

THE NEXUS OF BODY ART AND GEOMETRY (THE ART!)



Gina Gilbert L.Ac.

MATERIALS FOR TODAY: brown/orange/burgundy drawing tool, paper

Presented and mostly photographed by Rodi Steinig

ABSTRACT:

Henna, is thought to be a blessing upon the skin in many cultures, such as Morocco and India. It is usually applied to the hands and feet, where the stain becomes the strongest. It is a playful and temporary art form that fades away in a week or two: a combination of making marks, drawing geometric shapes and symbols, and watching it magically turn colors from a green powder, to a brown top layer, to orange, to various shades of burgundy when the top layer is removed. Alchemy! Mixing the correct proportions is the first mathematical challenge : making henna paste; which is ground into a green powder for body art (and can be purchased pre-mixed and coned for a higher price). Then the powder is weighed and measured and mixed with water, lemon or tea, sugar, and a mordant: an essential oil that when added to the mix, creates a stain. It sits overnight (or about 8 hours) to cure for coning.

In this session, I will demonstrate the process of applying Henna and show participants how to roll and fill the henna cones, (coning) hold a tube to make marks and create designs freehand like circles, infinity symbols, triangles, squares— the sky is the limit.

At the end of the session, participants may be able to practice putting small symbols on their skin so that they can teach the process to their Math Circle students.



https://en.wikipedia.org/wiki/Lawsonia_inermis

Henna is a plant: *Lawsonia inermis*, *alba*, or *spinosa*. Can be used for body art or hair. **DON'T** use product for hair on skin!

1st day





traditions, theories

- Protection
- Cooling (sun)
- Pregnancy belly
- Alopecia
- Cursive handwriting
- Body awareness
- Symbolic
- Rite of passage
- Value of hand-made thing



At three girls
create beautiful
designs on their
hands.

Traditionally,
Henna was used to
decorate women
and commemorate
marriage.

Sometimes the
husband's initials
were hidden in the
design



Henna Body Art:

The Art and Math of
creating Henna designs:
shapes, lines, symbols,
and fun

Some values of working with henna

- Working with something from a plant
- working with something from (possibly) another culture
- Making your own mark
- Making marks is the beginning of art!

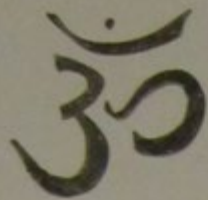
Design ideas

Traditional:

- India
- Morocco
- Mizrahi
- Yemen
- African
-



INDIA - Sacred Symbols

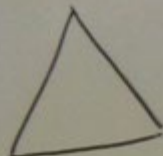
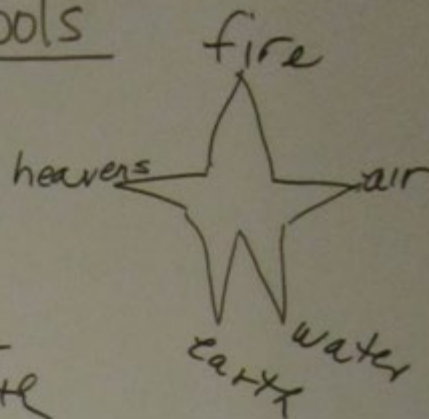


Om
India

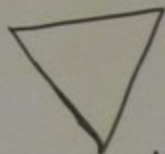


Ankh
(Egyptian)

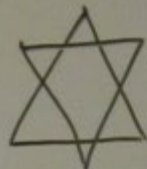
Fertility
sun,
sky +
earth
Gave henna to India



Shiva
male



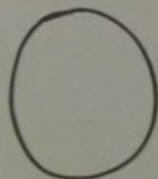
shakti
female



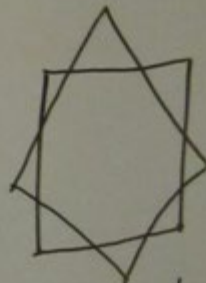
male + female



catuskona



cakra
infinite
no beginning
or
end



astakona
octagon



Eye of Horus

popular design, beautiful, mathematical.

...and speaking of math

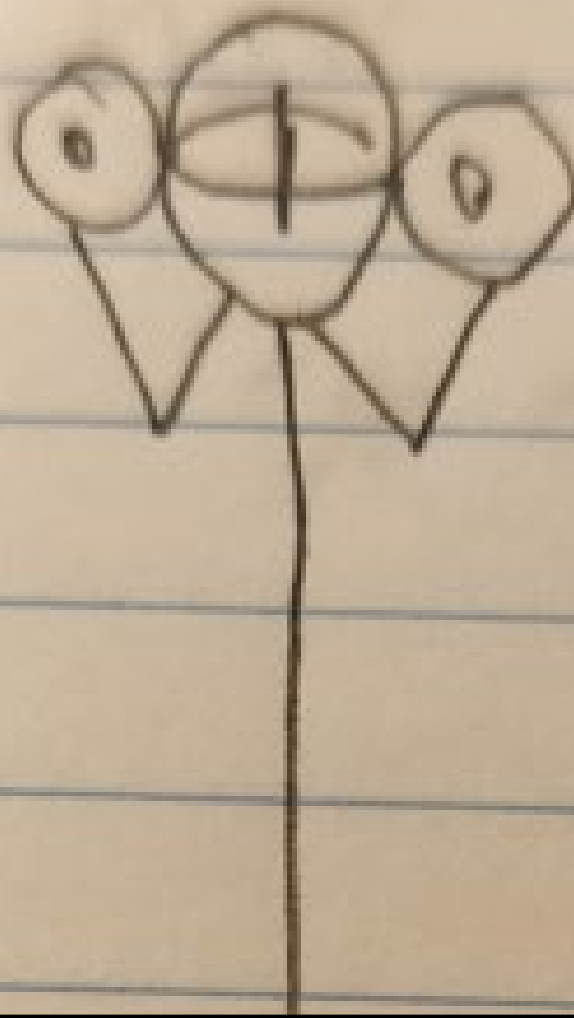
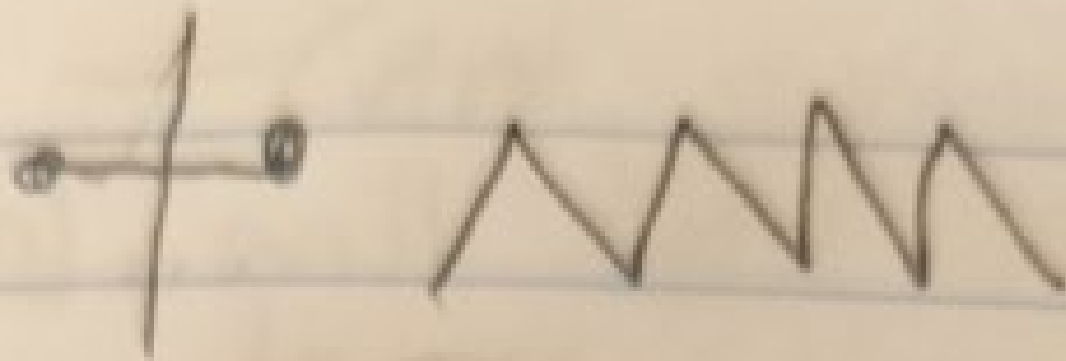
Doodling, mark making,
thickness of lines That's all
math






