Final Study Guide Questions

Earth Science Spring 2010 Mr. Traeger

The following questions are similar to questions that will be asked on the final exam. The topics are in the order in which we covered them. Please go through your book and answer them as a way to review for the final.

Section	Topic	Questions to Ponder
Chapter Sections 6.3, 8.1, 8.2, 8.3: Views of the Past and Geologic Time Scale		
6.3, 8.1, 8.2, 8.3	Methods of Looking into the Past	▪ What is a sedimentary rock? ▪ How are sedimentary rocks formed? ▪ How do scientists date a rock? ▪ What is the difference between absolute and relative dating? What are the shortfalls of each type? How can they be used together ▪ What is the importance of fossils to establishing the geologic time scale?
Chapter 9: Geologic Time Scale		
9.1	Geologic Time and the Geologic Time Scale	▪ How is the geologic time scale organized? What is it based upon? ▪ How do evolution and major extinctions determine how the geologic time scale is constructed? ▪ What is the difference between Eon, Era, Period, and Epoch? ▪ What were the series of astronomical and geological events that set the stage for life to occur on our planet? ▪ What is a geologic map and how do you read one?
Chapter 28.1, 28.2, and 21.3: Earth's Moon		
28.1	Earth's Moon	▪ What is the impact theory and how does it explain the formation of the moon? ▪ What are the surface features on the moon? ▪ How do the rocks found on the moon similar to those on Earth? ▪ What is your weight on the moon compared to here on Earth?
28.2	Movements of the Moon	▪ How does the moon orbit the Earth? ▪ How many minutes later does the moon rise each day/night? ▪ What are the phases of the moon? Waxing, waning, gibbous, crescent, full moon, new moon, first quarter, third quarter? ▪ What are lunar eclipses and how do they form? ▪ What are solar eclipses and how do they form?
21.3	Tides	▪ What causes tides? ▪ What are spring tides and in what phases of the moon do they occur? ▪ What are neap tides and in what phases of the moon do they occur? ▪ What has more effect on tides? The moon or the sun?
Chapter 26, 27, and 29: Earth's Motion, Models of the Solar System, and the Sun		
26.2	Earth's Rotation	▪ Who was Jean Foucalt and what did he do? ▪ Who was Gaspard Coriolis and what did he do? In other words: What is the Coriolis Effect? ▪ What is the evidence for earth's rotation? ▪ What is the difference between rotation and revolution? ▪ In what direction does Earth rotate? West to East or East to West? ▪ How did the ancient people measure time? ▪ How many time zones are there? Why do we use time zones?
26.2	Earth's Revolution	▪ What is the evidence that Earth is revolving around the sun? ▪ What are the reasons for the seasons? ▪ What time of year are we closest to the sun? Farthest?
29.1 and 29.2	Sun's heat, size, and structure	▪ What is nuclear fusion and how does it create energy in the core of the sun? ▪ What are the different layers of the sun? Be able to diagram them! ▪ What are sunspots and how hot are they? ▪ What is the solar wind and how does it cause the northern lights (aurora borealis)? ▪ What is the UV Index? What do we use it for? ▪ Why is it so necessary to wear sunscreen, a hat, and sunglasses?
27.1	Formation of the Solar System	▪ How did the solar system form 4.5 billion years ago? Explain the nebular hypothesis. ▪ How did the earth's atmosphere form? ▪ How did the earth's oceans form?

