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## **Integrating Computer Technology and Traditional Art Tools: A Visual Literacy Handbook**

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INTREGRATING COMPUTER TECHNOLOGY AND TRADITIONAL ART TOOLS:  
A VISUAL LITERACY HANDBOOK

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A Project Report  
Presented to  
the Graduate Faculty  
Central Washington University

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In Partial Fulfillment  
of the Requirements for the Degree  
Master Teacher

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by  
Carol A. Genson

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## ABSTRACT

# INTEGRATING COMPUTER TECHNOLOGY AND TRADITIONAL ART TOOLS: A VISUAL LITERACY HANDBOOK

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Throughout history technology has advanced because new tools have been invented. Within the past fifty years the computer grew to be a new tool for business and industry. In the last twenty years, computers have become a tool for helping with daily activities. Now computers are being recognized as a tool for creativity. Artists have incorporated digital tools in their traditional toolbox. A review of related literature shows that computer generated digital art has been integrated into many aspects of the fine arts, including galleries and museums. This technology is being incorporated into the curriculums of our schools as well. Students are developing visual literacy through activities and lessons that make use of current computer technology along with materials and tools in the traditional fine arts program. This handbook shows ways digital art can enhance the learning of visual literacy in a fine arts program.

## Chapter I

### Introduction

“Whatever devices are invented in the future, if history has taught us anything, we can be sure that the artist will be there to use, modify, or subvert the devices for the creating of beauty (Prueitt, 1984).” Prueitt’s observations of the flexibility and adaptability of the artist throughout time is evident today with the development of computer technology. Artists have readily embraced this medium and the technology required to produce it.

Combining traditional art tools and methods with computers, artists and art educators have expanded the boundaries of creativity and have opened more awareness of visual literacy. This document will show how emerging technologies can be integrated into the art classroom and its curriculum to enhance visual literacy.

While teaching art in a K-12 it has become evident to me that by developing a consciousness of visual literacy, students will be able to communicate their ideas more appropriately. In the past two decades technology has been working its way to the forefront of education and it is being integrated

into the curriculum. The Essential Academic Learnings for Washington State include computer technology as part of the education of our students.

Computers can be a part of the art curriculum. They present another tool for the artist. Technology is changing and advancements are made every day.

#### Purpose of the Project

The purpose of this project is to create a handbook and resource for art educators who are seeking to merge computer generated art along with traditional art tools into their art curriculum. The handbook will present suggestions for projects and activities to promote the use of a variety of digital computer tools and traditional tools found in the art room. Using a computer, students will be able to experiment, create artwork and emulate traditional art tools. Within the format of the software, students will be able to customize and establish new tools for their artwork.

#### Scope of the Project

This project is intended to provide information and rationale for the use of computers as a tool in the art curriculum. The lessons suggested are not restricted to the art teacher. Other educators may use this resource or include any of these projects into their own content area. The strategies presented have

been used with students from first through twelfth grades and in many areas in the curriculum. Students have used artwork created by these lessons as an addition to assignments in their other classes.

Chapter two documents a review of the literature on the integration of computer technology in the art curriculum. The use of the computer as an ethical tool is also discussed. Artists working in traditional fields of art, other than digital art, have come to embrace the computer as a means of bringing additional creative ideas into their work. Improved output capabilities have given those artists the ability to generate an acceptable quality of production for their work. Current trends in the field of art are presented to demonstrate how technology is being used in art throughout the world. Chapter three documents the classroom setting and steps involved for development of this project. The quantity of hardware and software available will vary among classrooms. Each teaching situation will have to adjust accordingly. Chapter four includes lessons and projects for development of visual literacy. The lessons represent each of the elements of design. Instruction sheets, assessments, and rubrics have been included to help both students and teachers develop the best possible learning styles. Chapter five summarizes the project and makes recommendations.

## Chapter II

Throughout history artists have used the technology available to them.

Now there is another tool: the computer. The impetus for the development of this tool was not the creation art, but the computer has evolved into a multi-modal tool that has many uses.

In the past 50 years the computer has become a cultural object in its own right rather than an object popularized by the public (Lanier, 1997). The public has decided to become technologically proficient. A mass culture of technological literacy is developing especially among children, but technological literacy is also growing among those raised before the computer became a part of the cultural landscape. Computers do not function independently of people, they are cultural artifacts, similar to language or a tool; computers are built and used by people. Computers are being integrated into all areas of the curriculum; therefore, it is natural for computers to be used and accepted in the arts as well (Lanier, 1997). Over the past several decades there has been reluctance to use computers for art, but as time goes on they have taken a place beside traditional tools in the fine arts (Ettinger, 1988).

### Computers Support Teaching and Learning

The implementation of computer technology has many benefits for the student as well as the teacher. Computer technology provides instructional opportunities where content and strategies are determined by educational standards. Individualized instruction and more time for the teacher to be a mentor enables student-centered learning. Improved attitudes and confidence, especially for "at risk" students, are improved through the introduction of computers into established curriculums. Mastery of vocational and work force skills may be enhanced. Problem solving is a necessary lifetime skill that may be encouraged. Writing skills improve as a result of using telecommunications and collaboration with other students. The use of different pedagogical approaches or materials will often inspire even the most reluctant student to take an active part in his or her education (Cradler, (1994).

Technology can benefit both the student and the teacher. A shift from traditional direct instruction to a more student-centered approach which will positively impact student learning (Cradler, 1994). There can be more emphasis on individualized instruction. Increased interest for the teacher to learn new technologies and experiment with combinations of equipment. Increased



planning and collaboration with colleagues and revision of curriculum and instructional strategies can inspire teachers interested in experimenting with new pedagogical approaches. When a whole new type of teaching and innovative technologies enter the classroom, the teacher may be overwhelmed. However, with increased staff development and textbook curriculums that include technology, the teacher will have benefited - outweighing any hesitations (Cradler, 1994).

There is enough computer software available to transform self-directed learning and higher order thinking. When the environment is conducive to such learning experiences, technology can revolutionize education by letting students work at their own pace and seek out interactive instructional environments (O'Donnell, 1996).

#### Computers Become a Tool for the Artist

Today the artist has a variety of equipment to choose from. In the past artists used the materials that were available; as new instruments were developed, they too were incorporated into the artist's toolbox. In the late 1800's, the photographic camera was invented. At first the camera was not considered creative and not a valid device for artistic creations. Artists were sometimes

criticized for using these new technologies because they were not accepted as a legitimate tool just as the computer was criticized a few years ago (Hamber, Miles, Vaughan, 1988). We cannot ignore the computer because it is a tool that influences every aspect of our lives. By accepting and using this emerging technology, we are not rejecting the old, traditional ways of creating art. Rather, teachers are simply adding current technology to the other materials available and expanding the art toolbox. Students need to be competent in this powerful visual art medium involving computers.

#### In The Beginning

The computer has become a new tool for the artist. Use of computers started more than 50 years ago when they were programmed to do "number crunching." Writing mathematical equations, scientists created fractal designs that were the first stages of computer art. Since scientists/programmers are always looking for the next idea and expanding what they already know, software was developed to program designs from numbers via the computer. Programmer creativity was similar to the artist who is continually expanding and exploring new ideas (Prueitt, 1984). Three key developments made it possible for the computer to enter the artistic part of our culture. They were software advancement, the

mouse as an accessory, and invention of peripherals that could be connected to the computer (Whitaker, 1997).

In the mid-1980's artists had a limited range of software choices to develop computer generated artwork. Before hard drives were available for the consumer and subsequently the artist, individuals were required to program information into the computer or upload a software application from a disk that contained the program that was to be used. Every time the computer was started up, the user had to reload the software for the program desired. In schools, Apple computers and specifically the IIGs became the standard for color displaying and production. Combined with the software programs DeluxPaint and MacPaint, the computer was emerging as a formidable and flexible new canvas for art development. The workhorse for color printing was the Apple ImageWriter. This combination was the standard for many years in classrooms throughout the country (Whitaker, 1997).

The mouse, a hand activated accessory, allowed artists and others to return a "hands on" feel to design. Invented in the 1960's, it found wide acceptance in 1984 when the Apple Macintosh brought it to the computer desktop. It allowed users to create and manipulate more interesting digital

images. The first software programs were similar to traditional art because they allowed the user to move the mouse and generate lines by changing individual pixels. Another type of program, (CAD or computer Aided Design), mirrored traditional engineering activities, i.e.: make a point, make another point and tell the computer to join them or tell the computer to connect them in an arc or a curve (Whitaker, 1997).

In 1986 a third way to create digital art was to use photographs. The artist could start with an actual picture rather than a blank canvas. A scanner could digitally transfer a printed page or photo to a newly created document and from there to the monitor. Once the creative work was on the monitor, the creative work could begin. Though early scanners were very limited in the manipulations they would allow of an image, once a photograph was brought in to the computer it could be altered with programs such as Ofoto, to touch up or change the image (Whitaker, 1997).

Over the past two decades there have been increasing complex software programs offered for the computer artist. At first they were very simple, and limited to black and white. With each succeeding program the user found them to be "wonderful." Each new release brought advances in capability and user "ease

of use." Each new generation of software was deemed superior to its predecessor. Eventually color was available on the computer screen and in the programs (Frain, 2000).

Problems began to arise when computer programs became more memory intensive. Their effective use necessitated more RAM and computers with more memory. Increased speed was needed because of the time the computer took to generate image changes required for different filters. The more complicated the software, the more it emulated the traditional art medium. The more it emulated traditional art mediums, the more options the artist had available. The more options that became available the more difficult the software was to use and the slower it became (Warner, 1998).

The computer is a machine in a box. It is very complicated and it can implement very complicated instructions in a relatively short time. We must remember that the computer is simply a combination of metal, glass, and plastic, which is only useful with human pre-thought, input, and direction. There is practically no limit to what the computer can achieve if the artist/operator has the proper knowledge and skills. The artist needs to guide the computer much like a paintbrush must be guided over the canvas. With the scores of art-producing

software available today, it cannot be denied that the computer is a powerful tool for the artist (Ruby-Baird, 1997).

Learning new computer software is an ongoing process comparable to traditional painting methods and techniques: each requires a base understanding combined with an intuitive sense of adventure, creativity, and curiosity. Both demand lifelong study and commitment. However, for the beginner, it is easy enough to start out with art production software programs that limit some possibilities yet serve as a tutorial for traditional painting. Common techniques, labels, and definitions can be found in both traditional and computer art, making the switch easier (Ruby-Baird, 1997).

There is much more flexibility, modification, and revision in the computer as an art-producing instrument than other tools. With relative ease, the artist can modify the computer, making it a personalized custom tool. Brush size or a pencil width does not limit the artist, because on the computer tools can be quickly changed or adjusted. Traditional artistic implements and media are easily emulated in this visually expressive format, (with adjustments similar to being able to go to the cupboard and selecting another color or a 6B or 2B pencil lead.)

Today's software may take as long to create a work of digital art as it would if we were using traditional methods. Despite this disadvantage of using both methods, there are distinct advantages to using digital art media's. The artist doesn't get her hands dirty, doesn't get paint all over her clothes, can easily correct mistakes, and will never run out of a given color. (Creating digital art can be just as hard as creating art in oils or acrylics or charcoal (Warner, 1998).

### Science and Art

Since their creation computers have changed the way we do scientific research, conduct business, create art, and spend our leisure time. Computer-generated, movies, TV commercials or images from deep space can be returned to earth via an electronic camera. Boundaries of creativity and imagination have been expanded because of computer graphics and other image-generating technology. Computers and technology have also changed our idea of what art is. How would we have answered these questions ten years ago? (Pickover, 1999):

- Is a computer picture, drawn by a human using a mouse -- really art?
- Is a picture painted by a monkey, using oils and paint brushes -- really art?

- Is a photograph of a majestic mountain snapped by a robot holding a camera-  
- really art?

- Is a fractal derived from mathematics and a computer, with colors selected by a human – really art? (Pickover, 1999)

If artists have always incorporated the most recent technology in their creation of art, then could it be surmised that Pablo Picasso (1881-1973) would have given up his brushes in favor of a computer? That seems hard to believe but we will never know. Consider Leonardo da Vinci (1452-1519). Being the inventor that he was, would he have spent more time working on a computer to invent new devices to emulate his own brush strokes, the viscosity and drip of wet paint, or a chisel chipping away at an imaginary chunk of shiny marble?

Scientist and philosopher Sven G. Carlson feels that science and art have been slowly merging their ideas, concepts and philosophy. Both are concerned with elements of order and its discovery. The word "art" derives from the Indo-European base "ar" meaning of joining or fitting together. Through science, we attempt to learn how and why things fit together, science becomes similar to art. If art is seen as the ability to do, make, apply or portray in a way that withstands the test of time, and understanding its connection with science becomes clearer.



Pickover (1999) feels that computer graphics is a powerful vehicle for the artistic expression in his work with fractals. His mathematical processes are as equally complex in their details as the graphical representations they generate (Pickover, 1999).

The age of technology is within the artist's grasp. Computer art is like the products of the Renaissance: we really didn't understand the full impact of computers would have on the arts, but when we take a look back, we can see that computers were an instrument of change -- waiting for the artist. The computer and monitor form a "bright" new tool for artists, expanding creative abilities by providing the new electronic canvas.

#### Using Computers in the Art Room

Computers no longer require complex languages in order to be used in our classrooms or homes. The quantitative computer commands have been pushed aside by the qualitative elements of the visual arts with line, shape, patterns and color. The relatively easy use of the "plug and play" applications brings the computer screen into a world of imagery. We are still able to produce creative works using traditional methods, but if anyone is hesitant about using

computers to create art, there are many reasons to incorporate them into the curriculum of the art education program (Matthews 1997).

### Technology and Visual Art Curriculum

A purpose of the school is to offer a curriculum that will enable students to extend their various types of intelligence and to synthesize concepts and ideas about social and cultural issues. Multimedia technologies in the curriculum allow educators to introduce new curricula and pedagogy that creatively use and integrate interactive computer hardware and software. The results are making, creating, and presenting information and contexts through aesthetics and criticism (Grenfell, 1995). The computer software provides another tool to expand current art practice. Computer-aided art, just as any other medium, has its tools, techniques and aesthetic aspects (Chai & Duthrie, 1992).

### Ease of Use

Computer software has been programmed to operate with similar icons and commands that transfer from one program to another. It is not necessary to learn a whole new group of symbols each time a different program is used. Once the student becomes familiar with a program as simple as Kid Pix, she can adapt to more advanced software such as SuperPaint. Even word processing programs

have icons and commands similar to paint programs. In this way the student is able to recognize icons, enter the program faster and feel more skilled -- even though it may be her first time (Wilson, 1986). More professional and advanced programs such as Painter, Illustrator, and PhotoShop have the same basic icons but include many other tools. Knowledge is transferred from previous computer use; the student is able to comfortably try different selections. Students can experiment beginning with familiar tools and progress to new and unfamiliar tools.

When the student or artist begins a new piece of artwork, she must first organize compositional elements and the parts that will make up the picture. On the computer this task is made much easier by the cut and paste options which allow the student to move and view elements in different positions. Ideas can be scaled, transformed in texture or color and made into three-dimensional perspectives -- even made transparent. Many software programs have undo capabilities that give the artist the ability to change her mind and to try something else. The artist's vision and skills will determine the final results (Ruby-Baird 1997).

Computers and software have leveled the playing field. The same software that produces the graphics for NBC's Monday Night Movies is available in our classrooms. While this can promote consistency in styles between professionals and students in our public schools, it can also produce some negative effects. Mediocre work can be produced faster. Repetition and copying can be done faster.

Even with the hundreds of possibilities that software programs can give the artist, it is nothing like the infinite possibilities available in a person's brain. Creative talent is the one tool we can not do without (Frain, 2000). Art really takes place inside the head of the artist, and the method she chooses to convey that art is secondary (LeLasHeras, 2001)

One of the advantages of using the computer in art is that it helps develop student's drawing skills. The ease of making a straight line, the cut and paste, and erase features have eliminated fears of learning to draw. Using the mouse enhances eye-hand coordination. Students' eyes must follow lines on the computer screen. This practice slows down the eyes so that the hand is able to keep with the movements. If the hand and eye could travel around an object at the same speed, the object would be drawn more accurately (Ruby-Baird 1997).

The limited length of time within a class period limits the amount of production that can take place in a classroom during a given time. This is one of the downfalls of our educational system. Usually the teaching day is divided into class periods only 50 or 60 minutes long. We are asking a lot from both the teacher and the student to handle the materials and to establish a creative mind set within that short period of time.

However, there is less waste of materials and time when working on a computer rather than using traditional materials in the art room. The computer allows the student to work in oil or acrylic paints more easily than traditional paints. Oil paints take long to dry and cure, so storage is a problem. On the other hand, acrylic paints dry within a few hours and what ever is set out on a palette must be used that period. An artist using the computer can come back three or six months later and continue working on an image done in oil paint and the paint remains fresh. Clean up is as easy as shutting down the computer. There are no brushes to clean, no paint to put away, no canvasses to smudge or store.

Reusing digital imagery can be accomplished in minutes on the computer, rather than the hours it would have taken to repaint several images in a composition. The student can gather images from many sources: their own

artwork, scanned images, or photographs. Changing one image for another involves only a few clicks of the mouse. If this had been done traditionally with paint, it could require the student to spend many class periods to redo, add, or subtract the images (Ruby-Baird).

KidPix is one of the easiest programs to use when starting out in digital art. A teacher who wanted a computer program for his own pre-school child to use created it. Several years later and a couple of version updates, KidPix proves to be a wonderful introductory program for children and adults. It contains many of the basic icons that transfer over to other programs, and it allows students to make creative decisions that will encourage them to advance to other programs. In first grade students can learn how to use the mouse, click and drag, and find letters of the alphabet to write their name on the computer. This allows the students another way to use the alphabet and also learn how to spell their names, which many of them cannot do at this grade.

KidPix can be used to teach about other mediums. As an art history lesson such artists as Vincent van Gogh, Georgia O'Keeffe and Jacob Lawrence can show students visual works. After choosing one of the works to replicate, the student has a print of the work next to her at the computer. Lines drawn to

represent basic divisions in the composition are filled in with colors or values similar to the reproduction. Printing could be done in black, white, and grays. The results are compared with photographs taken by Ansel Adams, who is a master at gray tones. Printing color screen images in grayscale will show the student the significance of values in showing depth or composition. While being exposed to several artists, the student has mastered some tools on the computer (Carr, 1994).

### Relevance

Digital art is considered a fine art. The product can be an individual piece, a printed edition, or combined with traditional media. Printing can be done on a wide variety of surfaces from heavy watercolor, cloth and high gloss photo papers. It lends itself to becoming a collage, sculpted, sewn, painted, and drawn upon, or used as elaborate constructions for installations (Ruby-Baird 1997).

Digital tools offer an additional way to bring out ideas and thoughts deep inside a person: artist, student, designer, mechanic, etc. No matter how expensive, memory intensive, or diverse the software or hardware may be - it takes time to develop your style, technique, or individual eye for design. By learning the elements and principles of design, the student will establish a good

basic understanding of composition. The computer is not going to replace photography or other mediums in art. Not using the computer for art does not make the student old-fashioned. Using it will not make the student a Michelangelo. Creativity and the art come from within the individual. Digital tools offer one more way to reach thoughts and ideas deep within the student (Whitaker 1997).

By merging the skills and discipline associated with computer use and the relevancy of art, Fulton County Georgia educators hope to make art education just as relevant to their students, positive future careers as math or science classes. Learning to work with a diverse group of people in their class, the students soon discover that working with computers is not just working with a bunch of nerds. It was frustrating at times but eventually the idea of using a fancy typewriter enabled the students to become proficient in PhotoShop and PageMaker. These were just two of the programs that used skills needed for many of the careers in computer design. While searching jobs on the Internet, students became aware of the computer skills required and realized how many jobs were available for a computer-graphic-literate person (Brett 2000).



### Interest

Because of the fascination with computers, adults and children alike can quickly learn the instructions or activities necessary to create their own designs and pictures. Through using computer graphics, students gain personal satisfaction as well as an increased understanding of design, composition, and use of color (Piestrup, 1982).

Animation programs and the wide variety of video games and movies that are visible today, familiarize students with the computer screen and what can happen within its limits. Students are interested in producing visual art because of what they have seen. This interest can be enhanced when the student can go the next step by creating her own visually pleasing event. It may be the key factor in drawing the student into aesthetic awareness of the world around her.

