

## 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):** Charnley DeMeritt/ 4<sup>th</sup> grade

**Artist (name/discipline):** Jennie Wakefield & David White (FiddleStep)

**Connecting Topics:** Scientific exploration & Community Dance/Music  
*(ex: American Revolution & Improvisation)*

**Inquiry Question:** What is scientific exploration?

**Subject Area:** Science

**Planning dates:** 9/31/09 & via e-mail      **Number of Students:** approx. 125

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

**Science Standards/Objectives:**

- 4-1: The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.
- 4-1.4: Distinguish among observations, predictions, and inferences.
- 4-3.2 Compare the properties (including the type of surface and atmosphere) and the location of Earth to the Sun, which is a star, and the Moon.
- 4-3.3 Explain how the Sun affects Earth.
- 4-3.4 Explain how the tilt of Earth's axis and the revolution around the Sun results in the seasons of the year.
- 4-3.5 Explain how the rotation of Earth results in day and night.

**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)*

**Music:**

Students will

1. sing traditional American songs as a group
6. clap and move in time to music, alone and as a group; analyze music by creating movement sequences; experience the range and possibilities of fiddle and banjo, foot percussion.

8. understand the role of music to dance and community; apply original choreography and movement to musical forms; use music in the process of problem solving; relate metrical patterns of 4 to mathematical patterns of 4.

### **Dance:**

Students will

1. use locomotor movements; demonstrate patterns and skills from folk dance; maintain personal and general space while moving; increase kinesthetic awareness, concentration, and focus in movement; memorize and reproduce of movement sequences.
2. create original dance phrases; work with a partner and small group during the choreographic process.
3. understand dance as a way to communicate social meaning.
4. generate multiple solutions to complex movement problem, i.e. the AABB, 32-bar musical phrase of traditional reels using a fixed spatial and movement vocabulary; participate in discussions about the nature and role of dance; demonstrate appropriate audience behavior while watching and responding to dance.
5. perform folk dances from America and Britain; describe the cultural context of traditional these dances
6. understand dance as a contributor to healthful living, both physically and mentally.
1. create a dance that integrates dance and music; use principles studied in science to enhance the pleasure and safety of traditional dance moves; compare choreographing a traditional dance to the process of scientific inquiry.

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

During this unit, we will use elements of scientific exploration and processes. We will address problem solving, observation and inference, and apply these skills to the performance of simple dances and songs and to the composition of dances. Using structure and form of dance and music (tempo, geometry, rhythm, cycles, repetition, pattern), we will illustrate elements of space (revolution vs. rotation, orbits, seasons, day/night, centrifugal force, etc.). We will link exploration of current frontiers in space to historical exploration, i.e. the settlement of America, blending of cultures, and how this shows up in dance \* music in particular.

**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?

Students will utilize body movements and their response to music and dance as a way of opening the students to new concepts in both disciplines. Principles will be used in a kinesthetic way so that students translate the concepts from one discipline to another. Brain connections will deepen. Creative thinking will increase as students delve into new concepts and try out new methods of learning and using their bodies. Students will also have the opportunity to look at different cultural perspectives and how these perspectives affected the scientific world as well as the artistic world.

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

Writings, photos, videos, drawings, dances, reflective journal entries

**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?

Science Lab: Students will be involved in forming questions about space and creating a KWL chart as they listen to a variety of space music from several different eras. Class and group discussions, as well as viewing a variety of space pictures, will engage students and build their curiosity and excitement for the unit. Students will also create drawings which interpret the music they hear, and then explain their interpretation to the class. Tableau will also be used to introduce students to using their bodies as a way to interpret science concepts.

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

After frontloading, we will build the students' dance/music skills and make connections to science/history/culture. Integrating the scientific process of inquiry in relation to dance choreography will be introduced in order to make connections to the scientific method previously discussed in science class. Students will be engaged in creating an understanding of Earth compared to the moon and sun by observing a variety of images in groups and discussing their similarities and differences. The concepts of revolving, rotating, and centrifugal force will be introduced through hands-on activities in science lab and reinforced through dance.

