

Test 2 – April 6, Tuesday (in your lab sections), Approx. 100pts

Multi part: Content, Topographic skills, applied knowledge (You may use your class notes and text book in the last applied knowledge section)

Part 1 – Plate tectonics

Part 2 – Weathering and Soils Interlude B p. 183

Part 3 – Climate Change and Humanity Ch. 20 – (skip p. 744-760) & Ch. 23

Part 4 – Groundwater Ch. 19

Part 5 – Rivers, Ch. 17

Part 6 – Glaciers, Ch. 22

Important concepts and review questions –

Section 1: Plate Tectonics

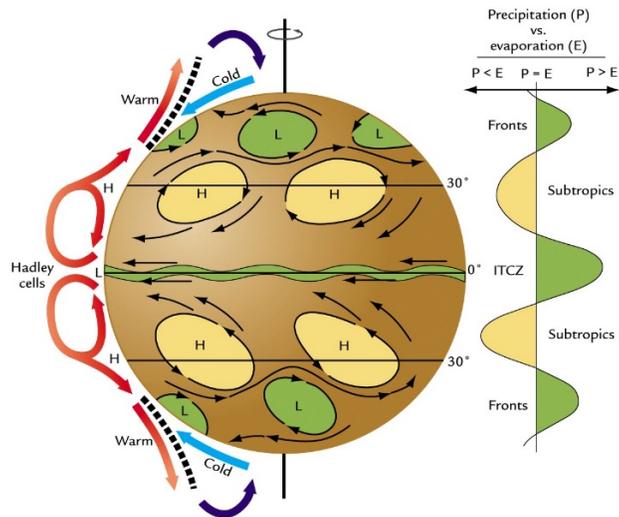
- A. A. What was Wegner's Continental Drift Hypothesis and what evidence moved it to a theory?
- B. The earth's internal energy drives plate tectonics, how after 4.6 Ga years is there any energy left?
- C. What is a marine magnetic anomaly, how do geologist explain the patterns?
- D. How does the oceanic crust differ from continental crust?
- E. Describe the three basic types of plate movements.
- F. Describe the driving forces behind plate tectonics.
- G. What is a Hot spot? Where are examples?
- H. What is the Midcontinent Rift? How old is it?

Section 2: Weathering and soil

- A. Explain the basics of biological, chemical and physical weathering.
- B. What are the primary chemical weathering reactions, and their products?
- C. What are the primary soil forming factors and which two are thought to be most important?
- D. Be able to compare and contrast a soil formed in a tropical environment from a soil formed in an arid environment.
- E. What is your State soil?
- F. What characteristics does a Mollisol have?

