

LESSON PLAN: TECHNIQUES AND MATERIALS

TEMPERA



A painting, then, is a plane covered with patches of color on the surface of wood, wall or canvas...

From Giorgio Vasari,
Lives of the Artists, 1550

GRADE LEVEL

Junior High and High School

OBJECTIVES

- Students will learn about tempera and oil paints.
- Students will do a simple science experiment to distinguish one of the differences between the two types of paint.
- Students will discuss light and shade.
- Students will mix and use tempera paints to paint a simple three-dimensional form.

WORKS OF ART

SLIDE 2 *The Crucifixion, The Last Judgment* by Jan van Eyck

SLIDE 8 *The Birth of the Virgin* by Fra Carnevale

VOCABULARY

SIZE: A weak solution of glue used to render canvas or wood panels less absorbent

GROUND: A painting surface prepared with gesso or a layer of paint of even tone

MEDIUM: The liquid in which painting pigment is suspended

FIXATIVE: A colorless solution sprayed onto designs made in impermanent materials (chalk, pastel, or charcoal) to fix them in space and prevent smudging

TINT: A color made by adding white to another color

SHADE: A color made by adding black to another color

PREPARING THE PANEL (illustration board, mat board, or wood):

CHALK AND GESSO

Whiting, gypsum, or chalk	one part
Zinc white, dry pigment	one part
Hide glue solution (1 part glue to 10 parts water)	one part

1. Prepare size by pouring 1 tablespoon of rabbitskin-glue crystals in one cup of water; soak overnight. When ready to mix gesso, heat the glue solution in a double boiler, being careful not to boil the mixture. Stir until all crystals are dissolved. Allow size to remain in heated water.
2. Mix zinc white with whiting, adding just enough water to make a thick, smooth paste. Cover and let stand for several hours.
3. Slowly add one part glue size to zinc white and whiting mixture, stirring constantly until mixture is smooth. Keep the mixture in hot water to prevent it from congealing. Apply to panel.

MIX EGG TEMPERA IN ADVANCE, USING THE FOLLOWING RECIPE:

EGG TEMPERA

1 egg yolk
1 tablespoon water
1 drop of vinegar
pigment

1. Grind pigment with water to make a thick paste.
2. Mix egg yolk, water, and vinegar together.
3. Mix egg mixture and pigment to achieve a variety of shades and tints (depending on age and level of students).
4. Test to see if the paint is properly tempered by applying a few test strokes to a sheet of paper. The paint should dry with a slightly glossy surface. If it does not, add more egg to the mix and repeat.

NOTE: Appropriate precautions should be taken when working with raw eggs: use fresh eggs whose shells are not cracked, and wash tempera paint from hands before handling food.

OIL GLAZE

Mix linseed oil with a little burnt umber or raw umber oil paint. Apply carefully over selected areas of the tempera painting, using your finger or a rag to blend it darker in the dark areas and to remove it from the lighter areas.

MATERIALS

FOR TEACHER DEMONSTRATION:

- salad oil, water, eyedroppers, paper
- two prepared boards with simple geometric shapes underdrawn
- pre-mixed tempera paints
- oil paints

FOR STUDENTS:

- squeeze bottles for storing and dispensing tempera
- palettes for holding tints and shades
- charcoal, chalk, or pen and ink for underdrawing brushes
- small pieces of cardboard, wood, or illustration board
- geometric forms (cones, spheres, eggs, boxes)
- other materials are discussed in detail on facing page

DISCUSSION AND MOTIVATION

FOR THE TEACHER: Begin this project by explaining to students that they will do a short science experiment. Have students take out a clean sheet of notebook paper and place it on their desks. Ask for two volunteers to circulate among the students, placing a drop of water and a drop of oil on each sheet of paper. Have students set these aside while they view the slides.

Project the two slides and ask students to describe the colors and the appearance of the paint in each one of the paintings. Have them look for forms that have volume and for places where the artist painted areas of light and shade. Referring to the information in the slide entries, ask students if they believe that the two artists were using the same kind of paint. Why or why not?

Using premixed shades and tints of egg tempera, demonstrate how to apply it to a surface to create the illusion of light and shade. On a prepared panel with an underdrawing in charcoal of a three-dimensional form, apply one shade of tempera paint to an area of the form, then paint a lighter or darker shade in an area next to it, pointing out the line created where the two different shades meet. Use hatching lines to blend one shade into the other.

Repeat the demonstration using oil paints. Demonstrate how the paint can be mixed on the surface of the panel to create the illusion of light and shade.

Ask students to check the drop of water and the drop of oil placed on their desk earlier. Has the water evaporated? What has happened to the oil? Is it still there? How can you tell? If this experiment were repeated, dropping the water and oil onto glass, how long would it take the oil to harden from its liquid state?

