LESSON PLAN

Name: Vickie Buckley  Date: April 11, 2002

Content Area: Science  Unit Topic: Dinosaurs & Fossils

Today's Lesson: (# 4) Dinosaur Time Line  Grade Level: 2

Duration: 60 minutes

LESSON RATIONALE

New York State Learning Standards and Key Ideas:

Mathematics, Science, and Technology

Standard 1:  Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.

Scientific Inquiry: (1) The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.

Standard 2:  Students will access, generate, process, and transfer information using appropriate technologies.

Information Systems: (1) Information technology is used to retrieve, process, and communicate information and as a tool to enhance learning.

Standard 3:  Students will understand mathematics and become mathematically confident by communicating and reasoning mathematically, by applying mathematics in real-world settings, and by solving problems through the integrated study of number systems, geometry, algebra, data analysis, probability, and trigonometry.

Number and Numeration: (2) Students use number sense and numeration to develop an understanding of the multiple uses of numbers to communicate mathematically, and the use of numbers in the development of mathematical ideas.

Modeling/Multiple Representation: (4) Students use mathematical modeling/multiple representation to provide a means of presenting, interpreting, communication, and connecting mathematical information and relationships.

Measurement: (5) Students use measurement in both metric and English measure to provide a major link between the abstractions of mathematics and the real world in order to describe and compare objects and data.

Uncertainty: (6) Students use ideas of uncertainty to illustrate that mathematics involves more than exactness when dealing with everyday situations.

Patterns/Functions: (7) Students use patterns and functions to develop mathematical power, appreciate the true beauty of mathematics, and construct generalizations that describe patterns simply and efficiently.

Standard 4:  Students will understand and apply scientific concepts, principles and theories pertaining to the physical setting and living environment, and recognize the historical development of ideas in science.

The Living Environment: (3) Individual organisms and species change over time.
English Language Arts
Standard 1: Students will read, write, listen, and speak for information and understanding. As listeners and readers, students will collect data, facts, and ideas; discover relationships, concepts and generalizations; and use knowledge generated from oral, written, and electronically produced texts. As speakers and writers, they will use oral and written language that follows the accepted conventions of the English language to acquire, interpret, apply, and transmit information.

Listening and Reading: (1) Listening and reading to acquire information and understanding involves collecting data, facts, and ideas; discovering relationships, concepts, and generalizations; and using knowledge from oral, written, and electronic sources.

Speaking and Writing: (2) Speaking and writing to acquire and transmit information requires asking probing and clarifying questions, interpreting information one’s own words, applying information from one context to another, and presenting the information and interpretation clearly, concisely, and comprehensibly.

Standard 2: Students will read and listen to oral, written, and electronically produced texts and performances from American and world literature; relate texts and performances to their own lives; and develop an understanding of the diverse social, historical, and cultural dimensions the texts and performances represent. As speakers and writers, students will use oral and written language that follows the accepted conventions of the English language for self-expression and artistic creation.

Speaking and Writing: (2) Speaking and writing for literary response involves presenting interpretations, analyses, and reactions to the content and language of a text. Speaking and writing for literary expression involves producing imaginative texts that use language and text structures that are inventive and often multilayered.

Social Studies
Standard 2: Students will use a variety of intellectual skills to demonstrate their understanding of major ideas, eras, themes, developments, and turning points in world history and examine the broad sweep of history from a variety of perspectives.

World History: (2) Establishing time-frames, exploring different periodizations, examining themes across time and within cultures, and focusing on important turning points in world history help organize the study of world cultures and civilizations.

Instructional Objectives:

1. Students will create a time line showing the different time periods in history to be displayed in the classroom. (Knowledge, Synthesis)
2. Students will learn that each time period supported different families of dinosaurs, they will ask the question “why,” and develop relationships among observations to form their own explanations of what they have observed. (Comprehension, Application, Analysis, Synthesis)
3. Students will use research information from children’s books, printed media, and electronic sources to plot their dinosaurs in the appropriate time period in history. (Knowledge, Comprehension)
4. Students will create their own short story about the time period in which their dinosaurs lived. (Synthesis)
Adaptations: Heather and Charles will work in pairs with Lisa and Patty. Robert and Ken will sit in the front of classroom where lesson is being taught from. Robert will receive a written copy of the poem *Dinosaur Ages* at his desk, and will receive additional help from the classroom aide as needed.

Materials:
- shelf paper or other rolled paper
- print-outs of dinosaurs and their names (see website)
- cut-outs of years (225-180, 180-135, 135-65), and words (million years ago, the world began, human life began, today, Triassic, Jurassic, Cretaceous)
- scissors, thick black markers, rulers or straight edges
- journals
- *Wee Sing Dinosaurs* cassette tape
- *Graveyards of the Dinosaurs* (Tanaka) and *Hunting the Dinosaurs* (Dixon)
- *Explorations in Dinosaurs*, BOCES Teacher’s Resource Packet

**LESSON OPENING**

Anticipatory Set

*Question of the Day* (Stephens and Brown, 2000): When did dinosaurs live?

