

ISCI 2001: Life & Earth Science for Early Childhood Education

Summer 2009 Course Syllabus, Valdosta State University

Instructor: Janet D. Forrest Kent

Phone: 249-2644 **FAX:** 245-6585

Office Hours: Tuesday & Thursday 1:00-2:00 pm

Office: 1104 Biology/Chemistry Building

Email: jdforrest@valdosta.edu

Textbook: *Integrated Science – (2008) Tillery et al. McGraw Hill*

This book will be used in the two science content courses (ISCI 2001 & SCI 3000) that are required for the Early Childhood Education major. It will be an important source of information that supplements class sessions. Reading ahead to gain familiarity with the scientific language of a subject before the class sessions is wise.

Course Objectives: This science content course provides an integrated overview of Life & Earth Science content in preparation for teaching science at the elementary school grade levels. Topics covered in the K-5 Georgia Performance Science Standards will be addressed in lessons that allow Early Childhood Education majors to learn science in the non-traditional ways they will eventually be expected to teach in their own classrooms. VSU General Education Outcomes may be found in detail on VSU's website. The General Outcomes covered in this class are: 3, 4, 5, 7.

Course Description: ISCI 2001 is a 3 hour credited course. This course will follow the well-established 3-E Learning Cycle format for science instruction. Every Tuesday and Thursday, students will attend two related sessions that focus on a single daily lesson. The first will be an Inquiry-Oriented, 50 minute lab that initiates the lesson with an *Exploration* activity. The second session will be a 50 minute lecture devoted to the elaboration of the core concepts through a detailed *Explanation* of the topic. Depending on enrollment, there will be 3-5 lab sections of 24-27 students throughout the day in room 1043 of the Bailey Science Center. The members of all lab sections will attend a combined lecture in room 1101 of the Bailey Science Center later in the afternoon. Students will complete the lessons with designated *Extension* activities for each class topic. By teaching for constructivist learning, emphasis will be placed on the acquisition of conceptual understanding of scientific information. A variety of alternative assessment strategies, including a major course portfolio, will be used in conjunction with traditional testing.

Instructional Philosophy: *ISCI 2001* will bridge the gulf between scientific and educational disciplinary training by allowing future teachers to learn new scientific information through a variety of instructional innovations. The course employs methods that enact the rhetoric of science education reform. This nontraditional approach to college science helps prospective elementary school teachers make connections between methods of teaching and learning science.

Academic Honesty: Members of the class are expected to maintain high standards of integrity. The VSU Biology Department Statement on Plagiarism clarifies common types of academic misconduct. Dishonesty will not be tolerated; evidence of cheating will result in no credit for the assignment or depending on the case, a grade of "F" for the course and letter of concern documenting the problem to the College of Education.

Special Services: Students requiring classroom accommodations or modifications because of a documented disability should discuss this need at the beginning of the semester. Students not registered with the Special Services Program should contact the Special Services Office, Nevins Hall 1115, 245-2498.

Family Educational Rights & Privacy Act: Grades cannot be posted by Name, Social Security Number, or other Personal Identifiers. Grades and student work will not be given over the telephone, by email or to another student.

ISCI 2001 – Guidelines for Content & Evaluation

Selected Georgia Performance Standards for K-5

I. Life Science

- SKL1. Students will sort living organisms and non-living materials into groups by observable physical attributes.
- S1L1. Students will investigate the characteristics and basic needs of plants and animals.
- S2L1. Students will investigate the life cycles of different living organisms.
- S3L1. Students will investigate the habitats of different organisms and the dependence of organisms on their habitat.
- S3L2. Students will recognize the effects of pollution and humans on the environment.
- S4L1. Students will describe the roles of organisms and the flow of energy within an ecosystem.
- S4L2. Students will identify factors that affect the survival or extinction of organisms.
- S5L1. Students will classify organisms into groups
- S5L4. Students will relate how microorganisms benefit or harm larger organisms.

II. Earth Science

- SKE1. Students will describe time patterns and objects in the day and night sky.
- S1E1. Students will observe, measure, and communicate weather data to see patterns in weather and climate.
- S2E2. Students will investigate the position of sun and moon to show patterns throughout the year.
- S2E3. Students will observe and record changes in their surroundings and infer the causes of the changes.
- S3E1. Students will investigate the physical attributes of rocks and soils.
- S3E2. Students will investigate fossils as evidence of organisms that lived long ago.
- S4E1. Students will compare and contrast the physical attributes of stars, star patterns, and planets.
- S4E3. Students will differentiate between the states of water and how they relate to the water cycle and weather.
- S5E1. Students will identify surface features of the Earth caused by constructive and destructive processes.