Ask students to think back on the two painting demonstrations. How does the use of water or oil with pigment affect the way the artist painted and how the finished product looked?

Look at the two slides again. Do students have any other observations or comments?

ACTIVITY

Explain that students will have a chance to experiment with egg tempera, but first they must prepare their panels and make an underdrawing.

Follow the gesso recipe in this lesson plan, and apply gesso to small cardboard panels. For younger students, the teacher may wish to prepare these in advance.

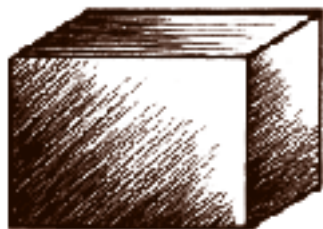
Have students set up one or two solid geometric forms in the middle of a table or desk. If desired, these forms can be lit with a lamp to provide more contrast of light and shadow. Point out how the form is divided into areas of lighter and darker shades. Have students use colored chalk, charcoal, or pen and ink to create a value drawing of a shaded three-dimensional form. Students may use their fingers or a rag to gently blend the values if they are using chalk or charcoal, but with pen and ink, they must use hatching and cross-hatching to create areas of different values.

Use a spray bottle containing skim milk to gently mist each drawing. The milk will act as a fixative and prevent the underdrawing from smearing or bleeding. Set aside until dry.

Depending on the age of the students, a more or less limited range of shades of tempera can be provided. Place each shade in a squeeze bottle where it can be dispensed easily.

Demonstrate how to apply tempera to the shaded underdrawing, lighter shades to the light areas of the forms, darker shades to the darker areas of the underdrawing. Students should first apply

Hatching a light
color into a dark area



Hatching a dark color
into a light area

the tempera to these discrete areas, then use hatching to blend the adjacent colors together. Depending on the age group and time limit, students may wish to use oil glazes (see recipe) to further heighten the effect of light and shade on their forms.

EXTENSIONS

VISUAL ART: Older students may do a follow-up painting using tempera to create a landscape, still life, or figure study. They may wish to paint the same subject in oil paints, then compare the results.

SOCIAL STUDIES/VISUAL ART: Research the development of oil paints. Giorgio Vasari wrote in 1568 that

[a] most beautiful invention and a great convenience to the art of Painting, was the discovery of colouring in oil. The first inventor of it was John of Bruges [Jan Van Eyck] in Flanders, who sent a panel to Naples to King Alfonso, and to the Duke of Urbino, Federico II, the paintings for his bathroom.

Although Jan Van Eyck (SLIDE 2) is often credited with the invention of oil paints, they were actually developed centuries earlier but used only for outdoor paintings. Van Eyck's oil paintings were meant to be displayed indoors, and he also demonstrated how the luminosity and rich colors of oil paints could be exploited to create dazzling effects.

SCIENCE/SOCIAL STUDIES: Research some of the pigments used in paints. These range from the exotic ("mummy brown," made by grinding up the embalmed corpses of ancient Egyptian mummies), the precious ("ultramarine blue," made from grinding lapis lazuli to a powder), the mundane ("burnt sienna," made by roasting raw earth from near Siena in Italy), to the dangerous ("emerald green," made from arsenic and copper). As a class project, have students make their own pigments from safe materials.

RESOURCES

Craig, Diana, ed. *A Miscellany of Artists' Wisdom*. Philadelphia: Running Press, 1993.

Massey, Bernard Stanford, and Robert Massey. *Formulas for Painters*. New York: Watson-Guption Publications, 1988.

Stephenson, Jonathan. *The Materials and Techniques of Painting* London: Thames and Hudson, 1989.

Thompson, Daniel V., Jr. *The Practice of Tempera Painting* New York: Dover Publications, 1936, 1962.

WEBSITE RESOURCES

The Egg Tempera home page, including a source for supplies and a newsgroup for exchanging information: <http://www.eggtempera.com>

Art Studio Chalkboard, Egg Tempera Painting:
<http://www.herron.iupui.edu/faculty/larman/chalkboard/p-eggtemp.html>

LESSON PLAN: TECHNIQUES AND MATERIALS PRINTMAKING



I also consecrate Marcantonio Raimondi, who follows in the footsteps of the masters of antiquity, and who is so skillful both in drawing and with the burin as is clear in the beautiful engraved plates he has made of me, as I'm writing, a portrait on copper, and I am now in doubt, which one is more alive.

From Giovanni Filoteo Achillini, poet, late 15th century

GRADE LEVEL

Elementary, Junior High, and High School

OBJECTIVES

- Students will study and discuss two Renaissance prints.
- Students may explore a variety of options in deciding on an image to prepare for printing.
- Students will make their own print.

WORKS OF ART

SLIDE 13 *Adam and Eve* by Albrecht Dürer

PAGE 93 *Battle of the Naked Men* by Antonio Pollaiuolo

MATERIALS

- foam board for younger students; foam board or linoleum blocks for older students
- spoons
- paper cut the same size as the foam board or linoleum blocks
- printing ink
- brayers
- smooth surfaces to roll ink out (magazines, Formica™ or linoleum sheets)

VOCABULARY

PLATE The block of wood or metal (or foam board) whose surface is cut away to form the picture or design to be printed.

BURNISHING TOOL: A hard, smooth tool used to press down metal burrs and rough edges left by the burin.

BAREN: A flat, smooth tool used to press the ink from the plate onto a sheet of paper.

BURIN: A sharp, pointed engraving tool used to scrape lines into a metal plate.

PROOF: A print made at some point during the engraving process, allowing the artist to check the work.

MOTIVATION AND DISCUSSION

Discuss with students how the printing process makes it possible to reproduce many copies of a picture or text, using books and newspapers as examples. Students are probably familiar with rubber stamps, so these can be demonstrated to show how ink is applied to a surface, then pressed to paper to make an image. Just as the rubber stamp can make an image for every student in the classroom, prints could be made for many people. They were relatively inexpensive, so they made art accessible to a wider audience. In addition, they provided a means of disseminating information.

Distribute copies of the two prints listed above and ask students to look closely at the images. What makes these prints like drawings? How are they different? The human body was a popular subject for prints; how does this fit in with what students have learned about Renaissance interest in anatomy?

Both *Adam and Eve* and *The Battle of the Naked Men* are engravings, which means that the image was scratched into a metal plate with a pointed tool called a burin. Several times during the engraving process, the artist applied ink to the engraved surface, then wiped the excess away. A sheet of paper was laid over the metal surface, and the ink was forced out of the scratched areas by pressing (as in a press) or by rubbing with an instrument called a baren. The artist would inspect this image, called a proof, then continue to engrave the metal until he or she was satisfied with the results. When metal is cut away in this fashion, mistakes are very hard to correct, so the artist worked from a preliminary drawing. The lines were engraved carefully and deliberately, and rough edges, or burrs, were smoothed down with a burnishing tool.

One feature of prints is that the final image is the mirror opposite of the block used to print it. For this reason, words and letters must be engraved backward on the plate. When the image is printed, they appear so that we can read them. Ask students to look for the artists' signatures in the two engravings.

Have students look for dark and light areas on the two prints. Light areas would indicate a smooth plate, where the ink was wiped away. Where many lines are inscribed close together or cross-hatched, the ink would collect and transfer areas of shading and pattern. Different values are created by varying the density of lines.

ACTIVITY

Have students make preliminary drawings the size of their printing block or plate. See Extensions below for ideas on incorporating this activity into the other lesson plans.

When students are satisfied with their drawings, they may transfer them to the plate. If the plate is foam board, the drawing may be placed over the surface, then traced, pressing hard enough to make an impression. They should then deepen these lines by going over them with a sharp tool or pencil point. If students are using linoleum or wood blocks, their design must be transferred, then cut and gouged with sharpened tools designed for this purpose.

Students should use a brayer to roll out printing ink on a flat surface, such as a piece of linoleum or a glossy magazine. The ink should be rolled onto the plate with the brayer, then a fresh sheet of paper is pressed evenly over the inked surface. Students may use the back of a spoon as a baren, gently rubbing all over the back of the paper to transfer the ink evenly. The paper should be peeled away from the plate carefully. A press also can be used, if one is available.

EXTENSIONS

VISUAL ART: Refer to Lesson Plan: Gesture, p. 125, and have students make preliminary drawings the size of their printing block, then transfer the best one to the block for printing.

VISUAL ART: Have students design a personal emblem that can be transferred to the printing block and printed on paper banners or T-shirts, using textile inks.

VISUAL ART: Students may wish to look at works of art in the packet that incorporate patterns. Some of these include the Sir George Clifford Armor (SLIDE 27), the Double Virginal (SLIDE 28), and the Pentagonal Spinet (SLIDE 22). Experimenting with arabesques, geometric, and plant designs, students can design their own all-over pattern, transfer it to the printing plate, then decorate a sheet of paper by printing the design all over its surface.

SOCIAL STUDIES/VISUAL ARTS: Students may wish to trace the influence of the printing press in Renaissance Europe, including its role in disseminating classical texts, writings by humanists like Erasmus, SLIDE 17, books of written music, playing cards, and maps, as well as prints by artists.

RESOURCES

The History of Printmaking Scholastic Voyages of Discovery: Visual Arts. New York: Scholastic Inc., 1996.