Write the question of the day on the board and ask the students to take out their journals. Say to the students: I want you to think about the question on the board, “When did dinosaurs live?” (Pause) Now, I want you to use the research information that you entered on your dinosaur fact sheets from the last few lessons to answer this question for your own dinosaur. After you have found out the time period that your dinosaur lived in, write a short story in your journal about your dinosaur. I want you to include in your story your dinosaur’s name, what period your dinosaur lived in, and what you think the world was like when it lived on the earth. [write these points on the board as you say them] (Independent practice)

When students are finished with their stories say: The Triassic period occurred 225-180 million years ago. The Jurassic period occurred 180-135 million years ago, and the Cretaceous period occurred 135-65 million years ago. [write the years for each period on the board from left to right in the order of past to present as you say them] All dinosaurs lived during one or more of these three periods of time.

**LESSON BODY**

Activities:

1. Write Triassic, Jurassic, and Cretaceous on the chalkboard as headings of 3 columns. Ask the students to come up to the board one at a time and mark one tally under the time period that their own dinosaur lived in. (Guided practice) Demonstrate the directions for the students by tallying one mark under the Triassic column for Heterodontosaurus. Explain to the students that this dinosaur belongs in the Triassic column because it lived during the Triassic period. (Modeling) Ask the students the following questions:
How many of our dinosaurs lived during the Triassic period? (4)
How many of our dinosaurs lived during the Jurassic period? (5)
How many of our dinosaurs lived during the Cretaceous period? (15)
In which period did most of our dinosaurs live? [Cretaceous]
In which period did the least of our dinosaurs live? [Triassic] (Checking for understanding)

2. Using shelf paper, words and years cut-outs, resource books (Graveyards of the Dinosaurs, Tanaka, [pp 44-45] 1988, Explorations in Dinosaurs, BOCES, [pp 44-46] and Hunting the Dinosaurs, Dixon, [pp10-11] 1987), ruler, and black markers, have students construct and mount a time line, labeling each of the Triassic (225-180 million years ago), Jurassic (180-135 million years ago), and Cretaceous (135-65 million years ago) periods in history. Have students begin by drawing a thick black line with straight edge across the length of the paper, keeping the unused portion of the paper rolled as they work. Using the resource books as a guide have the students plot the number of years ago each period was in relation to the present, labeling the beginning of the time line as when the world began, the point at which human life began, and the end of the time line as the present day. (Guided practice)

3. Explain, referring to examples of other time lines, how the different kinds of dinosaurs lived in different periods. Tell the students that some other kinds of dinosaurs lived during more than one period in time. Play the poem Dinosaur Ages on the Wee Sing Dinosaurs tape (Beall, Nipp, and Klein, 1991). Repeat the poem several times, and write the words to the poem on the board and invite the students to recite along with the tape. (Modeling of activities)

Dinosaur Ages
Triassic, Jurassic, Cretaceous
Such difficult words, my gracious!
They happened, you know,
Way back, long ago,
For these were the Dinosaur Ages.

4. Have the students cut out silhouettes of their dinosaurs, along with the name of their dinosaurs, printed out from the Enchanted Learning website (www.enchantedlearning.com), and place them on the time line in the appropriate period in history, according to the research displayed on their dinosaur fact sheets from the previous day’s lesson. (Checking for understanding)

5. Closure: Based on the tally chart on the board and the completed time line, ask the students: What assumptions/guesses could we make from the information we have gathered here about when dinosaurs lived? (Call on volunteers to answer—looking for responses like, most dinosaurs lived during the Cretaceous period, and the least amount of dinosaurs lived during the Triassic period) Discuss the different assumptions that are made and others that are not that can be made from the time line. Ask: Can anyone tell me how we can check to see if these assumptions are correct? If correct response is not given, say: We can check to see if our assumptions are correct by doing research. (Checking for understanding)
LESSON FOLLOW-UP

Independent Practice:

Students write in their journals what they learned in today’s lesson about making a time line and about when dinosaurs lived on the earth.

Evaluation:
(a) What did you want the student to learn?
   - how to make a time line from past to present
   - how long ago dinosaurs lived in relation to human life and the world’s beginning
   - that different kinds of dinosaurs lived during different periods, but all lived during either the Triassic, Jurassic, or Cretaceous periods
   - how to analyze information from a time line or chart and make assumptions based on it
   - imagine what the world was like in the time of the dinosaurs

(b) How will you know that they learned it?
   - check for understanding in journal entries
   - class discussions
   - student responses
   - placing of time periods and dinosaurs on the time line

LESSON RESOURCES

References for student use:
Hunting the Dinosaurs by Dougal Dixon (1987)

References for teacher use:
www.enchantedlearning.com
Wee Sing Dinosaurs by Pamela C. Beall, Susan H. Nipp, and Nancy S. Klein (1991)
A Handbook of Content Literacy Strategies: 75 Practical Reading and Writing Ideas by Elaine C. Stephens and Jean E. Brown (2000)
Explorations in Dinosaurs: Teacher’s Resource Packet for the Primary Grades, BOCES 2 Department for Exceptional Children, Project ADEPT