

Integrated Curricular Unit PLANNING GUIDE

Please use this form as a thinking/discussion guide. We anticipate changes as you go along.



PLEASE COMPLETE THE PLANNING GUIDE ELECTRONICALLY AND SAVE AS A WORD DOCUMENT. IN ADDITION TO HARD COPY SUBMISSION, EMAIL A COPY OF THE ENTIRE DOCUMENT TO YOUR MENTOR. REFER TO GUIDELINES FOR SUBMITTAL DEADLINE DATES. (NO HANDWRITTEN PLANNING GUIDES WILL BE ACCEPTED)

Teacher (name/grade): Joseph Blizzard/8th Grade Science

Artist (name/discipline): Shane Bryant/Ceramics

Connecting Topics: Plate Tectonics/Clay Models
(*ex: American Revolution & Improvisation*)

Inquiry Question: What is Change?

Subject Area: 8th Grade Science (Earth Science)

Planning dates: 7/31/07-8/3/07 **Number of Students:** 80

Student Academic objective(s): (*Teachers, please include subject area, state goals, standards and objectives*)

The academic subject being covered is the Earth Science portion of South Carolina 8th Grade Science. The states goal is 8-3, which states, “The student will demonstrate an understanding of materials that determine the structure of Earth and the processes that have altered this structure.” The first objective is for the students to be able to explain how the theory of plate tectonics accounts for the motion of the lithospheric plates, the geologic activities at the plate boundaries, and the changes in landform areas over geologic time. The second objective is for the students to be able to illustrate the creation and changing of landforms that have occurred through geologic processes (including volcanic eruptions and mountain-building forces).

Student Artistic objective(s): (*Artists, please identify an artistic skill/process that will help achieve the academic objectives. Refer to the SC Standards for your art form*)

The artistic subject area is Visual Arts-Ceramics. The first objective is for the students to be able to select and apply the most effective media, techniques, and processes to communicate their experiences and ideas through their artwork. The second objective is for the students to be able to use art materials and tools in a safe, responsible manner. And the third objective is for the students to be able to use visual metaphors and symbols in an artwork to convey meaning.

Connections: (*Write a brief paragraph describing the connections you will explore between the art form and the content*)

The artist and I will lead the students in using clay and building models to investigate the changes in and on Earth at the different types of plate boundaries. The students will use clay, through models, to illustrate the landform changes that occur at the boundaries. They will compare the changes in clay to the changes that occur inside the Earth at the boundaries. The students will also use naturally occurring metal oxides mixed into clay to exemplify minerals in rocks in the upstate (which shows evidence that South Carolina is on an ancient plate boundary that no longer exists. They will use tableau to demonstrate the movement of Earth’s lithospheric plates at



the different types of boundaries. Finally, they will use drawings to illustrate how the processes at Earth's plate boundaries are similar to processes elsewhere on Earth and in life in general.

Anticipated process & Learning experience: How will students explore these connections? How does integrating these standards with this art form create a richer learning experience for students? Why do students learn more by doing it this way?

Clay and ceramics lend themselves to Earth Science because the same processes that are work inside Earth and at the surface are the same types of processes that it takes to work with the art form. Through working with the clay the students will be acting out the processes of plate tectonics, and through kinesthetically experiencing the processes the students will better understand and be able to retain the concepts. The students will also be able to create visual and personal models of plate tectonics that will lead to further understand and retention of the material. Additionally, working with clay will give the students a complete sensory experience that can be applied to other concepts and bridge to other ideas both in science and other subject areas.

Art form/anticipated learning artifacts: (photos, recordings, reflections of the learning process)

The students will be creating clay models of lithospheric plate boundaries that show what would happen where they live if that were to be one of the plate boundaries. They will be writing reflections and creating drawings about their experiences in the integrating unit and personal connects that they make throughout the unit. Lastly, the students will be working with others in the form of tableaus to show their understanding at the end of the unit. There will also be photographs and video recordings of the unit that I will use throughout the school year to remind the students of what they learned in the unit.

Unit activities ideas: Describe both artist and teacher activities:

Preliminary knowledge: Frontloading: How will you activate student curiosity, prior knowledge, memories and emotions so that students make strong connections and get the most learning during the unit?

Before the artist arrives, I will have taught the students about maps and they will have an idea of the different areas of Earth and the area they live in. I will also give the students basic knowledge of lithospheric plates and what happens at plate boundaries (layering and stresses). The students will also have drawn their houses/apartments/etc. from a side view perspective and have seen them on Google Earth from a bird's eye perspective, and they will use these experiences to create the models of their houses/apartments/etc. The students will also have learned about the geologic features of South Carolina and the mineral content of rocks in the upstate. They will also have had experience with journaling and creating tableaus.

Beginning: How will the unit start? What resources will be needed?

The artist will lead the students in basic concepts of working with clay that we will then work together to tie into the stresses in rocks of Earth at lithospheric plate boundaries. The artist will then lead the students in exploring metal oxides and mixing them into the clay, and we will both help the students connect this to the geologic and mineral features of South Carolina (specifically the Upstate). The artist will then teach the students about layering the clay and will lead the students in layering the slabs. We will then both help the students bridge this to the layering of Earth and the types of plates.

Middle: How will the unit proceed?

Using what they learned about perspective from the prior maps unit and what they have learned about lithospheric plate boundaries, the students will plan and create the models of the plate boundaries that show changes in Earth's surface that would happen where they live if they lived at a specific plate boundary (each student will be assigned a plate boundary). I will spend a day without the artist reinforcing the academic content and tying it to their model and the work they did with the clay. The students will then glaze the model which the artist and I will tie into the minerals in Earth (specifically the upstate) once again.

End: How will the unit conclude?

As a teacher, assessment, both summative and formative, is important to gage the learning of my students. The artist and I will facilitate the students in creating tableaus in small groups to show what they have learned about the lithospheric plate boundaries and the processes that happen at each one. They will also be journaling (with words and picture) to reflect and help cement the learning brought about through the unit. I will review and give a summative assessment in the days following the unit.

Personal/Social connections: How will you use the inquiry question to help students make personal connections with the content area? With the art form? How will you continue to explore these connections throughout the unit?

The students will compare changes in life to changes that happen in clay and changes that happen inside and on the surface of Earth. The stresses in life are often very similar to the stresses of Earth, and we will be using this as a comparison and personal connection to the science material and the work with the clay. The students will also have the tactile experience of changing and molding clay, which is from the Earth, and they will be able to connect this to the actual processes and mold and shape Earth's surface. Lastly, they will be connect where they live to the science material by modeling what would happen to their house/apartment/etc. if they lived on a particular lithospheric plate boundary, which will help them to connect personally on a deeper level to the science content.

Answering the inquiry question: How will you create experiences in each session that allow students to answer the inquiry question in deeper, more comprehensive ways? What aspects or sub questions of the inquiry question will you explore?

“What is change?” is a question we will have the students think about each day. We will start the first two sessions with having the students talk about personal change. Each session, except the last two, will include having the students think about changes in the clay. All sessions will include a tie into how the Earth, both inside and out, changes through geologic processes. The last two sessions will include personal connections to how the students' understanding has change throughout the unit and how they have personally changed during the unit (what they have learned about themselves and how they have grown mentally, emotionally, and socially).

In what way(s) will students answer the inquiry question? (*example: writing, creative dramatics, creative movement, music, visual art*)

The students will answer “What is change?” through discussion, model building, demonstrations and demonstrating themselves, journaling, drawing, and the use of group tableaux.

How will you use this information to inform future session and progress of the unit?

I will have the students consistently referring back to and building on the understanding they gained through each step of answering the inquiry question. I will also use what understanding they show in each step and monitor and adjust for learning and deeper understanding.

Unit Support (*Questions to consider/discuss*)

Artist: What can the teacher do to best help you with the unit? (*Preparation, behavior management, support during and after the unit, etc.*)

He can frontload as much of the science content as possible and also have the students have a vague concept of what the place that they live looks like. He can have the room arranged in such a way that is best for the students to work in groups and have space to work with the clay. He can communicate with me as much as possible before and during the unit to help me know what is going on, what might need to change, and ways to make the unit flow smoothly. He can cue me into his classroom management methods and allow me to be apart of them. He can interject throughout the unit to make sure I am on target with science content or if there is anything he would like to add to anything I say when showing the students how to work with the clay.

Teacher: What will you do during the artist sessions? What will you do to prepare for the artist sessions and how will you continue to support the inquiry on non-artist days?

He can help me by interjecting art content or any observations or thoughts he has while I am teaching science content. He can assist me in helping me continue the classroom management methods I use and using them as well. He can also help changing/adjusting to changes in schedule (which he already has), changes that need to be made due to monitoring and adjusting to the needs of the students and their understanding, and changes in our plan that may need to happen because the students have misunderstandings that will not allow us to move on as originally planned. He can definitely help me through communication both before and during the unit about changes that need to be made, things he may notice about the students, and how I can best help him in his roles in the unit.

Assessment: indicators of learning: What formative assessment strategies will you use throughout the unit to inform your teaching?



We will be using a rubric to help guide the students in the project. It will not be a point-based rubric or for a grade, but it will just be a guide to help the students stay on task and know what they have and need to do to complete it. We will be using reflection that is both written and drawn to help the students think about the unit and what they are learning and to help me to know if the students are learning what they are meant to be learning from the project.

What summative assessment will you use at the end of your unit to assess overall student learning? If using a rubric(s), please provide an electronic copy.

The summative assessment I will be using will be a test in the days that follow the unit. I will review the science content with the students and then give a test about it.

Schedule of Artist Sessions – *Please notify your MENTOR of any changes*

Session Dates & Times <i>(indicate exact times you will be in classroom)</i>	Activity(s) <i>(describe the activities designed for each session)</i>	Role of Teacher	Role of Artist	Reflection & Meaning Making <i>(writing, interview, visual, tableaux, discussion, etc.)</i>
1 Date: 12/3/07 Time: 9:55am-3:00pm	Intro to working with the clay. The students will show compression, tension, and shearing stresses/forces on the clay as they get used to working with the clay. The artist will	I will help facilitate and model with the clay.	He will teach us how to work with the clay.	At the end of the class the students will reflect in written or drawn form.
2 Date: 12/4/07 Time: 9:55am-3:00pm	. The students model plate boundaries with the cut slabs. The students will also discuss cause/effect at each boundary. We will then assign a plate boundary to each student.	I will help facilitate, model, and teach science connections.	He will teach the clay work, facilitate and teach connections.	At the end of the class the student will reflect in written or drawn form.
3 Date: 12/5/07 Time: 9:55am-3:00pm	The students will receive a piece of the slab of their plate boundary. The students will plan and build the models of the homes/apartments/etc. on their specific plate boundaries.	I will help facilitate, model, and teach science connections.	He will teach the clay work, facilitate and teach connections.	At the end of the class the student will reflect in written or drawn form.
4 Date: 12/6/07 Time: 9:55am-3:00pm	The students will finish their models and prepare them for the drying process.	I will help facilitate, model, and question students about their work.	He will help facilitate, model, and question students about their work.	At the end of the class the student will reflect in written or drawn form.
5 Date: 12/11/07 Time: 9:55am-3:00pm	The students will glaze their projects. During this time we will talk about the glazing and firing process and how they both relate to minerals and the rock processes of Earth.	I will help facilitate, model, and question students about their work.	He will help facilitate, model, and question students about their work.	At the end of the class the student will reflect in written or drawn form.
6 Date: 12/12/07 Time: 9:55am-3:00pm	This will be a continuation of glazing. I will be working with students to reiterate the science content. Any students that finish early circulate, learn about other students' models,	I will help facilitate, model, and teach science connections.	He will teach the clay work, facilitate and teach connections.	At the end of the class the student will reflect in written or drawn form.
7 Date: 12/13/07 Time: 9:55am-3:00pm	The students will reflect on the project and what they have learned. They will discuss the processes of Earth at the plate boundaries and create tableaux in groups.	I will help guide discussion, demo tableaux, and show the student how to be an audience.	He will help guide discussion, demo tableaux, and show the student how to	The whole day will be a reflection of the experiences of the unit.
8 Date: 12/14/07 Time: 9:55am-3:00pm	The students will receive their finished models, have time to compare and contrast with others, and then have time for free-writing on the experience or what they have learned.	I will facilitate, answer questions, and give writing ideas.	He will facilitate, answer questions, and give writing ideas.	The whole day will be a reflection of the experiences of the unit.