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27.2	History of Solar System and Planetary Orbits	▪ What is the geocentric model? ▪ What is the heliocentric model? ▪ Who are Ptolemy, Copernicus, Brahe, Kepler, Galileo, and Newton? What did each one of them do? ▪ What are Keplerôs Three Laws of Planetary Motion and what do they mean? ▪ What is an astronomical unit (AU) and when do we use it? ▪ What are the basic properties of an elliptical orbit? ▪ What does Newtonôs Law of Gravitation say?
Chapter 27 and 28: The Planets and the Solar System		
27.3	Inner Planets	▪ What are the inner planets? ▪ What are the characteristics of the inner planets? Are they solid or gas? ▪ Which of the inner planets have moons? What are they? ▪ Which planets have atmospheres, volcanoes, etc? ▪ Which planets are only visible from earth either in the morning or the evening? ▪ Which planets might have had life other than earth? ▪ What are the basic ingredients needed for life on a planet to occur?
27.4	Outer Planets	▪ What are the outer planets? ▪ What are the characteristics of the outer planets? Are they solid or gas? ▪ Do all of the outer planets have moons? What are the main moons of each planet and what are their characteristics? ▪ Why was Pluto demoted from a planet to a dwarf planet? ▪ What are the Roman mythological name origins of the planets?
28.3	Planetary Satellites	▪ What are the characteristics of the main moons of each planet?
28.4	Solar System Debris	▪ What are comets? How and where do they orbit the sun? ▪ What are asteroids? How and where do they orbit the sun? ▪ What are the differences among meteors, meteoroids, and meteorites?
Chapter 22.2 and 30: Stars and Galaxies		
22.2 and 30.1	Light	▪ What is light? Does it only exist in the form we can see? ▪ What is the electromagnetic spectrum? Know the different parts of this! Ie) Infrared, Visible, etc. ▪ Why do we use different parts of the spectrum in astronomy? ▪ What are continuous, emission, and absorption spectra? ▪ How can we figure out a starôs chemistry based upon the light that we receive from it? ▪ What is the Doppler Effect and how do we use it to gauge the expansion of the Universe? ▪ What is red shift? What is blue shift? What do they tell us?
30.1	Characteristics of Stars	▪ What is the difference between astronomy and astrology? ▪ What determines a personôs sign of the zodiac? ▪ What are constellations? Do the same constellations appear throughout the whole year? ▪ What is significant about the North Star (Polaris)? ▪ What is the apparent magnitude of a star? How is it different from absolute magnitude? ▪ What is a light year? How far away is one light year? ▪ What is parallax and how do we use it to measure distances to stars? ▪ What stars are hotter? Blue, yellow, white, or red? ▪ What is luminosity and absolute magnitude?
30.2	Life Cycles of Stars (Stellar Evolution)	▪ What is the Hertzsprung-Russell (H-R) diagram and how do we use it to know the life stage of a star? ▪ How is a star born? ▪ How do stars live their main sequence lives? ▪ How do stars die? (See life cycle of stars on pages 786-787.) ▪ What are the remains of stars? Black Holes, etc. ▪ What is a black hole? Why are they black? ▪ How do gravity and fusion determine the size of a star? ▪ Which stars burn fuel quicker and die younger in a supernova? ▪ What will be the fate of our sun, a main sequence star?

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Section	Topic	Questions to Ponder
30.3 and 30.4	Star Groups and the Big Bang Theory	▪ What are galaxies and what are the different types of galaxies? ▪ What is the theory for the origin of the Universe? How did we get to this theory? ▪ Is our Universe expanding? How do we know?
Chapter 22: Atmosphere		
22.1	Characteristics of the Atmosphere	▪ What is the basic chemical composition of the atmosphere? ▪ How do materials such as water, carbon dioxide, and oxygen get cycled through the atmosphere? ▪ What is air pressure? ▪ How do we measure air pressure? ▪ How do we record air pressure? ▪ How does air pressure change? ▪ What is the basic structure of the atmosphere? (see page 552) ▪ What are the different layers of the atmosphere and what are some characteristics of each layer? ▪ What is a temperature inversion and how are they formed?
22.2	Solar Energy and the Atmosphere Local Temperature Variations	▪ What is the difference between heat and temperature? ▪ What is a heat budget? ▪ How does the greenhouse effect cause global warming? What are the natural causes? What are the human causes? What are the effects? ▪ What is the difference between weather and climate? ▪ What are some basic causes for climate change, both human and non-human? See page 641-646. ▪ How does heat move through conduction, convection, and radiation? ▪ How is the intensity of sunlight received affected by time of day, latitude, time of year, and cloud cover? ▪ What is the difference between heating land surfaces and heating water surfaces? How does this affect local temperature ranges?
22.3	Atmospheric Circulation	▪ What is the Coriolis Effect? ▪ Which way will winds and ocean currents turn in the Northern Hemisphere? Southern Hemisphere? Equator? ▪ Which direction will high pressure and low pressure spin in the Northern Hemisphere? How about in the Southern Hemisphere? ▪ What makes the wind blow? ▪ How do we measure wind? ▪ What is the Jet Stream and how does it affect our weather? ▪ What are the effects of earth's rotation? ▪ What is the three-celled circulation model? ▪ What are the general areas of high and low pressure? ▪ What are the main wind belts? ▪ What is the monsoon in India? ▪ What are sea breezes and how are they caused? ▪ What are land breezes and how are they caused?
Chapter 23: Water in the Atmosphere		
23.1	Atmospheric Moisture	▪ What are the basic characteristics of the water molecule? ▪ What are the phase changes of water? ▪ What is humidity? What is the difference between specific humidity and relative humidity? ▪ How do we measure relative humidity?
23.2	Clouds and Fog	▪ What happens when the temperature and dew point are the same? ▪ What are condensation nuclei? Remember the cloud in a bottle demo? ▪ What are the different types of fog? ▪ What are three things required to form a cloud? Remember demo? ▪ What are the different types of clouds and the methods by which they are classified? ▪ How do thunderstorms and lightning occur? What are the hazards?