Learning Outcomes - Students in ISCI 2001 will be expected to:

- I. Assemble & Display** a collection of information displaying recognition of the basic aspects of Life & Earth Science
- II. Characterize** the biotic and abiotic features of the earth, as well as the place of our planet within the solar system
- III. Document** recognition of the organization and content of the K-5 Georgia Performance Science Standards
- IV. Compare and contrast** how the abiotic factors influence the biotic features of representative Georgia ecosystems
- V. Indicate** the possession of conceptual understanding of GPS K-5 content knowledge for Life & Earth Science

Proof of mastery for each will be demonstrated by the knowledge & skill shown in:

- I. Course Portfolio** – An extensive individualized document built throughout the semester
- II. Midterm Examinations** – Formative evaluations covering each of the three units of instruction
- III. Lesson Extensions** – Summations of each lesson in a format showing the connection to K-5 GPS
- IV. Ecosystem Oral Presentation** – PowerPoint shows focused on the Natural History of Georgia
- V. Final Examination** – A summative, comprehensive evaluation of course content

The following facets of understanding will be built into the course assessments:

- Explanation** – Description of subject matter and pedagogical practices
- Interpretation** – Demonstration of astute reasoning and ability to make meaningful connections between concepts
- Application** – Explanation of the links between subject matter and science instruction
- Perspective** – Identification of the scientific concepts involved in understanding the Life & Earth Sciences
- Empathy** – Participation in a community service activity for underserved children
- Self-Knowledge** – Illustration of personal reflection on the process of learning and teaching science

Evidence of Achievement & Knowledge Construction

Attendance: Since more than half of this course involves active experiences, it's extremely difficult to "make-up" missed material. Therefore, attendance is mandatory and will be taken each class period. Three late arrivals to class will be counted as an unexcused absence. ALL other class absences must be made up by writing a research paper on the class lecture topic that uses no less than 2 cited outside published sources (i.e. not your text) and is 1 full single-spaced page (10-12 point type, 1" margins) and at least 500 words in length. Failure to submit these make-up papers to the instructor within 1 week of the absence will impact the grade for the course. Anyone who misses more than 20% of the class sessions can receive a failing grade for the course.

Class Participation: The learning environment has a very significant impact on the satisfaction and success of all students. Therefore, certain standards of decorum will be expected and maintained so that everyone can all enjoy being in the lab and learning as much as possible. All students start out with 100% as their participation grade. This can be elevated to as high as 125% for consistent positive contributions that enhance the experiences of other students. This grade will be reduced at the discretion of the instructor on the basis of inappropriate conduct such as rudeness, lack of collegiality, or other negative behavior. As future teachers, students are expected to exhibit a professional standard of decorum to be maintained in this classroom. Intemperate language, excessive slang, and poor grammar are not acceptable.

Short Assignments: It is too easy to attend class on a regular basis, but put little thought into the course material until there is pressure to study for an exam. The Course Portfolio is also too important to be thrown together at the last minute. Therefore, regular short assignments will give the course expectations and mandate regular attention to the material that is being covered. These assignments will be described in class and are due at the start of class. These will be graded on a 10 point scale as follows: (10=Excellent, 8-9=Good, 7=Adequate, 6=Minimal, <6 Must be Redone and included in portfolio). **If a paper is not submitted at the start of lab, the possible points for the assignment will be reduced by 10% without exception and an additional 10% reduction will occur for each additional day.** *Assignments more than 1 week late will not be accepted.*

Examinations: There will be two exams and a comprehensive final examination. The most important reason for these tests is preparation for the GACE exam. These multiple choice tests will consist of conceptual questions that probe understanding of the course material. Do not expect to depend on rote learning or memorization. This course will be taught in a way that requires students to demonstrate individual construction of knowledge and the questions on these assessments are written to judge the ability to apply the course information. Hard work on the Daily 3E Write-Ups is the best preparation. Many students say that they do not need to study for the tests because they are confident that they have learned the material by doing the Portfolio. Building up thought displays of the scientific information and demonstration consideration of the connections is preparation for the challenges posed by conceptual questions. Success starts in class. Think about lessons, ask questions about what is happening, and keep good records.

