Lesson 7 Final Project

Objectives

- Compile data gathered in field or laboratory exploration;
- Promote thinking through analysis, synthesis, and evaluation of data; and
- Complete student research projects and make presentations.

Main Idea

To analyze, synthesize, and evaluate research dealing with paleontology at Petrified Forest National Park in the form of a school presentation.

Essential Skills

- writing
- summary of data
- cooperating
- research reporting
- hypothesis evaluation

Mathematical Skills

- scientific method
- evaluation
- data compilation
- analysis
- basic mathematical skills
- synthesis
- communication of data

Materials

- student journals
- miscellaneous materials and equipment for specific group projects and presentations

Pages to Photocopy

- *Final Project Checklist* page 79
- *Final Project Rubric* page 80

The following table aligns this lesson with the Arizona Science Standards (5-24-04). Most curriculum connections shown are implicit within the lesson. Others are achieved through teacher interaction with the class, including discussion of the background information provided. Teachers are encouraged to expand on the lesson to increase its potential as an educational tool and a fun learning experience.

Curriculum Connections: Paleontology Lesson 7 Final Project

Arizona Science Standards (5-24-04)

	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Strand 1: Inquiry Process	All Concepts	All Concepts	All Concepts	All Concepts	All Concepts

Curriculum connections are project dependent. The inquiry process is important for all science based projects, but other types of projects may also be completed.

Introduction

In order to provide a conclusion to the scientific work conducted during this education program, students are encouraged to put together a final project for presentation at school. Producing a summary product is part of the scientific process.

Encourage students to be creative. A final project can be a poster, a slide show, a PowerPoint presentation, a model of a Triassic fossil, an interactive fossil excavation, etc. Student journals may be turned in as a component of the final project.

Lesson Framework

1. Activity: ***Final Project***
A student activity that allows students to summarize what they have learned during the pre-visit activities and the field exploration in a creative format of their choice.

Final Project

Teacher Instructions

Objective

To provide a conclusion to work done during this education program.

Main Idea

Students or cooperative groups will create a final project of their choice to represent at least one concept they have learned about paleontology.

Materials

- students will choose their own materials from whatever you have available
- copies of *Final Project Checklist* - one per student or cooperative group

Procedure

1. Ask students to review what they have learned about the paleontology of Petrified Forest National Park using their journals, completed field guides, and handouts received during pre-visit lessons.

2. As individuals or within their cooperative groups, students will develop a final project to present in a public forum. Encourage students to be creative and produce scientific papers, interactive exhibits, role plays, etc.

3. In order to follow a scientific approach, students should use the *Final Project Checklist* on page 79 to develop and monitor their project development and presentation.

4. Final projects should be presented in a public forum, for example in front of the class, the school, or a wider audience. A park ranger may even be able to attend the presentation! Feel free to share the final projects with the Education Technician at the park. This helps the park to continue development of the education program and provides program evaluation material.

5. Provided is an optional evaluation tool you can use to grade the final projects. The *Final Project Rubric* on page 80 was developed by Joelle Clark of Northern Arizona University for the Science In Our Parks program at the Flagstaff National Monuments.

Final Project Checklist

___ Title

A title should be appropriate, creative, and catch the audience's attention.

___ Introduction

An introduction explains what the project is about, is logical, and interests the audience.

___ Methods

Methods include how you collected data, both information and equipment. Details are important. The methods should be written so that if someone else wanted to duplicate your project, they could easily see how you did it.

___ Data Presentation

Data should be displayed and explained. The use of tables and graphs, each with titles and explanations, is a common presentation method.

___ Conclusions

Your conclusions are based on the data you collected and should be as detailed as possible. It should be clear to your audience how you developed your conclusions. Conclusions can also pose new questions for future research projects.

FINAL PROJECT RUBRIC

	Exemplary 4	Accomplished 3	Developing 2	Beginning 1	POINTS
Title	The title catches the audience's attention and is creative.	The title is appropriate for the nature of the project.	The title does not fit the project.	There is no title.	
Introduction	The introduction explains what the project is about. It is logical and interest the audience.	The introduction somewhat explains the project.	There is an introduction but it is unclear how it relates to the project.	The introduction is weak or not present.	
Methods	The methods for collecting data are described in detail, with both information and equipment.	The methods for collecting data are described.	The methods for collecting data are partially described.	The methods used to collect data have not been presented.	
Data Presentation	The data are displayed in both a table and graph. The data are explained.	The data are displayed in either a table or graph. The data are explained.	The data are either displayed or explained, but not both.	The data are neither explained nor displayed.	
Conclusions	Detailed conclusions are reached from the data. New questions are posed.	Conclusions for the data are provided. More detail is needed for a complete ending.	The conclusions are weak.	Conclusions are not evident.	
				TOTAL	