**Geo/Space Workshop for Graduate Credit from Colorado State University**

Department of Education

Summit Middle School

P.O. Box 7, Frisco, CO 80443

0158 School Rd, Frisco, CO 80443

9:00-4:30 Saturday, February 9, 2013

9:00-4:30 Saturday, March 9, 2013

#\_\_\_ EDUC Geo/Space Workshop is a 15 hour course that incorporates the most current research about our place in space, evidence for how our universe and solar system formed, and in particular, the evidence of how the Earth formed into this dynamic planet. We will examine the evidence that supports our current understanding of the cosmos, and our place in it.

* Lecture on the underlying concepts will provide teachers with the necessary scaffolding to examine evidence, and specifically how these concepts tie to the Colorado State Standards (2 hours each session)
* Teachers will engage with a series of hands-on, inquiry-based, labs suitable to use in their classrooms (5 hours each session)
* Wrap-up the day (30 minutes)
* Teachers will develop their own project, present it to their class, and write a summary report on the activity.
* Teachers will develop a suitable assessment tool to use to evaluate their students’ learning the underlying concepts that they presented in a hands-on format.
	+ What activity did you present?
	+ How did you present it? To how many students? How much time did it take?
	+ What is the mean, median and mode from the student assessments?
	+ What would you do differently next time?
* Extra Credit for A+: Obtain parental permission and take photographs of your students while engaged in this activity. If interested in this option, please call or write Kathie Kralik, Summit County Extension 4-H Manager for release forms.

History of the Universe: What happened at the Big Bang? How long ago was that? How could that form all the matter in the universe that we can see, and that beyond our ability to see? How can we comprehend numbers like 13.6 billion or even 4.6 billion? How do stars form? What is a nebula? How do planets form? How many galaxies are there? How big is the universe? We will explore all these questions, and more, as we travel back in time to the very beginning of time, and watch as stars are born, live, and die, discuss supernovae and how that was the necessary ingredient for our own solar system to form. Finally, we will discuss the ultimate fate of our solar system, and the universe itself.

Dynamic Earth: Our Earth is a dynamo, with the model of a liquid out core, and a solid inner core. Exactly what evidence supports this model? How does this form a protective barrier to the sun’s s charged particles constantly streaming away from our star? After examining the structure of the Earth, we will begin to look at how the Earth tectonic plates moving, and the focus of geologic activity at convergent, divergent or tranform boundaries recycling rock, changing the shape of our continents and oceans, and impacting all life. Finally, we will look at evidence to determine the age of the Earth, examine the theories of the formation of our moon, and the importance of this Earth/Moon system.

Grading Criteria:

A+ Attend 15 hours of training, present an activity, write a complete report, and submit photos with parent consent/release forms

A Attend 15 hours of training, present an activity, and write a complete summary report

B Attend 15 hours of training, present an activity, and write an incomplete summary report (some missing information)

C Attend 15 hours of training and present an activity

D Attend 15 hours of training

F Missing any of the 15 hours of training

Instructor of record:

Dr. Barbara J. Shaw

Western Region STEM Specialist

Colorado State University Extension

1001 N. 2nd Street

Montrose, CO 81401

970-249-3935

360-513-7916

Barbara.Shaw@colostate.edu