**Middle:** How will the unit proceed?

Historical connections of current frontiers in space and historical exploration and settlement will be a theme woven throughout the unit. In science lab, students will investigate different cultures and discover how they explained through scientific inquiry why day and night occurred. Students will then be asked to become their own early society and come up with their own explanation based on their observations of the earth and sky and their cultural beliefs. Students will draw a picture to show their explanation, as well as write a detailed interpretation which will be shared with the class. The inquiry question's focus on exploration and problem solving will be reinforced throughout this part of the unit as students try to figure out how to survive on the moon, Mars, and/or the International Space Station. Students will acquire a movement, spatial, and rhythmic vocabulary from which to analyze dances, apply science content, think critically, and solve problems. They will experience the energy of a live musician playing for choreographed dances and the power of synchronized movement to draw people together. Through circular and other dance formations, students will explore planetary orbits; revolution and rotation; cycles; the relationship and interactions between the Sun, moon and the earth; and the basic concepts of gravitational and centrifugal forces. Students will also be introduced to the components of dance and music and how they can be used to create dances.

**End:** How will the unit conclude?

Students will finish the unit by helping create a class dance which integrates the concepts of problem solving, dance movements, choreography, and music. This creation will tap into their desire to express themselves, to use community dance, as the ancients did in ritual as we do now. In science lab, students will present their own unique cultural drawings and explanations of day and night as a team. Students will also present their Mars, moon, or Space Station survival solutions to the class in a creative way that displays their new dance and music knowledge.

**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 science lab's mission is to help students understand scientific inquiry through hands-on experiences. Our inquiry question: "What is scientific exploration?" really forms an umbrella around this mission. Students will explore the scientific method, questioning techniques, problem solving, and forming inferences as they study the concepts surrounding astronomy and space exploration. Students will be asked to answer the inquiry question before the unit begins in their journals as a reflective piece, and then again after the unit as a way to pull their own thoughts together and document learning. As the unit progresses, students will have an opportunity to pretend they are in the past trying to explain the sky and also in the present trying to make a sustainable colony in space. These activities will help students understand the real-world issues associated with scientists trying to make explore and understand their world.

As a discipline, science is filled with exploration opportunities. Integrating the arts will help the students make content connections even more personal.

Coordinated dancing in time to music provides an experience of community. The individual contributes to the group and is nurtured by it. Energetic, live music adds infectious vitality to the dancing. Students will have a positive experience of community dance and music that will inform later experiences with all kinds of dance and music, as well as with community. Simple, accessible moves and coordinated dance figures will inspire a sense of creativity and mastery.

**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?

During frontloading in science lab, students will be allowed to hear music, view pictures and websites, question, and draw interpretive pieces to begin their understanding of what scientific exploration means to them and to others. During the unit, students will be involved in problem solving and inference building activities which make them think creatively about the Earth, moon, sun, and planets. Fact and recall will not be the focus; interpretation, exploration, and questioning will be. Toward the end of the unit, students will have enough base content knowledge to begin exploring different cultures and how their own biases, religion, government, and other influences affected their understanding of day and night. Students will be expected to analyze these cultures and then create their own fictional society which has its own interpretation of the mysteries surrounding day and night. Finally, students will be asked to take on the persona of an explorer and scientist ready to colonize the moon or Mars. Students will need to use higher-order thinking skills and go deeper into their problem solving abilities to come up with a potential solution to this issue of colonizing space.

Throughout the unit, there will also be a focus on the sub-category of problem solving and the scientific method. Through both the lab activities and the dance/music activities, students will have the opportunity to see how the process of making a hypothesis, researching information, acting out the "experiment", analyzing results, and determining a conclusion relates to all aspects of life, not just science.

In what way(s) will students answer the inquiry question? (*example: writing, creative dramatics, creative movement, music, visual art*)  
Students will be asked to answer the inquiry question in their science journals, “What is scientific exploration”, before the unit begins and then after the unit ends as a way of seeing their understanding unfold. Also, students will be asked to create a Lotus diagram (a 9-squared box used for organizing thoughts) with pictures and words to show different ways to interpret the question.