Required Reading in *Integrated Science by Tillery et al*: This book covers much more material than we will in ISCI 2001, but was selected because it is a valuable resource for this class and later for teaching elementary school science. Concentrate on doing selective reading. This means there is no need to spend time on information that goes into detail over subjects that is not covered in class. Notes to document reading efforts can be in the form of an outline with key terms or a narrative summary and should be placed right after the 3E for the lesson in the Portfolio or reference to the book can be made in the Explanation section of the 3E.

GPS: Obtain a complete set of K-5 science standards and address them in detailed reflections in the Portfolio. *Do not put a printout of the GPS in the portfolio.* Correlate the standards with the lesson. Pay attention to the Major Concepts/Skills to Maintain. Note the progressive changes in complexity for higher grade levels. Anytime a class lesson correlates to a specific standard, explain this connection in detail. *Do not just name the standard (S1E3), write it out (S1E3: Students will be able to...)!*

WWWeb: The web is a great resource for supplementing the information presented in class sessions. Use the Web to obtain images to compose visual displays that demonstrate understanding of the topics. **Do not copy and paste from a site and print it out in the portfolio!**

Course Assessment:

Written Work & Presentations

Average for Assignments	10%
Initial Portfolio Submissions- Formative Evaluation	10%
Final Portfolio Grade (Revisions, Unit Summaries, & Final Product)	30%
Research Report	5%
Class Participation & Attendance	5%

Exams

Midterms – (10% each)	20%
Final Exam – Comprehensive	20%

ISCI 2001 Course Portfolio

Course Portfolio:

The course portfolio is the most significant aspect of the grading in this course and actually counts more than the exams. The portfolio should clearly display the “construction of knowledge” and process of building an understanding of the course material. This portfolio is an Alternative Assessment evaluation different indication of learning than traditional tests. This portfolio is also an important way to organize the course material and keep it for reference in the future. The organization by themes is a way all of the material on a topic will be collected together so that it will be easier to study for conceptual understanding. There should be a distinct section with divider tabs labeled for each theme (Earth Science, Life Science). **Any Portfolio that does not reflect a substantial effort to display a comprehensive understanding of the lessons will not be accepted for grading and given a grade of 0/100 points.**

For a minimum grade of 70% - Portfolio **must** be in correct order. Complete a report of the **3 Stage (3E) Learning Cycle of Activity** for every class session and field activity. **If missing any 3E’s grade will not be higher than a “69.”** Reports must be typed. Place your lab and lecture notes immediately following your 3E Summary for the particular lesson. **Lab Notes Must End with a Genuine Question** that came from the experience– These should appear in bold and be very obvious. For most classes, there will be several activities and possibly 2-3 short lectures related to the topic for the class session. These should be consolidated into a single 3E Summary for that topic that includes:

Explorations: Elaborate a synthesis of the purposes of all activities. Consider why these were chosen to generate interest in the topic. Do NOT restate **what** was done. Emphasize **why** it was done. What do you think? What did you learn? What was the purpose of the activity?

Explanation: Use the Lecture Notes & Text to Complete a Summary depicting the Central Concepts Covered in Class (Any class absence must be made up with copied class notes & the Make-Up paper)

Extension: Work beyond the class meeting to consolidate understanding (Homework).

For a minimum grade of 80% - Acquire the **Language of Science:**

Reading Notes – Outline (or explicit references) summarizing text information relating to each topic covered in class. Notes must include page number from book or source if not from Integrated Science book.

Vocabulary Terms - >5 New or Significant Terms per Lesson with paraphrased definition (Highlighted in 3E). These must be included in your explanation paragraph.

For a minimum grade of 90% - Demonstrate a **Conceptual Understanding** of the Course Material:

Visual Displays – Cover sheet for each lesson with pictures enforcing lesson and GPS clearly displayed on sheet

Show a solid effort to document understanding with portfolio entries of exceptional quality and clarity

Summarize the scientific significance of the course theme in a full page, single-spaced, typewritten essay (Conceptual Summary)

Use no larger than a 1 inch notebook with a creative cover including name and course information.

There should be no blank pages or sub-dividers other than the 2 chapter designations (Earth Science & Life Science)

DO NOT use sheet protectors in portfolios.