### Status

By bringing other areas of the curriculum into the art project and showing where the student can make advances in more than one area at a time, the whole art curriculum will benefit. Art education is less highly valued by administrators, parents, and society than many other school subjects. It is still difficult to convince school administrators that computers have a role in teaching

students about artistic values. Besides the intrinsically good reasons to bringing computers into the art education program, a significant extrinsic reward is the increased support for the art program and the rewards received by students (Ross, 1994).

### Internet

Use of the Internet is another tool given to the student by the computer. Research about a particular artist, period of time - or finding symbols to incorporate into a design can easily be brought from the World Wide Web and put into the hands of the student. While working on their own creative piece of art, they may find other sources or ideas to incorporate. In this way the computer allows the student who might otherwise not have to access knowledge or ideas the ability or the resources to experience additional support for their work.

Using the Internet and copyright laws need to be addressed. There are plenty of copyright free sources on the Internet. Most clip art and digital art on web pages are copyright free. When students are going to include such sources in their creative artwork they need to realize the appropriation of such ideas or designs must be altered or changed enough so that they are not directly a replication of the original art.

Bringing history into the art curriculum is relatively easy because history and cultures have been recorded through art. One way to help students develop a feeling or desire to learn about history is for them to be placed in history. They begin with a self-portrait drawing that is scanned into the computer. Next, student's research is done on the Internet or through art books to find three to five artists whose work they like. Students narrow their focus down to one artist by going through electronic encyclopedias or online to find one painting where they would like to place their self-portrait. Depending on the source, the painting is brought up on their computer and then the self-portrait is pasted into the scene. Instantly the students will find themselves in the environment of famous art. Shading and adjustments can be made in the self-portraits or the background for the final artwork (Hash 1997).

Collaboration and critiquing are possible with the Internet. Students are able to share their artwork with students throughout the world (National Standards for Arts Education, 1994). There are programs that can be used over the Internet where students are collaborating on the same piece of artwork. In today's world graphic designers use the Internet to send, receive, submit and collaborate on various design projects. Since most students have their own email

and are familiar with the Internet, working together or discussing their artwork with students in another city or state will be a simple transition.

### Assessment

Portfolios have long been a source for assessing art. Artists would turn in a portfolio of original artwork as part of acceptance to art schools or for scholarships. Eventually slides of artwork were accepted rather than the original artwork. Now there is the possibility to transfer all artwork digitally to the computer, save it on a disk or email it to the intended recipient. Traditional, original artwork can be scanned or digital photo taken of it and then put into the file. This way many individuals or schools can view the piece of artwork at one time. In today's classroom students are presenting their work in digital portfolios. Artists and students use software programs to organize artwork presentations. Hyperstudio is one way to begin presenting work. Each piece of artwork is placed on a "card" which is included in a stack of cards representing various pieces of artwork. The presentation can include text, sound and various transitions. PowerPoint is a more professional presentation tool used for the same purpose. Students scan or photograph their work. PowerPoint lets the student initiate "slides" that represent individual pieces of art. Titles, text, and other graphics can

be brought in to help clarify the artwork. Students need to address language, spelling, and computer skills besides choosing backgrounds, buttons, and sound effects. The program is relatively easy to use and within a class period students can generate a program that represents a semester's work from their art class. Presentations like this may be shown to classmates, at parent conferences, to the public; or used for admission to art schools or for scholarships. Through the Internet, students are able to share their artwork with their peers in other schools (Kultgen, 1999).

A computer-based arts instruction is a big factor in the evolution of art and artistic endeavors (Newcomb, 1988). It is obvious that computers are here to stay and that should help bridge the gap between teaching art and technology (Welter, 1989).

#### Computers Are a Tool for Creativity

The computer is a great place to try out these artistic ideas. An original sketch can be saved and worked over in many different ways - thus keeping the original clean and safe. Many of the programs have several "undos" which enables experimentation with many different ideas. When many sketches and tries have been completed, they can all be laid out to see what is the best

solution for the problem. This is similar to redoing the original sketch many times and laying them out on a large table. Because of the schedules for our classrooms, this would take weeks. It is much more efficient for the student to try the ideas on the computer with filters and tools - where they can undo their work more efficiently.

### Experimental Medium

The student doesn't have to worry about making a mistake on an expensive piece of paper or illustration board. Thus experimentation can be increased greatly with a computer mainly because it is impossible to "ruin" a computer-generated work of art. A copy or original can be saved. Quick keystrokes save each segment of the work so that it can be referred to and used in various ways. Digital hardware such as scanners and cameras extend the capabilities of the student's imagination. Combining these technologies creates possibilities that are limitless.

The computer printout on paper is two-dimensional. However, through experimentation and creativity, these two-dimensional print outs can become three-dimensional (Landsdown, Earnshaw, 1989). In today's art world a new way

of creating installations has combined the computer with traditional sources.

Several galleries are focusing on installation art as a theme for their exhibits.

### Traditional Tools vs. Computer Tools

Traditional tools or digital tools can be overpowering, but only if the artist doesn't let them take over. Digital tools are just tools. It takes human hands and ideas to engage the tools into a productive or creative idea. The same is true for traditional art tools. When the two types of tools are combined, the result is an interesting mix and appreciation for what each tool has to offer.

Pamela Hobbs is a classically trained illustrator. She has produced works for clients such as Sony, Nickelodeon, Absolute Vodka and many others. Her work combines handmade line drawings that are scanned into the computer, rather than sketched on a digital tablet. She may use stock imagery from disks but also includes photographs she takes of real objects or objects scanned directly on the scanner. By combining these different sources her digital artwork has a more spontaneous feel (Wooldridge, 1999).

Book illustrations are a popular form of commercial art that has changed in the past few years. Lolly Robinson is an illustrator for children's books. Ten years ago he looked at illustrations done on a computer and figured they lacked focus,

the color was artificial, and they didn't stand up to the traditionally created work. The words "computer art" in reviews usually turned out to be derogatory. A friend told him things would soon change. We are now seeing progress from the first attempts at computer art (Robinson, 2000).

The predictions were that he would be painting with a mouse just the way he did with a brush. There would be different textures available - simulating canvas and watercolor paper. He could choose from several virtual brushes and wouldn't have to wait for the paint to dry. The best thing about his friend's predictions was that he would not have the ventilation problems from oil paints in his small apartment.

Today Robinson sits with a large plastic tablet in his lap, "drawing" on its smooth beige surface with a cordless plastic stylus the size and heft of a ball-point pen. As he draws the marks appear not on the tablet but on the monitor. He compares it to writing longhand and learning to type. Most of the thinking is subliminal just like an athlete running, hitting or catching a ball. Getting used to a new method is sometimes difficult, and it depends on the person whether they can fully adapt. Robinson uses Painter and he can draw or paint in virtually any medium he chooses. The canvas or watercolor papers available are more than



most art stores keep in stock. Rather than paying \$20 or \$30 for a piece of paper, he can select what he needs from the software program. He can work without the fear of making a mistake on expensive paper. Copy, paste and undo are great advantages but the most exciting development is the color palette.

Robinson can point to a color on a wheel or instantly mix a color digitally.

(Robinson 2000)

Many other artists have turned to using the computer to help generate artwork for the books that they have been hired to illustrate. Janet Stevens, Or Eitan, and Rachel Isadora all started with no computer skills. They admitted to never being good with machines not even knowing how to turn on a computer. The new medium was exciting to them, but it took time and was very demanding.

All three illustrators use a Macintosh computer with PhotoShop. This is a powerful combination of image-editing software that allows the user to create art from scratch or paint electronically. And it allows editing and manipulation of images from a scanner or digital camera. These three artists prefer to start with a simple drawing on paper that they then scan and manipulate on the computer. One of the most appealing aspects of PhotoShop is the "layers," which allow the artist to create a sort of digital collage. It is like a stack of clear plastic sheets,

each containing a different part of the image. Each layer can be turned on or off to see how it fits with the rest of the composition. Some of their images are as large as 600 megabytes while they are in layers, but are flattened down to a manageable 80 megabytes (Robinson 2000).

### Traditional Artists Use the Computer

Artists are using technology and traditional art in many ways and in various proportions. Some artists have abandoned all of their traditional tools and use the computer to complete all of their work. It is more common to see artists who have combined traditional and computer tools to incorporate the best advantages of both in their work. Sometimes a piece of artwork may start with photography that is transformed into painting: sometimes traditional paintings are scanned before being combined with other images; and sometimes the work is blended with traditional techniques after the digital image is printed (Sarver, 2000).

Artists are not looking at digital art as a separate medium but as an addition to the creative tools at their disposal. They are taking the new digital options and incorporating them into their work – sometimes because of

aesthetics and sometimes for practical advantages offered through digital work (Sarver, 2000).

It is quite common to see computer graphics that result from a photograph being digitally converted by a scanner. This is a common practice in our schools and universities today. Toshiki Ozawa, a photographer, discovered, as other artists have, that the computer is a tool for him to work with his traditional photographs. Ozawa uses the computer to create visual separations of his photographs. This is similar to separations that are made for commercial printers or the posterization filter in PhotoShop. He merely takes advantage of the digital image processing technique of the computer as a means to express photography as an art. After the separation of colors or layers, he adjusts the colors and constructs another photograph. In compliance with the advice given to him by a contemporary at Nihon University, he calls his prints "computer photography" rather than the more popular term "computer graphics" (Ozawa, 1998).

#### Computer Output

Technology developed within the past few years has made available high resolution printing at a cost that is acceptable to our school systems. Most students have output equipment in their home that was not affordable for our

schools even five years ago. Along with the lower cost there is the advancement of technical quality. A painting created on the computer with oil paint techniques will look very much like an actual reproduction from a book or magazine. A student can quickly reproduce and print satisfying images. Of course, this comes about with mastery of the tools.

The future of digital art is partially dependent on the types of printing available to the artist. Changes in printing, publishing and newspaper industries have created needs and possibilities for the hardware to be advanced, so that quality of printing has far exceeded expectations of only a few years ago. Costs for newer, high-resolution printing have lowered significantly because of the demand (Ruby-Baird 1997).

#### Art History and Restoration

Art historians and curators have also found a tool for cataloging, restoring and reinterpreting art. Digital cameras take photographs of original art in the National Gallery or Louvre. Technology of printing techniques has advanced so that a printout on special paper - set beside the original - can make it difficult to tell the original from the print. At home or at school we can bring up nearly every work of art in the National gallery and print it out. In addition, the digital camera, a

computer workstation, and a large-format printer can capture, store and reproduce unbelievable accuracy. This was done with the painting, "The Magdalene Reading" at the National Gallery in London. Lorne Campbell, curator of the van der Weyden exhibit says, "It demonstrates what complete faith we have in this photographic reproduction to place it so close to the original." (Ulrich 1999)

Conservators can not restore paintings to their original colors by using image processing; they can show others what the picture might have looked like when it was first painted. So far 400 of the 2300 paintings in Londons National Gallery have been catalogued using digital imaging. Besides preserving history, it is a good source for students to view and learn (Ulrich 1999).

### Cultural Awareness

The arts have an important role to play in education. Cultural symbols can be used to expand personal meaning through individual accomplishments. Numerical and literary mastery is taught, early on, in order that the student can gain access to ideas within other fields of inquiry. It is just as important that students to be able to express and conceptualize what they have come to know and feel (Grenfell, 1995).

### Magnet School

In Seattle a magnet multi-cultural program was established. This program serves 1000 participants of which 68% are minority students. Artists in residence come from all backgrounds: computer art (graphics, posters, and computer video), jewelry making, ceramics, animation, airbrushing and other techniques. The arts serve as a great equalizer engaging students on various ability levels. The premise is that art as a gateway to a successful education. Students will be able to cope with a career and society that is becoming more diverse and complex. It also teaches students how to listen to, and appreciate people from other ethnic backgrounds, and how to express their own ideas, frustrations and hopes. Computer graphics taught to these students is a way to provide skills for them to use in career developing and enrichment of their education (Bargreen, 1993).

### Seattle Artscorps

A non-profit arts education program in Seattle is bringing the arts to students in grades K-12. There is no art curriculum in the elementary or junior high schools. The Artscorps has eleven sites within neighborhoods of mostly minority, low-income students who can experience the arts in this after school

program. Classes include jazz, dance, drumming, poetry, sculpture, drama, photography and more. Teachers for these classes are professional artists who are paid for their class time and preparation time. Classes usually meet twice a week at a school or community center (Fitzhugh, 2001).

One of the classes is photography held in the Garfield Teen Life Center. The curriculum includes digital cameras and computers. Students are given assignments and return the next week where they download their images and work with them on the computer. Presentations to the class for critiquing encourage endless possibilities for creativity. At the end of the quarter the photo assignments are combined with personal writing. Students have been introduced to a way to express their feelings and learn through different paths than they were able to in the traditional classroom (Fitzhugh, 2001).

### Cultural Projects

Projects within the handbook will deal specifically about how to bring individual cultural ideas and themes for the artwork. Students will be asked to research their own cultural heritage, bring it to a point for their own understanding, and share it with others.

### Current Trends

The power and versatility of the computer as a tool are valued when the artist take time and patience, and is committed to working with this medium. Many new forms of art are now emerging. It is not the high powered computer with hundreds of megabytes of RAM, or fancy techniques of the software that is significant for the computer to work in the fine art field. It is the integrity of the image that the artist creates that really matters. Ivan Karp of OK Harris Gallery in New York City says it best about collecting and exhibiting digital art work, "If it is an effective piece, it doesn't matter what it's made from." (Ruby-Baird 1997)

Career opportunities in digital art are still in demand. California's Governor Pet Wilson proposed spending \$1.2 million to train Californians with artistic talent for high-paying jobs that are now going to workers recruited from other countries. The student grants will allow \$7,100 per year for selected students to enroll in computer arts courses. Salaries range from \$40,000 to \$150,00 per year. The need for digital artists is expected to grow 20% per year for the next several years (Weiss, 1997).

### Buying and Selling Art

A painter, a sculptor, or a photographer can enter their medium into a computer with skill and creativity. Then with a phenomenal number of



possibilities, they can create through manipulation of the tools within the software. Because they have electronically digitized the images into a computer, the artist may send their work anywhere in the world. The possibilities for millions of people to see their work creates a whole new way to market and sell art work. People are buying artwork over the Internet from a thumbnail image. Digital art was and is a natural outgrowth of video and photography, but it is more powerful than any of those mediums. The accessibility both monetarily and physically is easier for the buyer.

Digital art can be manipulated to mimic original pieces of art by capturing images and creating compositions. John Craig, a graphic artist, creates collages using digital tools to mimic old-fashioned production techniques. Vintage wood engravings, photos, and illustrations are acquired from antique stores and estate sales. Craig then creates each composition manually, scans it, and colors it in PhotoShop. At first his collages were done without the use of computers. More recently he discovered that the tools available in PhotoShop afford him the ability to work with the images and still retain the nostalgic feel (Goodman 1999).

## Software

Synthetik Studio Artist 1.0 is a software program that enables the artist to mimic materials found in the real world. There are over 600 paint patches, or brush effects, which can be refined and combined to create an endless variety of effects. Existing patches can be customized to create new effects. A pop-up menu listing 14 parameter categories empowers the student to control everything from the shape of a brush path to color variation - and even how the brush interacts with underlying layers and paint. A pressure sensitive tablet will assign brush parameters to the pen's pressure, direction, tilt, and bearing - so a brush's behavior will vary depending on how you move the pen. This can be overwhelming to a beginning digital painter, but it is easy enough to start experimenting with basic paint programs and know that there are plenty of paths to challenge even the experienced painter (Long 1999).

## Installations

David Rokeby has been doing interactive multimedia installations for several years. His work combines dance, video, and computers. Installations are becoming very popular in the art world but they are limited to a gallery or museum that can afford the space to hold them. The Internet has allowed

students more exposure to this artistic medium. Now there are web sites where we can watch artists perform, view works of art, or interact with ever-changing pieces of art. Rokeby has created his own technological tools and incorporates technology and art that gives a unique perspective on the evolving the way people react to machines (Zacks, 1999).

Professor John Maeda is a prize-winning graphic designer and kinetic artist with several degrees form Massachusetts Institute of Technology. He had always been a good draftsman, but his family thought he should get a degree. After he did earn several degrees, he still pursued his interests at M.I.T.'s Media Laboratory. His work includes the use of programs he writes and programs used in today's schools.

The ability of the computer to react to input of sounds a creation of professor Maeda. This is similar to our speech recognition programs. When the viewer speaks or makes sound, a graphically generated design appears and changes according to the sound input. Professor Maeda has added another perspective to the already complicated group of interactive expanded computer art presentations (Dreifus, 1999).

## Galleries and Museums

The digital art area is becoming well known and accepted in galleries throughout the world. In major cities, museums are including digital prints along side other printmaking techniques. The barrier between original oil painting, serigraph prints, giclee prints, and digital prints has been opening more each day. One of the reasons is the quality of printing. The ability of today's printers in capturing either reproductions or producing prints from a silk screen, collograph, or a computer screen has brought several mediums to a quality that had so far been unmatched.

Chapter III  
Procedure  
Genesis of the Project

This project was created as a resource for teachers. Although it takes some degree of computer literacy, it is not necessary to be an expert in all of the software programs used in this project. Part of the learning is problem solving on the part of the teacher and the student.

My experience and problem solving began more than twenty years ago with computers. At first the amount of information was overwhelming until an expert in the field admitted that things are changing so rapidly that no one could keep up with all of the changes. Therefore, it is necessary to focus on one narrow field of information at one time.

After all this time I have realized that the computer has become just another tool in the art room. Sometimes it is used for creative purposes and sometimes it is used for utilitarian purposes: word processing, grade books, letters. Considering the computer as a tool is where my focus began. It was surprising that there were so many books written in the 1970's and 1980's about using computers to create art. Reviewing that information it was like going back in time - remembering some of the difficult processes that were necessary.

Journals for art education have kept up with the addition of the computer in the art room. Art teachers contributed their experiences and successes by integrating digital art along with traditional art.

Digital Fine Art magazine specializes in digital art. It offers many ideas and suggestions for the professional artist. These same ideas have been tried and completed satisfactorily in the art classroom. The magazine also brings out the latest technology and offers suggestions as to printing and publishing techniques. In this way students are able to see how practicing artists work and support their creative talents.

### Project Development

A review of the literature relating to using the computer as a tool in the art room was conducted by using the Internet and the library at Central Washington University. The results were organized into several categories to include how the computer came to be a tool for the artist and how the computer can be a tool in the art classroom.

Working on this project for a year made it possible to have students work with some of the newly acquired techniques. Since my art room has been using computer for several years, there are many examples and lessons that students

