Whale _____

Bird _____

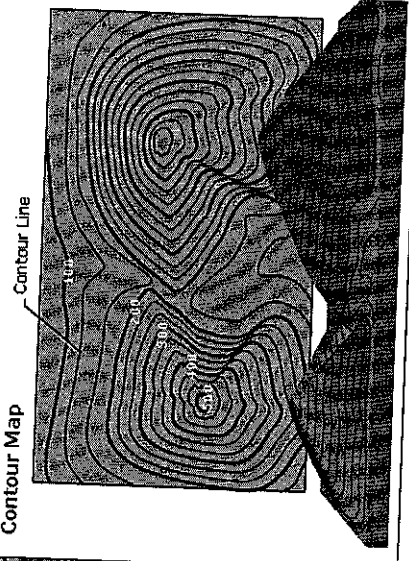
What is Topography?

Topography is the features of the land

A topographic map shows natural features () and () features (such as schools)



Contour Map



Topographic maps are 2-D images that can be used to create 3-D images.

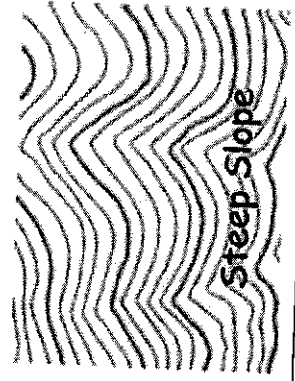
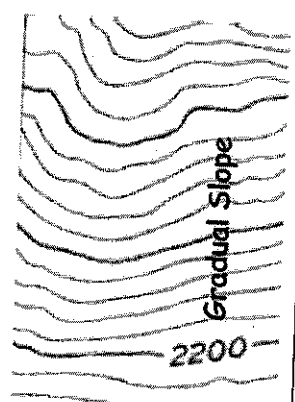
What are Contour Lines?

The lines on a topographic map are called

Contour lines show

Contour lines of _____ elevation are connected

The closer the contour lines are to each other, the _____ is



What are Some other Mapping Terms?

_____ compares distance on the map with distance on Earth.

Legend - explains _____ on the map.

_____ - contour lines that are labeled to help you find the contour interval.

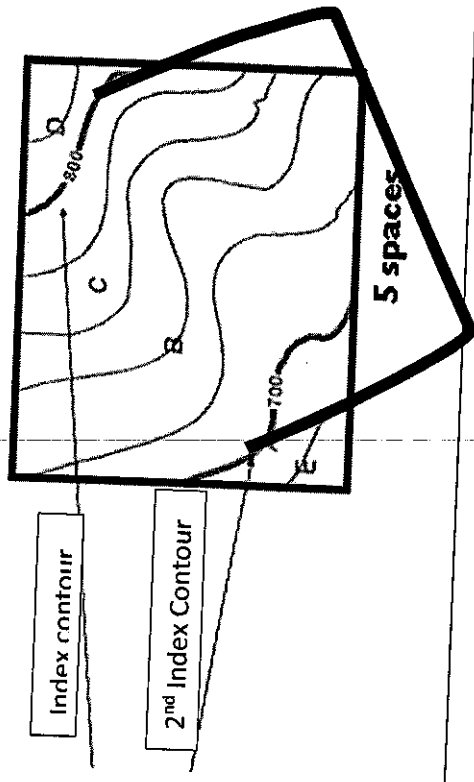
Relief- The _____ between any 2 points _____

A contour interval is the difference in elevation between two contour line that are side by side.

How do you find the Contour interval?

To find the contour interval:

1. Find index contour
 2. Determine the elevation between two index contours
-
3. Count the number of spaces between 2 index contours
 4. Divide the elevation difference between the 2 index contours by the number of spaces

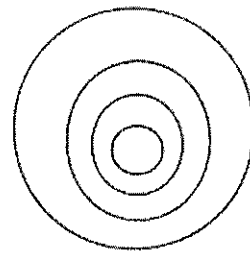


Practice

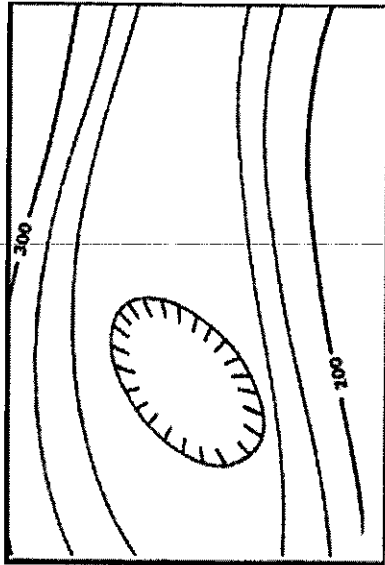


1. Put a box around the map scale
2. Is there a legend? _____
3. Circle at least one index contour
4. What is the contour interval?

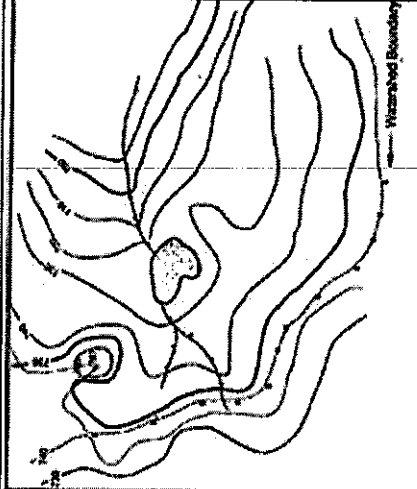
What Features are on Topographic Maps?



_____ are represented by a series of circles
This is a top down view



A _____ or hole is represented with hachure lines.
An example may be the inside of a dead _____



Streams are found in areas of _____
Streams are sometimes shown by a _____
Contour lines form Vs that point upstream (toward higher elevation) = opposite direction that water flows

What landforms can be shown on a topographic map?

_____ - deep valleys with steep sides, often with streams flowing through
River deltas - "end" of a river, where the river enters a larger body of water
Mountains or hills - _____
Valleys/ depressions - low elevation
Ridges - _____ elevation or chain of mountains

	Definition	Examples
Hypothesis		
Theory	A theory is made from _____ A theory can be used to make _____	
Law	A law doesn't tell us _____ something happens. It's just a _____ Laws commonly involve _____	

What landforms can be shown on a topographic map?

Plains- A large area of _____ with few trees

Interior Plain - A large, flat area that is away from the borders of a continent

_____ - A flat, low-lying land adjacent to a seacoast

How are Mountains classified?
 _____ is a group of adjacent mountains that are related to each other in shape and structure.

Mountain system- is a group of Mountain belts - The largest mountain _____ together

Fill in the cycle below:

