Carr, Cathy L. Edwards

Cognitive Development and the Integration of Visual/Spatial Intelligence into the Curriculum.

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Middle School Students; Stroop Effect

This action research project devised a program designed to increase the use of visual elements in middle school core subjects and assessed its impact on student recall, teacher awareness, and use of visual/spatial elements. Observation, surveys, and interviews documented teachers' and students' limited knowledge and use of visual/spatial elements such as visualization, color cues, picture metaphor, idea sketching, and graphic symbols. Results of the Stroop Color Word Test administered to students documented the over-emphasis on verbal/linguistic intelligences. The intervention consisted of one 3-week unit on American Indians, which was taught in two content areas simultaneously, using learning activities that encouraged skills such as visualization, color cues, picture metaphors, idea sketching, and graphic symbols. A research group of fifth graders in one middle school who participated in the program was compared to a control group of fifth graders who had the social studies unit with no corresponding art unit. Evaluation results indicated that students in the research group performed better on a knowledge test and showed a positive impact on the Stroop Effect. Teachers indicated an increase in the use of visual/spatial elements in core subjects. Appendices include teacher surveys, photographs of student projects, examples of student writing, and sample class materials. (Contains 21 references.) (KB)
COGNITIVE DEVELOPMENT AND THE INTEGRATION
OF VISUAL / SPATIAL INTELLIGENCE INTO THE CURRICULUM

Cathy L. Edwards Carr

An Action Research Project Submitted to the Graduate Faculty
of the School of Education in Partial Fulfillment
of the Requirements for the Degree of Master of Arts
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table of Contents</td>
<td>i</td>
</tr>
<tr>
<td>Abstract</td>
<td>iii</td>
</tr>
<tr>
<td>CHAPTER 1 - PROBLEM STATEMENT AND CONTEXT</td>
<td>1</td>
</tr>
<tr>
<td>General Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td>Immediate Problem Context</td>
<td>1</td>
</tr>
<tr>
<td>The Surrounding Community</td>
<td>4</td>
</tr>
<tr>
<td>National Context of the Problem</td>
<td>5</td>
</tr>
<tr>
<td>CHAPTER 2 - PROBLEM DOCUMENTATION</td>
<td>8</td>
</tr>
<tr>
<td>Problem Evidence</td>
<td>8</td>
</tr>
<tr>
<td>Probable Causes</td>
<td>13</td>
</tr>
<tr>
<td>CHAPTER 3 - THE SOLUTION STRATEGY</td>
<td>20</td>
</tr>
<tr>
<td>Literature Review</td>
<td>20</td>
</tr>
<tr>
<td>Project Objectives and Processes</td>
<td>26</td>
</tr>
<tr>
<td>Project Action Plan</td>
<td>27</td>
</tr>
<tr>
<td>Methods of Assessment</td>
<td>30</td>
</tr>
<tr>
<td>CHAPTER 4 - PROJECT RESULTS</td>
<td>33</td>
</tr>
<tr>
<td>Historical Description of the Intervention</td>
<td>33</td>
</tr>
<tr>
<td>Presentation and Analysis of Results</td>
<td>35</td>
</tr>
<tr>
<td>Conclusions and Recommendations</td>
<td>42</td>
</tr>
<tr>
<td>References Cited</td>
<td>46</td>
</tr>
</tbody>
</table>
Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>49</td>
</tr>
<tr>
<td>Appendix B</td>
<td>52</td>
</tr>
<tr>
<td>Appendix C</td>
<td>53</td>
</tr>
<tr>
<td>Appendix D</td>
<td>54</td>
</tr>
<tr>
<td>Appendix E</td>
<td>64</td>
</tr>
<tr>
<td>Appendix F</td>
<td>73</td>
</tr>
<tr>
<td>Appendix G</td>
<td>89</td>
</tr>
<tr>
<td>Appendix H</td>
<td>106</td>
</tr>
<tr>
<td>Appendix I</td>
<td>110</td>
</tr>
<tr>
<td>Appendix J</td>
<td>111</td>
</tr>
<tr>
<td>Appendix K</td>
<td>112</td>
</tr>
<tr>
<td>Appendix L</td>
<td>113</td>
</tr>
<tr>
<td>Appendix M</td>
<td>117</td>
</tr>
<tr>
<td>Appendix N</td>
<td>118</td>
</tr>
<tr>
<td>Appendix O</td>
<td>121</td>
</tr>
</tbody>
</table>
Abstract

This summary describes a program for increasing awareness, development and implementation of visual elements into Core subjects. The cognitive development of the targeted students as it pertains to memory and recall may be positively effected. Student tests and surveys of teachers documented and described the extent of visual/spatial deficits.

Analysis of probable cause data reveals that schooling treats the imagination as unimportant. Schools lack the integration of visual/spatial intelligence into other Core subjects and subject area teachers have limited visual/spatial knowledge. The contribution of overlearning and over teaching of verbal/linguistic tasks. Schools are overdependent and place higher value on verbal/linguistic skills when visual spatial skills not only enhance those skills, they are skills of equal value.

As a result of this program employing visual/spatial components and assessments, the students and faculty may have an increased awareness and understanding of the importance of including visual/spatial elements in the teaching and learning of verbal/linguistic tasks.
CHAPTER 1
PROBLEM STATEMENT AND CONTEXT

General statement of Problem

Students and teachers of the targeted middle school class have a limited knowledge and use of visual/spatial elements to positively effect recall. Integrating visual/spatial intelligence across the curriculum, may have an effect on this development.

Evidence for the existence of this problem includes teacher observation, surveys, and interviews.

Immediate Problem

Coal City Middle School in the Coal City Community Unit District #1, houses 492 students in grades five through eight. Based on the 1994-95 school year figures, the average class size for each grade level is as follows; fifth-19.7, sixth- 19.7, seventh- 22.2, eighth- 22.2. There are six classes in each of the grade levels. The building is an air conditioned closed class structure consisting of a cafeteria, media center, two gymnasiums, chorus and band room, art room and two computer labs. Academic classes are held in
individual class rooms. Seventh and eighth grade classrooms are located on the second floor. CCMS is not a fully included setting with three Special Education classes in the building. Full inclusion in Encore classes is currently in place.

As of September 30, 1994, the racial-ethnic make up reported for CCMS students was 97% White, 0% Black, 2.8% Hispanic, and 0.2% Asian Pacific Islander. The percentage of students eligible for bilingual education is 0%. The attendance rate at CCMS is 95.7% district wide. The student mobility rate which is based on the number of times the students enroll or leave a school during the course of a year is 8.4%. This is lower than the district rate of 9.8%. Students who were absent from school without a valid cause for ten percent or more of the last 180 school days comprise 0.6% at CCMS which is lower than the district rate of 1.4% (Coal City Community Unit District #1 School Report Card, 1994).

The staff at CCMS is comprised of 38 teachers, 26 female and 12 male with seventeen teachers having their Master's degrees. The average number of years of experience is 15.1.

Students are heterogeneously assigned to a classroom. The core subject areas and the time devoted to them is as follows: mathematics-40 minutes, science-40 minutes, language arts-40 minutes, reading-40 minutes, social studies-40 minutes, and
physical education- 40 minutes. The Encore subject areas are as follows; art-40 minutes for one quarter, health-40 minutes for one quarter, computers-40 minutes for one quarter for fifth and sixth grades and 40 minutes for two quarters for seventh and eighth grade, music-40 minutes for one quarter for fifth and sixth grades. Band and chorus are offered in lieu of a 40 minute study hall three periods per week for fifth and sixth grades and five periods per week for seventh and eighth grades.

Students in the sixth grade are assessed by the state through IGAP in reading, math, and writing, seventh grade is assessed in science and social studies. Students in grades fifth through eighth grade are given Stanford Achievement Tests. Assessment in the Fine Arts in sixth grade are currently devised and administered by the individual Fine Arts teachers.

All students are assessed quarterly on a district-wide progress report. Students in grades fifth through eighth receive letter grades consisting of; A (94-100), B (86-93), C (78-85), D (70-77), and F (0-69).

Art education at CCMS is currently taught to all students by one art specialist. Art education consists of a curriculum devised by the art teacher. A variety of sources are used to create the curriculum in lieu of a specific text for individual grade levels. In
addition, various multi-media are also implemented such as art prints, videos, scholastic magazines, filmstrips, and three-dimensional designs.

Description of the Surrounding Community

Coal City Community Unit District #1 is located in Grundy County, Illinois. In the district, 1596 students are enrolled, 8.1% are from low income families and 0.2 are limited English proficient. One hundred percent of the teachers are Caucasian. Male teachers comprise 31.4% and females account for 68.6% of the teaching staff. The average years of service in the district is 15.1, with an average salary of $40,942. The pupil-teacher ratio is 17.2:1. Teachers with masters degrees and beyond comprise 39.8% of the total of 95 teachers. The administrators earn an average salary of $57,321, and pupil administrator ratio is 266.0:1. (Coal City Community Unit Dist.#1 School Report Card, 1995).

CCMS is located in the community of Coal City, incorporated as a village in 1881. Coal City is a rural community 60 miles southwest of Chicago, Illinois. It consists of approximately three square miles with a population of 4110. The school district services the students in the surrounding areas within the Carbon Hill and Diamond communities.
As of 1995 the median home value in Coal City was $104,127. The median family income in 1990 was $35,728. More than 98% of the population of Coal City was Caucasian. The median age was 35.0.

Of the population of Coal City, 40.6% are high school graduates, 12.5% have college degrees. The employment rate is 93.0%. Part of the labor force consists of 12.68% having some high school credit and 8.68% having only elementary school experience (Grundy County Economical Society 1995).

Regional and National Context of the Problem

Curriculum is not so much transmitted to the students as reconstructed by them. It would seem that the learning of all students, certainly that of students who are functioning at what Piaget, 1960 would call the pre-operational stage of development, would be enhanced if the notion of artistic construction was approached more literally than metaphorically. Despite rhetoric about multiple intelligences, students given the opportunity to exercise and consequently develop only a limited range of their abilities in school. It is a concern that those with a particularly strong predilection toward artistic intelligence are often unable to make a significant contribution in most classes and are in many cases consequently failing (Donmoyer, 1995).

On creating the self, Domasio suspects that convergence zones,
thousands of them, spread throughout the cortex, do more than just process language. They may also coordinate every other sort of information the brain needs - perception, memory, emotion - to be fully functional. And if that is true, the convergence zones, merging disperate pieces of information into a semblance of a whole, could be responsible for the most elusive of the brain phenomena; consciousness, the sense of being in the here and now (Lemonick, 1995).

According to Lazear, 1991 the human brain naturally thinks in images. Capacity to form images or to visualize is one of its most basic mental processes. Visualization is the way we think. The human brain programs and self programs through its images; when we were children our visual/spatial capacities were very acute. Schooling develops reasoning powers and implicitly, if not explicitly, treats the imagination as unimportant. As the process continues, the growing person finds it more and more difficult to form mental images, simply because this particular faculty goes unused. The imagination is inherent in the nervous system and as such it can be relearned. Art education promotes self expression, creativity, and intuitive and sensory-oriented learning. In addition, arts education fosters both discipline and cognitive and emotional development (Hanna, 1994).
Magnussen, Greenlee, Asplund and Dyrnes, 1990 have recently pointed out that as most perceptual discriminations require comparisons across time and space, and it is obvious that the storage of form and spatial relationships is as essential in human memory as content and meaning (Heathcote, 1994). Therefore, visual/spatial intelligence is critical in how we view the world around us. However, its integration into the school curriculum is often limited.
CHAPTER 2
PROBLEM DOCUMENTATION

Problem Evidence

In the beginning, before words, language, abstract reasoning, cognitive patterning, and conceptual thinking; were images. The human brain naturally thinks in images. In fact, its capacity to form images or to visualize is one of its most basic mental processes. Just what are images, and how do they function in our lives? They are interior road maps that help us make sense out of life, being unconscious but controlling our conscious behavior. Comprising pictures of our self and our world, they supply an inner guidance system that tells us who we are and give us direction in deciding what to do with our lives. Images are formed and shaped by every experience we have had. These images in turn shape both our present and future experience (Lazear, 1991).

Documentation shows images are innate and necessary in learning. If this is true, why then is visual/spatial intelligence one of the most underutilized focuses of the school system?
Evidence for the existence and extent of this problem are found in teacher surveys, a targeted group consisted of fifth grade students at the targeted middle school and a control group of fifth grade students at the targeted middle school, and test materials developed by the fifth grade social studies teacher, to check recall of subject matter after a given period of time for both the research group and the control group, and the Stroop Effect which is a disruption and delay in the naming of colors of words printed in colored ink when the letters of the words spell the names of incongruous or non matching colors.

An analysis of probable cause data reveals that schooling treats the imagination as unimportant. Schools lack the integration of visual/spatial intelligence into other core subjects and subject area in which teachers have limited visual/spatial knowledge. This also contributes to an over learning and over teaching of verbal/linguistic tasks causing a suppression of visual/spatial intelligence. Schools are too dependent and place a higher value on verbal/linguistic skills when visual/spatial skills not only enhance those skills, but are skills of equal value.

Thinking directly in terms of colors, tones, images, is a different operation technically from thinking in words. There are values and meanings that can be expressed only by immediately
visible and audible qualities, and to ask what they mean in the sense of something that can be put in to words is to deny their distinctive existence (Dewey, 1934).

Students who are operating at what Piaget, 1934 called the preoperational stage of development would be enhanced if the notion of artistic construction was approached more literally than metaphorically. Concern is with all other subjects as well as the teaching of the arts when schools are teaching all other subjects while students sit passively as teachers pontificate. Despite rhetoric about the constructivist nature of learning and multiple intelligences, students given the opportunity to exercise and, consequently, develop only a limited range of their artistic intelligence are often unable to make a significant contribution in most classes and are, in many cases, failing (Donmoyer, 1995).

Schools allot time to subjects as they deem necessary to provide a well rounded education to the students. Time devoted to each of the multiple intelligences however is grossly out of balance where the visual/spatial intelligence is concerned. Schools as a rule provide three times as much scheduled time spent on classes that utilize intelligences other than those utilized in the visual arts. This in turn defeats the purpose of providing a well rounded education by not allowing equal time to develop all intelligences.
A graph showing the time devoted to each of the subjects is shown in Figure 1.

As the graph reveals, whereas all subjects are taught an equal amount of time (40 minutes per day), art is offered only forty-five days per year where all other subjects are taught for one-hundred-eighty days, and in so doing, the visual arts which promotes the use of visual/spatial intelligence are offered for a significantly lesser amount of time than other subjects which can contribute to a deficiency in this area.
When the Stroop Effect (Appendix A) was administered, documentation in Figure 2 supports the statement that verbal/linguistic intelligences are over taught and hence schools place a higher value on such.

Figure 2
Stroop Effect Results

As the graph reveals, the time for students to name colors when presented with colored words that were incongruent, was significantly higher, the time in fact was doubled for this category.
Probable causes (site based)

An analysis of the site in relation to the problem evidence suggests several probable causes. The lack of integration of visual/spatial intelligence into other core subjects is evident in the teacher survey (Appendix B) within the site. Results show that teachers do not incorporate these visual/spatial elements overall on a regular basis as revealed in Table 1. Results reflect the responses of the twenty teachers surveyed and percentages of times that the individual teachers used these particular visual cues in the planning and execution of their lessons.

Table 1
Visual Elements Implementation Survey

Frequency Chart

<table>
<thead>
<tr>
<th>Visualization</th>
<th>Color Cues</th>
<th>Picture Metaphor</th>
<th>Idea Sketching</th>
<th>Graphic Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>25%</td>
<td>2</td>
<td>9</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>50%</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>75%</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>100%</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 1 shows twenty-six incidence where teacher used these visual elements zero percent of the time, thirty incidence at only twenty-five percent of the time, twenty-five incidence fifty percent of the time, sixteen incidence seventy-five percent of the time, and only three incidence one-hundred percent of the time that a lesson is implemented in the classroom.

The transfer of visual/spatial intelligence to life can be obtained by discussing the intelligence, tools used, finding applications beyond the lesson to other curriculum areas, and finally integrating it into the task of living in the world outside of the classroom. The brain associates ideas and groups and links them in short-term memory; it engages the pattern-building process in long-term memory and uses primarily visual imagery. You can improve your visual/spatial capacities for knowing. As with each of the intelligences, it involves a process of first awakening the intelligence, amplifying and strengthening it, training it to work for you in the process of learning and thinking, and finally transferring it to daily life as a regularly used tool for knowing and understanding your life and your world (Lazear, 1991). The theory of multiple intelligences requires the development of all kinds of intelligence, and the arts education develops areas of intelligence in addition to verbal and computational intelligence (Colwell, 1995).
A lack of integration of art into other core subjects is also evident in the results of a second teacher survey (Appendix C) as seen in Table 2.

Table 2

Table 2 - Teacher Survey-Integration of Art into Core Subjects

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<tr>
<th>Percent of time lessons are integrated with art</th>
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</thead>
<tbody>
<tr>
<td>0%</td>
<td>3</td>
</tr>
<tr>
<td>25%</td>
<td>11</td>
</tr>
<tr>
<td>50%</td>
<td>6</td>
</tr>
<tr>
<td>75%</td>
<td>0</td>
</tr>
<tr>
<td>100%</td>
<td>0</td>
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Twenty teachers participated in this survey and the results show the percentage of time that the teachers integrated art into their lessons.

An over teaching of the logical and verbal intelligences as a school system can be seen by reviewing the time allotted for each subject as compared to the arts as shown in chapter one.
Memorization over higher order thinking skills hinders visual/spatial intelligence. Figure 3 shows the time allotted for each subject area where most incorporate memorization skills as compared to the arts which incorporate visual/spatial intelligence, thus promoting higher order thinking skills..

Figure 3
Pie Chart-Subject time frame

The graph shows a balance of time for all subject areas with the exception of art, which is only allotted one fourth of the time devoted to other subjects.
Probable Causes (literature based)

The cave drawings of prehistoric man are evidence that spatial learning has long been important to human beings. Unfortunately, in today's schools the idea of presenting information to students through visual as well as auditory modes sometimes translates into simply writing on the board, a practice that is linguistic in nature. Spatial intelligence responds to pictures, either the images in ones mind or the images in the external world (Armstrong, 1994).

The image is also a way of knowing about the world that is older and more global than language and verbal symbolism (Lazear, 1991).

Given this information, we could elude to the assumption that when given only auditory information, those students who learn best using visual/spatial intelligence would suffer the consequences.

Schooling develops reasoning powers and implicitly if not explicitly, treats the imagination as unimportant. Thought is naturally done employing images. In fact its capacity to form images or to visualize is one of its most basic mental processes. Visualization is the way we think. The human brain programs and self programs through its images (Lazear, 1991).

The general educational curriculum, as we know it, tends to be fragmented and compartmentalized, and, until now, attempts to
develop significant linkages from one subject area to another have been rare. Therefore, schooling can be seen, at some levels, more as a series of discrete learning experiences than as a synthesis of related learnings from a wide variety of academic disciplines (Dunn, 1995).

Teachers must teach for and with visual/spatial intelligence by using the tools of this intelligence and apply them to help learn the content, acquire the specific knowledge, and achieve the lesson's goals and/or objectives (Lazear, 1991).

The Stroop effect is one explanation of the difficulty in ignoring or suppressing the reading response in that reading is such an overlearned, compulsive, involuntary evoked skill that individuals can not avoid reading the words despite the task instructions (Schiffman, 1990). It is not surprising that children soon give up being imaginative. As this process continues, the growing person finds it more and more difficult to form mental images, simply because this particular faculty goes unused (Lazear, 1991).

As most perceptual discriminations require comparisons across time and space, and it is obvious that storage of form and spatial relationships is as essential in human memory as content and meaning. Which is why there is a failure to effectively teach when both are not considered (Heathcote, 1994).
A summary of probable cause for the problem gathered by the researchers’ data and the literature includes the following:

1. Student scores on chapter test given to them in social studies classes show lower scores for students not concurrently studying the same subject in other classes.

2. Students timed scores on the Stroop Effect Test show the effects of an over learning of verbal/linguistic tasks as compared to visual/spatial tasks.

3. Time devoted to classes that are devoted to visual/spatial intelligence is markedly lower than time devoted to classes where other intelligences are employed.

4. Teacher surveys show a lack of integration of visual/spatial intelligence into other Core subject areas.

5. Students given only auditory information leave students who learn best in the visual/spatial intelligence at a disadvantage and they will suffer as shown in test results of such.

6. Linkages of one subject area to another have been rare and a synthesis of related learnings from many disciplines are needed.
CHAPTER 3
THE SOLUTION STRATEGY

Review of the Literature

The Stroop Effect will be given to students for the purpose of showing the effect of increased effort when visual and verbal cues do not coincide (Appendix A). Difficulty in ignoring or suppressing the reading response shows an overlearned response to reading and an inability to synthesis instructions and information through visual/spatial intelligence when presented with this conflict. This plan reflects the research in that it shows an overlearned response to reading when given instructions to interpret in visual/spatial intelligence thus showing a need to incorporate more visual/spatial intelligence into the curriculum by integrating visual/spatial elements into other Core subjects.

The arts can be taught in an interdisciplinary manner as part of the broader curriculum and can make immense contributions to the teaching of other disciplines. For example, no one can fully understand the Baroque period for example, without being familiar
with the arts [of that period]... (Bresler, 1995).

This philosophy will be taken into consideration in this intervention in that a prior knowledge of American Indians in a social studies class will be incorporated into the art class and then elaborated on by adding knowledge using the visual/spatial intelligence as its method.

One solution to this problem is a team approach involving arts teachers, classroom teachers, and subject area teachers who participate together in inservice training and then implement the program during the school year. A major theoretical strategy involves the importance of teaching students how to make connections and to transfer and apply learning. Students may learn isolated facts about topics, but they are not taught how these facts are fit together in an understanding of the world, nor are they taught how to transfer information from one compartment or topic to the next. When students are faced with a variety of subject matter or phenomena in a given period of time, well-planned educational experiences are needed to help them develop relations among various elements of experiences (Roucher & Lavano-Kerr, 1995).

One way that a solution to this statement will be addressed is that the same topic will be introduced and taught in two content areas at the same time thus allowing transfer from one subject to
the next to occur and a feeling of connectedness between subject areas to occur for the students.

The brain works by engaging the attention of the decision-maker through prioritizing the level of importance it attaches to ideas and groups and links them in short-term memory; it engages the pattern building process in long-term memory and uses preliminary visual imagery. The image is also a way of knowing about the world that is older and more global than language and verbal symbolism (Lazear, 1991).

Language is not the only form of symbolization that figures into learning and thought. One obvious additional form of symbolization is found in the field of mathematics. Mathematical symbols are fundamental tools of thought in scientific fields such as physics. Another less obvious, but possibly even more fundamental, form of symbolism is imagery, which is the stock and trade of the arts. The case for the importance of imagery and the arts in general in learning and thought can be made with common sense examples from everyday life, with references to the scholarly literature, and with concrete images of teachers using the arts to promote learning in their classrooms (Donmoyer, 1995). To test this idea, surveys and interviews with teachers were conducted to show an interest in using visual images in classrooms (Appendix B&C).
after increasing awareness by providing more information on such.

When our culture reaches out suddenly beyond its old bounds and makes contacts with other cultures we become interested in new possibilities of feeling. It takes a while, but there comes a point when the beauty of an exotic art becomes apparent to us; then we have grasped the humanity of another culture, not only theoretically but imaginatively. Thus the arts can make us privy to aspects of other places and times in a way that non-literary language can only grossly approximate. In addition, because symbolism in the arts is primarily presentational rather than representational, the arts can help us overcome the sort of ethnocentric bias that is inevitably built into language (Donmoyer, 1995).

Broudy, 1972 regarded the development of imagination as central to the purpose of education. According to him, the schools have given their primary attention to the intellectual operations of the mind, especially those acquiring facts and of problem solving by hypothetical-deductive thinking. The raw materials for thinking of all sorts are, however, furnished by the imagination. One of the schools’ goals is to develop the individual’s intellectual and evaluative powers through the use of the cultural heritage conserved through critical traditions, and part of those traditions is the
cultivated imagination. The aesthetic image epitomizes that cultivated imagination. Hence, he regards aesthetic education as training imaginative perception. His vision of the integration of the arts into the curriculum differs from current practice. Instead of the performance approach and the traditional course in art appreciation. Broudy advocates a more global function of aesthetic education, one ought to concentrate on helping the pupil to perceive not only works of art, but also the environment, nature, clothing, etc., in the way that artists in the respective media tend to perceive them. Eisner, 1995 calls for the education of the senses and for the de-dichotomization of the cognitive and the affective. The arts provide an excellent example of the interdependence and interrelatedness of cognition and affect. Different forms of representation (e.g., visual, kinesthetic, auditory) develop our ability to interact with and comprehend the world around us and draw multiple meanings out of it. If we expand these forms beyond the verbal and the numerical, our perception of the world is enriched immensely. The Arts can be taught in an interdisciplinary manner as part of the broader curriculum and can make immense contributions to the teaching of other disciplines. The “how” of integration involves close collaboration in both of these visions between arts specialists and the teachers of academic subjects. Most writings on
integration consist of success stories, mostly by teachers who report about their practice. There are also reports of research that measure the effect of integration on the learning of academic subjects (Bresler, 1995).

Imaginative perception will be tested when students are made to produce a product that contains both factual information and their interpretation of how to apply that knowledge to both an art project and a creative writing assignment (Appendix D&E).