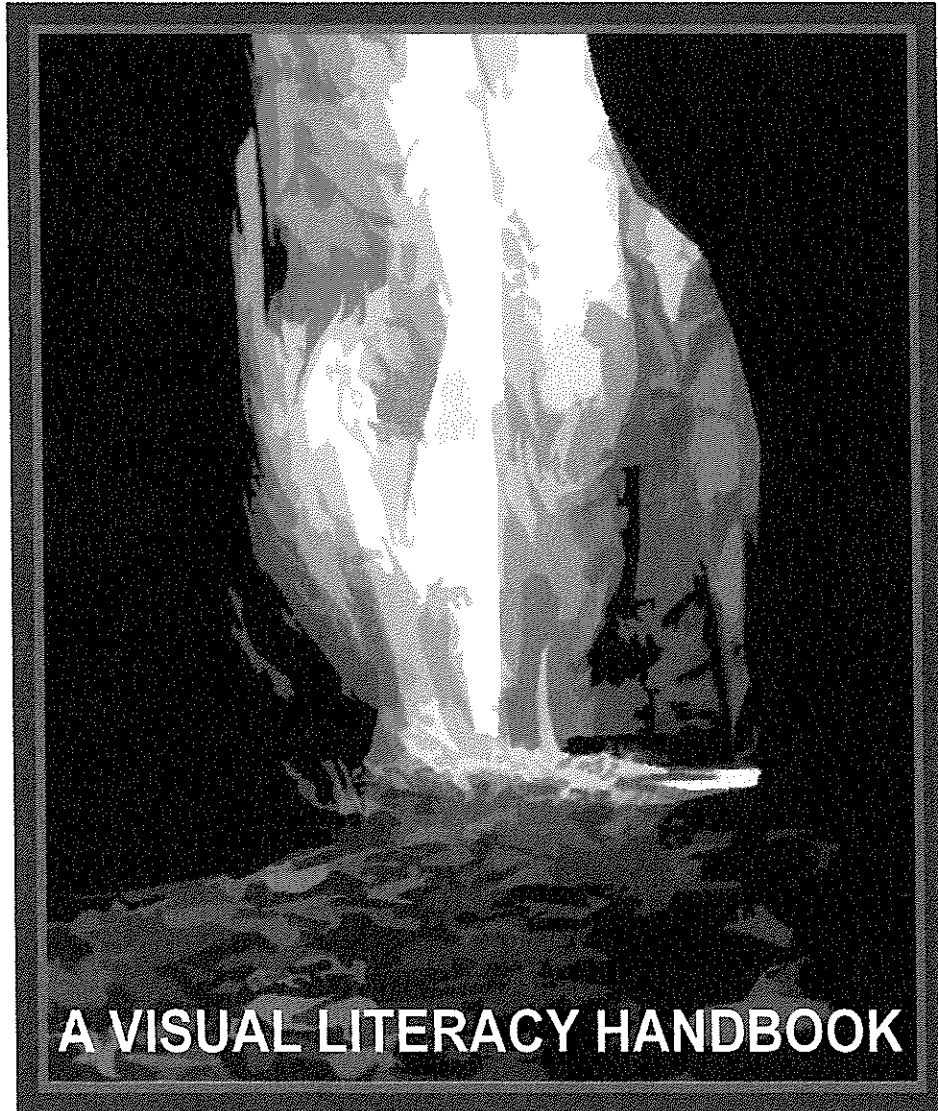
have used successfully over the years. Chapter four includes lessons for design, painting, color, and computers. There is a lesson for each of the elements of art under these four main categories.

### Project Implementation

With the additional references and ideas added to the already successful projects, the author hopes to use this document as a curriculum for a high school class. Familiarity from previous experiences with lessons will allow some students to be leaders - setting an example and by helping other students. It is also the authors intent that other teachers will be able to use this document as a resource in their classroom. Some of the projects and lessons are very basic and may be a start for even the most hesitant student or teacher. Using computers in these lessons will allow students to expand their work into a variety of other fields and curricula.

To teach something is to learn it twice.

Intregrating computer technology  
and traditional art tools:



**A VISUAL LITERACY HANDBOOK**



## **Merging Digital and Traditional Art Tools in the Art Room**

This handbook is intended to be a guide for the art educator to use in classes where digital art will be taught along with assignments using traditional art materials. There are several types of software programs that are intended for use with these lessons. Each program has its own resource to answer questions and guide the user to new methods. It is not the intention of this handbook to start each lesson from the beginning, instructing the student on how to use each software program. The instructor will need to initiate group or individual instruction in a way that enables students to start working on the lessons with a reasonable degree of ability.

Although the lessons presented in this handbook are intended to cover a school year, they can be adapted to cover a single term. The length of each lesson can be adjusted depending on the depth of research or amount of resources required for the lesson.

All of these lessons have been used in a high school setting. Many revisions have been made after teaching each lesson. The revision process causes the author to access the changes being made not only in technology and materials, but also in changes taking place in curriculum by the Washington Essential Academic Learnings. The revisions made for this handbook include

information that may be modified depending on the intended class and the experience level of the students.

These lessons may be taught separately or they may be enriched with applicable theories found in other areas of the curriculum. For example, the Autobiography lesson could be a compliment to studies in a psychology class. With each lesson there is a short description stating what the student will be doing. The Procedure section is intended to give the student a path to follow. It will also help answer questions as to what to do next and it will help the student stay on task and head toward completion of the artwork. Things to Consider are for the student to use in self-evaluation. Various steps in the lesson can be rated as to the quality and performance of the task. Some of the steps must be completed before going on to the next part of the lesson. This will continue to give students feedback as to where they are on the lesson. With self-evaluation, the student can determine her own progress and effort.

When teaching these lessons it is suggested to start out with a class discussion and a pre-writing assignment. By discussing the assignments, students will be stimulated by many new thoughts and ideas. After the ideas are written down, the student can refer back to them during the lesson or at the end

of the lesson when a written evaluation is used. A post-writing evaluation can include the Things to Consider points on the lesson sheet.

At the end of a term or semester students will present their work in a PowerPoint presentation. They will produce slides of their work from the computer or digital photographs taking of their traditionally created work. Along with the slides are short descriptions of the artwork. The student presents her work to the class and discussions bring about vocabulary to describe the visual work in literary terms. Notes taken at these discussions are used to write a final essay about the use of the elements of design employed in artwork for the semester.

## Line as Pattern

Create a composition that consists of a series of lines that represents form and space. Learn how to use basic tools from other software programs to generate accurate representations of images or symbols. This will be done in PhotoShop.

### PROCEDURE

- Acquire a digital photograph, 35mm photograph, or a part of an object or picture
- Limit the subject to a very simple combination of lines or shapes
- Color is not necessary and will be changed in the final stages
- The original symbol or clip must be small, no larger than 3" or 4"
- Estimate the size of your canvas by multiplying how many of these symbols it would take cover an area approximately 16" x 24"
- Size and proportions can vary because of the symbol
- Open PhotoShop and paste the symbol
- Start to copy and paste
- Establish a small area of 2,4,8 copies
- Keep copying these areas, adding to them by re-copying and pasting
- Keep generating this area filling the prescribed canvas as best as possible
- Try to keep the one original symbol in tact when it is copied and pasted
- Eventually there will be a pattern established because of the original symbol
- Make adjustments on the size of the canvas
  - decide on how many repetitions would make a good composition
  - think about horizontal or vertical alignment
- Crop the canvas to the desired size
- If a border becomes evident, it can be generated with the stamp tool or selecting part of another border
- The piece may still be in black and white or the original color
- By selecting part (s) of the original symbol and perhaps neighboring symbols, values, intensity, color saturation, and hue can be changed throughout the composition
- PhotoShop has only one undo
- All work should be flattened into one layer when finished
- Color can still be changed or adjusted

### THINGS TO CONSIDER

- \_\_\_\_\_ Original symbol is still evident but not overpowering
- \_\_\_\_\_ Enough copies are pasted to give a feeling of form and line
- \_\_\_\_\_ Color has been used to create an interesting composition
- \_\_\_\_\_ A variety of intensities gives accent to some areas
- \_\_\_\_\_ There is a center of interest
- \_\_\_\_\_ Eye movement takes the viewer around the composition
- \_\_\_\_\_ The work is completes

## 3-D Cut-out

Print a design or scanned photographs to be cut and re-assembled. Multiple prints or re-printing the same design with color adjustments also will work.

### PROCEDURE

Select ideas from calendars or photographs taken with the digital camera or 35mm camera.

- Scan or copy these into a folder on the server called: 3-D Cut-Out
- Make thumbnail sketches of how these objects could be arranged
- Bring one of the files into PhotoShop to use as a background
- Copy the background layer
- Try other files saved for this assignment brought into other layers
- Experiment with the shapes and basic design
  - move objects around
  - resize or distort objects
  - change color, values, intensities
  - add textures, patterns
- Work with some layers off and on to see how this will look when cut
- Re-evaluate the design
  - class critique
  - ask someone for their opinion – understand their reasoning and tell them your reasoning
- Prepare design for printing
- Print
- Make careful decisions about what will come forward, and what will recede
- Mount background on appropriate type of board using spray mount
- Attach additional shapes and forms according to their depth
  - use small pieces of mat board
  - dowels cut 1/4" on larger areas
  - larger shapes may need additional tagboard mounting
- Mat or frame finished work

### THINGS TO CONSIDER

- \_\_\_\_\_ There is a feeling of depth in the composition
- \_\_\_\_\_ When viewed from different angles, the design changes
- \_\_\_\_\_ Center of interest and eye movement help create good design
- \_\_\_\_\_ Principles of design are followed
- \_\_\_\_\_ Work is completed

## Creating Color Effects

With digital photography so popular today, photographers have discovered that filtering colors can be done on the computer instead of in the darkroom or in the field. Sometimes a negative is not quite right because of weather or lighting but it can be adjusted on the computer. Photographs can be altered to create a different feeling or effect. By appropriating a photograph that has copyrights, a whole new meaning or feel can be created from the original. Take note about the filters and color changes. Write a paragraph about how the changes affect the original and what new meaning can be derived.

### PROCEDURE

- Find a photograph from a calendar
- Scan it and save as a PhotoShop file on the server as Creating Color Effects
- Bring the photograph into PhotoShop and start adjusting the color
- If there is a particular image that looks good save it as the name of the filter used for the effect
- Continue working with the photograph trying all of the filters
- Remember there is only one undo in PhotoShop
- Think about the subject you have chosen
- It does not need to remain realistic
- Work with color saturation for contrast or brightness
- Save and print the photograph when it is complete

### THINGS TO CONSIDER

- \_\_\_\_\_ The photograph was appropriate for the assignment
- \_\_\_\_\_ Changes give the photograph a new feeling or idea
- \_\_\_\_\_ The original has been altered or changed enough so that copyright laws were not infringed upon.
- \_\_\_\_\_ The photograph can stand along as a work of art
- \_\_\_\_\_ Enough changes have been made so that the photograph feels well done

## Adding Textures to Photographs and Artwork

Sometimes photographs can seem very soft and flat. Artwork created with watercolors, wet-on-wet, can also be lacking some interest and depth. By adding texture to artwork it can be more interesting or define some of the other art elements.

### PROCEDURE

- Select a photograph you have taken or a piece of artwork you have created that does not have a lot of texture
- In Painter select a paper that will add texture from the ones listed or go to the library
- Select "Just Water" from the tools and use the large frosty water
- Try several types of water and amounts of water
- Use this only in some areas
- When enough has been textured, save as a TIFF file
- Bring the file into PhotoShop
- Select a portion of the design using the lariat or the square tool
- Try different filters in the textures tools
- Be selective with the textures to see if it will enhance the design
- There are variations in depth, amount, lighting and frequency
- Repeat the generated texture at least once to help with unity
- Critique what you have done and ask for suggestions
- Adjust or add to the design

### THINGS TO CONSIDER

- \_\_\_\_\_ Both Painter and PhotoShop have been used to create textures
- \_\_\_\_\_ A variety of textures or levels of texture have been used
- \_\_\_\_\_ Repetition was used to create an overall unity
- \_\_\_\_\_ There is still a center of interest and some soft area for eyes to rest
- \_\_\_\_\_ The design is complete

## Autobiography

The purpose of this work is to represent a story of you through the use of visual representation. The viewer will gain a perspective of your thoughts, life and goals by the photographs, objects, drawings, or appropriated symbols. A written statement about the work will be prepared and given during an oral interpretation of the artwork.