JMM participants:
trace your hand

Play with
designs –
freehand!





“I can’t
draw!”

- Art identity similar to math identity
 - Art about playing, experimenting, and having fun
 - So many people are scared of art like people are scared of math
 - ART and MATH: personality breaking through, making people empowered with skills
 - People might be surprised that they’re actually learning something while doing these doodles
- 

Easy to start with

- triangles
- zigzags
- lines
- squares
- circles
- infinity symbols

...may be easiest on fingers





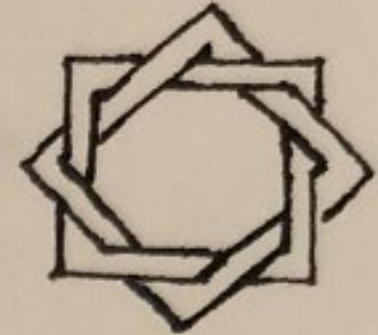
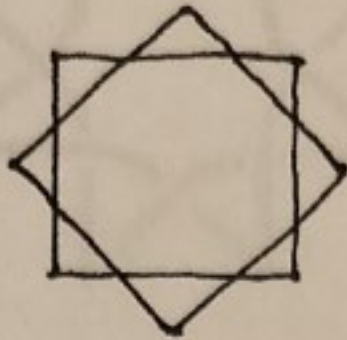
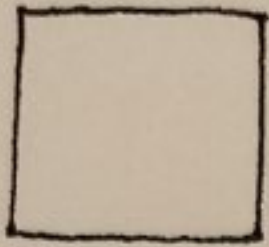
Have fun playing!



Sketching it out

Sketching it out

Interlacing the Lines of the Stars



Step 1: Drawing the 4-sided shape (square) and drawing

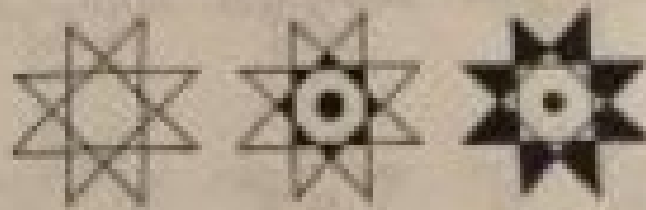


Step 2: Drawing a square, then a square rotated 45 degrees



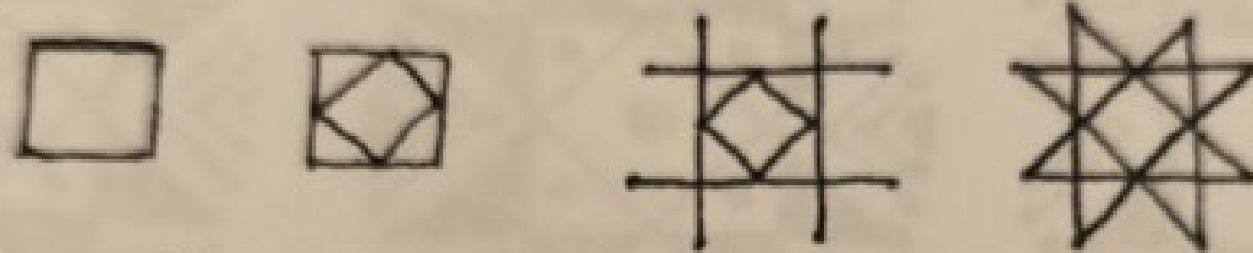
Step 3: Drawing the vertices of the square, and drawing the lines from the center of the square

Step 4: Drawing the lines by adding and removing lines

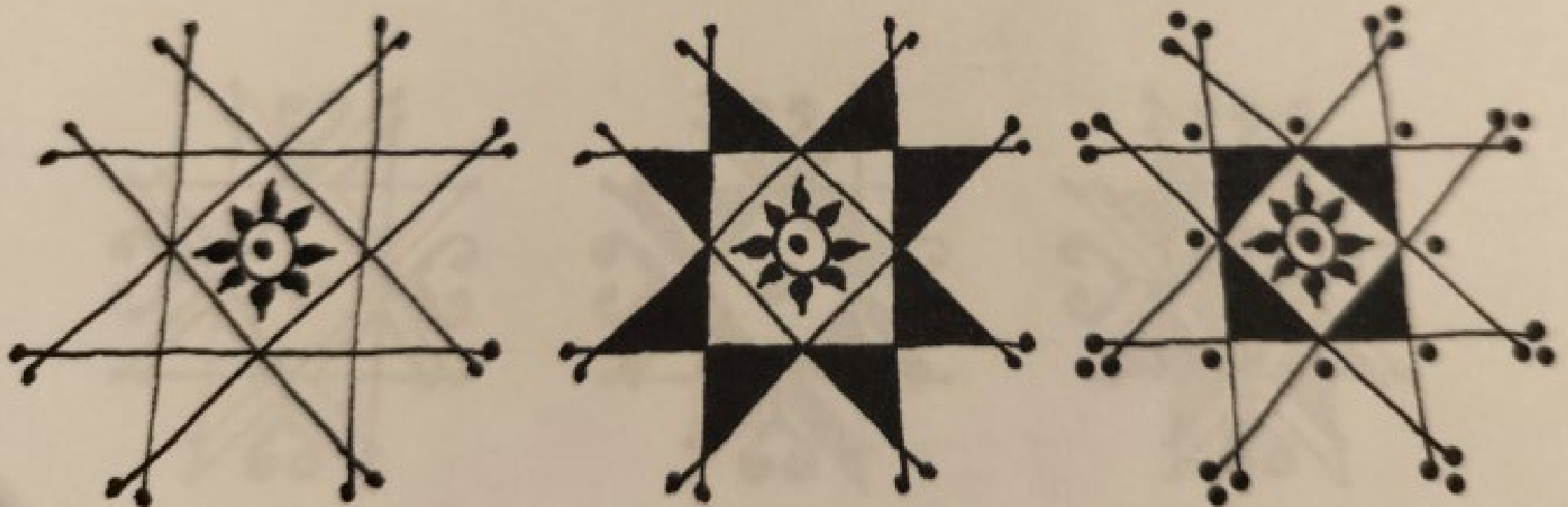


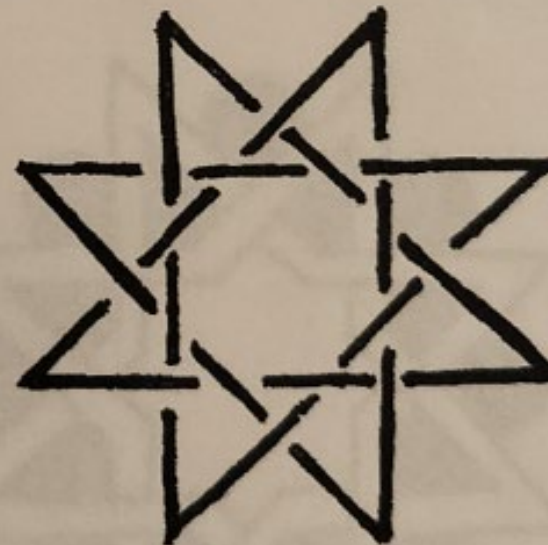
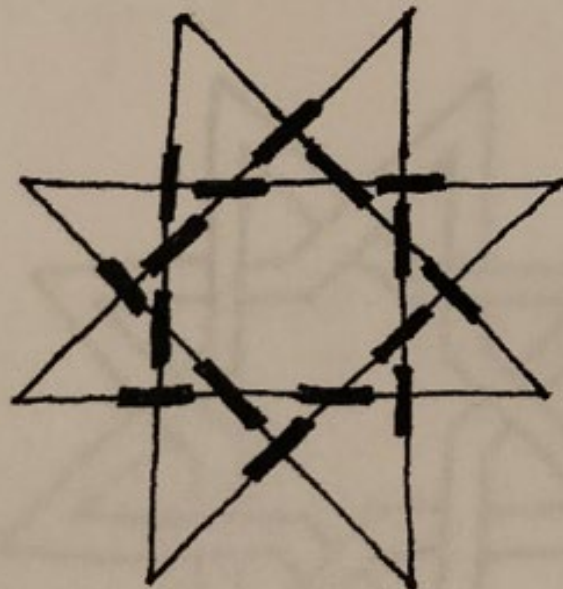
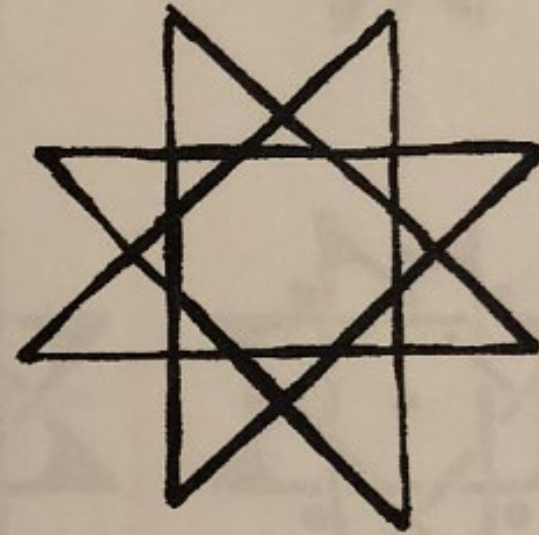
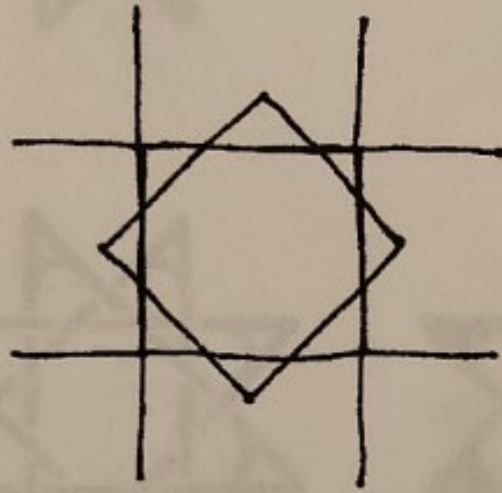
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Stars Built by Extending the Lines of a Diamond Inserted into a Square



Draw a square. Draw a diamond into the square. Extend the lines from the corners of the square. Extend the lines from the corners of the diamond.





Supplies for a henna Math Circle event

- Recipe (recommendation: Henna Caravan)
- Henna powder (recommendation: Jamila)
- Essential Oil (recommendation: Bulgarian Lavender, one of the safest mordants for sensitive skin)
- Non-metal bowl
- Saran mix
- Mixer (not metal) – plastic spatula
- Water, Lemon juice (depending on recipe), sugar
- Floraphane/Cellophane and scotch tape (to make cones)
- Paper
- A clip (for cones – bottom of it, like a toothpaste tube squeeze)
- Scissor (to cut end of tubes with different openings for making marks)
- Medical tape (for covering top coat of henna)
- Disposable gloves

Mathematical Challenge #1: Rolling the cone





Cellophane
(or you can
henna
already pre-
coned)
Roll a 2-D
triangle into a
3-D cone

Mathematical
Challenge #2:
mixing the
correct
proportions

Henna leaves are ground into a green powder for body art. Then the powder is weighed and measured and mixed with lemon or tea, sugar, and a mordant: an essential oil, that, when added to the mix, creates a stain. It then sits overnight to cure for coning.