For a piece of art to make sense to the observer as well as to the artist, students should be able to clearly express the meaning behind their creations (Ernst, 1995). Sometimes teachers need to overcome the limitations imposed by their own interests, abilities, or preparation and expand the opportunities that they are offering children (La Farge, 1994).

Based on the literature, the intervention selected will include testing materials that can measure the effects of; scores both with and without this intervention, integration by students of multiple intelligences, connections and transfer from one subject to the next, and an increased awareness and implementation by classroom teachers of visual/spatial elements.
Project Objectives

As a result of a program employing visual/spatial components and assessments implemented during the period of September of 1996 to January of 1997, the fifth grade students and faculty will have an increased awareness of the importance of including visual/spatial elements in the teaching of verbal/linguistic tasks and will be measured through teacher constructed tests, published tests, and teacher surveys.

In order to accomplish the project objective and effect the desired change, the following processes are necessary:

1. Both research and control groups will study a unit on American Indians (Bacon, 1993), receiving instruction and written information from their Core Social Studies teacher (Appendix F).

2. The Stroop Effect will be tested (Appendix A).

3. Research group will study a unit on American Indians, receiving instruction and visually aided materials (Appendix G) from their Art teacher (researcher).

4. Teacher survey for self awareness in teaching methods pertaining to the inclusion or exclusion of visual/spatial elements in their presentation of subject matter will be given (Appendix B).

5. A synopsis containing the importance of including visual/spatial elements in Core subjects and the effects on memory
by using such will be constructed and given to Core teachers along with the teacher survey results (Appendix H).

This action plan describes a program for increasing awareness, as well as developing and implementation of visual elements into Core subjects. The cognitive development of the targeted students as it pertains to memory and recall may be positively affected. Students’ tests and surveys of teachers documented and described the extent of visual/spatial deficits.

Action Plan

Process Statement One:

Visually aided test materials will be developed. In order for the students to better understand that they can recall and retain information at a greater rate when visual aids are used, they will be tested along with students who had no added visual aids to show the greater recall of students that had both visual/spatial and verbal/linguistic cues. Scores will be recorded and shared with the students; an explanation will be given to the students as to why they scored higher on the latter.

Testing will be administered during the first quarter of the school year, occurring during the students regularly scheduled art and social studies classes.

This plan represents the research in that it will be established
in the students' minds the possibilities of the use of visual/spatial elements to positively effect recall. A report of these scores will be included in a final synopsis for core teacher use.

Process Statement Two:

The Stroop Effect will be given to the students for the purpose of showing the effect of increased effort when visual and verbal cues do not coincide. In showing the difficulty in ignoring or suppressing the reading response shows an overlearned response to reading and an inability to synthesis instructions and information through visual/spatial intelligence when students are presented with this conflict.

This plan reflects on the research in that it reflects an over teaching of verbal/linguistic intelligence thus creating a suppression of the visual/spatial intelligence.

Process Statement Three:

Learning activities that encourage visual/spatial skills such as visualization, color cues, picture metaphors, idea sketching and graphic symbols will be presented to the students (Appendix I). Visual/spatial activities will also be linked directly to a current social studies unit they are studying. Students will be encouraged to
employ these visual/spatial elements into the study of their current course of study.

This represents the research by showing an increase of test scores and recall by those students who employ both verbal/linguistic and visual/spatial skills in learning of new information.

Process Statement Four:

A teacher survey will be given to the teachers of the students in the targeted fifth grade group to be filled out and returned. The survey will ask which and to what degree visual/spatial elements are currently in use in the presentation of their classes. The survey will be given during the first quarter of the school year. The survey will be scored and the results put in a final synopsis and given to the teachers to review along with student test score results of both research and control groups. The survey will be repeated during the second quarter of the school year to record any rise in the use of visual/spatial elements in the presentation of the teachers' lessons as a result of the information showing findings of this research.

Process Statement Five:

A synopsis containing the importance of including visual/spatial elements in core subjects and the effects on memory
will be given during the second quarter of the school year to the teachers involved in the original survey. This synopsis will also contain all of the results of the students tests and student findings in relation to the future use of visual/spatial components and the effects on recall.

This is related to the research in that it will heighten the awareness and increase the knowledge of teachers of the positive effects on recall elicited from the implementation of visual/spatial elements into a Core subject.

Methods of Assessment

Assessment of the targeted fifth grade students' progress in this report is focused primarily on an increase of percentage points in test results in the research group over the control group. The pretest and posttest in relation to the Stroop Effect, are being assessed on a time basis. Surveys of Core teachers are assessed numerically, through teacher observation, and personal interviews.

A time line of assessment events are illustrated in Figure 4.
Figure 4

Timeline of Intervention

TIMELINE OF INTERVENTION

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A flow chart depicting the projected course and outcome of the intervention is shown in Figure 5.

Figure 5

FLOW CHART OF INTERVENTION
CHAPTER 4
PROJECT RESULTS

Historical Description of the Intervention

The objective of this project was to see if a change could be affected in test scores in a Core subject when visual/spatial intelligence was employed by simultaneously teaching a unit in an art class and a social studies class. A copy of the abstract for this project was given to the principal of the targeted school for review and approval (Appendix J).

The implementation of a unit on American Indians was approached through a visual arts perspective in an art class to a research group of fifth graders when they were studying, along with a control group, the same topic through the perspective of a social studies class.

Three weeks were spent on this unit. Instruction employed the use of visually aided materials to coincide with the area of study such as videos, art prints, symbols, mind maps, and hands on projects (Appendix K). Both research and control groups were then
tested in a subject matter test (Appendix L) to compare the results of the group that had received this intervention over the group who had not. Parent permission was obtained by the means of a teacher written letter for the participation in the community field experiences (Appendix M).

Students also created their own visual aids through the use of mind maps (Appendix N) and apply visual cues on such. Students demonstrated an ability to integrate subjects when asked to write a story about their project using both facts obtained through literature and the use of their imagination to distort these facts (Appendix E).

Students participated in a reenactment of the Stroop Effect Test both before and after practicing it to show an overlearned response to the verbal/linguistic intelligence and to show an ability to improve the visual/spatial intelligence through practice (Appendix A).

Core subject teachers also participated in this intervention through the use of surveys asking for the percentages they employed visual elements into their lessons both before a synopsis of the results of this intervention was given to them to read and after they had read it (Appendix B&C). Teacher permission was obtained by means of a teacher written letter for participation (Appendix O).
Presentation and Analysis of Results

In order to assess the effects of this intervention, the same test was given to both the research and the control groups. The data showing the results of the testing are shown in Figure 6 and 7.

Figure 6
Test Scores of Research Group
The intervention seems to have had a positive effect on the test results of the research group. An increase of 2.25% in the mean score and 2.88% in the median test score was shown in the research group over the control group.
To test the statement that visual/spatial intelligence can be increased, Figure 8 shows the results of the Stroop Effect before students had a chance to practice and Figure 9 showing the results of the Stroop Effect after students had practiced it.

Figure 8
Stroop Effect before practice
This intervention also had a positive effect in that when students were given time to practice this visual exercise, their test scores improved on the visual/spatial element of this test showing that exposure to and practice of the visual/spatial intelligence can increase a student’s abilities in this intelligence.
A learning activity that was created to encourage visual/spatial skills and integrate them into academics was done through mind mapping as shown in Figure 10. Literature shows that mind mapping once used is seldom needed again. The very act of constructing a map itself is so effective in fixing ideas in memory that very often a whole map can be recalled without going back to it at all.

Figure 10

Mind Mapping Outline

This intervention appears to have been successful because the students were able to display the ability to link an academic subject with a visual/spatial element. Students also displayed excellent
recall in class when verbally quizzed on the subject matter covered on the mind map.

In order to assess the results of a teacher survey for self awareness in teaching methods pertaining to the inclusion or exclusion of visual/spatial elements in their presentation of subject matter, a survey was given to them before this intervention and the same survey was given to them again after a synopsis of the importance of including visual/spatial elements into core subjects was given to them to review. This data is compared in Table 3 and Table 4.

Table 3
Teacher Survey before Synopsis

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<th>Picture Metaphor</th>
<th>Idea Sketching</th>
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Table 4

Teacher Survey after Synopsis

Frequency Chart

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This intervention seemed to have a positive effect on the use of visual/spatial elements into core subjects after teachers awareness was heightened through the reading of the synopsis. Table 4 shows a substantial increase over Table 3 in the amount of implemented visual/spatial elements by teachers.

Conclusions and Recommendations

Based on the presentation and analysis of the data on the integration of art into a social studies unit, the students showed a marked improvement in test scores. The results and data on the implementation of the Stroop Effect showed a marked improvement in scores when the information was studied by these students. Based on the presentation and analysis of the use of visually aided material in teacher’s lessons, an increased awareness and willingness to implement visually aided materials into future lessons was shown in the surveys of teachers both before and after this intervention. The visual skills learned by students appear to have been transferred to their social studies lesson in that academic scores in such were improved.

Other areas of note are the transfer of information by the students into other core subjects. Students were also able to create a story about their art project that tied in both their art experiences
and their social studies experience. With the project as the motivator for the students, it allows them to become an involved and active part of their learning instead of the passive observer of a blur of information. As a form of assessment, ideas are expressed that students have encountered which increases their perception and manipulative abilities. Combining various approaches to a given subject allows for the various learning styles of students to be addressed. Projects provide an opportunity for students to draw on their senses instead of just their left brain. It is the culmination of subjects which allows the students a greater advantage when approaching new subject matter. Assessment then becomes a process and not merely an ends. Integration of subjects and an ongoing assessment causes projects to become personalized and relevant to a student's life. In the area of art for example, a vast wealth of information and project ideas can come from other Core subjects. Finding the subjects that the students are studying in a given course and drawing on them for project ideas is an approach the students are very receptive to because it allows for prior knowledge of the student to be drawn from. Hence making students more receptive to further information on the subject. It appears to be more effective to have the students be a part of their own learning experience than merely a spectator. Another area of benefit
is in the area of assessment because under these circumstances, they can be as varied as there are students and students are actually passing through assessment on their own merit thus being an active participant in assessing their own work. Every part of the project becomes a process in which students build on their knowledge. The final product becomes less significant than the transgressions of the student progressing to that point. Integration is an integral part of classes in that creativity can not draw upon a blank state.

Based on the findings of this project, the researcher has several recommendations. First, using an integrated approach to subject matter provides a means for identifying and for building on content for the student and thus provides an environment that is more conductive to learning. This enables students to excel and should be an active part of a teachers' planning for future lessons. Second, students can improve in a given intelligence given exposure to such and should have this opportunity so that they may have a chance to draw upon creative abilities thus allowing them to reach their full potential. Third, teachers need to be made aware of the advantages of incorporating multiple intelligence into their lessons both by training in their college courses and continued inservice training on the job. A heightened awareness of such showed an increase in teacher willingness to both learn about and incorporate
multiple intelligences into their classrooms. Finally, teachers should continue to research and to explore various combinations of intelligences and subject matter to give all students an equal opportunity to learn.

In conclusion, the researcher believes the ability of teachers to reach students and to allow them to learn skills lies with the ability of the teacher to continually search for more and better ways to allow students to become fully functional adults in an ever changing society.
References Cited


County Economical Report (1995) Grundy County Economical Society


State School Report Card (1995) Coal City Community Unit District #1
Appendices
Appendix A

The Stroop Effect Test (words)

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Appendix A cont.
The Stroop Effect Test (colors)
Appendix A cont.
The Stroop Effect Test (non matching)

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BLUE
YELLOW
BLUE
GREEN
BLUE
GREEN
YELLOW
RED
GREEN
YELLOW
Appendix B

TEACHER SURVEY FOR VISUAL SPATIAL INTELLIGENCE

Please estimate the frequency with which you use the following visual tools in your instruction:

_____ Visualization
___0%, ___25%, ___50%, ___75%, ___100%

_____ Color Cues
___0%, ___25%, ___50%, ___75%, ___100%

_____ Picture Metaphors
___0%, ___25%, ___50%, ___75%, ___100%

_____ Idea Sketching
___0%, ___25%, ___50%, ___75%, ___100%

_____ Graphic Symbols
___0%, ___25%, ___50%, ___75%, ___100%
Appendix C

TEACHER SURVEY

1. Has your educational background provided you with the knowledge to adequately incorporate the visual arts into your lessons?
   _____yes   _____somewhat   _____no

2. Has your educational background provided you with knowledge about the importance of teaching utilizing multiple intelligences?
   _____yes   _____somewhat   _____no

3. When teaching a new unit, do you incorporate the visual arts into your lesson plan?
   _____yes   _____somewhat   _____no

4. Please prioritize the following subjects, 1-8, as you regard their importance in a students education.
   _____Math   _____Social Studies
   _____Science   _____Art
   _____Language arts   _____Physical Education
   _____Music   _____Reading
Appendix D
Student Project
Appendix D cont.
Appendix D cont.
Student Projects
Totems
Our father is the sun. He gives us heat to live. If father didn't give us heat, we wouldn't be able to live. Father sun gave us life with everything we needed.

