

***Part 2: Hydrographics
on a Budget
for all ages and
disciplines!***

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Presentation Information



<https://tinyurl.com/5appvrjy>

A Little About Myself:

- **Teach at Cedarburg High School (1100 students) (Alumnus 1984).**
- **Graduate U.W-Platteville 1989: Industrial Technology/Industrial Sales, Technology Education.**
- **11 + years in Private Sector/ Industrial Sales and Coatings Contractor.**
- **22 years Teaching experience 3 different School Districts.**
- **Cedarburg H.S. - last 3 years.**
- **District wide Referendum 2018 provide a New Tech Ed facility finished in 2020 (helped by local industry professionals) .**
- **Currently teaching Metals and Manufacturing Pathway classes, Trans Tech., PLTW Engineering Classes, (also Woods, Small Engines, Architecture Design, and Robotics Course Pathways available).**

Our Facility:

Engineering and Technology Classrooms Upgrades

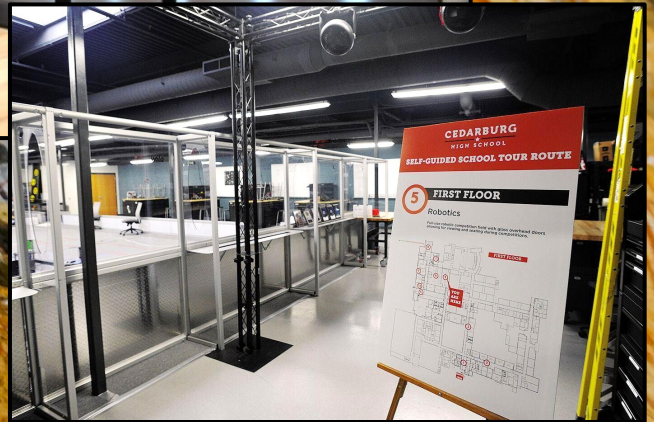


Our Facility cont'd:

Combination Lab

Transportation Lab/Classroom

Robotics Lab



Specialized Coatings

Specialized coatings are engineered barriers that adhere to a material's surface and protect parts from damage due to extreme environmental, chemical, and wear situations they are put through. Coatings create durability and enhance the value of a product's marketability. Industry standards must always be addressed when it comes to product protection, analytics, and safety. This makes for a strong commitment in our area to the belief of creating pathways for students to pursue these applications and interests.

Hydrographics vs. Hydro Dipping?

Simple Hydro Dipping/Water Transfer

The process of applying colored paints (sprayed) typically into a vessel of water and by submerging objects through the surface which will create an indelible coating to the object's surface.



Simple Hydro Dipping Pros and Cons:

Pros:

- Inexpensive, consumable products used (Local Super/Dollar Stores).
- Printable on all types of surfaces and materials.
- Little clean up (skim top of water with rag or paper towel, dump water).
- Can be done anywhere: Indoors and outside.
- High quality, unique patterned finish.
- No 2 finishes are alike.
- Colors can be added during process.
- Can dip multiple times during a single process.

Cons:

- Colors and Patterns change with every dip and secondary dip.
- Drying/Curing time and location needed.
- It may catch on with others around the school and become a control issue!

Hydrographics vs. Hydro Dipping?

Hydrographics

The process of dissolving a decorative film with a chemical activator in a large tank which allows you to transfer the ink from the onto an object. The pattern becomes one with the object. Apply a clear coat to your product and you will get a scratch-resistant, highly durable and realistic look.



Hydrographics Pros and Cons:

Pros:

- Printable on almost all types of surfaces and materials.
- Complete wrapped design around entire surface.
- High quality, patterned finish, realistic looks.
- No Shrinkage after application.

Cons:

- Initial equipment start up cost can be expensive.
- **The need for a well ventilated area** (fumes from activator - dangerous).
- Water needs to be specific temperature throughout the process.
- Timing is everything.
- Product needs to be rinsed after dipping to remove excess film residue.
- Skin may not take.
- Tank needs to be cleaned of excess skin after every use.