Your syllabus should not be included in your portfolio nor a printed off copy of the Georgia Performance Standards. Standards must be included in your individual lessons.

Grade Sequence for the Chapters

C= Lab/Lecture Notes & 3E Summary for each Lesson

B= Vocabulary & Reading Notes (for all relevant chapters)

A= Conceptual Summary, Reference to Standards, and **Demonstration Content Knowledge**

****Any Portfolio that does not reflect a substantial effort to display a comprehensive understanding of the lessons will not be accepted for grading and given a grade of 0/100 points. A portfolio may contain all required parts but if a portfolio does not show a clear understanding of the material it will receive a grade of below 69.**

3E - Daily Write-ups Rubric

	Things to Avoid	Barely Adequate – 1	Satisfactory/Good – 3	Outstanding - 5
Exploration	Essentially Restates What Happened	Clear Description of Scientific Purpose	Synthesis of Results Tabular or Graphic Display of Data	Analysis & Inference of Connection to Main Topic
Explanation	Mechanical Description Rewriting Lecture Notes	>5 Key Terms Defined & Underlined	Information from Text Explicitly Included	Summary of lecture Recognition of Concepts Evidence of Understanding
Extension	Thoughtless Reference to Website Information Unexplained Pictures	Evidence of Additional Information from Outside Sources	Creative Visual Display of Scientific Concepts	Connections Made to GPS Characteristics of Science Specific Content Area

Creativity & Illustrations: This is not a traditional lab notebook and should be much more than a sterile display of coursework. As preparation for teaching science to young students, think about colorful ways to show understanding and appreciation of the information. Use Google or other engines to download images for visual displays.

Work Ethic: This course has an accurate reputation for being “a lot of work.” The effort required will be rewarded by gains in understanding of scientific information. Success depends on consistent effort and hard work. Rather than wasting energy complaining, just develop good habits and get things done. Grades are based on the quality of the product produced, not the time spent on assignments.

Unit Documents - For a grade higher than 90%, each chapter should demonstrate *Conceptual Understanding* of the relationships of the lessons that are included. There should be a summary addressing the scientific significance of the section. Describe how lessons demonstrate the Georgia Performance Standards. **Do not just list standards; explain the connection to what we did in class.**

GPS - Print out the complete set of K-5 science standards and address them in detailed reflections in the Portfolio. Pay attention to the Major Concepts/Skills to Maintain. Note the progressive changes in complexity. Anytime a class lesson correlates to a specific standard, explain this connection and ideas you have for lessons for children. *Do not include a complete copy of the standards in your Portfolio.*

Grading - The Portfolio will be given a preliminary grade (10%) as formative assessment after the first exam and a full (30%) summative assessment after the second exam test. Concentrate on demonstrating critical synthesis of every class session. *If any lessons are not completed and summarized, the portfolio grade will not be any greater than a "C" regardless of other efforts.* Top grades will be awarded for clear evidence of **Clear, Consistent, and Convincing** comprehension of the material. It is extremely important that there is a focus on building a document that clearly demonstrates understanding of the course content. **The grade will be a reflection of the quality of the work presented. It will not be a measure of the amount of time you spent on the assignments. Remember: the grade is based on a demonstration of what you have learned; it is not given for the size of your Portfolio.**

Portfolio Construction Guidelines

PORTFOLIO	Insufficient <70% Things to Avoid	Minimal >70% Basic Components	Adequate >80% Solid Effort	Outstanding >90% Exceptional/Excellent
Product Structure Inclusions Organization	Blank Cover/No Tabs Messy/Disorganized Empty/Excess Pages	Labeled Tabs Showing Several Throughout Consistent Sequence	Pictures on Dividers Consistent for Chapters Follows Checklist	Creative Innovations Additional Material Neat & Concise Document
Skill 3E Write-Ups Outside Learning Summary Narratives	Any Reports Missing Long Websites/No Notes "GSP" Errors	3 Named Paragraphs Use of Internet Typed, Single Spacing	>200 Words Each Text Reading Notes Full Page of Analysis	Augmented w/ Photos Other Good Sources Detailed Unit Summaries
Knowledge Science Content Scientific Processes Test Objectives	Errors & Mistakes Ignored Failure to Mention	>10 Keywords Explained Noted in Lab Activities Some Attention Given	Personal Definitions Field Trips Described Each Stated in Notes	Highlights Major Concepts Part of Chapter Summaries Effort to Elaborate
Reasoning Content Analysis Nature of Science Intersection (C&NOS)	Nothing Beyond Class Ignores Importance Absent	Outlined as Covered Mentioned Discussed	Elaborate Explanation Clear Description Explained in Detail	Significant Synthesis Definite Understanding Obvious Appreciation
Disposition Engagement Reflection PCK	Minimalist Posture Absence of First Person GPS w/ No Comment	Basic Effort Some Thoughts GPS Connections	Good Work Metacognition Shown Pedagogy of Science	Appreciation of Learning Superior Personal Insight Articulation of Significance

