**Dinosaur Designs**

By Maxine Feldman-Cohen, March 31, 2007

**Grade Level**

* Elementary School

**Category**

* Product Design

**Subject Area**

* Arts
* Science
* Technology

**Lesson Time**

Five to eight fifty-minute class periods

**Introduction**

This unit works in collaboration with the science curriculum and the library and computer teachers. While the students are learning about dinosaurs in science, they have the opportunity to build a three-dimensional dinosaur in art. Several stages in this process provide learning opportunities that stretch the imagination and provide experience with technical building skills.

**National Standards**

**Information Literacy**

**Standard 1.** The student who is information literate accesses information efficiently and effectively.

**Standard 3.** The student who is information literate uses information accurately and creatively.   
**Standard 6.** The student who is an independent learner is information literate and strives for excellence in information seeking and knowledge generation.

**Visual Arts**

**Standard 1.** Understanding and applying media, techniques, and processes  
**Standard 6.** Making connections between visual arts and other disciplines

**Science**

**Content Standard A.** Science as Inquiry

**Objectives**

Students will:

* research a specific dinosaur
* better understand how elements work together to create a strong piece of art work, in this case a three-dimensional form
* plan and work on a longterm project
* combine research based information with imaginary elements
* learn about the challenge of dealing with form and balance in sculpture
* make decisions about surface design

**Resources**

* Zoom website: <http://pbskids.org/zoom/>
* Google images of dinosaurs [http://images.google.com/](http://images.google.com/" \t "_blank)
* books with pictures of dinosaurs

**Materials**

* drawing paper
* pencils
* newspaper
* masking tape
* small cardboard boxes (assorted sizes and shapes brought in from home, pasta boxes, small cosmetic boxes, tea boxes)
* papier mâché
* acrylic paints
* paint brushes
* paper (to cover tables)
* trays for papier mâché
* white mural paper (not too heavy)
* brown mural paper (not too heavy)
* thin cardboard
* toilet paper and paper towel rolls
* sculpture wire and/or florist wire
* celluclay

**Vocabulary**

Names of dinosaurs will be introduced as students do research.  
**Balance-**aesthetically pleasing integration of elements or parts: proportion, harmony  
**Surface design-**the finish of a piece; address the surface of an object

**Procedures**

* Prior to starting the dinosaur design project, students should meet with the science, library, and computer teachers.
* In library, students use the website “Zoom” to view pictures of dinosaurs. Each student will choose a dinosaur he or she would like to research and will gather written information about his or her dinosaur. This should only take one class.
* In computer class, students should print pictures of their chosen dinosaur from various angles, paying attention to its physical attributes. This provides an opportunity for the computer teacher to give a lesson in Internet research, Photoshop, etc. The students should keep all of the researched information in a folder.
* In science class, the students study a general background of Paleozoic times, along with behavior exhibited by dinosaurs, their habitat, and environment. This goes on while the students are building their dinosaurs.
* To set up for the dinosaur building, all of the supplies should be available on one table. Each individual table should have their own rolls of tape, with pieces on the edge of the table for easy access. Once papier mâché is used, make sure to cover the tables with paper. If students are still working on building, they are at a different table, so “dry” and “wet” tables are separate.
* Students should sketch the design of their dinosaurs based on the images they have collected. Encourage them to think about the proportions and particular features of the dinosaur.
* Once the students have completed their sketches, the teacher should give a demonstration on how to start building the dinosaur. Use newspaper and tape to shape a body, or start with a box (one that makes sense for the shape of the creature’s body) and glue or tape crumpled newspaper to create soft edges and puff out the body, etc. Make sure to use one piece of newspaper at a time to keep the form from getting heavy.   
  Suggest to the students that they begin with the body or head, not the tail or legs.
* Pieces are made and taped together, adding more and more newspaper for bulk. The head should start as a ball of newspaper and the tail can be made by wrapping newspaper around a wire. Make sure the students keep their sketches and printed images in sight for reference.
* When the body is built, students will begin using papier mâché. The first layer should be newspaper; the second should be brown paper, alternating between the two so students can tell where they have already worked.
* When the dinosaur body is complete and stable, students can begin adding details like spikes and eyes. They can use celluclay for spikes or texture or cardboard covered with papier mâché for spikes or wings.
* The students can also put their dinosaur “in character.” For example, a dinosaur might be holding a guitar, a soccer ball, a cell phone, etc. Although it is important to build the structure “realistically” in terms of proportion and features, the students can “go wild” in terms of painting and decorating. Tissue paper works beautifully when applied to parts of the surface. While the goal is for the students to build a structurally sound dinosaur that stands on its own, you may need to attach a base, especially for younger students.

**Assessment**

Every child learns something from this experience. At some point in the project, every student experiences a challenge. This presents an opportunity to brainstorm solutions, often with the whole group. Watching the student go through the process is very interesting. The process slowly evolves, so that one week might be a struggle and the next class is a breakthrough.

**Enrichment Extension Activities**

This method or process can be used with older children to design other objects related to their curriculum. It can provide wonderful opportunities for group work, props for plays, etc. It can also be a chance for older students to collaborate with younger ones. The work does not have to be as detailed as the dinosaur. Even abstract designs can be created with boxes and added pieces of cardboard, etc. When first graders study the neighborhood, we create buildings by doing a unit with small boxes and papier mâché.

**Teacher Reflection**

Most students really enjoy this process and are proud to exhibit their work. This has become a fifth grade tradition in the school, and younger students watch the progress and are excited to make their own when it is their turn.

It would be beneficial for the students to have more experiences with three-dimensional materials. Moving onto a more spontaneous project that requires quick thinking would build upon the skills they have learned.   
   
Demonstrating and having students share their discoveries worked well. It is very helpful for the students to talk about the problems they are facing and share solutions. There are times when this project can pose challenges. It is hard work and requires patience.

I would not change much about this lesson. I would like to see it move at a faster pace. I have suggested working on a smaller scale, and while some do build very small detailed pieces, others get larger and larger as the idea develops. Part of the beauty of this for me, is to allow that to happen (within limits) because it is so rare for students to work on a larger scale.