The background of the image is a piece of marbled paper with swirling patterns of yellow, orange, and brown. A solid black rectangular box is centered on the page, containing the text.

Get Ready &
PRACTICE!!

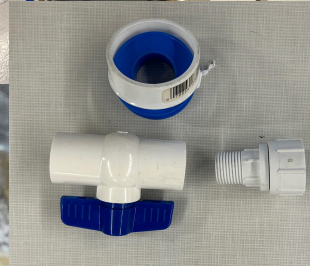
Alternative Method the Cheap way!!

Hydro Graphics Systems Cost

Hydro Dip Water Transfer System = \$2495

Equipment Start up Costs: (averages)

1. 27 gal. Tote w/lid (Home Depot: \$12)
2. Misc Fittings (Home Depot: \$10)
3. Acrylic Caulk w/silicon (Walmart \$3.98)
4. [Hydro Film](#) (\$20 -\$50) starter pack (ebay)
5. [Activator](#) (\$17- \$27) (ebay)
6. [Aquarium Heater](#) (15 - \$30) (Amazon)
7. Spray Paints (Rustoleum 2X: \$7/can Walmart).
8. Misc. Supplies (\$20-Walmart)
9. **Total Cost Average = \$130**



Alternative Method

Build the tank:

1. Get tank and fittings at local store ($\frac{1}{2}$ " Fittings and valve to $\frac{3}{4}$ " hose).
2. Pilot a $\frac{1}{2}$ " Hole into the bottom of your tank and debur.
3. Put Male threaded end through hole and attach to female Threaded of valve (secure with teflon and seal with caulk).
4. Attach hose end fitting to valve (secure with teflon).
5. Let stand overnight.
6. Fill tank $\frac{3}{4}$ full with water (preferably warm).
7. Place heater in tank and warm to recommended temperature.



Alternative Method the Cheap way!!

Tools & Equipment Needed for Process:

1. Products to be dipped.
2. PPG (gloves, glasses, PPG age-appropriate).
3. Containers / Buckets (for Processing).
4. Aquarium Heater.
5. Water source (75-90°).
6. Spray Paints (Rustoleum 2X).
7. Hydro Film/Activator
8. Tape/Razor Knife/Scissors/Cutting Mat.
9. Holders: Dowels Bolts, etc. (hot glue to)
10. Drop cloths/towels (optional for inside).
11. Clean up water
12. Rack / drying area.
13. Clear-Coat for finishing.

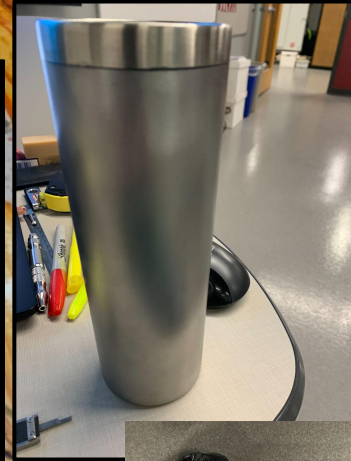


Hydro Graphics Process & Demonstration:

[Hydro Graphic Guide and Rubric](#)

Steps:

1. Set up tank near water source.
2. Fill container with enough water to dip entire product.
3. Start heater (80 deg. < TEMP. < 100 deg.)
4. Prepare area to dip (clear/clean surfaces).
5. Prepare products:
 - Sand
 - Clean
 - Prep and paint.