Our mother is the sky. She gives us stories to tell our children. Mother sky is the eyes who looks after the children. Mother sky is the memory who sees the past and past beyond.

Our brother is the whale. He gives us food to eat. Brother whale is the person who protects our children. The person who also protects us and keeps us safe.

THE END

Father Sun tall and big. He makes the heat for us to live.

Mother Sky smart and bright. She makes everything all right.

Brother Whale fast and tough. He takes care of all of us.
Once a long, long time ago there lived a Northwest family. They were making their family totem pole. Their closest totem spirits were a bird, a frog, a bull, a fish, a lizard, a animal that you can't explain, and a pole with tongues and eyes. As they finished, they planned for a potlatch. Because the dad was the chief. The shaman of their tribe came to the potlatch and the chief gave their totem pole to him. When the shaman got home, the bird started to cry and cry and cry some more. But the shaman ignored the crying bird and went along with what he was doing. When the rest of the family found out they told him to get it back from the shaman. But when he asked the shaman for it back the shaman said no. The chief got really, really mad so a war got started with the chief and the shaman. The war between the shaman and the chief lasted...
for twenty years finally it
was over and the chief
didn't make it through the
twenty year war. But finally
the chief's family got their
town back, but the bird was
still crying.

(The End)
Once upon a time, there lived a village on the Pacific coast. The name of the people were the Kachina. A man named Korok and a few other men were getting ready to go on a 3-month hunting trip. They packed all their things and set off for the woods.

A month and a half passed. But one day, the men came out of the woods. "Hey, Korok, we're back so soon!" Korok was bits by a horrible snake. He needs help fast. They had a crest big ceremony to ask the spirits to come help this sick man. But the spirits didn't help. So some men went out to get a special ingredient to make a medicine to help heal the bite. They found the plant, cut it, and hurled back. But by the time they came up, he had already died. Everyone was very sad. So they made a totem pole of his courage and life. They put the totem pole next to the burial place. And went on with their sad lives.
Appendix E cont.

FAMILY TRIBE

THIS STORY IS ABOUT MY DAD, MOM, DOG, GRANDMA, GREATGRANDMA, MY BROTHER, AND ME. ONE DAY MY DAD WENT FISHING AND CAUGHT A TEN FOOT FISH. THEN BROUGHT THE FISH HOME. BUT WHAT HE DIDN'T KNOW WAS THAT THE FISH WAS POISONOUS. HE COOKED IT. HE ATE THE FIRST BITE AND STARTED COUGHING AND STARTED GETTING PURPLE AND LOOKED PALE. LUCKILY WE HAVE A SHOMEN MY GREAT GRANDMA. SHE DID SOMETHING POISONOUS. HE COOKED IT. HE ATE THE FIRST BITE AND STARTED COUGHING AND STARTED GETTING PURPLE AND LOOKED PALE. LUCKILY WE HAVE A SHOMEN MY GREAT GRANDMA. SHE DID SOME KIND OF DANCE AROUND MY DAD AND SOME KIND OF PRAYER. AND THEN SOMETHING AMAZING HAPPENED. MY DAD WOKE UP AND SAID "I FEEL BETTER THAN EVER AND I DON'T FEEL SICK ANYMORE". THANKS TO GREAT GRANDMA DAD DIDN'T DIE. WE ARE ALL THANKFUL.

MY MOM WAS A GREAT TRIBAL WOMAN. ONE DAY SHE WAS SCRAPING BUFFALO SKIN WHILE DAD WAS HUNTING FOR BUFFALO. OUT OF NO WHERE SHE SAW DAD RUNNING FROM A HUGE CLOUD OF DUST. NEXT THING SHE KNEW SHE WAS BEING ATTACKED BY THE HERD. AS MOM LAY THERE HALF DEAD, THE SHOMON PICKED HER UP AND BROUGHT HER TO THE LONG HOUSE WHERE SHE DANCED AROUND MOM AND SAID PRAYERS TO HEAL MOTHER. SUDDENLY SHE WOKE UP AND GAVE MANY THANKS TO THE SHOMON GREAT GRANDMA.

DUSTIN KNOWN AS EAGLE TOE WAS SITTING IN HIS LITTLE GRASS HUT NEAR THE STREAM CARVING A NEW PEACE PIPE. ALL OF A SUDDEN HE HEARD AN ENORMOUS SPLASH. HE SUDDENLY SPRUNG TO HIS FEET AND RAN OUT TO THE STREAM AND THERE HE FOUND A GIANT BEAVER THAT WAS STARING STRAIGHT AT HIM. HE RAN TO HIS HUT TO GRAB HIS SPEAR BECAUSE HE KNEW THE VILLAGE NEEDED FOOD DESPERATLY. HE THREW HIS SPEAR WITH ALL HIS MIGHT AND MISSED SO HE JUMPED ON THE BEAVER AND WRESTLED IT UNDER THE WATER UNTIL IT WAS DEAD. IT TOOK THREE TRIBESMAN TO DRAG IT OUT OF THE STREAM AS THEY ALL CHEERED FOR EAGLE TOE FOR GETTING FOOD THAT WOULD LAST THEM FOR THREE WEEKS.

JENNIFER THE SMALLEST ONE IN THE TRIBE, WAS ALWAYS HELPING PICK UP BUFFALO CHIPS AND HELPING MOTHER WITH OTHER JOBS. ONE DAY JENNIFER, OTHERWISE KNOWN AS LITTLE BEAR, TOOK OFF WALKING FROM THE VILLAGE. WHILE WONDERING FROM THE VILLAGE SHE CAME UPON A LARGE PIT OF SNAKES. SHE LOST HER FOOTING AND FELL INTO THE PIT. LUCKILY A TRIBESMAN WHO HAD BEEN OUT LOOKING FOR HER CAME UPON THE PIT. AS HE LOOKED DOWN IN THE PIT HE COULD SEE NO MOVEMENT FROM LITTLE BEAR, ONLY THE SNAKES SLITHERING OVER HER BODY. HE TOOK HIS GRASS ROPE AND FIT IT AROUND HER BODY AND PULLED LITTLE BEAR OUT. HE RAN HER TO THE VILLAGE WHERE THE SHOMON WAS CALLED UPON. THE SHOMON PERFORMED A DIPPING CEREMONY TO TAKE THE EVIL SPIRITS THAT THE SNAKES HAD PUT INTO LITTLE BEAR'S BODY. ALL THROUGH THE NIGHT THE CEREMONY WENT ON, AT DAYBREAK LITTLE BEAR FINALLY CAME TO AND THE VILLAGE PEOPLE ALL CHEERED. LITTLE BEAR NEVER LEFT THE VILLAGE ALONE AFTER THAT!

SHOMON, THE WISEST AND MOST MAGICAL PERSON IN THE VILLAGE WAS OFF MEDITATING ONE AFTERNOON. AS SHE SAT IN HER SACRED PLACE, A LARGE THUMPING SOUND CAME FROM BEHIND HER. WHEN SHOMON TURNED AROUND A HAIRY MAMMOTH WAS LOOKING STRAIGHT INTO HER EYES. THE SHOMON COULD NOT THINK OF ANYTHING TO DO. BUT SCREAM AS LOUD
AS SHE COULD. WITH SUCH A LOUD SCREAM CAME MOOKIE TO HER RESCUE. HE LEAPED UP ON THE MAMMOUTH WITH ALL HIS MIGHT. HE BIT SO HARD AT THE MAMMOTHS NECK IT SENT THE MAMMOTH FLINGING MOOKIE INTO THE AIR. ONCE AGAIN MOOKIE GOT UP AND BIT AT THE MAMMOTHS GIGANTIC FEET. TERRIBLE SCREAMS COULD BE HEARD EVEN FROM THE VILLAGE. MOOKIE NEVER STOPPED FIGHTING AGAINST THE MAMMOTH UNTIL HE KNEW THAT THE SHOMON WAS SAFE ON HER WAY BACK TO THE VILLAGE. WITH MOOKIE’S LAST BITE TO THE MAMMOTHS JUGULAR, IT SENT THE GIANT BEAST TO THE GROUND. MOOKIE WENT BACK TO THE VILLAGE WHERE ALL THE TRIBES PEOPLE WERE WAITING TO HOLD A SPIRITUAL DANCE. THANKING MOOKIE FOR HIS BRAVENESS IN SAVING THE SHOMON.

GRANDMA WAS THE OWNER OF OUR LONGHOUSE AND THE TOOLS THAT WERE IN OUR LONGHOUSE. HER JOB WAS TO SCRAPE AND STRETCH THE BUFFALO SKIN WITH THE OTHER TRIBE WOMEN AND COOK ALL THE MEALS. EVERY NIGHT AS WE SAT AROUND THE FIRE GRANDMA WOULD TELL INTERESTING, SCARY, AND ADVENTUROUS STORIES. SHE ALSO TOUGHT US EVERYTHING WE KNOW, AND STILL TEACHES US. THATS WHY WE ALL LOVE HER.

OUR WHOLE TRIBE IS VERY PROUD OF ALL THAT WE HAVE DONE AND OF ALL OUR BRAVENESS. THE TRIBE IS ALSO VERY HAPPY WITH MOOKIE AND THE SHOMON (GREAT GRANDMA) FOR ALL THAT THEY HAVE DONE AND THEIR GOOD SPIRITS WITHIN THEM!

THE END
MY STORY ABOUT MY TOTEM POLE

MY TOTEM POLE REPRESENTS MY FAMILY:

FIRST, THERE IS A VULTURE THAT REPRESENTS MY BROTHER BECAUSE HE WILL KILL YOU BY ANNOYING YOU TO DEATH. HE DRIVES PEOPLE CRAZY!!!! ALSO, HE BITES YOUR HEAD OFF IF YOU SAY ONE WORD TO HIM.

SECOND, THERE IS A RABBIT. WHICH REPRESENTS MY MOM. SHE'S SOFT, CUDDLY, AND GENTLE. MY MOM LOVES RABBITS AND SHE LOVES TO HOLD THEM. SHE ESPECIALLY LIKES BABY RABBITS.

THIRD, THERE IS A DOG. WHICH REPRESENTS MY SISTER. SHE LOVES DOGS. SHE ESPECIALLY LOVES DALMATIANS.

FOURTH, THERE IS A WOODPECKER, WHICH REPRESENTS ME. I LOVE BIRDS. ESPECIALLY WOODPECKERS. IF I SEE A WOODPECKER I TAKE AT LEAST A DOZEN PICTURES OF IT. I HAVE WOODPECKER POSTERS ALL OVER MY ROOM.

FIFTH, THERE IS A SILLY SMILEY FACE THAT REPRESENTS MY DAD. BECAUSE, HE'S ALWAYS GOOFING OFF. LIKE FOR INSTANCE, HE TOOK MY COUSIN AND TURNED HIM UPSIDE DOWN AND SHOOK HIM.

OK. NOW THAT YOU KNOW WHO IS WHO. I CAN BEGIN WITH MY STORY. I COME FROM A CHEROKEE TRIBE. ONE DAY WE WERE WATCHING T.V. AND WE SAW A COMMERCIAL ABOUT A T.V. SHOW CALLED "INDIAN TRIBES AROUND THE NATION." THEY WANTED A CHEROKEE FAMILY TO COME AND TALK ABOUT WHAT SOME OF THEIR CUSTOMS WAS. THEY SAID WHOEVER CALLED FIRST GOT TO BE ON THE SHOW. THEY GAVE US THIS PHONE NUMBER TO CALL 1-800-23-TRIBE, SO WE DECIDED TO CALL. WE CALLED AND GOT THROUGH. THEY SAID WE GOT TO BE ON THE SHOW. THEY GAVE US THIS DATE AND TIME TO BE THERE 10/9/96 AT 9:00 A.M. THEY GAVE US THE ADDRESS THIS IS WHAT IT WAS: 6090 SOUTH PRAIRIE DRIVE, MORRIS IL. 60450. TODAY IS: 10/7/96 AND IT'S 6:02 P.M.

10/8/96

WE GOT UP TODAY AND EVERYBODY WAS TALKING ABOUT WHAT THEY
WERE GOING TO WEAR AND HOW THEY WERE GOING TO DO THEIR HAIR. THE
DAY WENT ON AND EVERYBODY SET THEIR ALARM CLOCK FOR 6:00 A.M.