Visual elements to consider:

1. Childhood dreams or memories
2. Representations of toys and other objects that are (were) an important part of your own personal experiences
3. Places that are/were memorable part of your lifetime experience
4. Ancestors represent by symbolic objects or pictures
5. Object(s) that symbolize your cultural roots

### PROCEDURE:

1. Participate in the class discussion and brainstorming for ideas to be considered. Write down the ideas to turn in at the end of the period.
2. Bring to class tomorrow, at least two possible symbols to use in your artwork.
3. Review the list of ideas and symbols. Listen to the class discussion and add ideas that you might include.
4. Start acquiring your symbols.
5. Scan or photograph ideas or symbols.
6. Look in a variety of resources on the Internet for photographs or symbols that will work with your composition.
7. Save your digital files in a folder marked, Autobiography, and save it on the school server. All artwork and assignments should have a separate folder listed by the title of the assignment.
8. Make sketches of a composition for your artwork – no larger than 4"x5".
9. Begin with a background photo or symbol in PhotoShop.
10. Think about composition – center of interest and eye movement.
11. Incorporate the elements of art. How are they represented?
12. Class critique: Take notes from what others have to say about your artwork.
13. Be constructive with ideas for other student's artwork. Does anyone have the same compositional problems that you have encountered? How can these be solved? Ask the class for ideas!
14. Continue working on your composition including the symbols and elements that you need to represent yourself



**WRITTEN STATEMENT:**

Prepare a written statement that will guide you in a verbal presentation of your work. Limit the written part to 100 words or less. Your class presentation should be between 3-4 minutes including questions and discussions.

**SOME THINGS TO THINK ABOUT:**

- resize objects
- distort
- multiple images
- color changes

## Brush Techniques

The computer can generate similar brush techniques that are painted on paper or canvas. Practice painting with watercolor or acrylics on paper and on the computer and on paper. Follow the instructor and paint the areas as they are demonstrated. Several techniques will be used such as: wet on wet, washes, dry brush, lines and details, stippling, and more.

### PROCEDURE

- Scan the painting done in watercolor or acrylics and save as a TIFF file
- Bring it into Painter
- Select the appropriate tools depending on whether it is watercolor or acrylic
- Choose a color by holding down the *options* key and clicking
- The brush size, width, and variants can be selected to match what has already been painted
- Continue painting the whole picture
- Save and print the picture
- Compare with the original
- Try this exercise again using the same picture or a different picture

### THINGS TO CONSIDER

- \_\_\_\_\_ There are a variety of techniques used in the original painting
- \_\_\_\_\_ The colors selected adhere to the original
- \_\_\_\_\_ Brush selection is consistent with the original
- \_\_\_\_\_ The computer generated work was complete
- \_\_\_\_\_ The second painting is similar to the computer generated piece
- \_\_\_\_\_ There are at least three painting from this exercise

## One Day Project

Here is a quick way to start and get into manipulating tools in PhotoShop. By repeating this assignment more than once in one class period, it becomes easier to remember how to do some simple useful commands.

### PROCEDURE

- Find a photograph of a sky and another one of water. These can be from the calendar collection and can have trees or rocks in them.
- Scan each photograph and save them on the server in a folder called, One Day Project
- At the beginning of class, open PhotoShop and have the two photographs ready
- Opening document will be changed but start with one 24" x 12"
- Go to file and open the water photograph, copy (Command "C")
- Paste (Command "V")
- Adjust the photo so that it is in the bottom left corner
- Paste again – now there are two of the same photograph while the second one is still selected go to Layer, Transform, Flip Horizontal
- Line up the two photographs so that they look like a mirror image
- Go to file and Open to bring in the sky photograph
- Paste it in the upper left corner so that it will touch the edge of the water photograph
- Paste another sky photograph, go to Layer, Transform, Flip Horizontal
- Line up the two top photographs so there is no visible line
- Select the square selection tool, click and drag around the outside of the design
- Go to Image and Crop
- That's it

### THINGS TO CONSIDER

- \_\_\_\_\_ Have at least two photographs to start
- \_\_\_\_\_ Photographs were pasted and moved while selected
- \_\_\_\_\_ The top photographs are lined up
- \_\_\_\_\_ There is a new illusion or form within design
- \_\_\_\_\_ Design is complete and accurate

## Painting Over

Paint over another painting or photograph that has been digitally saved as a file in on the server. Experiment with Painter to discover variations available in this program and to feel what it would be like to paint like Van Gogh or Seurat. Research paintings from the Impressionist period of art history.

### PROCEDURE

- Appropriate a painting or photograph to be used
    - use calendar pictures
    - scan prints of paintings
  - Prepare the appropriation to be used on the computer by saving as a TIFF file
  - Open Painter and bring in the file
  - Use the ideas from experimentation to re-define a technique for this particular painting
  - Painter has several “undoes” so try many ideas in different colors in different areas
  - Once the style or technique has been finalized, go back and examine these techniques with the Impressionists
  - Begin “painting’ over the file you have selected, starting from the furthest point back and working toward the closest point to the viewer
  - Work at 200% or 300%, then check the progress at 25%
  - Be aware of the values and intensities of the original and try to keep consistent
  - When complete, enlarge to 300%, and use the hand tool to scroll the complete work, checking for coverage and brush strokes
  - View and critique the work
- 8If necessary bring the file into PhotoShop to adjust color levels, intensities for depth, and adjust to creativity

### THINGS TO CONSIDER

- \_\_\_\_\_ There is a feeling of depth in the composition
- \_\_\_\_\_ When viewed from different angles, the design changes
- \_\_\_\_\_ Center of interest and eye movement help create good design
- \_\_\_\_\_ Principles of design are followed
- \_\_\_\_\_ Work is completed

## Animal Illusion

Appropriate three or four photographs of an animal. Research the habitat that this animal is most comfortable in and find photographs of those environments. This project will involve painting a realistic representation of the environment, created in watercolor, oil pastel, chalk or a combination of these materials. The environment will be scanned and digitally saved into a folder labeled Animal Illusion. The photographs of the animal will be scanned as well and saved into the same folder.

### PROCEDURE:

- Place the traditionally created art work as the background in PhotoShop
- Experiment with the animal photos to see where they would best fit the composition
- The animals can be flipped horizontal, altered in size and rotated
- The background can be brought over the animals so that they may seem hidden or less conspicuous.
  - erase on the animal layer to expose more of the background
  - use the fade tool to 'hide' part of the animal
- Adjusting the size and position of the animal will allow several versions of the same photo to be used

### THINGS TO CONSIDER

- \_\_\_\_\_The animal could be found in the environment that was created
- \_\_\_\_\_The animal is represented more than one time
- \_\_\_\_\_There is a variety in sizes and positions of the animal
- \_\_\_\_\_An illusion of the animal is represented
- \_\_\_\_\_Work is complete

## Drawing

### Line • Form • Color • Texture

#### **LINE** – Drawing from a still life

- Make a contour drawing of the still life set up in the room
- Outline the shapes - do not add shading
- Work with the line until the composition and objects are well represented
- Darken the lines – keep this as the Master Drawing

#### **FORM** – Scan the Master Drawing

- Scan the whole master drawing or as much as will fit on the flatbed scanner
- Carefully select or narrow down an area of concentration
- Pick a composition that has balance and unity
- Save this in a folder named Still Life on the server
- Shapes will form a new composition
- Think of this as a completely different but balanced piece
- Use Painter or PhotoShop to add color and texture
- Keep the feel of the original lines
- Consider the many tools and variations this program has to offer

#### **COLOR** – Color scheme practice of paper

- Transfer the line drawing from the Master on to 5 different pieces of drawing paper
- Render each drawing using these color schemes
  1. Black, White, Gray
  2. Analogous colors
  3. Complimentary colors
  4. Monochromatic colors
  5. Split-complimentary colors
- Blend the colors using oil pastel or chalk
- The objects should overlap and have depth

#### -Rendering on the computer

- Scan the Master Drawing –it may need to be reduced by the copy machine and then scanned
- Bring it into Painter and choose two of the ways above to render color into the drawing

#### **TEXTURE** – Tactile materials on a board

- Select a small part of the Master Drawing to transfer
- Enlarge the small part with the copy machine
- Transfer the lines on to illustration board
- Decide on color scheme and materials

- Place different materials that have physical texture on the illustration board
  - Keep in mind the whole composition, center of interest and eye movement
  - Overlapping of objects may create depth like the original
  - Plan a frame or shadow box for display
- 

**Artwork to turn in:**

1. Master Drawing
2. Enlargement of an area
3. Black, white, gray rendering
4. Monochromatic rendering
5. Analogous rendering
6. Complimentary rendering
7. Split-complimentary rendering
8. Render from the whole Master Drawing
9. Render from the whole Master Drawing
10. Textured design

## Perspective Drawing

Make a perspective drawing with rulers and a straight edge. Explain perspective drawing through the use of new vocabulary. Draw objects on the computer in three dimensions.