The Basic Equation

lawsone (henna leaf molecule)

+ acidity (tea/lemon) or water

+ terp or mordant (essential oils)

+ protein (keratin in hair/skin)

= stain



Essential oils

Only use those that do not cause skin irritation, use aromatherapy grade essential oils – safest and most effective

I used tea tree oil for the mixes for the JMM demonstration.

Lavender oil is also great and safe, but test for allergies first by putting a small dot on the hand



Some things should
NEVER go in henna!

Never use gasoline, turpentine,
kerosene to darken the stain – very
toxic, black hair dye, black mehndi,
and much more
(www.hennapage.com)

Introduce a simple recipe

Recipes we're trying today

Tea as acid; no sugar

Lemon as acid; with sugar

BOTH: henna; lavender as mordant (eye releaser)

How to Mix Henna Paste - The KISS Recipe


24 hours prior to use begin mixing

* Henna Caravan 20 gram packet of henna with sucrose *
or (1/4 cup henna + 1.5 teaspoons sugar)
yields approximately 3 ounces paste



1. 24 hours prior to use:
Open 20 gram packet of henna + sucrose

Pour into the zip lock baggie:
1/4 cup lemon juice (fresh or bottled) strained
1 vial (1.5 teaspoons) of Henna Caravan Essential Oils



2. Carefully stir the ingredients in the bag.
Seal baggie closed and continue to gently mix by squeezing and massaging the baggie until all the lumps are smoothed out.



3. Let the baggie of henna paste rest in a warm location for 24 hours (about 70-80 degrees Fahrenheit).

4. When 24 hours has passed, cut off one small corner of the baggie and fill your applicator bottle/cone



5. Go make beautiful henna designs!

6. Store leftover henna paste in the freezer to be used another day.

www.HennaCaravan.com © 2013



Mixing the paste (color change!)



Can mix with glove instead of spoon (very messy!)





...or buy it pre-mixed in a carrot bag and squeeze in into the cone

.... You can freeze it!

Filling the
applicator
(cellophane
cones)





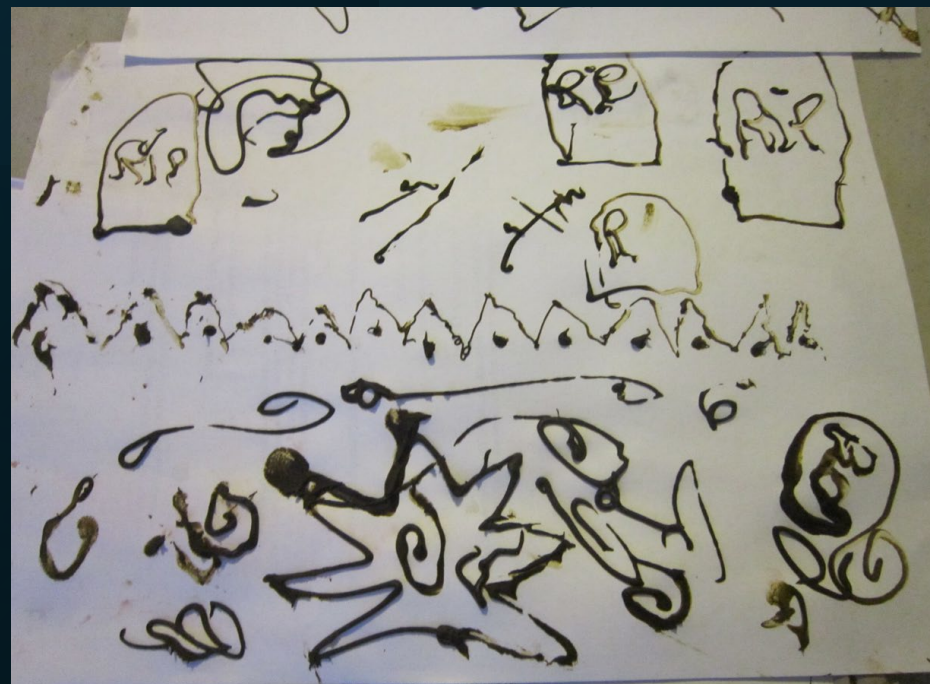
Cut the tip (where
you cut determines
thickness of line)

The whole trick to application:

Have your canvas –
figure out how to
put on the paste so
that it looks nice

Hold the applicator
– so lines come out
nicely

Practice on paper first...



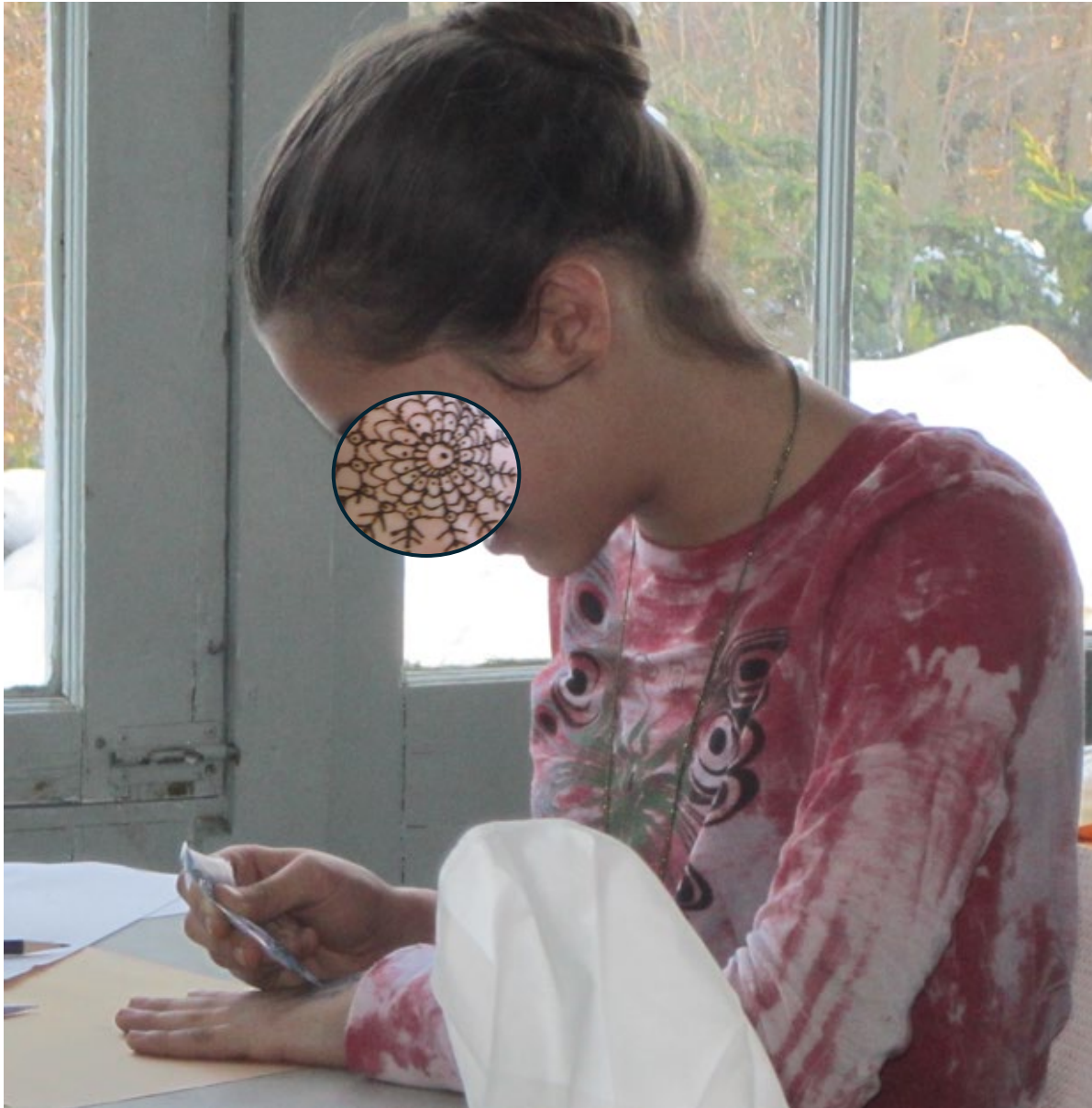


THEN transition to squeezing paste onto skin
with applicator

JMM PARTICIPANTS: can trade markers now,
maybe try a second design



How will you hold the cone? Different people hold it different ways.



ERGONOMICS: how sit, how hold cone. Some use 2 hands to lean.



Start with a
simple shape



Smaller cone
easier to work
with than bigger
one







...or try
a brush

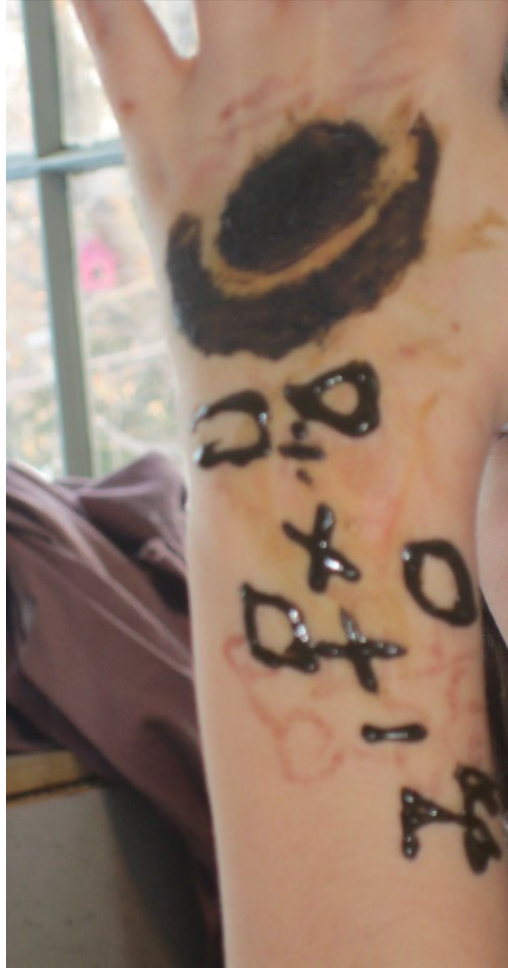




Meant to be done in a warm climate



Raised henna (temporary!)