10/9/96

TODAY IS THE BIG DAY!!! EVERYBODY IS RUSHING AROUND TRYING TO
GET READY TO GO !!! IT'S 8:00 A.M. AND NOBODY IS READY YET!!! WE'RE ALL
RUSHING EVEN FASTER. IT'S 8:40 A.M. WE HAVE 20 MINUTES TO GET
THERE!! WE'RE FINALLY READY. WE ALL PILE INTO THE CAR. SMILEY
STARTS THE CAR AND OFF TO THE SHOW. WE'RE SPEEDING DOWN THE
HIGHWAY AND IT'S ALMOST 9:00 A.M. RABBITS GETTING NERVOUS. WE
FINALLY GET THERE. WE RUN INSIDE AND JUST MAKE IT IN TIME. THE SHOW
STARTS. RABBIT SAYS A FEW THINGS. SMILEY STARTS IN, THEN DOG, THEN
ME, WOODPECKER, AND THEN VULTURE. THEN EVERYBODY TALKS A LITTLE
BIT MORE. THEN THE HOST, KYLE PETTY, STARTS TO TAKE QUESTIONS. WE
TOOK A COUPLE OF QUESTIONS AND THEN THE SHOW WAS OVER. EVERYBODY
CALMED DOWN AFTER THE SHOW WAS OVER. WE GOT 100 FREE TICKETS TO
THE SHOW, FOR DOING THE SHOW. FINALLY AFTER WE TALKED MORE WITH
KYLE WE LEFT. THE DAY WAS ALMOST OVER. AFTERWARDS, WE WENT AND
CELEBRATED. THEN WE WENT HOME AND WENT TO BED. WE HAD A LONG
DAY!!

THE
END
Appendix E cont.

My totempole represents a Hawk. The bottom of my totempole represents my dad, because it is the base of our family.

The next section represents my mom it unites the base with the upper part of the totempole, which represents the kids in our family.

Above my mom is the totem that represents me, it looks like a cloud with happiness in it.

The next section represents my guinea pig because it is furry.

The next part represents the Hawks wings.

The next part has three lines that represents my three dogs.

My next part is a Hawk that represents my bother, because he likes the Black Hawks.

The last part represents my house, because everything is underneath it and the feather are the chimney.

A long time ago Indians use to live in tepees and they were the only ones who made totempoles. But now many people can make totempole, with wood, and Indians no longer use tepees.

By: Tiffany Watson
Map of the Past (II)

Name

Below are some facts about different Native American groups. Use the map and compass rose to figure out which group belongs in each blank.

1. The ___________ lived in central Canada. They made sleds and snowshoes to travel in winter.
2. The ___________ lived in the northern part of the Plains area. They were famous for their bravery and fighting ability.
3. The ___________ lived on the shores of Lake Superior. They made dishes and baskets from tree bark.
4. The ___________ lived in eastern Canada. They were experts in building and handling canoes.
5. The ___________ lived on the southeast tip of North America, in Florida. They helped slaves who escaped in the years before the U.S. Civil War.
6. The ___________ lived near the Great Salt Lake. They went on long trips to collect different types of plants in season.
7. The ___________ lived in the middle of the Eastern Woodlands area. Many of them had large farms and plantations.
8. The ___________ lived along the northwest coast of North America. They carved tall totem poles with symbols showing their family history.
9. The ___________ lived in the central Plains area. They considered corn to be a holy gift.
10. The ___________ lived in the Southwest area, in the northern part near the California-Intermountain border. They raised sheep.
11. The ___________ lived in the Eastern Woodlands area, in the southeast part near the Plains border. They worshipped the sun.
12. The ___________ lived in the Southwest area, in the central eastern part. They made clothing from animal hides and lived in huts and tipis.
Map of the Past (I)

Name

Long before Europeans came to North America, there were more than 200 Native American tribes living here. Today there are still many American Indians, but they no longer all live in their original home areas.

On the map below, you can see where some Native Americans lived.
The Kiva

As you read this story, circle the correct word in each numbered box at the bottom of the page.

A kiva is like a Desert Indian church building. The kiva was either round or rectangular in 1. Huge kivas were used by everyone in the village. Smaller kivas were used by families. Some kivas were built above the 2. and had roofs made of mud and logs. Other kivas were large underground rooms.

According to Indian tradition, young boys were 3. to the kiva by their fathers and grandfathers. They were taught the songs, dances, and ceremonies of their people.

Rain was very 4. for the survival of the Desert Indians and was part of many events. Often kachina dancers performed ceremonies inside the 5. to keep rain falling and their crops growing.

One ceremony, called "Powama," was 6. at the end of winter in February. The men planted sprout trays 7. of bean and corn seeds. The seeds were kept moist and warm by the 8. that burned all night inside the kiva. When the new seedlings sprouted, they were taken outside for all of the village people to 9. If the seedlings were healthy, it meant that the summer crops of beans and corn would be good.

The men spent a lot of time in the kiva. It was like a clubhouse for them. They used the kiva as a workshop, for ceremonies, and meetings. Women were 10. allowed to go into the kivas except on special occasions.

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<td>dancers</td>
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<td>because</td>
<td>fires</td>
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</table>
**Kachinas**

As you read this story, circle the correct word in each numbered box at the bottom of the page.

The Desert Indians of the Southwest believed in friendly spirits called kachinas. Kachina spirits 1________ in the mountains. They were not gods. They were kind and loving spirits that were go-betweens for the people and nature. The kachinas helped the people 2________ live a good life and to respect the beauty and power of nature.

Kachina dolls and dancers were symbols of the kachina spirits. There were over 250 different 3________ of kachinas. Some were animals, birds, plants, or weather symbols.

Desert Indian people 4________ that the kachinas looked after the weather and the harvest.

Kachina dolls were carved from cottonwood roots by the men of the tribe. They were painted and 5________ with bits of shells, feathers and turquoise stones. Kachina dolls were given as 6________ to children to teach them about the power, love and spirits of the kachinas.

Each year kachina dancers performed rain ceremonies to 7________ the spirits that rain was needed for their crops. Kachina dancers were men who were trained to 8________ costumes and masks of the kachinas. A man did not become a kachina spirit, but the spirit was with him during the ceremonies. At the 9________ of the rain ceremonies, the kachina dancers would often visit the homes of the children. They would ask the children if they had been 10________ and give them gifts of food.

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<tr>
<td>1. lived/watching/hoped</td>
<td>2. travel/play/learn</td>
<td>3. kinds/dolls/spirits</td>
<td>4. wanted/believed/caught</td>
<td>5. decorated/burned/planted</td>
</tr>
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</table>
Appendix F cont.

As you read this story, circle the correct word in each numbered box at the bottom of the page.

The Woodland Indians used dugout canoes and birch 1 canoe(s) for fishing and transportation. Dugout canoes were made by hollowing out large trees.

These heavy canoes could 2 hold 10 to 15 men. Smaller lightweight canoes were made out of birch bark.

To learn about how birch bark canoes were made, we need to 3 listen more about birch trees. The birch tree used for making birch bark canoes is called the "Paper Birch" or "White Birch." Sometimes it is also called "Canoe Birch." The Paper Birch 4 grows to be from 60 to 80 feet tall. The bark from these trees grows in horizontal sheet-like layers. A 5 small birch tree may have as many as nine layers of bark.

In the springtime when the birch trees are moist and pliable, they are 6 pushed down. The bark is carefully peeled off 7 large sheets. The outside layers of bark are thick and white. Thinner brownish colored layers are 8 under. After the bark is peeled, it is shaped, 9 because dark side out, over a hardwood canoe frame. It is sewn together 10 with spruce tree roots. Then it is allowed to dry and is sealed with pine tree gum to make it water water tight.

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<td>bark</td>
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<td>know</td>
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Appendix F cont.

Name __________________________

Canoes

As you read this story, circle the correct word in each numbered box at the bottom of the page.

The Coastal Indians were sometimes called "canoe Indians." Canoes were used as

1. _____ for fishing, trading, visiting, and going to war. Shovel nose canoes were small and made to be used for traveling and fishing in rivers. Large, 50 foot-long sharp nose

2. _____ were used for whale hunting. They could carry 20 to 30 people and cut easily through 3. _____ ocean waters.

3. Canoes were made from half of a cedar log. The log was roughly shaped by splitting off slabs of wood. The inside was hollowed out by 4. _____ burning and scraping away the charred wood. Then, the hollowed-out center was 5. _____ with water. Hot rocks were dumped 6. _____ the canoe to warm and soften the wood. Wooden crosspieces were put in the center of the canoe to 7. _____ the sides and make the canoe wide in the middle and narrow at the ends.

8. After the canoe was stretched and shaped, the water was then dumped 9. _____.

9. The canoe was allowed to dry. When it was dry, it was sanded to make it 10. _____ . The rough dried skin of shark or dogfish was used for sandpaper. When the sanding was

10. _____ , the Coastal Indians rubbed the canoe inside and out with whale oil to give it a waterproof seal and preserve it. Canoes were kept covered with mats when they were not being used. The Indians knew that if they damaged their canoes, it would take a long time and a lot of hard work to make a new one.

| 1. housing | 2. canoes | 3. smooth | 4. slowly | 5. chilled |
| transportation | longhouses | light | chopping | carried |
| traveling | trees | rough | quickly | filled |
| 6. out | 7. close | 8. out | 9. bumpy | 10. started |
| into | stretch | underneath | clean | finished |
| over | break | into | smooth | work |
Appendix F cont.

<table>
<thead>
<tr>
<th>Name</th>
<th>Food Source</th>
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**Hunting the Buffalo**

Buffalo meat was a major food source for many Plains Indians. Before these Indians had horses, they had to hunt on foot for buffalo. Because buffalo have poor eyesight, Indians could get very close to them before being discovered. Then men could use spears or arrows to kill the animals. Sometimes Indians forced the buffalo over cliffs. When the animals landed below, the Indians killed any of the animals that were still alive.

Once a buffalo was killed, it was cut up right away. The most prized parts of the buffalo, such as the tongue, were cooked and eaten as the butchering took place. Then parts of the buffalo were loaded onto a dog travois and taken back to camp. A travois was a type of sled made out of two poles attached to a dog's shoulders. When the buffalo reached the Indian camp, the women tanned the hides and made pemmican, a mixture of berries, animal fat, and dried meat similar to our beef jerky.

There were two major buffalo hunts each year. The biggest hunt of the year took place in the fall. At that time the buffalo had put on weight for the cold winter ahead and they were the fattest they would be all year. Their coats were heavy with wool to protect them against the cold. Indians used the wool and skins and preserved the meat for food throughout the cold winter months. In the spring another hunt took place. This hunt was only for meat and skins. By spring, buffalo had shed their winter coats for the warmer weather.

Great ceremonies were held before buffalo hunts. The Indian men painted themselves and danced in the center of the Indian village. In some tribes, men wore huge hats with buffalo horns as they danced. They asked the spirit of the buffalo to help them have a good hunt.

1. What is a travois?
2. How were buffalo killed before Indians had horses?
3. When were the major buffalo hunts held? Why?
4. Why did Indians have special ceremonies before buffalo hunts?
Appendix F cont.

Name

Meeting Basic Needs

How the Buffalo Was Used

Plains Indians had over two hundred uses for buffalo. They used almost every part of the animal. Rawhide was made from the skin of the buffalo. Indian women made it by stretching a hide and drying it in the sun. Then they scraped all the flesh, hair, and fat from it. The result was a strong, thick leather.

Buffalo hide had many uses. It was tanned and made into tepee coverings, robes, blankets, and clothes. Sometimes the shaggy hair of the buffalo was left on the hide to give warmth. Plains Indians stretched buffalo hide to make drums. They also made a round boat called a bullboat out of willow covered with buffalo hide. Even saddles and the shields used in battle were made from the hide.

The hide was not the only useful part of the buffalo. The buffalo sinew, or tough cord of tissue, was used as thread. Indian women sewed tepee coverings and clothing using it. The buffalo stomach was used as a cooking pot, and buffalo shoulder bones were used as hoes. Paint brushes and decorations were made from the hair. The Indians also hollowed out the horns to create eating and drinking utensils. Wearing a buffalo horn headdress was considered one of the highest honors in an Indian society.

Buffalo meat was very important to the diet of Plains Indians. Often it was sliced into thin strips and dried to make jerky. This food could be kept for long periods of time. It was carried by groups moving from place to place and was eaten without further cooking. Sometimes this dried meat was combined with mashed berries and animal fat. This mixture was called pemmican.

1. Why was it very important for the Plains Indians to have successful hunts?

2. Do you think the Plains Indians would have stayed on the plains if there were no buffalo? Why or why not?
Longhouses

As you read this story, circle the correct word in each numbered box at the bottom of the page.

The Coastal Indians lived along the shores of
1. ______ water rivers or near the salt water of Puget Sound and the Pacific Ocean. Their winter
2. ______ were called longhouses.

Longhouses were made of large overlapping cedar
planks. They had pointed roofs to 3. ______ the rain.

Some of the longhouses 4. ______ 200 feet long. These homes were so large that several
families could live together inside.

There were 5. ______ windows in the longhouses. Large fires burned in the middle of
the dirt floor. A hole in the roof allowed the 6. ______ from fires to escape. Cedar and
cattail mats were hung up to make small rooms for the families. The mats were 7. ______
for rugs and mattresses.