ISCI 2001: Research Report

Research Project: Each person in the class will select a different **Georgia Ecosystem** to serve as the focus of an investigation. The research on these topics will be conducted throughout the second half of the semester and presented as part of a group PowerPoint Presentation during last week of class. The assignment is to learn about and share information on the specifics of these areas including the abiotic conditions (weather & climate, part of Georgia, etc), special characteristics and adaptations of the living organisms, a food web, other biotic factors, etc.

There are two separate grades that will be averaged as the final evaluation of this project. During the oral group presentations to the class, each person will receive an individual grade for preparation and effort. The group grade will be based on the creative integration of the individual reports. Presentations should be interesting and *20 minutes in length*. There must introductory and concluding slides that compare and contrast the ecosystems covered by the group. A full printout of the group report in the 6 slides per page format is due at the time of presentation.

Ecosystem Topic Choices

Mesic

Coastal Plains Coniferous
Longleaf Pine Savannas
Piedmont Province
North Georgia Sedimentary
Maritime Forests
Appalachian Highlands

Hydric

Swamps
Marshes (Fresh Water)
Bogs (Mtn.) & Fens
Salt Marshes
Carolina Bays
Floodplains

Aquatic

Lakes
Blackwater Strms & Rivers
Mountain Springs & Strms
Large Alluvial Rivers
Sag & Gum Ponds
Estuaries

Coastal

Barrier Islands
Tidal Creeks & Rivers
Intertidal Beach Zones
Dune Areas
Sponge & Coral Reefs
Open Ocean & Deep Sea

PowerPoint Grading Rubric for Ecosystem Project

	75%	90%	100%	125%
Slides	Slide Errors Too Much Text Blurry Images	Decent Images Intro & Concl	Striking Visual Displays	Enhancement of Topic
Indiv	Obviously Minimal Effort Mistakes on Info	Coverage of Connection Abiotic & Biotic Factors	Accurate & Detailed Description No Mistakes	Exceptionally Creative & Enthusiastic
Group	Lack of Coordination Late Submission Uncooperative	Cohesive & Coherent Activity/Demo	Strong Intro & Concl Evidence of Cooperation	Lively, Entertaining & Educational

Department Grades

	50%	75%	100%	125%
Attendance	2 Unexcused	3 Tardy/ 1 Unexcused	All Made-Up	Community Service
Participation	Rude/Impolite Disrupts Class	Passive in Class Off-Task	Volunteers Answers Involved in Labs	Very Active Participant Enhances Class Sessions

Extra Credit Options: There will be several extra credit opportunities throughout the semester. Participation in any of these must be documented by a 500 word essay (typed full page, single spaced) on how it contributed to Pedagogical Content Knowledge to receive the credit. VSU seminars, environmental education classes, and book reviews (pre-approved by the lab instructor) are among the possibilities. Each of these will add 1 point to the final grade with after verification that the essay is sufficient. All Extra Credit events must involve substantial science experiences. There will be an upper limit of 5 points of extra credit.