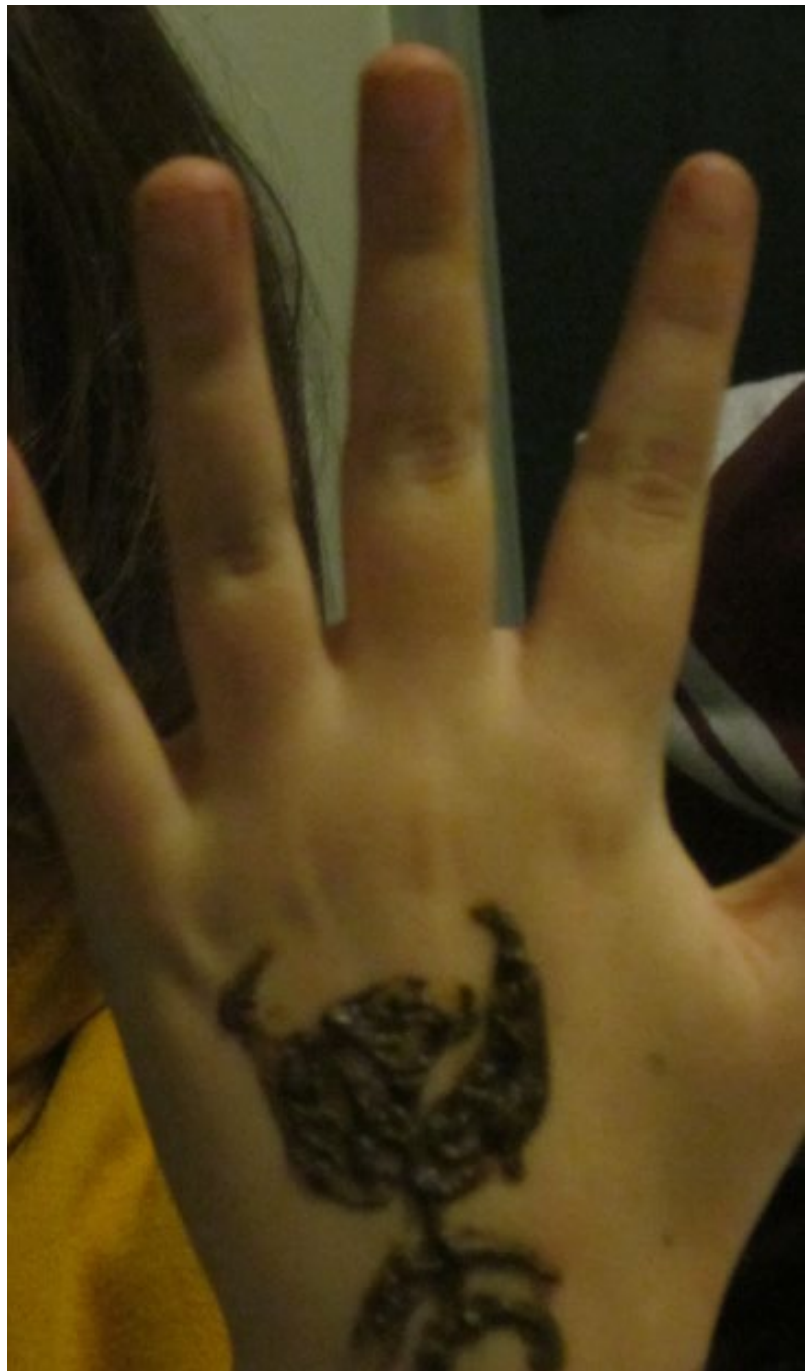


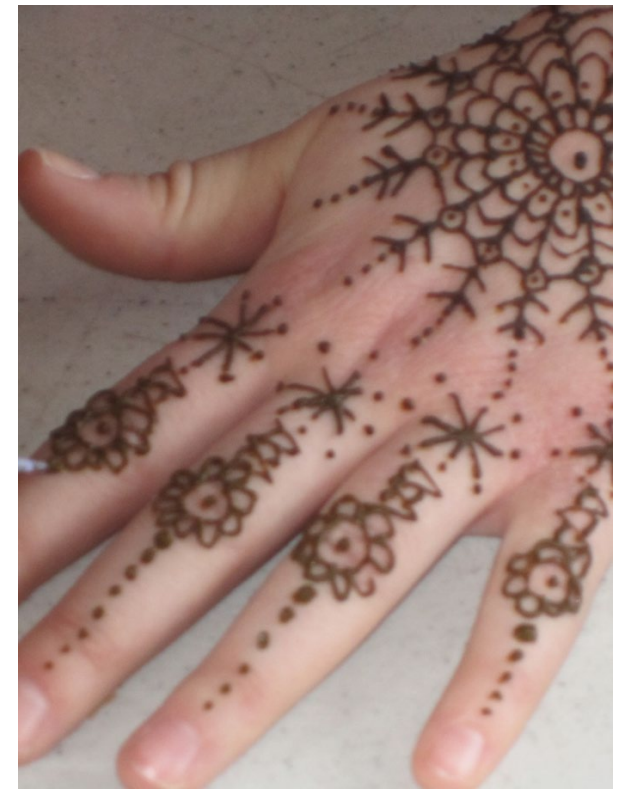


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M12







One option: take your time



Another option: wipe it off and start over

BLURRY henna

Here's how it could look if it smudged, or if you knocked into someone. It's like putting chocolate sauce on your hand!



Wait for it to dry!!!!!!

Sealant: spraying
lemon juice and
sugar sealer on. The
longer it stays on
your skin the darker
the dye



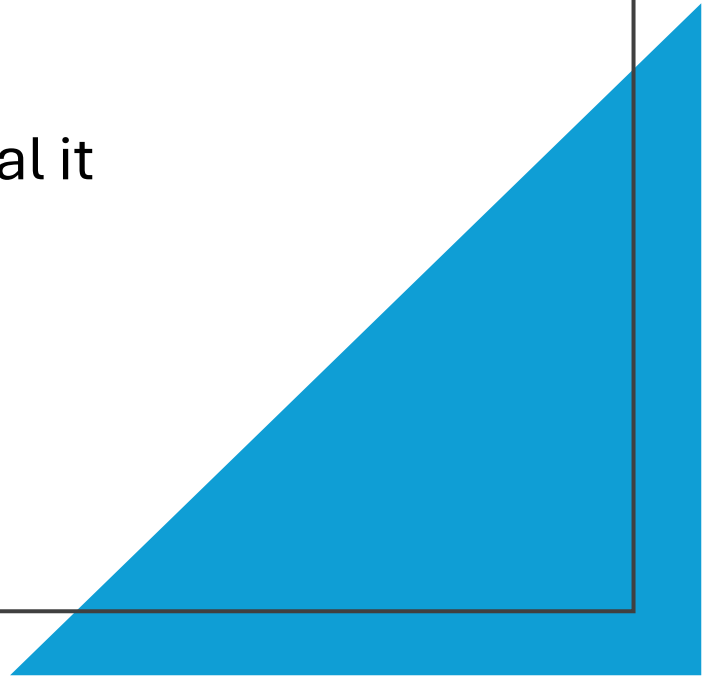
medical tape



STAIN or PLAY?

WHAT'S YOUR GOAL?