The floor of the longhouse was covered with cedar 8. ______ shavings. If the floor got
dirty, the shavings were swept outside and new shavings were 9. ______ down on the
floor.

The Coastal Indians lived in longhouses from November to April each year. The
summer homes of the Coastal Indians were simple lean-tos or huts called cattail
mathouses. The outside was 10. ______ with cedar bark mats and cattails. These homes
could be easily moved from place to place in the summer as the Indians gathered food to
prepare for the next winter.

1. cold  2. canoes  3. hold  4. were  5. near
cold  fresh  homes  catch  lasted  not
warm clothing  shed  was  no

6. chimney  7. used  8. splinter  9. thrown  10. under
smoke  made  seeds  hung  covered
tak  bark  gathered  nailed
"Klahowya Sikhs"

Look at the list of words in the word box. They are words you will learn about as you study the Coastal Indians. Unscramble the letters of each word at the bottom of the page and fill in the word puzzle. One letter for each word has been written for you. When your puzzle is complete, you will have a Chinook Indian greeting.

Blanket
Tribe
Ceremony
Totem
Potlatch
Symbol
Spawn
Coastal
Longhouse
Basket
Honor
Salmon
Canoe

1. HLOONUSGE  8. PWSAN
2. TSCAOAL    9. OAHPCTLT
3. NLMAOS      10. AONEC
4. NREYOECEM   11. TMEOT
5. SEBKAT      12. BSILMOY
6. ALETBNK     13. ITEBR
7. NHOOR

KLAHOWYA Sikhs in Chinook Jargon means "hello friend!"
Look for each of these Native American Tribes in the word search. The names can be found either across or down.

Tribes Word Search

- CHEROKEE
- SEMINOLE
- IROQUOIS
- COMANCHE
- CHEYENNE
- SIOUX
- PUEBLO
- APACHE
- NAVAJO
- CHINOOK
- NEZ PERCE
- SALISH
Appendix F cont.

Name ____________________________

Clues:
1. cone-shaped skin tents
2. Indian "suitcases"
3. bison
4. Indian groups
5. people living without permanent homes
6. soft leather used for clothing
7. dried meat
8. grass lands
9. type of sled for hauling
10. kind of weapon
11. quick, deerlike animal
12. shoes made of buffalo hide

This symbol means "sue". The one in the puzzle is "friendship."

BEST COPY AVAILABLE
Indian State Names

Thousands of places in the United States have names taken from Native American languages. Many cities, towns, mountains, and rivers are named for the people who first lived in the area.

Eight of the states in the United States got their names from Native American Tribes.

Unscramble each group of letters to make the name of a state. Each state's name came from the name of a Native American Tribe.

1. NASSAK
2. ROISMIUS
3. HUTA
4. SAANKSRA
5. SLINLIOI
6. WOAI
7. CHAMGINI
8. MABALAA
Appendix F cont.
Chapter 4 Part 2

Major Indian Groups: Review

**Directions:** Write the word from below in the correct blank.

<table>
<thead>
<tr>
<th>Pueblo</th>
<th>travois</th>
<th>totem</th>
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<tbody>
<tr>
<td>potlatches</td>
<td>staple food</td>
<td>assembly</td>
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<tr>
<td>Nomads</td>
<td>Hogans</td>
<td>kayaks</td>
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1. Eskimos used canoes called_______. (122)
2. A _________ is a type of carrier used to transport ones belongings. (116)
3. Indians of the Great Plains who had no fixed dwellings were called_______. (116)
4. _________ is the Spanish word for village. (120)
5. _________ are the round or six sided dwellings made from logs and dried mud. (120)
6. _________ were forms of animal spirits that the Northwest Coast Indians believed in. (121)
7. The food that people depend on most for their nourishment is called_______. (119)
8. An _________ is a law-making body. (119)
9. _________ are the great feasts hosted by the chiefs of the tribes. (121)

**Directions:** Circle the correct answer

10. The flat treeless land that stays frozen much of the year. (122)
   swamps    desert    tundra

11. Dwellings of the Plains Nomads that were made by lashing poles together to make a cone were: (116)
   tepees    adobes    hogans

12. House made of snow blocks: (122)
    adobes    igloos    tepees

13. Ground cover that includes grass and grass roots is: (115)
    sod        potlatches    cedar bark

14. Circular houses built over shallow pits were called: (115)
    adobes    lodges    tepees
Directions: Write the letter of the answer that best completes each sentence in the blank.

15. These Indians depended on the buffalo for their food and shelter. (116)
a. Great Plains
b. Columbia Plateau
c. Northwest Coast

16. Because their main foods came from gathering and hunting the Indians of the ___?___ were similar. (118-119)
a. Great Plains, Great Basin, and California
b. Great Basin, California, and Columbia Plateau
c. Great Plains, Northwest Coast, and Eskimos

17. Acorns were the staple food of the: (119)
a. Eskimos
b. Columbia Plateau Indians
c. California Indians

18. This group of Southwest Indians farmed and lived in villages. (120)
a. California Indians
b. Pueblo Indians
c. Columbia Plateau Indians

19. These two groups of Indians were similar because they depended on hunting and fishing. (121-122)
a. Northwest Coast and Eskimos
b. California and Columbia Plateau
c. Eskimos and Great Basin

Directions: Write the word True or False in the blank.

20. Life for the Columbia Plateau Indians depended on cooperation in hunting buffalo. (116-117)
21. Indians of the Northwest Coast had acorns as their staple food. (119)
22. The Indians of the Columbia Plateau chose both men and women to serve as chiefs and shamans. (119)
23. Hopi “means peaceful”. (120)
Directions: Use complete sentences and proper grammar to answer the following.

Which animal did the Great Plains Indians depend on to meet their needs? Explain how the Indians used this animal. (116-117)
Major Prehistoric Indian Sites and Tribes

Picture Commentary

**Picture 1: Mother and Child, Hopewell Culture**

This ceramic figure was found by archaeologists in a burial mound in the Ohio Valley in a site called Hopewell. The Hopewell people were part of the Mound Builders culture of the Mississippi Valley area. The earliest civilizations of what later became the United States. The Hopewell culture produced many different kinds of grave offerings to be buried with the dead. This small sculpture shows a mother and child—the most common theme of the figures found in the burial sites. Many of these pottery sculptures represent women in everyday activities. From everyday items like these, archaeologists have been able to learn about the way of life of these prehistoric peoples and how their customs were handed down to modern times. For example, in some of the Hopewell sculptures the women sit with both legs tucked to one side, a tradition that the Sioux Indians have continued.

**Picture 2: Stone Effigy Figure, Mound Builders Culture**

The prehistoric Mound Builders culture produced many interesting figures with one hand resting on a raised knee. This fascinating example is from Arkansas. It was made about 200 B.C. The figure is both artistic and functional and seems to be the work of a skilled artist. Each well-crafted sculpture by Mound Builders peoples have been found across a large section of the eastern United States, indicating their artistic abilities. They may have been objects of worship. They may have been buried with the dead, or they may represent ancestors. Some are male and some female. Few are preserved today, because the Spanish invaders considered them to be examples of heathen idols and destroyed them.
Appendix G cont.

**Picture 3**
Princess Burial Mound, Mound Builders Culture

This extraordinary structure was unearthed in a burial mound at the southwest corner of the Southern Village. The people of this culture lived in large villages with massive ceremonial buildings called mounds. They traded with other peoples from hundreds of miles away—perhaps as far away as Mexico.

Great evidences of the ceremonial complexes included huge stones, and complex, "false" door burials. Burial mounds show that the ancestors and wealthy lived in a high level of luxury, with exquisite houses, jewelry, personal items, and personal items. Important items were found, including the remains of the deceased. These remains have been studied by many archaeologists, who have determined that the mound builders lived in large, complex societies.

This mound is known as the Princess Mound because the body was found to be that of a young girl. The mound itself is a large, complex structure, and was called the "Prince" mound by the mound builders themselves.

**Picture 4**
Jug from Mound Builders Culture

The clay figure seen here is a typical example of this culture. It was found in the Mississippi River at an archaeological site, the largest mound culture in the United States. This occurs in the southern United States, and is associated with the ceremonial complexes of the Mound Builders culture.

Although this clay figure looks like a statue, it is actually a useful object in the form of a clay vessel.

Through the great civilization that produced these ceremonial complexes, the clay figures were produced by about 1200, hundreds of thousands of clay figures spread out across large areas of the continent. Much of what we now know of Indian culture is based on the discovery of these ceremonial complexes.

**Picture 5**
Cliff Palace, Mesa Verde, Colorado

Though the picture shows the Mound Builders have vanished, we can see two forms of architecture: natural and man-made structures. In about A.D. 1200, the main site in the Southwest began building large mudbrick structures on top of large earthen mounds. These structures were called cliff dwellings, and were built out of mud and stones. The cliff that rises above the mesa was a natural cliff, and the cliff dwelling built above it was a cliff dwelling.

Built on ledges on the face of sheer cliffs, the positions of the Ancestral Puebloans represent the ancient architectural achievements of North American cultures.

Although the cliff dwellings were abandoned in the fourteenth century, descendants of the Ancestral Puebloans in the Southwest continued to construct cliff dwellings in more accessible areas, and some are still occupied today.

**Picture 6**
Mimbres Pottery Bowl

Long before the Spanish came to New Mexico, a culture called Mimbres began producing extremely detailed black-on-white pottery. The Mimbres people decorated their pottery with complex geometric patterns, such as spirals and zigzags, and other representations of natural forms. Mimbres pottery decoration included geometric patterns, spirals, and zigzags with some of the earliest known painted and modeled forms in the Americas. This example, discovered on two occasions and a fish, was made in the sixteenth or seventeenth century. Notice how the complex use of design on this example is an important feature of the Mimbres people. The figures made here symbolized the power of the deities of the Mimbres people. The bowls are decorated with a deer, a fish, and a wolf, among other designs.

**Picture 7**
Cave Painting from Texas

The painting was discovered in one of the most beautiful caves in the United States, the Pecos River area of Texas. The great cave figures are a classic example of the tradition of cave paintings, and are the oldest known examples of human art in the Americas.

The painting is a series of geometric patterns, including spirals and zigzags, and other representations of natural forms. Mimbres pottery decoration included geometric patterns, spirals, and zigzags with some of the earliest known painted and modeled forms in the Americas. This example, discovered on two occasions and a fish, was made in the sixteenth or seventeenth century. Notice how the complex use of design on this example is an important feature of the Mimbres people. The figures made here symbolized the power of the deities of the Mimbres people. The bowls are decorated with a deer, a fish, and a wolf, among other designs.

**Picture 8**
Rock Painting from Southern California

Some of the most enduring prehistoric paintings on the continent have been found in Southern California. These are some of the few major rock art areas where Indian rock painting has been preserved. The whole of Southern California contains many rock art sites, and some have been preserved by various organizations.

The rock paintings in this example were probably painted during a religious ceremony, and may have been an important ritual.

**Picture 9**
Chumash Rock Painting

Here is another example of southern California rock painting, made by the Chumash people. The Chumash people were one of the largest groups of people in this region, and are believed to be the first people to live in this area.

The rock paintings in this example were probably painted during a religious ceremony, and may have been an important ritual.

**Picture 10**
Prehistoric Arctic Carving

Some of the earliest known prehistoric art on the continent comes from this group. The paintings are found in the Inuit culture, and are believed to be the first people to live in the Arctic region.

Inuit art has been preserved in various ways, including in natural rock formations and on animal hides. The paintings are not easy to date, but have been found in various locations in the region.

These carvings are not easy to date, but have been found in various locations in the region. They are believed to be from the Ice Age, and may have been created by the first people to live in the region.

**Picture 11**
Eskimo Bowls

Here is another example of strikingly realistic Eskimo art. This decorative style is known as the "Eskimo style," and is characterized by the use of natural forms, such as animals, plants, and insects, to create realistic representations.

Eskimo art is a very important part of the culture of the Arctic, and has been preserved in various ways, including in natural rock formations and on animal hides.

These carvings are not easy to date, but have been found in various locations in the region. They are believed to be from the Ice Age, and may have been created by the first people to live in the region.
Appendix G cont.
Appendix G cont.

PICTURE 26 Hopi Baskets

Hopi baskets from the South West are also among the most highly prized, for both their craftsmanship and their unique design elements. baskets were designed and basket makers, who worked them in their homes, around the area. As the baskets were made from various types of small branches and twigs, the design elements that are used to create these baskets are quite varied. Some of the most common design elements include: color, shape, and texture. The colors used in these baskets are often muted tones such as browns and greys, while other baskets use brighter colors such as reds and yellows.

PICTURE 27 Navajo Rug Detail

The Navajo rugs are world-renowned for their skill in weaving. Navajo women would typically weave a rug on a small loom. They would then move to a larger loom for a larger rug. The colors used in these rugs are often muted tones such as browns and greys, while other rugs use brighter colors such as reds and yellows.