Plan for Instruction & Course Schedule

Date		Class Topic	Class Activity	Assignment Due
Aug	17	The Ecosphere	Water Cycle	
	19	ISCI 2001 & the GPS	3E's, Reports	Syllabus
	24	Earth	Latitude & Longitude	Write-up & WC
	26	Surface Features	Landforms	Valdosta GPS
Sept	31	Minerals	Dichotomous Key	Surface Features
	2	Rocks	Types of Rocks	Gemstones w/ chem. formulas
	7	Labor Day		
	9	Soils	Separations	Rock Cycle
	14	Weather & Climate	Instrument Measurements	Soil Report
	16	Clouds	Making Clouds	Storm Collage
	21	Solar System	Moon Phases	Types of Clouds
	23	Planets	Virtual Tour	Moon Phases
	28	Exam 1	Exam Review	Portfolio
	30	TBA	Exam Review	
Oct	5	Cells	Animal Cell Metaphor	Exam Self-Reflection
	7	Life	Adaptations	Plant Cell Metaphor
	12	Fossils	Making Fossils	Human Classification
	14	Biodiverstiy	Classification of Organisms	Types of Fossils
	19	Fall Break		
	21	Prokaryotes	Bacterial Plates	Biodiversity
	26	Protists	Pond Water	Pathogen Report
	28	Fungi	Fungus Among Us	Microorganism Collage
Nov	2	Plants	Paper Chromatography	Uses of Fungi
	4	Animals	Food Web	Plant Evolution
	9	Heredity	Genes & Alleles	Food Web
	11	Habitat	Critter Art	Offspring
	16	Ecosystems	Field Trip	Functional Roles
	18	Exam 2	Exam Review	Portfolio
	23	Professional Presentations	Group Presentation How To...	
	25	HOLIDAY - Thanksgiving		
Dec	30	Natural History	Mesic and Hydric Ecosystem Reports	
	2	Ecology	Aquatic and Coastal Ecosystem Reports	
	9	Comprehensive Final Exam 12:30-2:30		

Checkoff Sheet for Portfolio

- _____ One inch 3-ring notebook
- _____ Front Cover of notebook: Exploring Our Ecosphere, Student’s name, Class and Section
- _____ Two tabbed dividers (Earth Science, Life Science)
- _____ Neat (no pages falling out, no large construction paper, all pages fit securely)
- _____ In proper order (Each day is a lesson: 3E, Lab notes with question, Lecture notes, Reading notes)

Typed, well written and thoughtful Exploration and Explanation with Extension following. Exploration must display purpose and understanding of lab. Explanation must have minimum number of vocabulary words highlighted or underlined in paragraph with definition in student’s own words. If Extension has a grade of <6 it must be redone for portfolio. No sheet protectors in portfolio.

Write up	Extension	Notes: Lab Notes	Lab ??	Lecture	Reading	GPS
Earth Science						
_____ The Ecosphere	_____ Water Cycle	_____	_____	_____	_____	_____
_____ Earth	_____ Valdosta GPS	_____	_____	_____	_____	_____
_____ Surface Features	_____ Landform Picture	_____	_____	_____	_____	_____
_____ Minerals	_____ Chemicals of Gemstones	_____	_____	_____	_____	_____
_____ Rocks	_____ Rock Cycle	_____	_____	_____	_____	_____
_____ Soils	_____ Soil Triangle	_____	_____	_____	_____	_____
_____ Weather & Climate	_____ Storms Collage	_____	_____	_____	_____	_____
_____ Clouds	_____ Types of Clouds	_____	_____	_____	_____	_____
_____ Solar System	_____ Moon Phases	_____	_____	_____	_____	_____
_____ Planets	_____ Mnemonic	_____	_____	_____	_____	_____
Life Science						
_____ Cells	_____ Cell Metaphor	_____	_____	_____	_____	_____
_____ Life	_____ Human Classification	_____	_____	_____	_____	_____
_____ Fossils	_____ Fossil	_____	_____	_____	_____	_____
_____ Biodiversity	_____ Biodiversity	_____	_____	_____	_____	_____
_____ Prokaryotes	_____ Pathogen Report	_____	_____	_____	_____	_____
_____ Protists	_____ Microorganism Collage	_____	_____	_____	_____	_____
_____ Fungi	_____ Uses of Fungi	_____	_____	_____	_____	_____
_____ Plants	_____ Evolution of Plants	_____	_____	_____	_____	_____
_____ Animals	_____ Food Web	_____	_____	_____	_____	_____
_____ Heredity	_____ Offspring	_____	_____	_____	_____	_____
_____ Habitat	_____ Functional Roles	_____	_____	_____	_____	_____
_____ Ecosystems		_____	_____	_____	_____	_____
_____ Worm Farm Notes		_____	_____	_____	_____	_____

Conceptual Summary (one full page typed, single-space)

Earth Science _____ Life Science _____

Displays understanding _____

Comments:

*Any missing work and any work with little thought or effort will result is a low grade.
Refer to syllabus to for breakdown of how grades will be assigned to portfolios completed according to syllabus.*