Process Documentation: How will you work together to document the process throughout the unit? What types of documentation are meaningful for this unit? Consider who will document during different activities.

The artist and I will work together to document the process throughout the unit both with through digital pictures and video recording. I will probably be the one video recording, which will only be on one or two day, though he may record me doing some of the connection teaching on these days. Everyday we will both alternate in taking pictures. Additionally, at the end of the unit I will write a reflection and detailed description of everything that we and the students did throughout the unit.

How will you use this documentation to enhance student reflection and learning?

I will have the students use the pictures and create a PowerPoint reflection as a review at the end of the unit (after the artist is no longer working with us). I will also create a PowerPoint reflection that I will use with the students as review during our PACT review time near the end of the school year. I will also use the PowerPoint presentations in future years as a preview to similar projects and as a review of the science content covered in the unit.

Vocabulary: What vocabulary will be introduced? Include vocabulary for content area, art form and any other new vocabulary introduced in this unit.

The science content vocabulary is quite extensive, but some of the words will come from the frontloading of the content before the artist arrives (the words are in no particular order): Plate Tectonic Theory, Continental Drift Theory, tectonic plates, Earth's layers, core, inner core, outer core, mantle crust, upper mantle, asthenosphere, lithosphere, lithospheric plates, continental crust, oceanic crust, convection currents, boundaries, convergent boundary, divergent boundary, transform boundary, mid-oceanic ridge, sea-floor spreading, volcano, magma, lava, vent, ash, cinders, rocks, minerals, density, subduction zone, mountain ranges, earthquakes, geologic time, landform, landmass, Pangaea, position, fossils, rock structures, climate change, land features, hot spots, eruptions, Ring of Fire, forces, stresses, tension force/stress, compression force/stress, shearing force/stress, stretching, folding, folded mountains, fault-block mountains, faults, normal fault, reverse fault, and strike-slip fault. The art form vocabulary is comprised of far fewer words (although a lot of big concepts), and this list may grow as we get closer to the unit and during the unit as we see student understanding of concepts: clay, ceramics, oxides, glaze, slab, layering, folding, stress, force, Kiln, firing, drying, shaping, coloring, minerals, compression, tension, and shearing.

Materials: What materials or supplies will you need for this unit? (Please include details on page 3)

The materials we will need for this unit are clay, glazes, oxides, brushes, newspaper, paper towels, latex and plastic gloves, aprons, and clay working tools.

Teacher Learning:

What will the teacher learn during this unit that will add tools to his/her teaching toolbox? Be specific. (ex: specific activity, element of art form, printed resources, introduction to a piece of art, how to access and encourage student creativity)

One thing that I will be able to learn from this experience that will help me as a teacher in years to come is the principles of visual art. So many things in both art (all areas) and all academic content areas tie together in concept. It is proven through research that students learn better and retain understanding better when integration is present in instruction. I will be able to integrate elements of visual arts in to all that I teach, and I will be able to continue to learn places to enhance understanding through integration. Another thing that goes along with that I will be able to learn and use in different areas of science that I teach is the process(es) of working with clay. There are many tie-ins into what I teach about Earth and other planets that have similar processes. Integration with this could be vital to my students for the same reasons stated above. Clay does relate to geology and geography, and these are two things that I teach throughout the year, and so working with an artist who specializes in it may lead me to new ways to teaching that could enhance understanding for my students throughout my career.

How will you work together to ensure that teacher comfort and confidence in these skills are growing throughout the unit?

The artist and I will have conversations before and throughout the unit to make sure that we are on the same page and that our goals are clear in order for us to both be working towards them with the students. We will plan and double check



plans before the unit, and we will continue to reflect and talk during the unit and communicate whether or not we think plans may need to change due to student difficulty or misunderstanding. We will take-turns teaching and teach together throughout the unit, interjecting if necessary, and work together to gauge understanding of the students and when to move forward with the unit and new ideas. I, as the teacher, will work with the clay along with the students for me to have an understanding and gain knowledge about the art form. Finally, and most importantly, we both agree that being open to allowing students to question is very important, and through these questions we may know what is best to do and teach for understanding throughout the unit.