How will you use this information to inform future session and progress of the unit?  
The beginning journal entries will help us understand their prior knowledge and misconceptions. Their answers will help us focus our lessons so that their understanding of scientific exploration becomes clearer through our activities. The Lotus diagram can be used at any time during the unit to assess the students’ 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.*)

We plan to observe a class prior to beginning the unit so we have knowledge of the space we’ll be working in and of the teacher’s classroom management style. While we are experienced at managing many moving bodies and appreciate the exuberance created by live fiddle music, we rely on the teacher’s back up and reinforcement of classroom rules and conventions. Communication between sessions about how the unit is progressing and what connections are being made will help us further tailor our work to the science content.

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?

I expect to be an active participant in all the artists’ sessions. I will be there to guide and support my students as they need it and learn from fellow professionals. I will also be documenting all activities with a digital camera and/or videotaping lessons.

To prepare for the artists’ session, I will be frontloading the students with content knowledge surrounding astronomy, helping the students gain excitement and curiosity about both the content and our artists, and integrating different arts (music, art) into our first astronomy lesson. As the unit progresses, I will reinforce the ideas of exploration and problem solving the artists will have focused on by reviewing the scientific method, reinforcing the dance and music concepts they will have learned in previous weeks, and using these new skills to help enrich my lessons. My role as content teacher will also be to move the unit forward by introducing new topics and vocabulary. For example, after students have learned about rotation and revolution through hands-on science activities and the artists’ sessions, my next week off will be to move students into the next realm of “exploration” by introducing them to different cultures’ interpretation of day and night – how did these cultures explain how day/night happened? What influenced their interpretations? How did scientists come to a conclusion? The artists will then have a new stepping stone of knowledge to use as they guide my students into a discussion on how music and dance change according to cultural influences.

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

Students will be asked to answer the inquiry question in their science journals before the unit begins and toward the late middle of the unit in order to guide our teaching strategies. Questioning techniques, teacher observation, and a



Plus/Delta chart will be used as a way for the teacher to receive weekly feedback from the students on what they've learned and how they've felt about the unit.

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.

In science lab, students will be asked to fill out a Lotus Diagram (an organizational tool) to show 8 different ways to answer the inquiry question, "What is scientific exploration?"

**Schedule of Artist Sessions – Please notify Elizabeth of any changes**

<b>Session Dates &amp; Times</b> <i>(indicate exact times you will be in classroom)</i>	<b>Activity(s)</b> <i>(describe the activities designed for each session)</i>	<b>Role of Teacher</b>	<b>Role of Artist</b>	<b>Reflection &amp; Meaning Making</b> <i>(writing, interview, visual, tableaux, discussion, etc.)</i>
<p><b>1</b> Date: Sept. 29, 30, Oct. 2 Time: Sept. 29 @ 8:45-9:35, 1:20-2:10 Sept. 30 @ 10:15-11:05, 11:10-12:00 Oct. 2 @ 1:20-2:10</p>	<p>Introduce role of traditional music/dance in communities. Clap in time to music. Head off issues of dancing with a partner. Do simple dance involving an inner circle, an outer circle, &amp; Sashay the Donut figure (orbiting, revolving).</p>	<p>Observe, participate in activities, help engage students in the learning process, document activities through pictures</p>	<p>David: play fiddle, banjo; lead singing; demo &amp; teach dances; lead discussion. Jennie: demo, teach, call dances; lead discussion.</p>	<p>Discuss observations, predict problems and outcomes as part of learning the dance.</p>
<p><b>2</b> Date: Oct. 6, 7, 9 Time: Oct. 6 @ 8:45-9:35, 1:20-2:10 Oct. 7 @ 10:15-11:05, 11:10-12:00 Oct. 9 @ 1:20-2:10</p>	<p>Learn circle dance in which dancers progress individually in different directions around the ring. Use circle formation/dance to illustrate orbits, forces, &amp; sun/earth/moon interactions. Experience centrifugal force in 1-handed turns, revolution vs rotation in do-si-do. Integrate use of observation, problem solving, prediction &amp; inference.</p>	<p>Observe, participate in activities, help engage students in the learning process, document activities through pictures</p>	<p>David: play fiddle, banjo; demo &amp; teach dances; lead discussion. Jennie: demo, teach, call dances; lead discussion.</p>	<p>Plus/Delta to show what they enjoyed/would change; Written reflection in science journals</p>