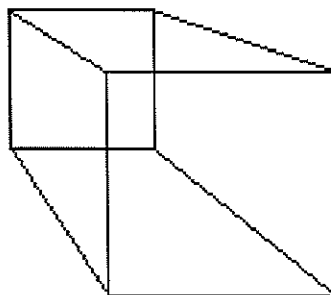
### PROCEDURE

#### Drawing with paper and tools

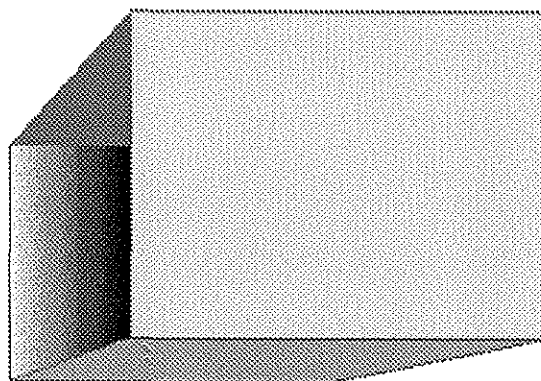
- Follow the demonstration given for perspective drawing
- Draw a horizon line
- Draw two vanishing points at the edge of the paper on the horizon line
- Draw a vertical line in the center of the paper that goes above and below the horizon line
- Draw two extension lines from the top point on the vertical line to each of the two vanishing points
- Draw two extension lines from the bottom point on the vertical line to each of the two vanishing points
- Draw two vertical lines between the extension line, one on either side of the first vertical line
- Take a look and see if you can visualize a rectangular box
- Darken the lines of the box
- Repeat the drawing but think about the box being a building
- Add doors and windows

#### Drawing perspective on the computer

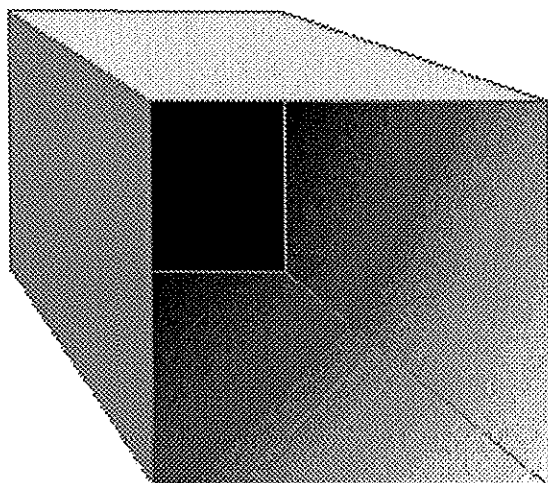
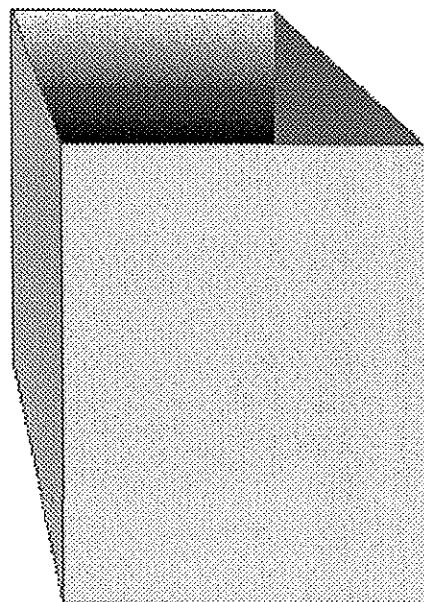
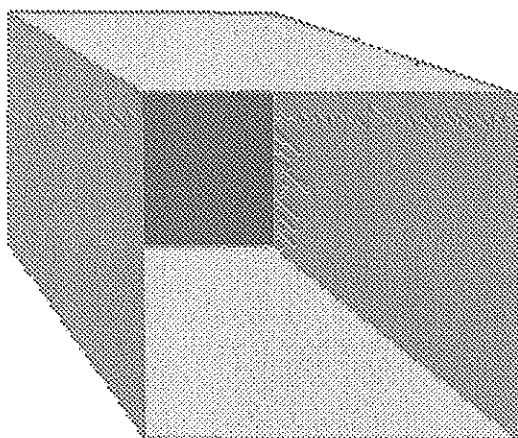
- Open the program SuperPaint
- Select the perspective box tool from the menu
- Click and drag a square
- Let go of the mouse
- Four lines will follow the mouse out from the four corners of the box
- When you like the size of the box just click once
- Now there is a box drawn in perspective







**Rendering the box**



## The Machine Age

### Representing the Machine

Through a historical perspective, how have machines helped improve our lives? As a matter of inventions, what machines have lead to the invention and discovery of other technological ideas? How has a particular machine enhanced or changed our lives?

#### PROCEDURE:

1. During class discussion, make a list of machines that you might see in your within a 24 hour period of time.
2. List some possible machines of historical value in the community.
3. Art there machines that have important utilitarian value?
4. Narrow your focus on a particular machine or series of machine. You could include them in operation, if they are still operable.
5. Use the digital camera or 35mm camera to photograph the machine(s). This should include at least 15 or 20 still shots.
6. Prepare these photos for use in PhotoShop and save them in a file on the server titled, **The Machine Age**.
7. Lay the photos out on a table or bring up small versions on your computer desktop.
8. Sort the photos and eliminate those that may not work because of composition or quality.
9. Organize the photos as to large and small symbols or details.
10. Start with larger objects and arrange in a composition using PhotoShop.
11. Each photo or parts of photos added should be a different layer.
12. When three or four photos seem to 'fit', save them on one layer. Keep saving the file on the server.
13. View the composition at 12% and 100% to see the overall picture and the details.
14. Consider using parts of some photos, repeating an interesting part or reversing the detail.
15. During critiques, take notes and ask question about any ideas that seem possible. Other students will have good suggestions and those could be improved upon.
16. Try adjusting the contrast/brightness and the color range.
17. Consider the composition: Is there a center of interest and eye movement?
18. Crop any unwanted areas and prepare for printing.

#### THINGS TO CONSIDER:

- \_\_\_\_\_ Photos show variety and details of the machine(s),
- \_\_\_\_\_ Good variety in large and small parts of the machine(s).
- \_\_\_\_\_ Center of interest
- \_\_\_\_\_ Eye movement throughout the whole composition
- \_\_\_\_\_ Details and interest
- \_\_\_\_\_ Work is complete

## Color Wheel

Using traditional materials and computer-generated tools, show how colors are arranged on a color wheel according to the spectrum of light rays.

### TRADITIONAL METHOD

Look at the example. This color wheel shows the Primary and Secondary colors. Also in between those six colors are the intermediate colors. How many sections will you need in your color wheel? How can you divide the circle into the necessary sections?

#### MATERIALS:

White tag board • pencil • straight edge • round object the desired diameter • tempera paints • brush • palette

#### PROCEDURE:

- Draw the circle and divide into appropriate sections
- Determine the primary colors and paint into areas
- Mix the secondary colors, leaving a white area in between the colors
- Mix the intermediate colors from the primary and secondary colors
- Title and label the colors

#### THINGS TO CONSIDER:

- \_\_\_\_\_ The color wheel is correctly divided
- \_\_\_\_\_ The colors are placed in appropriate order
- \_\_\_\_\_ Value and intensity are consistent with the flow of colors
- \_\_\_\_\_ Quality and craftsmanship allow colors to be read well
- \_\_\_\_\_ Work is completed

### COMPUTER DRAWN

Using Kid Pix or SuperPaint digitally draw and paint a color wheel showing the placement of colors in the spectrum. Divide the circle into appropriate areas so that 12 colors are represented. Experiment with value and intensity, adjusting the colors so that an even flow of values surrounds the circle.

#### MATERIALS:

Computer • SuperPaint or Kid Pix software

#### PROCEDURE:

- Bring up either program
- Draw a circle, holding down the Shift key so that it is perfectly round
- Divide the circle into 12 areas using the diagonal line tool

- Look at the color palettes and select the one that would best suit the needs of this assignment
- Using the fill bucket, select the primary colors, one at a time and fill one of the 12 areas
- Leave three spaces between each of the primary colors
- Select each of the secondary colors and place them in the center area between each of the primary colors.
- Select or adjust the intermediate colors to be filled in between a primary color and secondary color
- Label and print your color wheel

### THINGS TO CONSIDER

- \_\_\_\_\_ The color wheel is correctly divided
- \_\_\_\_\_ The colors are placed in appropriate order
- \_\_\_\_\_ Value and intensity are consistent with the flow of colors
- \_\_\_\_\_ Work is complete

### ADDITIONAL COLOR PRACTICE

Make a rectangle and divide it into nine areas. This can also be done by making one rectangle and copying it through multiple paste. Fill in each area with:

Values of color: Choose a color and show the effects of adding white to that color or black to the color.

Intensity of color: Choose two complimentary colors. Put one at each end of the nine sections. Work toward the center and add a small amount of the opposite color until the middle area has equal amounts of each compliment.

## Tactile and Visual Textures

Use textures to represent shapes in a design. Outline a master form a composition that meets good principles of design to use on the computer and in the art room to represent textures.

### PROCEDURE

#### Computer generated

- Find a picture, painting, photograph that has a good basic composition
- Make a master by outlining the basic lines of the composition on tracing paper
- Scan the tracing paper into the computer and save as a TIFF file in a folder called Visual Textures
- Working on the computer experiment and create textures to fill in to the areas of the master drawing
- Use Painter and the paper surfaces
- Try different tools over the paper surfaces – chalk, oil pastel, air brush, markers, etc.
- Adjust the surface of the paper through the controls
- Try inverting the paper texture
- Experiment with different textures with different colors on top of each other
- Consider the overall composition with colors and values
- Adjust the computer composition so that it could resemble the values and contrasts from the original
- Print out your work

#### Traditionally created

- Transfer composition from the master to illustration board
- Think about the intensity and feeling of depth in the original composition
- Select materials to represent these areas
  - use fabric
  - create texture with gesso
  - rubbings from surfaces with chalk, etc.
  - combine materials i.e. burlap and chalk
- Arrange textures so that the composition remains balanced and unified

#### Prepare for display

- Compare both works of art
- What is similar?
- What works better?
- How could the best of these two be combined?

### THINGS TO CONSIDER

- \_\_\_\_\_ Original composition was well selected
- \_\_\_\_\_ Computer generated and traditional works could stand along very well
- \_\_\_\_\_ The feel from the original has been kept in both pieces
- \_\_\_\_\_ Both pieces of art are finished and complete

## Sculptural Design

Construct a sculptural design from materials printed from the computer, various papers, wire, illustrations board and other objects will create a unified design with variety, unity and rhythm. The construction may be placed on a flat surface or suspended from the ceiling. This should be a non-objects approach.