- **STAIN** (i.e. henna artist doing henna at a fair), then seal it
- **PLAY** (i.e. teaching), then sealant like lemon juice not relevant





Applying henna to other surfaces

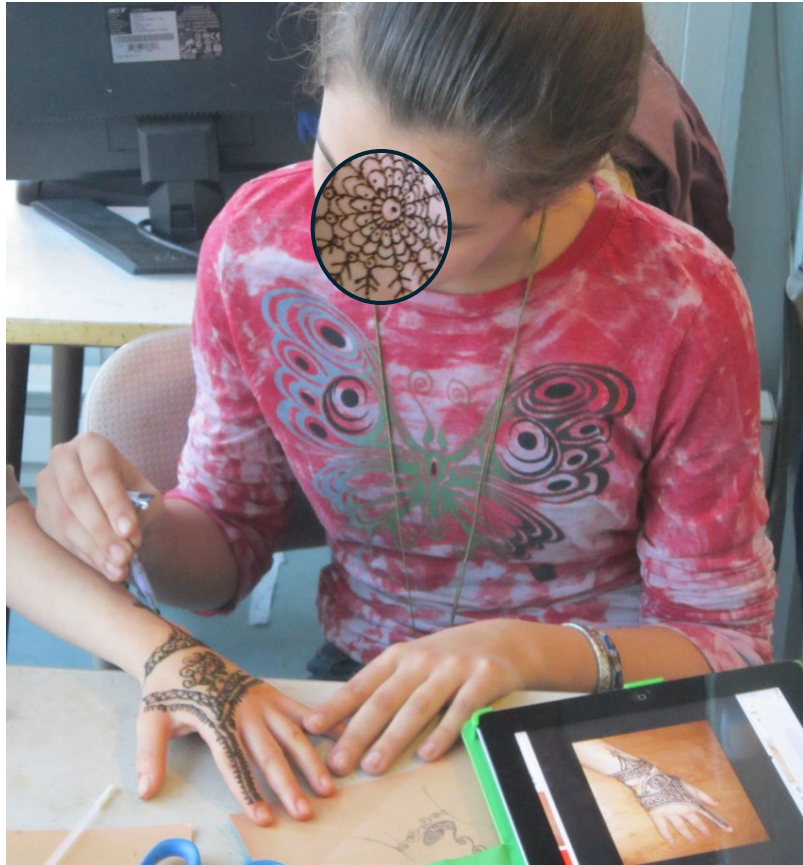
- Paper,
- fabric,
- Plaster cast,
- Mask,
- drum head....

Pick/rub it off like a scab
(over toilet or outside)

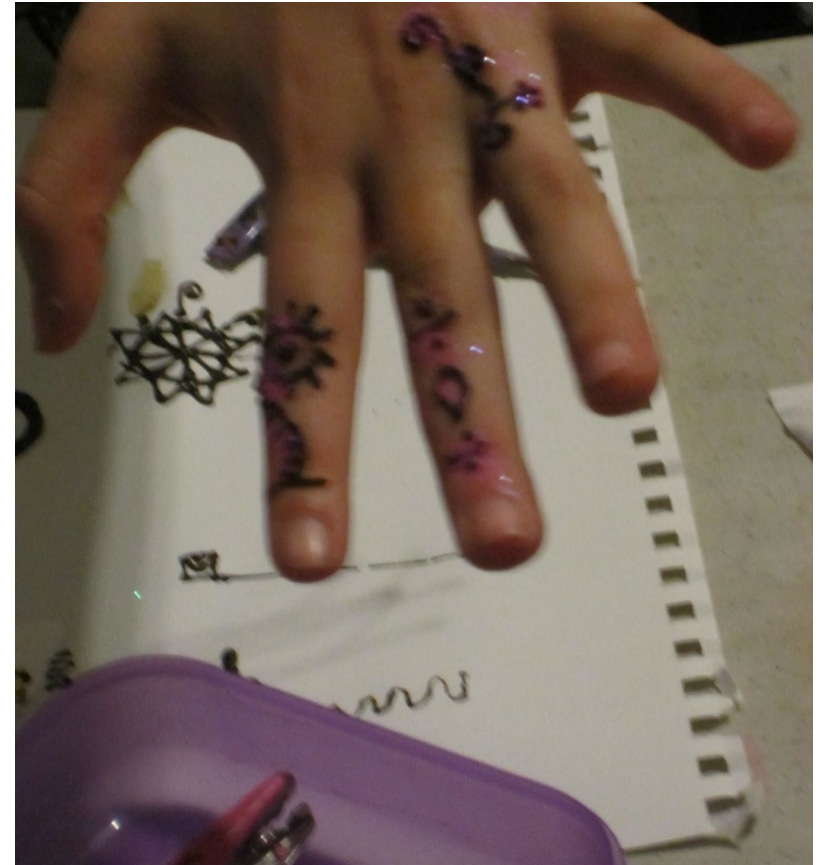
In the end you will take off the top layer and
have a FLAT design.

