Name: _____

Date: _____ Period: _____

Midterm Review

Earth Science

Review: Do You Know?

Directions: Carefully read over the checklist of items that you need to know for the midterm exam.

EARTH SCIENCE FOUNDATIONS

OBSERVATION AND INFERENCE:

- ☐ Classification systems are based on observations and help organize observations
- ☐ Inferences are an interpretation bases on an observation
- ☐ Observations are recorded observations using the five senses
- ☐ The 5 senses: sight, smell, hearing, taste, and touch

MEASUREMENT

- ☐ Terms to Know: length, mass, volume, displacement, temperature, air pressure
- ☐ Measuring Instruments: electric balance, ruler, graduated cylinder
- ☐ Be able to calculate volume using $V = l \times w \times h$
- ☐ Be able to measure volume using displacement

DENSITY

- ☐ Terms to Know: density
- ☐ Earth Science Reference Tables: Equations [Density]
- ☐ Know how to calculate Density with the proper units
- ☐ All substance are the densest in the solid phase… except water
- ☐ Solid water [ice] floats in liquid water… so it is less dense
- ☐ Density remains the same for a material unless heat or pressure is changed
- ☐ If temperate increases then density will decrease
- ☐ If pressure increases then density will increase

GRAPHING ANALYSIS

- ☐ Terms to Know: extrapolate, dependent variable, independent variable
- ☐ Recognize a graph of a “direct relationship” and provide example[s]
- ☐ Recognize a graph of an “inverse relationship” and provide example[s]
- ☐ Recognize a graph of a “cyclic change” and and provide example[s]
- ☐ Earth Science Reference Tables: Equations [Rate of Change]
- ☐ Know how to calculate Rate of Change with the proper units
- ☐ Graphs reveal patterns can be used to extrapolate data to help predict future event

Review: Do You Know?

MEASURING THE EARTH

SPHERES OF THE EARTH:

- ☐ Terms to Know: lithosphere, atmosphere, hydrosphere
- ☐ ESRT Chart: Average Chemical Composition of Earth's Crust, Hydrosphere, and Troposphere
- ☐ ESRT Chart: Selected Properties of Earth's Atmosphere
- ☐ ESRT Chart: Inferred Properties of Earth's Interior

LATITUDE AND LONGITUDE

- ☐ Terms to Know: latitude, equator, longitude, prime median, international date line
- ☐ Max Latitude = 90º
- ☐ Max Longitude = 180º
- ☐ Altitude of Polaris = Latitude [northern hemisphere]
- ☐ As latitude increase… altitude of Polaris increases
- ☐ ESRT Chart: Generalized Bedrock Geology of New York State
- ☐ Earth's rotation is the basis for local time and Earth's rotation 360º in 24 hours = 15º/hour
- ☐ Each time zone covers 15º of longitude

FIELD MAPS AND ISOLINES

- ☐ Terms to Know: field, isoline, isotherm, isohyet, isobar, contour line
- ☐ Isoline Rules:
  - ☐ Connect equal points of data
  - ☐ Close around hills and depressions or extend to the map border
  - ☐ Isolines never cross one another

TOPOGRAPHIC MAPS AND PROFILES

- ☐ Terms to Know: elevation, topographic map, contour line, contour interval, contour index, depression contour lines, topographic profile
- ☐ Steep slope = contour lines close together
- ☐ Gentle slope = contour lines far apart
- ☐ Contour lines bend the opposite direction when they cross a stream or river
- ☐ Know how to interpret/read a topographic map
- ☐ Know how to calculate the possible max or minimum elevation
- ☐ Know how to create a profile

Review: Do You Know?