Steps continued: ([Pictures from wikihow](#))

6. Cut film 1.5X size area you need (minimum).

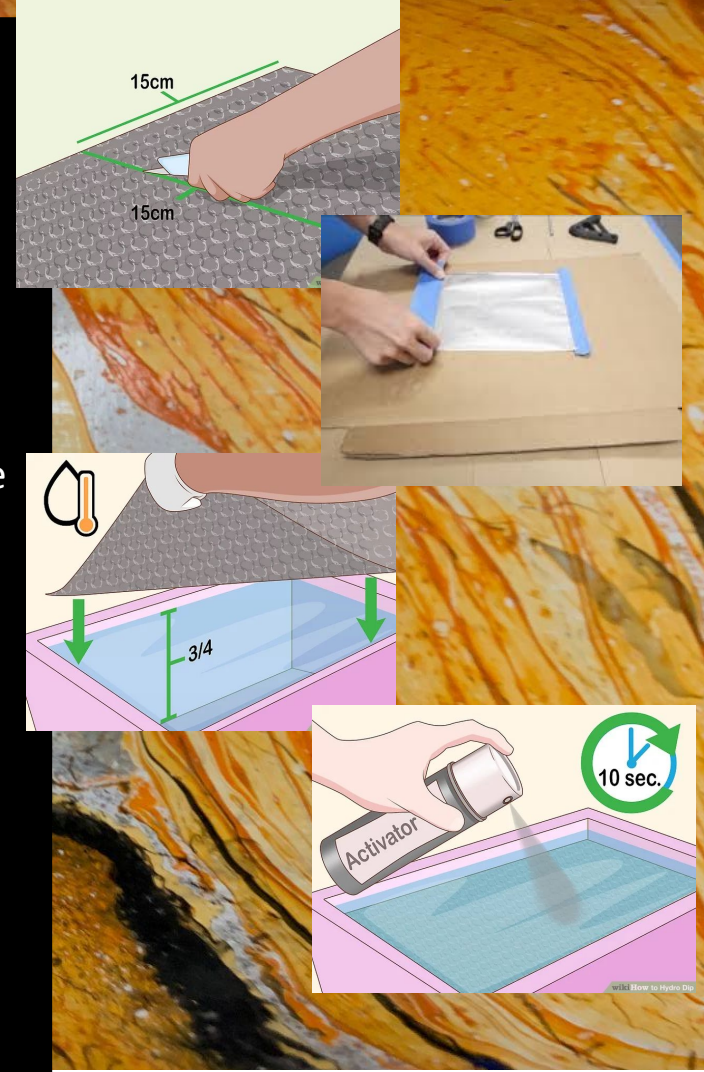
7. Tape 2 edges opposite of each other to hold side constraints.

8. Lay the patterned, water-soluble film on the surface of the water, being sure to put the film in the water with the sticky side down.

- Test this by touch the film which a damp finger to determine which side your finger sticks to
- Check for any bubbles under the film, and gently blow them to the side of the film to remove them.

9. Allow the film to hydrate completely for the time specified in your kit.

10. Spray the chemical activator onto the film in a thin, light layer, being careful not to add too much activator. Wait for Activator's reaction time (see product's spec.).



Steps continued:

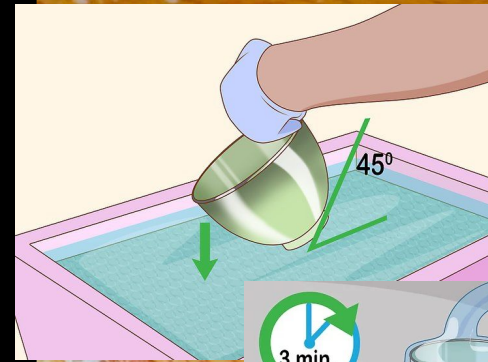
11. Once the film looks liquefied- or has a glassy finish in the water then it is your object is ready to be dipped.

12. Put on the gloves, and slowly dip the object into the water at an 45 deg angle until it is completely submerged; do not let go of the object. Twist vigorously to release excess film and pull object out of the water.

13. Rinse off the slimy residue that is left on the object after dipping using using a light spray of water or water and a cleaning product in a bucket.

14. Gently wipe off any remaining residue, but don't scrub or vigorously rub the surface.

15. Once the object is dry, add a protective top coat.



Questions?

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