The color WILL
change





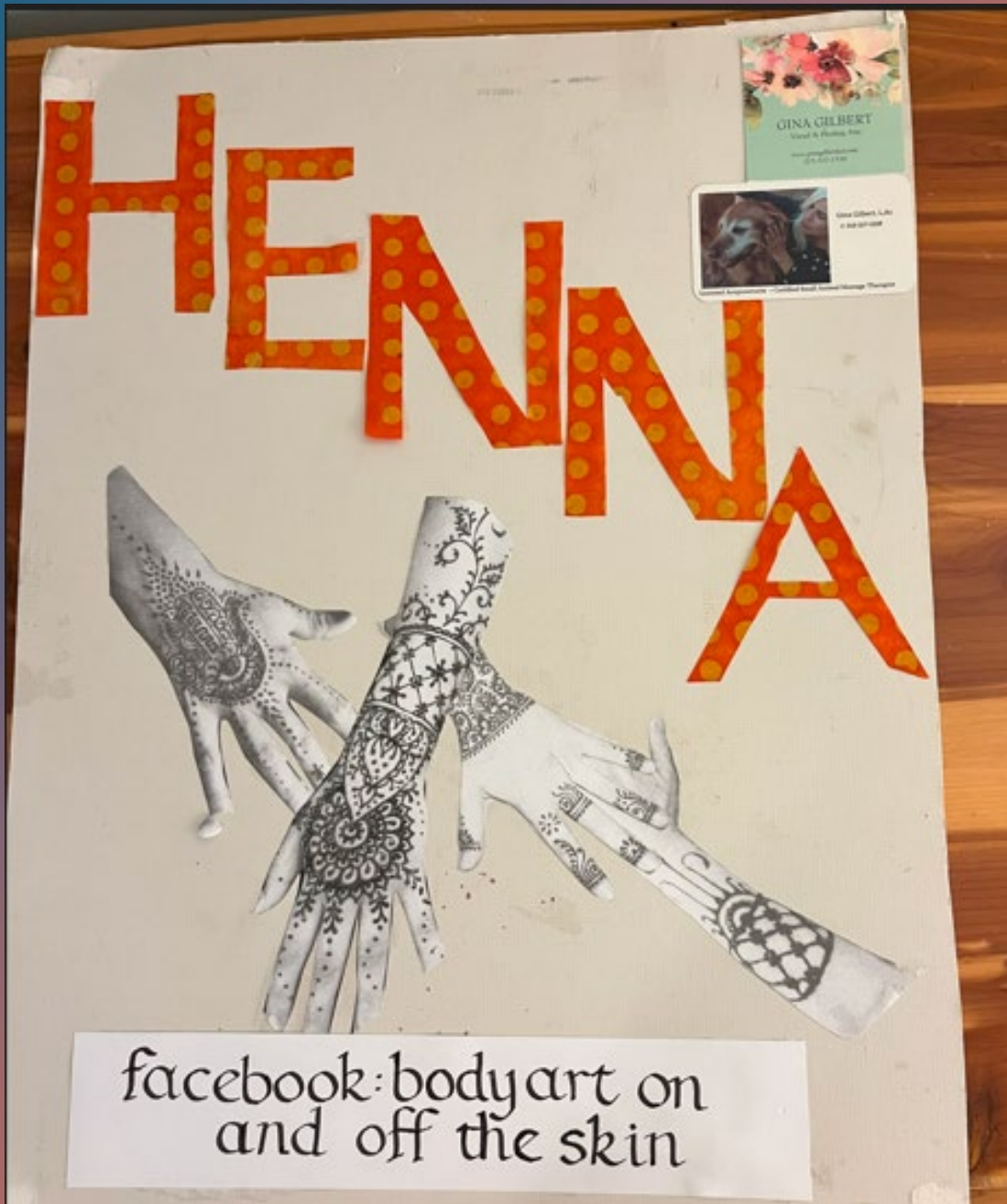
Collaboration, nice bonding



ADVANCED SKILLS, beyond Henna 101,
glitter! (MUST BE SKIN-SAFE GLITTER)



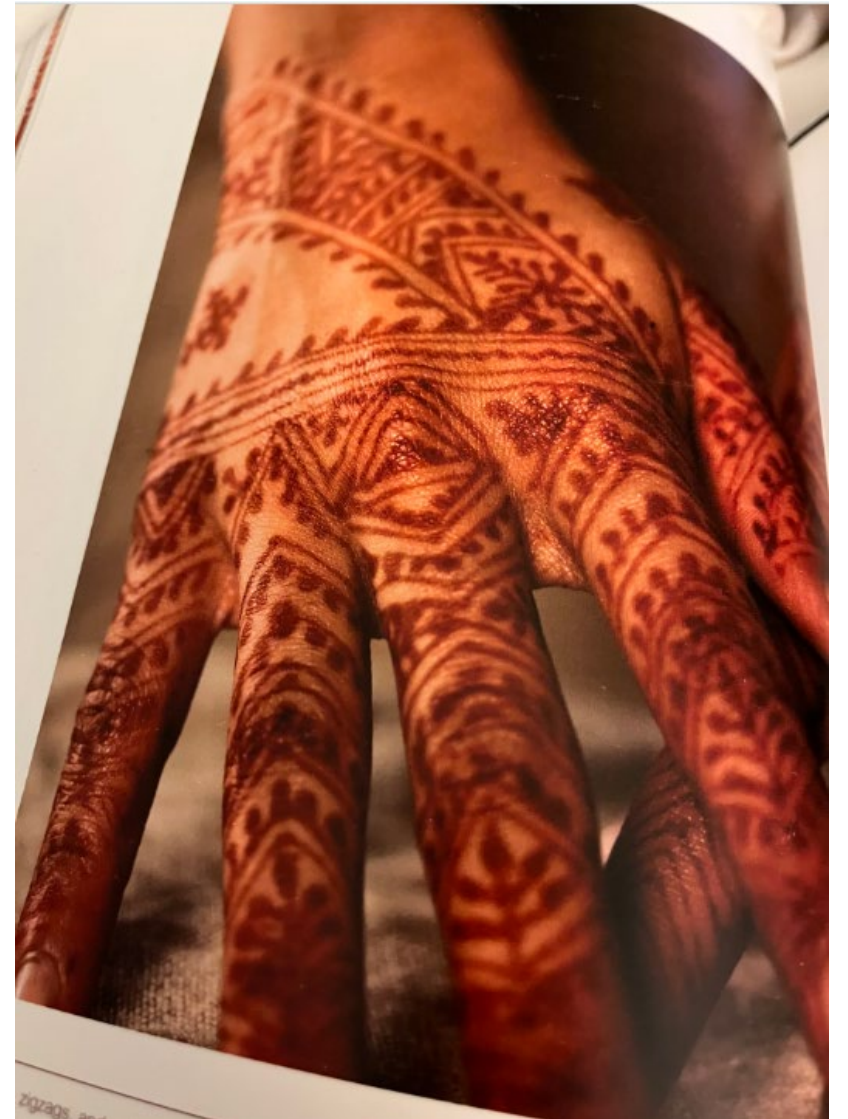
You have to practice a lot to get really beautiful designs. It doesn't happen overnight. Don't try to create some kind of masterpiece



JMM: Share your work if you'd like!

references

- The henna page
- Henna Caravan
- <https://linktr.ee/CatherineLentDesignLinks>



Moor, A Henna Atlas of Morocco, by Lisa Butterworth



DEMONSTRATION:
AIM booth, Friday

- Materials
- Cone Rolling
- Photos
- Drawing
- Application
- Care



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www.acudogwellness.com