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Section	Topic	Questions to Ponder
23.3	Precipitation	▪ How do the different types of precipitation form? ▪ What are the different kinds of precipitation and what are their characteristics? ▪ How do we measure precipitation? ▪ How can weather be modified to produce more rainfall? ▪ Where does precipitation occur geographically? ▪ What is the rain shadow effect? See page 636. ▪ What are the two factors responsible for differences in precipitation amounts in California? ▪ What is El Niño? How does it occur? What are its effects? How do we monitor it? See page 635.
Chapter 24: Weather		
24.1-24.4	Weather	▪ Know about air masses and fronts ▪ You should know about thunderstorms, tornadoes, hurricanes, and pacific winter storms. ▪ What are some basic tools and procedures for forecasting weather?
Chapter 25: Climate and Climate Change		
25.1	Factors that Affect Climate	▪ What are the two main characteristics of an areaôs climate? ▪ What are three other characteristics of an areaôs climate? ▪ What are the six controls that control the climate of a certain area?
25.2	Climate Zones	▪ What are the 11 major climate zones around the world? ▪ What are the characteristics of the 11 major climate zones?
25.3	Climate Change	▪ What is air pollution and what are common pollutants? ▪ What is acid rain and what does it do? ▪ What is a temperature inversion and how does it cause smog? ▪ What is Ozone Layer Depletion, what causes it, where does it occur, and how is it *different* from global warming? ▪ What have happened to Earthôs temperatures over the past 420,000 years? How does this relate to carbon dioxide levels? ▪ How do the shape of Earthôs orbit around the Sun, tilt of Earthôs axis, and precession of Earthôs axis change Earthôs climate? ▪ How do plate tectonics cause climate change? ▪ How do sunspots on the Sun affect Earthôs climate? ▪ How can volcanic eruptions affect Earthôs climate? ▪ How do humans affect climate change? ▪ How do sea floor sediments help us to know about past climates? ▪ How do glacial ice cores help us to know about past climates? ▪ How do tree growth rings help us to know about past climates? ▪ How would changes in the salinity of the Atlantic Ocean cause the countries in the North Atlantic region to go into a deep freeze?

Earth Science Final Exam Schedule for Spring Semester 2010

Date	Period	Who Takes It?	Subject	Time
Monday, 6/14/10	4	EVERYONE	Earth Science	10:20-12:25

Frequently Asked Questions about Traeger's Final Exam

- What should I bring to the final? Bring your brain, a #2 pencil, a calculator, and any work that is due on the final day.
- What items are NOT allowed to be in use during the test? Notes, cheat sheets, cell phones, iPhones, Blackberries, iPods, your moving mouth, and wandering eyes are not allowed on the final.
- How much of my semester grade is the final worth? The final exam will be about 12-15% of your overall semester grade. The final exam will be included in the test category.
- What if I need extra time? There will be plenty of time to take the test.
- What is the format of the test? The test will be all multiple choice/true false/matching. I do not have time to grade a written portion on the Spring Final Exam.
- What is the best way to study for this test? Use this review sheet and answer EVERY question if you want 15 points added to your final exam grade. Use your book and the class website PowerPoint notes.
- How do I get help studying for the final? Email Mr. Traeger at ttraeger@lcusd.net or come by after school!