PICTURE 28 Navajo Storm Pattern Rug

While Navajo rug design seems purely decorative at first glance, it can also be seen as a collection of ancient threads of landscape and nature. The designs are said to represent a storm. The colors, geometric, and other regular patterns are symbols of the southwestern area, thunder and lightning. The designs are created using red, white, and black wool. The designs can be seen in the natural world, such as clouds, storms, mountains, and water.

PICTURE 29 Navajo Rug Detail (Four People)

In the late 19th century, the Navajo began to sell their rugs and blankets to outsiders, including robot trading posts, who brought them to their homes around the world. At the 19th century, the Navajo began to sell their rugs and blankets to outsiders, including robot trading posts, who brought them to their homes around the world. In the 20th century, the Navajo began to sell their rugs and blankets to outsiders, including robot trading posts, who brought them to their homes around the world.

PICTURE 30 Navajo Silver Jewelry

Silver jewelry made by the Navajo is famous worldwide. The designs can be seen in the natural world, such as clouds, mountains, and water. The designs are created using red, white, and black wool. The designs can be seen in the natural world, such as clouds, mountains, and water. The designs are created using red, white, and black wool. The designs can be seen in the natural world, such as clouds, mountains, and water.

PICTURE 31 Pueblo Pottery Jar

The most admired pottery in the world is the Pueblo pottery of the Southwest. It is decorated with designs that are based on the natural world, such as clouds, mountains, and water. The designs are created using red, white, and black wool. The designs can be seen in the natural world, such as clouds, mountains, and water.

PICTURE 32 Zuni Pottery Water Jar

Here is another way of looking at the natural world, with its own unique design elements. The Zuni community is known for its vibrant and colorful pottery, and these designs are no exception. They are based on designs that can be seen in the natural world, such as clouds, mountains, and water. The designs are created using red, white, and black wool. The designs can be seen in the natural world, such as clouds, mountains, and water.

PICTURE 33 Hopi Headdress Mask

Here we have a Hopi headdress basket mask. These masks are used in the Zuni community, and are passed down from generation to generation. They are typically made from wool, and are often decorated with designs that can be seen in the natural world, such as clouds, mountains, and water. The designs are created using red, white, and black wool. The designs can be seen in the natural world, such as clouds, mountains, and water.

PICTURE 34 Hopi Kachina Doll

This is a small model of a kachina doll. Kachina dolls are given to Hopi children to play with and to hang in their homes. They are made from wood, and are decorated with designs that can be seen in the natural world, such as clouds, mountains, and water. The designs are created using red, white, and black wool. The designs can be seen in the natural world, such as clouds, mountains, and water.

PICTURE 35 Navajo Sand Painting

Among the most impressive of the Navajo Sand Paintings is the Wooden House. It is made from a special type of sand that is found in the Wooden House. The designs are created using red, white, and black wool. The designs can be seen in the natural world, such as clouds, mountains, and water.
Appendix G cont.

Picture 37: Pawnee Drum

Stylishly designed, the Pawnee Drum was widely used and held important significance in the tribe. This drum was made by Pawnee Indians who lived in Kansas and Nebraska. It is made of painted wood, hair, and sinew. The drumhead is made of deerskin, and the sticks are made of wood. The drum is used to accompany dances and songs during religious and ceremonial events. The drum is decorated with intricate designs, including feathers, beads, and embroidery, representing the Pawnee people's culture and history.

Picture 38: Plains Indian War Shirt

The Plains Indian War Shirt was a symbol of power and bravery. Made of deerskin and decorated with beads, porcupine quills, and feathers, the shirt was worn by warriors during battles. The shirt was considered a mark of honor and was often passed down from generation to generation. The patterns and designs on the shirt were believed to bring good fortune in battle and were considered symbols of strength and courage.

Picture 39: Tashome Rawhide Shield

The Tashome Rawhide Shield was a protective tool used by the Plains Indians during battles. Made of deerskin and decorated with porcupine quills, the shield was carried on the back of the warrior and used to protect him from enemy attacks. The shield was also used as a symbol of strength and courage, and the designs on it were believed to bring good fortune in battle. The patterns and designs on the shield were considered symbols of strength and were often passed down from generation to generation.

Picture 40: Crow Quilled Shield

The Crow Quilled Shield was a symbol of honor and bravery. Made of deerskin and decorated with porcupine quills, the shield was worn by warriors during battles. The shield was considered a mark of honor and was often passed down from generation to generation. The patterns and designs on the shield were believed to bring good fortune in battle and were considered symbols of strength and courage.

Picture 41: Sioux Horse Effigy

The horse effigy was a symbol of power and bravery. Made of deerskin and decorated with porcupine quills, the effigy was carried on the back of the warrior and used to protect him from enemy attacks. The effigy was also used as a symbol of strength and courage, and the designs on it were believed to bring good fortune in battle. The patterns and designs on the effigy were considered symbols of strength and were often passed down from generation to generation.

Picture 42: Chippewa Saddle

The Chippewa Saddle was a symbol of power and bravery. Made of deerskin and decorated with porcupine quills, the saddle was used by warriors during battles. The saddle was considered a mark of honor and was often passed down from generation to generation. The patterns and designs on the saddle were believed to bring good fortune in battle and were considered symbols of strength and courage.

Picture 43: Dakota Sioux Purse

The Dakota Sioux Purse was a symbol of power and bravery. Made of deerskin and decorated with porcupine quills, the purse was used by warriors during battles. The purse was considered a mark of honor and was often passed down from generation to generation. The patterns and designs on the purse were believed to bring good fortune in battle and were considered symbols of strength and courage.

Picture 44: Dakota Sioux Winter Coat

The Dakota Sioux Winter Coat was a symbol of power and bravery. Made of deerskin and decorated with porcupine quills, the coat was used by warriors during battles. The coat was considered a mark of honor and was often passed down from generation to generation. The patterns and designs on the coat were believed to bring good fortune in battle and were considered symbols of strength and courage.

Picture 45: Plains Indian Buffalo Hide Painting

The Plains Indian Buffalo Hide Painting was a symbol of power and bravery. Made of deerskin and decorated with porcupine quills, the painting was used by warriors during battles. The painting was considered a mark of honor and was often passed down from generation to generation. The patterns and designs on the painting were believed to bring good fortune in battle and were considered symbols of strength and courage.
Appendix G cont.

PICTURE 46 Crow Shield

The dramatic changes brought about by the coming of white people can be seen in Plate 46 or by studying the different ways in which the same ceremonial shield, which was once owned by the Crow chief, Big Bear, was painted by various artists around the United States. They were handsome and forceful warriors. This shield is made of painted buffalo hide and buffalo. Its design shows clearly how the white people and their customs influence the designs of ceremonial regalia. The shield bears a picture of a bull and a human figure, while the bear is shown riding a horse. It has been used in various ceremonies and is considered a sacred object by the Crow people.

PICTURE 47 Sioux Pictograph

A color reproduction of the Sioux pictograph which is a traditional method of communication used by Native American tribes. It is composed of a series of symbols and images. The pictograph was used to record events and tell stories. It is depicted in a traditional manner, with animals, people, and nature. The symbols are arranged in a sequence that conveys the meaning of the message.

PICTURE 48 Apache Ghost Dance Dress

This Apache dress represents one of the most tragic periods in tribal history. From 1890 to 1900, Plains Indians living in southwestern United States were influenced by the Ghost Dance movement, which was started by Wile. They developed a new art form, the Ghost Dance, which was a symbol of their resistance and a means of communication. The Ghost Dance dress is made of cloth and beads, and it is worn during the Ghost Dance ceremonies.

PICTURE 49 Chipewa or Ojibwa Doll

The woodcarved face of the Chipewa or Ojibwa doll is a traditional symbol of the tribe. It is made of wood and is painted with red and black colors, which are believed to represent the spirit world. This doll is an example of the Chipewa or Ojibwa people's craftsmanship and cultural heritage.

PICTURE 50 Inca Mask

The Inca mask is a symbol of the Inca civilization. It is made of gold and silver and is adorned with precious stones. The mask is believed to represent the sun god Inti, who was worshiped by the Inca people.

PICTURE 51 Omonda Riddle Face Mask

Here is an example of an Omonda riddle face mask. The mask is made of wood and has a red and black color scheme. It is believed to represent the spirit world and is used in various ceremonies. The mask is a symbol of the tribe's cultural heritage and is passed down from generation to generation.
Appendix G cont.

**PROMONOUNCE GUIDE**

<table>
<thead>
<tr>
<th>Pronunciation</th>
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</tbody>
</table>

**Glossary**

- **Shed**—small ovoid body of the Pacific Coast whose oval-shaped shell, lusted with mother-of-pearl, was used in Pacific Coast Indian art.
- **Abstract Design**—nonrepresentational art, it does not try to be realistic—certainly, it emphasizes lines, colors, forms, and arrangements of patterns.
- **Adobe**—un-dried brick of earth and straw, used by Pueblo Indians to make their homes.
- **Archaeologist**—person who scientifically studies historic and prehistoric people and their cultures through remains that have been unearthed.
- **Artifacts**—small object made by human beings, especially of historic interest.
- **Bandolier Bag**—bag worn slung across the chest to hold ammunition.
- **Beadwork**—technique of decorating objects with beads.
- **Buffalo**—large animal of the deer family that provides (now fur, skin for housing, and other necessities of life.
- **Ceramic Ware**—objects made from clay or a similar material and finished by firing (heating) a form to a desired temperature and then used for housing, and other necessities of life for Eskimos and other northern Native Americans.
- **Effigy**—image of a person or animal, especially a sculptured image.
- **False Face Society**—supernatural being or mask of the being punished for being beautiful by having to spend eternity curing the sick.
- **Figure**—small ornamental figure of pottery, enamel, wood, or some other material.
- **Geometric Design**—design that emphasizes lines and angular shapes in space.
Appendix G cont.

Ghost Dance religion—religious movement among western and Plains Indians, introduced by a Paiute prophet in 1899; the emphasis was a ceremonial dance.

Ghost Dance—ritual dance that is a major part of the Hopi and Pueblo dances, used by Native Americans in the far north in mass carved and sculpted artwork.

kayakers—paddlers using watercraft with a skin cover over a light framework, built using canoes, canoes, or other boats encased to make boats with flat bottoms.

longhouses—long, communal buildings of the Inuit and some other Native Americans, consisting of a wooden framework covered in bark.

loom—the device used to weave fabric.

magic—the set of producing a desired effect by using supernatural agencies and forces of nature.

mediation case—another term for shamans; a person believed to have supernatural powers for healing the sick.

mesa—a Spanish word meaning “table,” applied to a flat-topped hill with steep sides, standing alone, and found in the southwestern United States and Mexico.

moosewood—soft, leathery bark that was often decorated with quillwork, beadwork, or wampum embroidery.

nomad—living in temporary communities, moving around from place to place.

op art—style of abstract art that stretches forms and space in a way that produces optical illusions.

palate—the surface used by a painter to hold and mix different color paints.

parfleche—small trunk or box used to carry dried meat and other articles, made from stiff rawhide.

pictograph—a record of an event made with pictorial symbols, as in prehistoric cave paintings.

plaque—a large stone with a relatively flat surface that rises sharply on at least one side from the surrounding land, common in the U.S. Southwest.

podesta—grand ceremonial dance of Northwest Coast Indians.

pre-Columbian—occurring before the arrival of Columbus in the Americas.

prophets—occurring before written or recorded history, as envisaged by archaeology.

pueblo—large communal building that housed an entire village.

quillwork—technique of using flattened and dyed porcupine quills to decorate tribal objects.

rawhide—untanned (raw) animal skin.

reservation—a piece of U.S. public land set aside as a place for Indians to live.

salmon—saltwater and freshwater fish important to Northwest Coast Indians.

sand painting—a symbolic, usually Navajo artwork “painted” on a background of sand, using sand and natural dyes of different colors as “paint.”

shamans—a holy man and mystical leader; part priest, part magician, part doctor.

shield—a broad piece of defensive armor; Plains Indian warriors carried decorated shields made of animal hide into battle.

smallpox—contagious, infectious disease introduced to the Americas by Europeans; because Native Americans had not developed any immunity to the disease, smallpox killed vast numbers of them.

spindle—a device used to spin fibers for weaving.

stylized designs—designs that conform to a particular style or convention of art.

symbols—representing things by symbols or images that have a set of meanings, or that stand for something other than what they are.

symmetrical designs—well-proportioned design characterized by matching forms or arrangement of parts.

tapestry—cloth made of wool stretched around a frame of poles, used especially by Plains Indians.

thatched roof—roof covered by grass, straw, reeds, or leaves.

thunderbird—a large, eagle-like, mythical bird believed by western American Indians to cause thunder and lightning.

totem pole—tall carved and painted pole showing a family's history and status in the community, created by Northwest Coast Indians.

trading—formal peace agreements, such as those made between white governments and Indian tribes.

turquoise—blue, greenish blue, or greenish grey mineral, valued as a gemstone when it is pure blue, often used in Southwest Indian jewelry.

wampum—blue and white beads used to decorate tribal objects and as currency; replaced by glass beads introduced by white settlers.

war shirt—carefully embroidered shirt worn into battle; the shirt was supposed to demonstrate the wearer's bravery and protect him from injury.

winter count—Sioux drawings of buffalo killed that were pictorial calendars and chronicles of events; the drawings was added to each year.

yucca—stiff-leaved plant, sometimes in thistle-like form, found in warmer areas of the Americas.
Appendix G cont.
As I stand in this special place, I feel the presence of my ancestors. I hear their voices in the wind, reminding me to respect the earth and all its creations. This is an Arapaho song of respect for Mother Earth.