Section 3: Climate

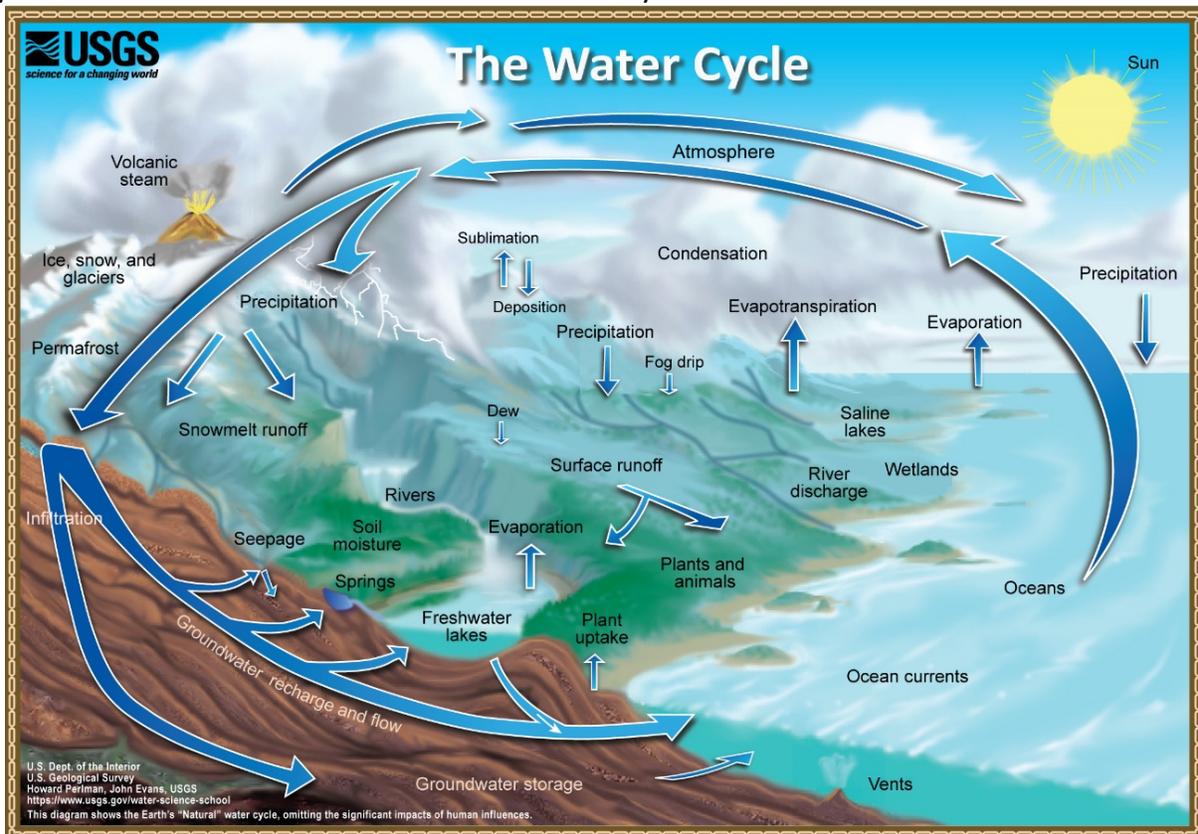
- A. Be able to discuss the basic variables that go together to develop the Earth's climate, starting with the Sun's energy > ITCZ > Hadley Cell etc.
- B. What does the term Earth System mean?
- C. What are greenhouse gases and how do they impact the Earth's climate?
- D. What are positive and negative feedbacks, how are they important to climate change?
- E. How do geologists study past climates?
- F. How do humans influence climate change? What evidence do scientists have that indicates humans are influencing the current global climate change trend?
- G. What are some likely scenarios for the short and long-term climate change, how are these trends predicted?
- H. How does the Tragedy of Commons figure into Global climate change?



Section 4: Groundwater

- Be able to draw and label an aquifer system (confined or unconfined) including the zones of aeration and saturation.
- How does porosity, permeability and hydraulic head affect groundwater systems?
- Why does the chemical composition of groundwater change over time? Most groundwater in the Midwest is considered 'hard' water, why?
- Is groundwater a renewable or nonrenewable resource? What variables affect groundwater recharge?
- What are common sources of groundwater contamination, how can they be prevented?
- How can human activities adversely affect ground water?
- Describe how a Karst landscape forms and what features are created...

Water Cycle – Be able to fill in blank boxes for this water cycle



Section 5: Rivers

- A. What is a watershed, How are watersheds defined? What watershed does UNI reside?
- B. Know the basic drainage patterns. What drainage pattern is common in Iowa?
- C. Be able to compare and contrast permeant vs ephemeral & effluent vs influent rivers.
- D. What is the primary source of energy that drives the water cycle and rivers?
- F. Be able to write a short answer paragraph discussing the historical importance of Iowa's Rivers.
- G. How are floods defined?
- H. Be able to read and interpret a hydrograph.

Section 6: Glaciers

- A. What is the name of the most recent glacier that impacted the upper Midwest and Iowa? What is the name of the primary glacial feature that it left behind?
- B. What are landform regions and which one are you currently on?
- C. How do alpine glaciers differ from continental glaciers?
- D. Why are glaciers important indicators of climate change?

From lab... Topographic map skills test may include:

- A. Measuring distance and elevation changes
- B Using the Public Land Survey System (Township, Range, Section, 1/4s)
- C. Stating basic map info. (name, scale, contour interval)
- D. Using vertical exaggeration
- E. Making a topographic cross section
- F. Making a topographic map based on elevation data
- G. Using a topographic map to interpret landscape changes (rivers, hills, etc.)