Teacher: Mr. Donnelly – New Hope Academy Charter School
Course: Earth Science
Unit: Introduction to Earth Science
Time needed: Three (3) block class periods
Lesson Title: Careers in Earth Science Research Project
Type of Lesson: __ Acquisition _X_ Refining/Extending __ Mastery/Application

Essential Question(s)	- What career opportunities are available in the fields of Earth Science? - What skills are needed outside of the earth science realm in order to succeed in some main earth science professions? How does this relate to the professional goals in your life?
Standard/ Assessment Anchor	3.3.10.A3 CEWS: 3.8.12.A, 3.8.12.B, 3.7.12.A,B,C,D,E, 3.6.4.A
Homework Assignment(s)	Day 1:Gather resources to bring in to class to aid your research! Day 2: Complete a rough draft of the reflective essay portion of the project. Day 3:None.
Opening activity	Day 1: Think about what you want your profession to be when you grow up. Then, make a list of skills that you need to have in order to succeed in that profession. Day 2: Select one piece of information you learned about yesterday from your research that you found interesting and/or surprising. Why did it interest and/or surprise you? Day 3: Recall your answer from the opening activity two days ago. How would you modify your answer now that you can think about the question in a much different way?
Key Vocab	Geology, meteorology, astronomy, environmental science, oceanography, "occupation" or "profession."
Teaching Strategies/Activities	Day 1: - Review the five fields of Earth Science…10 minutes - Begin "Careers in Earth Science" activity o Explain expectations and guidelines…10-15 minutes. o "I do, we do, you do" research examples…15-20 minutes. o Remainder of period devoted to project research GOAL = have 2-3 careers completed. Day 2: - Project work day o Students use time to research Earth Science careers and complete project. GOAL = have at least eight (8) careers completed. - 15 minutes before class ends: o Explain homework assignment and procedure for next day's lesson. Day 3: - Proofread rough draft essays and peer review rough draft essays…20-25 minutes. - Complete final drafts via Microsoft Word…35-40 minutes. - Debriefing and summarization of project…15 minutes o What did you learn? o Discuss and answer the lesson's essential questions. - Students upload their final draft essay to the Moodle website before dismissal.
Summarizing Strategy	Days 1 and 2: individual student conferencing about progress made on assignment. Day 3: Debriefing of activity.
Resources/Materials	Student computers, "Careers in Earth Science" guideline sheets, project information sheets, project "research helper" and "resource page example" files to display on front board, and "reflective essay" guidelines handout, grading rubric (teacher only).
Assessment	- Satisfactory understanding of the essential questions - Student demonstrates understanding of project objectives via reflective essay.

Name: _____ Date: _____ Section: _____

"Careers in Earth Science" Research Assignment
(100 points)

Objective: To provide the student with an idea of the vast number of career opportunities in the field of Earth Science, as well as the criteria and requirements needed for achievement in each career path chosen.

Assignment: Each student is to research and provide information on no less than eight (8) different careers within the Earth Sciences. The student will do this by studying a maximum of two (2) careers in each field of Earth Science.

- Geology
- Meteorology
- Environmental Science
- Astronomy
- Oceanography

Each student must provide the following information about each career chosen:

- Title of the occupation (i.e. geologist, meteorologist).
- Job description (what do they do? what does the job consist of?).
- Educational requirements (i.e. high school diploma, college degree, master's degree, doctorate).
- Average annual salary.
- Specific skills needed.

A resources page (a.k.a. bibliography, works cited) must be created using Microsoft Word and uploaded onto moodle by the due date*

(Moodle website: www.nhacsonline.com)

An example of what a student would provide for a *geology professor is seen below*:

Job title: *Geology Professor* (university level)

Field of Earth Science represented (circle one): Geology Meteorology Oceanography Astronomy Env.Sci.

Job description: *Teaching different subdivisions of Geology, specified by the university, to undergraduate and/or graduate students. Responsibilities include advisement of graduate and undergraduate students, maintaining a commitment to research within his/her discipline, and the ability to interest students through learning strategies including field studies and/or travel programs.*

Educational requirements: *A doctoral degree (Ph.D.) in Geology. The absolute minimum requirement is a collegiate master's degree.*

Average annual salary: *$88,400 per year*

Specific skills needed: *Personable character, knowledge of and interest in diverse cultures and populations, passion for education and knowledge of educational standards and techniques, able to work productively with students on a one-on-one basis.*

Due date for this project: _____

Information Sheet

Name: _____ Date: _____ Section: _____

Occupation/Job title: _____

Field of Earth Science represented (circle one): Geology Meteorology Oceanography Astronomy Env.Sci.

Job description: _____

_____

_____

_____

Educational requirements: _____

_____

_____

_____

Average annual salary: $ _____ per year.

Specific skills needed: _____

_____

_____

_____

Occupation/Job title: _____

Field of Earth Science represented (circle one): Geology Meteorology Oceanography Astronomy Env.Sci.