Appendix G cont.
in The Sky

The scene in the hot, dry tropical and desert ecosystems, the sun in the sky above the land, under the heat, and the soil drying up. They used water and shade to build homes and stay cool. The sun would later raise to brighten up the area.

The sun would then decay, giving birth to the birth of red and orange. The viewing would be diminished at the end of the day, as the sun would sink down. The nights would then decline, giving birth to the birth of red and orange. The sun would then decay, giving birth to the birth of red and orange. The nights would then decline, giving birth to the birth of red and orange.

Soon I shall vanish and be no more, But the earth on which I now roam Shall remain And change not. — Omaha Tribe

Contact information:
Please contact the author or the address below for more information.

BEST COPY AVAILABLE
Native American Art
Tribes of the Totem

Artists of Today:
What kind of works are today's Native American artists creating?

Visual Links
Contemporary American artist Jaune Quick-to-See Smith, who is Nimiipuu, Nez Perce, and Flathead, is known for her multimedia art, which includes beadwork, videos, prints, and murals. Her works often incorporate natural elements and traditional indigenous designs.

Perfecting Tradition
Many Native American artists today are embracing traditional techniques and subjects, while also incorporating modern elements. This balance allows them to honor their cultural heritage while also reaching new audiences.

Ironic Images
'Ironic Images' is a project that explores the intersection of indigenous art and popular culture. Artists create works that comment on the commodification of Native American culture in popular media.
Americans

Next year, in 1992, this country will be celebrating an important event. Does the year 1992 sound familiar? Yes, it marks the 500th anniversary of Columbus's visit to America on October 12, 1492. In the past, Americans were taught that after Columbus arrived in the New World, the Native Americans welcomed the white invaders and helped them settle in. However, this is not the truth. The Native Americans were not happy with the white people's arrival, as they had been living in the Americas for thousands of years. The Native Americans had their own customs and traditions, and they did not want to share their land with the white invaders. The Native Americans fought back, and some of them even died in the process.

As the years passed, the Native Americans were forced to give up their lands and customs. They were moved to reservations, where they were not allowed to hunt or fish. The Native Americans were also forced to learn English and adopt the white people's customs. This was a difficult process, and many Native Americans struggled to adapt. However, they never gave up their cultural heritage. The Native Americans continued to speak their own languages and practice their own customs.

The Native Americans' struggle for survival continues to this day. They are still fighting for their land and cultural heritage. The Native Americans have fought for their rights and have won some victories. However, they still face many challenges. The Native Americans are still discriminated against and are not treated equally. They are still struggling to survive.

The Native Americans are a proud and resilient people. They have a rich and diverse culture, and they continue to fight for their rights. The Native Americans are a reminder of the importance of respecting cultural diversity. We must learn from the Native Americans and work to create a more inclusive and equitable society.

People of the Plains

"Friend, in polite life the customs are many. Friend, those are not my interest." —LAKOTA (SIOUX) WAR SONG

The words of the Lakota are below reflect the art of the Native Americans who lived in the region stretching from the Mississippi River to the Rocky Mountains.

The Native Americans were skilled warriors who were known for their bravery and cunning. They were also skilled hunters and farmers. The Native Americans were able to survive in the wilderness because they knew how to adapt to their environment. They were also able to live in peace with nature, and they respected the land.

The Native Americans were also skilled artists. They created beautiful works of art, such as beadwork, pottery, and painting. The Native Americans used these works of art to tell stories and to express their emotions. The Native Americans' works of art are a testament to their creativity and their dedication to their culture.

The Native Americans are a proud and resilient people. They have a rich and diverse culture, and they continue to fight for their rights. The Native Americans are a reminder of the importance of respecting cultural diversity. We must learn from the Native Americans and work to create a more inclusive and equitable society.
Land of the Sun

The white bean and the great corn plant are tied with the white lightening. Listen! Rain approaches!

—Navajo Song

The Navajo people believe that the white bean and the great corn plant are tied with the white lightening. This is a reference to the myth of the creation of the world. The white bean represents the earth, and the great corn plant represents the sky. The white lightening is the connection between the two, symbolizing the balance between the earth and the sky. In this myth, the Navajo believe that the white bean and the great corn plant are tied together by the white lightening, which represents the unity of the world. The myth of the creation of the world is an important aspect of Navajo culture, as it provides a sense of unity and harmony between the earth and the sky. The white bean and the great corn plant are also important symbols in Navajo culture, as they represent the balance between the earth and the sky, and the harmony between the two. The white lightening is a powerful symbol in Navajo culture, as it represents the connection between the earth and the sky. The myth of the creation of the world is an important aspect of Navajo culture, as it provides a sense of unity and harmony between the earth and the sky.
Appendix H
Synopsis of Intervention for Classroom Teachers

**TIME ALLOTMENT FOR SUBJECTS**

- Math
- Science
- Language Arts
- Reading
- Social Studies
- Physical Ed.

**Frequency Chart**

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Color Cues</th>
<th>Picture</th>
<th>Metaphor</th>
<th>Time Sketching</th>
<th>Graphic Symbols</th>
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**Percent of time lessons are integrated with art**

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<td>0</td>
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</table>
1. Start in the center of the page with the topic idea.
2. Work outward in all directions producing a wide pattern that
3. Have well defined clusters and sub-clusters, keeping to
between five and seven groupings.
4. Use key words and images.
5. Use color imagery and 3-D perspectives in your symbols.
6. Print the words rather than write them to make for more
distinct and memorable images.
7. Put the words on the lines, not at the end of the lines.
8. Use one word per line, it is more concise.
9. Make the pattern noteworthy, even odd. The mind remembers
things that stand out.
Appendix H cont.

10. Use arrows, colors, designs, etc. to show connections.

11. Use personal short forms, codes for fun and effectiveness.

12. Build at a fast pace. It’s more spontaneous and you capture more associations as they occur to you.

13. Be creative and original.

14. Have fun.
Appendix I
Visual Cues

Please record or bring notes to share with the class any time you use any of the following in other classes to help you study.

<table>
<thead>
<tr>
<th></th>
<th>Visualization</th>
<th>Color Cues</th>
<th>Picture Metaphors</th>
<th>Idea Sketching</th>
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Appendix J

Abstract

This summary describes a program for increasing awareness, development and implementation of visual elements into core subjects. The cognitive development of the targeted students as it pertains to memory and recall may be positively effected. Student tests and surveys of teachers documented and described the extent of visual spatial deficits.

Analysis of probable cause data reveals that schooling treats the imagination as unimportant. Schools lack the integration of visual spatial intelligence into other core subjects and subject area teachers have limited visual spatial knowledge. The contribution of overlearning and over teaching of verbal linguistic tasks. Schools are overdependent and place higher value on verbal linguistic skills when visual spatial skills not only enhance those skills, they are skills of equal value.

As a result of this program employing visual spatial components and assessments, the students and faculty may have an increased awareness and understanding of the importance of including visual spatial elements in the teaching and learning of verbal linguistic tasks.
Appendix K
Visually Aided Material

Videos:

Thomasson-Grant (1990). *The Indian And His Homeland*:
Whittier, CA: Finley-Holiday Films

Art Prints:

Tribal Carvings, Tsimshian Totem Poles: Cave Painting from Texas, Shaman Summoning Spirits of the Hunt: Ceremonial Healing Design, Navajo Sand Paintings: (New York Public Library Picture Collection)


Painted Leather With Eagle Feathers, Hopi Helmet Mask, (St. Louis Art Museum).

Wooden Mask And Feathered Robe, Kwakiutl Thunderbird Costume, (Milwaukee Public Museum).

Student Projects:
Kachinna Dolls, Totem Poles,
Student Project Examples:
Teepees, Ghost, Dance Shirts,

Magazines:
Appendix L

Subject Matter Test

CHAPTER 4 PART 1 TEST

DIRECTIONS: WRITE THE LETTER OF THE ANSWER THAT BEST COMPLETES EACH SENTENCE IN THE BLANK.

a. natural environment          d. slash-and-burn          f. extinct
b. shamans                      e. passenger pigeon         g. wampum

_____ 1. A wall made of sharpened tree trunks.

_____ 2. The most common food bird of the Woodland Indians.

_____ 3. Consists of the land, water, plants, and animals around us.


_____ 5. No longer existing.

_____ 6. Priests and healers.

_____ 7. Method of clearing fields for farming.

DIRECTIONS: CIRCLE THE ANSWER THAT BEST COMPLETES EACH SENTENCE.

8. The Woodland Indians were

a. gatherers, hunters, and doctors.
b. doctors, farmers, and gatherers.
c. farmers, gatherers, and hunters.

9. A bark covered shelter was a

a. wigwam.
b. hogan.
c. longhouses.
Appendix L cont.

10. Dwellings made of poles covered with elm bark were

a. pueblos.
b. longhouses.
c. wigwams.

11. This was used by the Iroquois to help them remember important events and as a form of money

a. tobacco.
b. wampum.
c. wigwams.

12. The shaman who persuaded five of the Iroquois tribes to stop fighting each other and unite in a league

a. Mulberry.
b. Blackfoot.
c. Hiawatha.

13. A union of people joined together for a common purpose is a

a. league.
b. nation.
c. descendant.

14. The most powerful of the Indian groups in the Northeast to join the Six Nations were the

a. Iroquois.
b. Tuscarora.
c. Mohawks.

15. The Five Civilized Tribes consisted of the

a. Kiowa, Comanche, Cheyenne, Crow, and Creek.
b. Creek, Choctaws, Chickasaws, Cherokees, and Seminoles.
c. Sioux, Apache, Navajo, Natches, and Shoshone.
Appendix L cont.

DIRECTIONS: UNDERLINE THE WORD(S) THAT BEST COMPLETES EACH SENTENCE.

16. The Creek men went on hunting parties that lasted (5 to 6 weeks or 5 to 6 months).

17. The Indians peoples of the (Southeast or Northwest Coast) lived in farming villages.

18. In the Iroquois culture the (children or women) were the most important people.

19. In the Northeast the Indians made maple sugar from the sap of the (oak tree or the maple tree).

DIRECTIONS: WRITE THE WORD TRUE OR FALSE IN THE BLANK.

20. In order for 8 to 10 families to live together in longhouses the people had to have cooperation and patience.

21. The two major language groups of the Northeast Indians were the Iroqian and the Cheyenne.

22. American Indians all had a form of religion.

23. The Indians believed in living in harmony with the spirits.

24. The Indians were willing to learn the Canadian way of life.

DIRECTIONS: WRITE SENTENCES TO EXPLAIN WHY MANY INDIAN CULTURES DID NOT SURVIVE THE COMING OF THE EUROPEANS.
ANSWER ONE, TWO, OR ALL THREE OF THE FOLLOWING.

1. WHAT COULD HAPPEN WHEN ONE CULTURE MEETS ANOTHER OR A NEW CULTURE?

2. WHAT WOULD BE SOME EXAMPLES OF THE IMPORTANCE OF WOMEN AMONG THE IROQUOIS?

3. TELL THREE CHARACTERISTICS THAT THE WOODLAND INDIANS HAD IN COMMON
As part of my graduate work at SHU, I am implementing a project to improve students recall and retention of material in Social Studies by integrating an art project with a unit they are currently studying. I would like your permission to use their test results in my report on the findings. Students responses will be held in confidence, their names will not be published. Please indicate your permission by signing and returning this letter.

Thank you for your cooperation.

Cathy Carr
Appendix N cont.
Appendix O

Teacher Permission Letter

CATHY L. EDWARDS CARR
ST. XAVIER UNIVERSITY

As part of my graduate work at SXU, I am implementing a project to improve students visual spatial skills. As part of my work I will be asking teachers to fill out the attached survey. Teacher responses will be held in confidence. Participation in the survey is voluntary. Please indicate your permission by signing and returning this letter along with the completed survey.

Thank you for your cooperation.

Cathy Carr
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Signature: Cathy L. Edwards Carr

Printed Name: Cathy L. Edwards Carr

Organization: School of Education

Address: Saint Xavier University

Telephone Number: (773) 298-3159

Date: 4/16/97

Attention: Dr. Richard Campbell
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