### PROCEDURE

- Think about a possible color scheme or textural feeling
- Begin creating areas, shapes, lines, colors within a 8 1/2" x 11" area
- Various types of papers may be used for printing
- Printed papers may be attached to stiffer materials for manipulation and construction
- Consider colors and textures that are pleasing to you, while building the surfaces for construction
- Select other materials that will work with the printed material
- Begin construction by picking an color or cutting a shape that will be repeated throughout the design
- Establish a base or consider how the construction will be held together
- Begin building and work around the whole design, turning it and viewing from different angles
- Once the main idea is established, consider variations in size and details
- Critique the work to discover new ideas and affirm what has been done
- Continue to completion of the sculptural design and prepare for exhibit
- Take several digital photographs of the sculpture and save them on the server
- These photos can be used in other projects as a starting point or reference

### THINGS TO CONSIDER

- \_\_\_\_\_ There is sufficient material generated from the computer
- \_\_\_\_\_ Additional materials have been appropriated from the art room
- \_\_\_\_\_ Design establishes unity and rhythm throughout the whole piece
- \_\_\_\_\_ Variety in ideas and form gives interest to the piece
- \_\_\_\_\_ Quality of construction conforms to the standards set for display
- \_\_\_\_\_ Viewing from 360 degrees gives many interesting designs
- \_\_\_\_\_ The work is completed

## **RUBRIC FOR GRADING ART**

**ELEMENTS OF DESIGN - Line • Texture • Color • Shape/Form • Space**  
**PRINCIPLES OF DESIGN – Repetition • Balance • Emphasis • Contrast •**  
**Unity**

A: Planned carefully, made several sketches, and showed an awareness of the elements and principles of design; chose color scheme carefully, used space effectively.

B: The artwork shows that the student applied the principles of design while using one or more elements effectively; showed an awareness of filling the space adequately.

C: the student did the assignment adequately, yet it shows lack of planning and little evidence that an overall composition was planned.

D: the assignment was completed and turned in, but showed little evidence of any understanding of the elements and principles of art; no evidence of planning.

F: The student did the minimum or the artwork was never completed.

### **CREATIVITY/ORIGINALITY**

A: the student explored several choices before selecting one; generating many ideas; tried unusual combinations or changes on several ideas; made connections to previous knowledge; demonstrated understanding problem solving skills.

B: the student tried a few ideas before selecting one; or based his or her work on someone else's idea; made decisions after referring to one source; solve the problem in logical way.

C: the student tried an idea, and helped out adequately, but it lacked originality; substituted "symbols" or personal observation; might have copied work.

D: the student fulfilled the assignment, but gave no evidence of trying anything unusual.

F: the student showed no evidence of original thought.

### **EFFORT/PERSEVERANCE**

A: the project was continued until it was complete as the student could make it; gave it effort far beyond that required; took pride in going well beyond the requirement.

B: The student worked hard and completed the project, but with more effort it might have been outstanding.

C: the student finished the project, but it could have been improved with more effort; adequate interpretation of the assignment, but lacking finish; chose an easy project and did it indifferently.

D: the project was completed with minimum effort.

F: The student did not finish the work adequately.

#### CRAFTSMANSHIP/SKILL/CONSISTENCY

A: the artwork was beautiful and patiently done.

B: With a little more effort, the work could have been outstanding; lacks the finishing touches.

C: The student showed average craftsmanship; adequate, but not as good as it could have been, a bit careless.

D: The student showed below average craftsmanship, lack of pride in finishing work.

F: The student showed poor craftsmanship; evidence of laziness or lack of understanding.

#### GROUP COOPERATION/ATTITUDE

A: The student work toward group goals, effectively performed a variety of roles in group work, followed through on commitments, was sensitive to the feelings and knowledge level of others, willingly participated in necessary preparation or work for classroom.

B: the student participated enthusiastically, followed through with commitments, performed more than adequately, assisted in preparation and cleanup.

C: the student mostly allowed others in the group to make all the decisions, did his or her share of the work adequately, assisted in preparation and cleanup.

C: The student mostly allowed others in the group to make all the decisions, did his or her share of work adequately, assisted in preparation and cleanup when asked.



D: The student allowed others to do most of the work, did participate minimally, did the minimum amount.

F: The student was part of the group, but did almost nothing toward group goals, did a minimal amount of preparation and cleanup.

# ART RUBRIC

A	B	C	D	E
<p>Student uses and/or demonstrates exceptional knowledge and mastery of:</p> <p><b>Composition:</b> Art rendering and subject is thoughtful, interesting, and creative; work is not trite or cliché.</p> <p><b>Elements of Design:</b> Line, Shape, Form, Texture, Color, Space.</p> <p><b>Principles of Design:</b> Balance: Symmetrical/Asymmetrical, Unity, Emphasis, Contrast, Pattern, Rhythm, Movement.</p> <p><b>Technique:</b> Understands and uses materials appropriately; understands and applies concept.</p> <p><b>Creativity:</b> Thoughtful, unique, and creative implementation of supplies and materials.</p> <p><b>Presentation:</b> Neat, clean, properly matted or mounted.</p> <p><b>Time and Effort:</b> Independent worker, utilizing time beneficially.</p>	<p>Student uses and/or demonstrates knowledge of:</p> <p><b>Composition:</b> Art is thoughtful, interesting, and creative.</p> <p><b>Elements of Design:</b> Line, Shape, Form, Texture, Color, Space.</p> <p><b>Principles of Design:</b> Balance: Symmetrical/Asymmetrical, Unity, Emphasis, Contrast, Pattern, Rhythm, Movement.</p> <p><b>Technique:</b> Understands and uses materials appropriately; understands and applies concept.</p> <p><b>Creativity:</b> Thoughtful, unique, and creative implementation of supplies and materials.</p> <p><b>Presentation:</b> Clean, properly matted or mounted.</p> <p><b>Time and Effort:</b> Independent worker.</p>	<p>Student uses and/or demonstrates knowledge of some, but not all of:</p> <p><b>Composition:</b> Art subject is interesting but may exhibit copying/cliché qualities.</p> <p><b>Elements of Design:</b> Line, Shape, Form, Texture, Color, Space.</p> <p><b>Principles of Design:</b> Balance: Symmetrical/Asymmetrical, Unity, Emphasis, Contrast, Pattern, Rhythm, Movement.</p> <p><b>Technique:</b> Somewhat understands and uses materials appropriately; somewhat understands and applies concept.</p> <p><b>Creativity:</b> Ordinary implementation of supplies and materials; suggests lack of individual creativity.</p> <p><b>Presentation:</b> Perhaps not clean or neat, properly matted or mounted.</p> <p><b>Time and Effort:</b> Requires additional assistance, utilizing time generally.</p>	<p>Student uses and/or demonstrates very little knowledge of:</p> <p><b>Composition:</b> Art subject is uninteresting but may exhibit copying/cliché qualities.</p> <p><b>Elements of Design:</b> Line, Shape, Form, Texture, Color, Space.</p> <p><b>Principles of Design:</b> Balance: Symmetrical/Asymmetrical, Unity, Emphasis, Contrast, Pattern, Rhythm, Movement.</p> <p><b>Technique:</b> Attempts to understand and use materials; does not understand or applies concepts.</p> <p><b>Creativity:</b> Simple implementations of supplies and materials; lack of individual creativity.</p> <p><b>Presentation:</b> Not clean or neat, properly matted or mounted.</p> <p><b>Time and Effort:</b> Minimal usage of time; little effort demonstrated. May reflect excessive absences.</p>	<p>Student demonstrates very little or no knowledge of:</p> <p><b>Composition:</b> Art project is not interesting; subject is boring; not high school level.</p> <p><b>Elements of Design:</b> Line, Shape, Form, Texture, Color, Space.</p> <p><b>Principles of Design:</b> Balance: Symmetrical/Asymmetrical, Unity, Emphasis, Contrast, Pattern, Rhythm, Movement.</p> <p><b>Technique:</b> Does not understand or use materials appropriately; does not understand or applies concepts.</p> <p><b>Creativity:</b> Lack of individual creativity.</p> <p><b>Presentation:</b> Not clean or neat, improperly matted or mounted.</p> <p><b>Time and Effort:</b> Minimal usage of time; little or no effort demonstrated. May reflect excessive absences.</p>

## Glossary

**Abstract, Abstraction:** Originating with a recognizable form but simplified or distorted into a new entity.

**Appropriation:** To take possession of or make use of exclusively for oneself, often without permission.

**Computer:** An electronic machine that performs high-speed mathematical or logical calculations, etc., that stores, assembles, process or prints information derived from coded data according to a predetermined program.

**Creative Awareness:** A stage in the process of problem solving in which the imagination is encouraged to soar in a search for totally new and innovative approaches. Being able to solve problems by knowing something and by being perceptive about information.

**Digital Art:** Using a tool that electronically digitizes or alters images into computer bytes for the electronic transfer of information (Macko, 1997).

**Fractals:** A term invented in the 1960's for geometry that focuses on "fractured" or broken uneven shapes, driven by a mathematical formula.

**Hardware:** A computer and the associated physical equipment directly involved in the performance of communications or data-processing functions.

**Icons:** An image representation. With computers it stands for a small symbol that represents the same idea in different programs.

**Internet:** The worldwide collection of interconnected information networks that allow computer users to share information with one another in different forms.

**Imagery:** Perceptual images are actually encountered by the eye. Conceptual images are in the mind.

**Perception:** An awareness of everything around us obtained through our sensual organs: sight, hearing, smell, touch, and taste.

**RAM:** Random access memory. It is like gasoline in a car. It helps the engine run. Sometimes it gets used up and more has to be added.

**Replication:** A copy or reproduction.

**Rubric:** A short commentary or explanation covering a broad subject.

**Semantics:** In the grammar of any language, recognition, tagging, or naming of a word—its fundamental meaning. The study of relationships between signs and symbols and what they represent.

**Software:** Written or printed data, such as programs, routines, and symbolic languages, essential to the operation of computers.

**Technologies:** complex machines used in the study and creation of art, such as lathes, presses, computers, lasers, and video equipment.

**Tools:** Instruments and equipment used by students to create and learn about art, such as brushes, scissors, brayers, easels, knives, kilns, and cameras.

**Traditional art:** In this document it will represent art that could be recent or historical. It is art that uses materials that have been available for some time or more recently invented. It excludes art that has been computer generated or manipulated by computer generated electronic equipment or software.

**Visual literacy:** The ability to understand and to use effectively all characteristics of the visual language. These characteristics could include the elements of art and principles of design. It is comparable to literacy in language.

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