

# Insoluble Paintings

## art + science

This is an art lesson based on the scientific concepts of insolubility and density. Water-based paint has a higher density than mineral oil; therefore, the paint and oil molecules will not mix but repel each other. Combining the two liquids will create patterns that continually flow and react with one another, while the paint molecules will gravitate toward one another.

A laminating pouch, sealed using a clothes iron, keeps the painting from drying out, so the liquids remain interactive and manipulative. Finished pieces may be mounted and displayed — although gravity will pull the paint to the bottom, paintings can be rotated and enjoyed as the colors reflow and remix themselves.

Printfoam shapes can be cut out and sealed inside the pouch to add a element of design and to act as obstacles around which the liquids will flow.

### Grade Levels K-12

*Note: instructions and materials based on a class of 25 students. Adjust as needed.*



### Process

1. Pre-heat iron to a low or silk setting.
2. Lay the laminating pouch on a flat, rigid surface. With the tip of the iron, carefully seal the edge on three sides, creating a strip about 1/2" wide. Prior to heating, the plastic pouch will appear frosted, but once heat is applied, it will become clear. Inspect the edges to make sure that the seal is airtight and that no air bubbles have formed that might cause a leak.
3. Using Printfoam sheets and permanent markers, make shapes such as flowers, animals, fish, stars or abstract forms to be placed in the pouch. These shapes form obstacles for the paint and oil to flow around, creating



### Materials

3M® Scotch® Thermal Laminating Pouches, 8-1/2" x 11" (23239-1001), package of 20; need one per student

Blick® Liquid Watercolors, assorted colors, including Glitter Yellow (00369-4015), Metallic Gold (00369-9015) and Red (00369-3005); need three 8-oz bottles to share across class

Inovart® Printfoam 9" x 12" (40403-1023), package of 48; need one per student

Blick® Fine Point Permanent Marker, Black (22164-2020) or colors; need one per student

Fiskars® Student Scissors (57016-1065); need one per student

Mineral oil or baby oil

Iron

### OPTIONAL

Low Cost Ready-Mats, art size 8" x 10" (17205-1005), package of 50; one per student

## Process, continued

even more separation. Printfoam won't absorb paint colors; however, allow the marker ink to dry completely before cutting out shapes and placing them inside the pouch.

Either allow the pieces to move freely with the liquid or use a small drop of glue to attach some or all of them to an inside wall of the pouch.

4. Hold the pouch with the usealed side up and open it as wide as possible to pour in the liquid. Hold it securely so it doesn't slip — or have a partner assist you in holding the pouch open.

**IMPORTANT:** Insert the oil and washable tempera paint, making sure that no paint touches the open top edge of the pouch. Can this area well with a paper towel after filling; otherwise, the pouch will not seal correctly and leaks may occur.

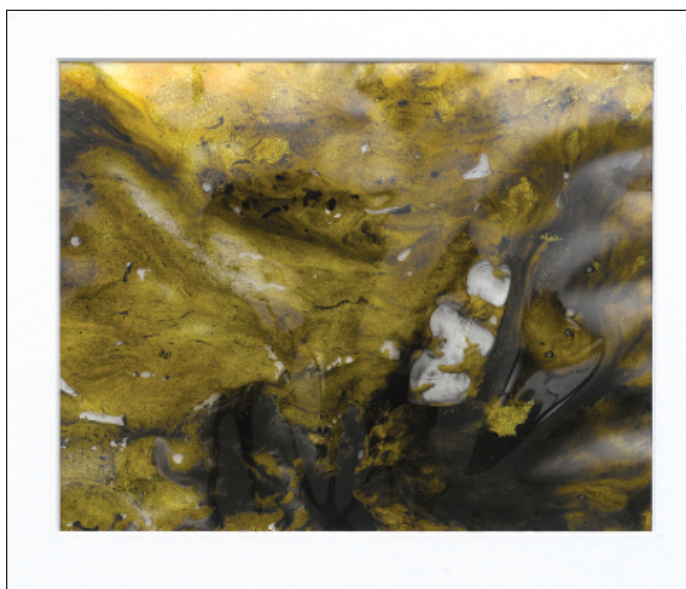
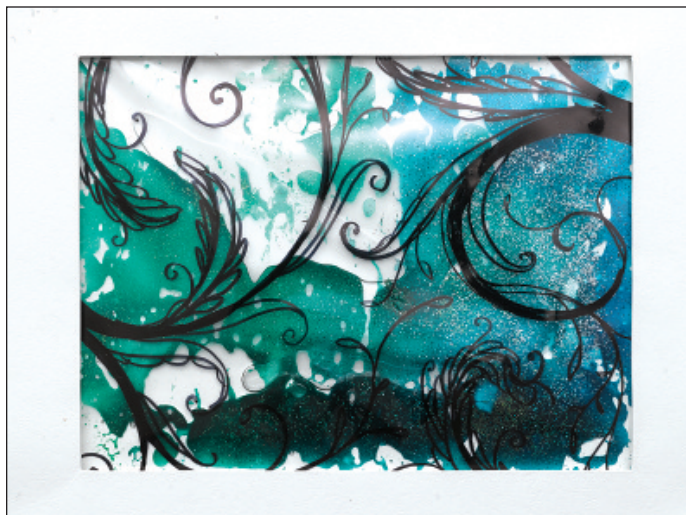
Measurements need not be exact, but a good guideline to follow is approximately two tablespoons of oil and three tablespoons of paint. Place the oil and paint in plastic cups first to make them easier to pour into the pouch.

**NOTE:** If using more than one paint color, choose colors that are close to one another on the color wheel. Do not use complementary colors because they will mix together, creating brown. The main example shown above was created using red, yellow and gold.

5. Press the open edges together so that the paint and oil don't escape, then seal the open edge with an iron. A good way to keep the paint from migrating before the seal is complete is to iron the edge on a slightly raised surface (such as a stack of cardboard), allowing the pouch bottom (containing the paint) to hang over the edge onto the table while you work. After sealing, inspect the edges to make sure that the seal is airtight and that no air bubbles have formed that may cause leaks.
6. Use fingers or blunt tools to swirl and move colors around.

## Options

1. Tape the finished painting inside a pre-cut mat and mount it to a whiteboard for best display. Rotate the painting frequently to watch it change.
2. Use a permanent marker on the outside of the sealed pouch to make a frame or draw a picture or design. See example below.



4. Experiment with combinations of other water-based and oil-based paints, such as The Art Store™ Oil Colors (01557-1019). The example shown above combines black oil paint with Blick® Liquid Watercolor and mineral oil.

## National Standards

Content Standard #1 – Understanding and applying media, techniques, and processes

- K-4** Students use different media, techniques, and processes to communicate ideas, experiences, and stories
- 5-8** Students intentionally take advantage of the qualities and characteristics of art media, techniques, and processes to enhance communication of their experiences and ideas
- 9-12** Students conceive and create works of visual art that demonstrate an understanding of how the communication of their ideas relates to the media, techniques, and processes they use

Content Standard #6 – Making connections between visual arts and other disciplines

- K-4** Students identify connections between the visual arts and other disciplines in the curriculum
- 5-8** Students describe ways in which the principles and subject matter of other disciplines taught in the school are interrelated with the visual arts
- 9-12** Students synthesize the creative and analytical principles and techniques of the visual arts and selected other arts disciplines, the humanities, or the sciences