Job description: _____

_____

_____

_____

Educational requirements: _____

_____

_____

_____

Average annual salary: $ _____ per year.

Specific skills needed: _____

_____

_____

_____

Reflection for "Careers in Earth Science" Research Project

Analyzing all the research you have done on different careers available in the Earth Sciences, write a 3-5 paragraph response answering the following question *on a separate sheet of paper*:

Would you or would you not want to pursue a career in Earth Science?

If so:

- What strikes your interest about one or some of the careers you researched?
- Focusing the careers that interest you, explain your reaction to learning about all of the specific skills needed to succeed in those professions.
- If one of these jobs was your actual career, describe what you would have to do in order to retain this career and advance yourself within that profession.

If not:

- Explain how you would use the research methods from this project to learn about careers that interest you.
- Focusing on careers that interest you, think about and explain all the skills and education requirements you would need in order to be successful in that profession?
- Describe goals or achievements that would have to be met in order to retain those careers and/or promote advancement.

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Homework Assignment for "Careers in Earth Science" Research Project

Analyzing all the research you have done on different careers available in the Earth Sciences, write a 1-3 paragraph response to the following question *on a separate sheet of paper*:

"Would you or would you not want to pursue a career in Earth Science? Why or why not?"

If so:

- What strikes your interest about one or some of the careers you researched?

If not:

- Explain how you would use the research methods from this project to learn about careers that interest you.

CAREER FIELDS IN EARTH SCIENCE

GEOLOGY	***OCEANOGRAPHY***	***ASTRONOMY***	***METEOROLOGY***	***ENVIRONMENTAL SCIENCE***
Volcanologist	Physical Oceanographer	Astronaut	Meteorologist	Forester
Speleologist	Chemical Oceanographer	Astrophysicist	Climatologist	Ecologist
Paleontologist	Commercial Diver	Planetary Scientist	Atmospheric Physicist	Agricultural Scientist
Petrologist	Marine Geologist	Aerospace Technologist	Atmospheric Chemist	Natural Resource Scientist
Seismologist	Marine Biologist	Aeronautics Job	Storm chaser	Environmental Engineer
Hydrologist (or "Hyrdogeologist")		NASA (many different career options)	Private weather consultant	Environmental Economist
Mineralogist				
Sedimentologist				
Structural Geologist				

Sources to get you started: www.k5geosource.org

http://careers.stateuniversity.com

www.schoolsintheusa.com …click on "career search" at the bottom.

www.onetonline.org

Careers in Earth Science Resource Page

EXAMPLE

1. Geoscientist

http://www.mynextmove.org/profile/summary/19-2042.00

I used this website to learn about the specific skills needed to excel at this job. This site also helped me with the job description.

http://www.k5geosource.org/4career/pg1.html

This site helped me learn about the average salary and the educational requirements.

2. Astronaut

http://careers.stateuniversity.com/pages/7831/Astronaut.html

I used this website to learn about the average salary and the job description of this career.

http://space.about.com/cs/employment/ht/becomeastronaut.htm

This site helped me learn about the specific skills needed to become an astronaut, along with the educational requirements.

…CONTINUE WITH THIS FORMAT. YOU MUST HAVE AT LEAST TWO (2) RESOURCES PER CAREER.

Name: _____ Section: _____

CAREERS IN EARTH SCIENCE RESEARCH PROJECT EVALUATION RUBRIC

Research Information (50 points possible):

50	45	40	35	30	25	20	15	10
8 or more careers fully completed	8 or more careers completed (some are partially completed)	8 or more careers partially completed.	5-7 or more careers fully completed	5-7 or more careers completed (some are partially completed)	5-7 or more careers partially completed.	1-4 or more careers fully completed	1-4 or more careers completed (some are partially completed)	1-4 or more careers partially completed.

Writing assignment (20 points possible):

20	15	10	0
The student's response meets all requirements and is written in a genuine fashion. The response accurately relates to the project and the research completed.	The student's response meets some requirements and is written in a mediocre fashion. The response could be written with more relevance and/or explanation of opinion.	The student's response does not meet the requirements and is written in a poor fashion. Much of the response does not exude relevance and/or explanations of thoughts.	The student does not complete the written assignment portion of the project.

Resource page (15 points possible):

15	10	5	0
All requirements are met. - - At least one resource for each career is listed. - All resources are accompanied with an explanation of how they were used. - The resource page is organized by career chosen.	Some requirements are not met. - Some resources may not be listed. - Some resources may not be accompanied with an explanation of how they were used, and/or - The resource page may or may not be organized by career chosen.	Most requirements are not met. - Most resources may not be listed. - Most resources may not be accompanied with an explanation of how they were used, and/or - The resource page is not organized by career chosen.	The student does not complete or turn in the resource page portion of the project.

TOTAL = _____ / 85 → _____ % → Letter grade = _____