MINERALS AND ROCKS

MINERALS

- ☐ Terms to Know: luster, cleavage, fracture, hardness, streak
- ☐ Internal Arrangement of Atoms
- ☐ The basic mineral structure is a silicon-oxygen tetrahedron
- ☐ Earth Science Reference Tables: Properties of Common Minerals

IGNEOUS ROCKS

- ☐ Terms to Know: vesicular, volcanic, plutonic, intrusive, extrusive
- ☐ The longer the cool the bigger the jewel
- ☐ Very Coarse and coarse grain cooled inside the Earth
- ☐ Fine grain and Glass cool outside the Bath
- ☐ Earth Science Reference Tables: Scheme for Igneous Rock Identification
- ☐ Formation: melting → magma → solidification

SEDIMENTARY ROCKS

- ☐ Terms to Know: clastic, fragmental, fossil, precipitates, evaporites, lithification
- ☐ Other terms for Sediment: clastic, fragmental, particles, pieces
- ☐ Earth Science Reference Tables: Relationship of Transported Particle Size to Water Velocity
- ☐ Form in layers
- ☐ Could contain fossils
- ☐ Earth Science Reference Tables: Scheme for Sedimentary Rock Identification
- ☐ Formation: weathering & erosion → sediment → deposition & burial → cementation and/or compaction

METAMORPHIC ROCKS

- ☐ Terms to Know: foliated, nonfoliated, banding, mineral alignment, banding
- ☐ Contact metamorphism [large scale] form by heat and pressure
- ☐ Regional metamorphism [small scale] form from just heat
- ☐ Earth Science Reference Tables: Scheme for Metamorphic Rock Identification
- ☐ Formation: heat and/or pressure

THE ROCK CYCLE

- ☐ Igneous: melting → magma → solidification
- ☐ Sedimentary: weathering & erosion → sediment → deposition & burial → cementation and/or compaction
- ☐ Metamorphic: heat and/or pressure
- ☐ Driving Forces: heat from Earth's interior, energy from the Sun, gravity
- ☐ Earth Science Reference Tables: Scheme for Metamorphic Rock Identification

Review: Do You Know?

PLATE TECTONICS

CONTINENTAL DRIFT

- ☐ Terms to Know: Continental Drift, Pangaea, Mesosaurus, Glossopteris
- ☐ Evidences to support the Theory of Continental Drift:
  - ☐ Puzzle-like fit of Africa's west coast and South America's east coast
  - ☐ Fossil remains of the Mesosaurus were found in South America and South Africa
  - ☐ Fossil remains of the Glossopteris found throughout India, S. America, Africa, and Antarctica

CRUSTAL ACTIVITY

- ☐ Terms to Know: Plate Tectonics, Plates, Lithosphere, Asthenosphere
- ☐ Convection Currents are the driving force behind plate movement
- ☐ Evidences of Plate Tectonics:
  - ☐ Earthquakes along isolated belts outlining the plate boundaries
  - ☐ Volcanoes occurring at plate boundaries where plates are interacting
  - ☐ Tilted and/or folded rock layers that were initially deposited horizontally
  - ☐ Mountains that were pushed up from plate collisions
  - ☐ Fossilized shallow marine organisms found at high elevations
- ☐ Ring of Fire is an isolated belt around the Pacific Ocean where 90% of the world's volcanoes exist

CRUSTAL BOUNDARIES

- ☐ Terms to Know: convergent, divergent, transform, subduction, trench, mid-ocean ridge, rift valley
- ☐ Earth Science Reference Tables: Tectonic Plates
- ☐ Convergent Plate Boundary [→ ←] Features: trenches, mountains, island arcs, volcanoes
- ☐ Divergent Plate Boundary [← →] Features: mid-ocean ridge, rift valley, magnetic striping
- ☐ Sea-floor Spreading is the process where ocean floor is extended when two plates move apart
- ☐ Transform Plate Boundary Example: San Andreas Fault

VOLCANOES AND HAZARDS

- ☐ Terms to Know: volcano, caldera, pyroclastic flow
- ☐ Hotspot - thinner portions of the crust where rising convection currents bring magma to the surface
- ☐ Emergency Preparedness: evaluate