<p><b>3</b> Date: Oct. 20, 21, 23  Time: Oct. 20 @ 8:45-9:35, 1:20-2:10 Oct. 21 @ 10:15-11:05, 11:10-12:00 Oct. 23 @ 1:20-2:10</p>	<p>Learn Sicilian Circle dance in hands-4 groups (couples progress in different directions around the ring). 2 dancers will orbit while 2 swing. Reinforce what was learned in Lesson 2. Introduce simple steps of creating dances.</p>	<p>Observe, participate in activities, help engage students in the learning process, document activities through pictures</p>	<p>David: play fiddle, banjo; demo &amp; teach dances; lead discussion. Jennie: demo, teach, call dances; lead discussion.</p>	<p>Discuss ways in which the dance figures and moves parallel what happens in space.</p>
<p><b>4</b> Date: Oct. 27, 28, 30  Time: Oct. 27 @ 8:45-9:35, 1:20-2:10 Oct. 28 @ 10:15-11:05, 11:10-12:00 Oct. 30 @ 1:20-2:10</p>	<p>Refine Sicilian Circle dance. Do the same dance in longways sets. Involve students in creation of small part of a dance (8 or 16 beats).</p>	<p>Observe, participate in activities, help engage students in the learning process, document activities through pictures</p>	<p>David: play fiddle, banjo; demo &amp; teach dances; lead discussion. Jennie: demo, teach, call dances; lead discussion.</p>	<p>Discussion that observes, predicts, infers about the change of form from circle to longways set.</p>
<p><b>5</b> Date: Nov. 10, 11, 13  Time: Nov. 10 @ 8:45-9:35, 1:20-2:10 Nov. 11 @ 10:15-11:05, 11:10-12:00 Nov.13 @ 1:20-2:10</p>	<p>Continue with creation of parts of a dance, integrating small dance parts created by students into broader structure provided by instructors.</p>	<p>Observe, participate in activities, help engage students in the learning process, document activities through pictures</p>	<p>David: play fiddle, banjo; demo &amp; teach dances; lead discussion. Jennie: demo, teach, call dances; lead discussion.</p>	<p>Lotus diagram drawings to answer inquiry question. Link creation of dance phrase to problem solving and exploration.</p>

**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 teacher and the artists will reflect and discuss each session's activities together. The teacher will document each session's activities with a digital camera. When appropriate, a video camera will be used to document the student's culminating dance activities. Written and pictorial documentation, such as reflective journal entries and drawings completed during science lab lessons, will be used to assess learning.

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

The written and pictorial documentation pieces listed above are meant to be a reflective portion of the overall unit. These activities will provide students the opportunity to show what they've learned about the astronomy content, dance and music concepts, and the overall idea of scientific inquiry. The pictures taken of the students in action will be displayed on the Promethean board and in the hallway to enhance the excitement of the unit and as a tool to review and reflect upon what has been accomplished each week.

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

**Science vocabulary:** rotation, revolution, planet, orbit, centrifugal force, gravity, seasons, solstice, equinox, satellite, axis

**Dance vocabulary:** circle, star, longways set, inner circle, outer circle, up the hall, down the hall, clockwise, counterclockwise, hands-four, parallel lines, centrifugal force, giving weight, swing, honor your partner, do-si-do, turn single, right-hand/left-hand turn, sashay (gallop), in your own space, palms up/down.

**Music vocabulary:** four "potatoes," beats and bars, AABB form, tempo

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

Science: Photographs of Earth, moon, and sun; Internet access for websites on different culture's early interpretations of day/night

Dance: Cones to define dance space, microphone/amplification for the caller.

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### **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)

I will learn about the Appalachian folk music and dance culture. The songs and dance forms presented will help me make new connections to other cultures through science. I will understand how to weave science, music, and dance into helping my students learn new concepts. Although I already have a strong music theory background, I will learn more about how music has changed throughout history based on different cultural needs and influences. I will also learn about the basic concepts and vocabulary of dance, as well as the historical connections, so that I may integrate these more in my science lessons.



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

Strong communication between the artist and teacher, via e-mail and team discussions after lessons, will ensure that the teacher is comfortable and growing in her knowledge and skill base throughout the unit.