☐ Week 2: Mirror Image

[Read the quote below to start (pg 12)]

"For me, drawing generates thinking and vice versa." -- Helmut Jahn, Architect.

Tutor: Last week, we learned you can break any image down unto OiLS. Does anyone remember what OiLS stands for?

[Ovals, dots, straight lines, angled lines, and curves. Put up the OiLS poster if you like at this time.]

Tutor: Quick show of hands: Do your feet hurt right now? *[Alternate Question: Are you cold/hot/feel that? ("That" doesn't matter…you're trying to get them to self-assess and figure out, "what 'that' does she/he mean?")*

[This will likely surprise your class, they may or may not raise their hand, but that's okay, you weren't taking a poll.]

Okay, you can put your hands down. *[If any put them up]* How many of you had to stop and think about whether or not your feet hurt [you were cold/hot/felt the phantom 'that'] when I asked? Until I asked, did your feet hurt at all? *[Until I asked, where you aware you were too warm/cold/felt anything, let alone what 'that' I meant?"]* Were you even aware of how your feet *[skin, self]* felt, good or bad?

Your brain takes in millions of signals every second. Every nerve in your body sends signals. Your nose is sending signals of thousands of aromas, your ears, dozens, maybe thousands of small sounds. Your eyes are adjusting to light levels as they look around, taking in things, and none of that includes your own active thoughts inside your brain.

Most of the time, your brain has to sort through the mass of signals to concentrate on the few important ones. Have you ever taken off your shoes or unbuttoned a pair of pants and discovered they were tight—but only after you took them off? *[Might get*

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some parents nodding at this one too!] Ever hear a sound only after someone else said, "Do you hear that?"

It's because your brain chose to ignore the signals of discomfort, or certain sounds, until they were bad enough; your tight shoes are livable—until they give you a blister. *[Until you need a sweater, you might not realize you feel cold…until you start to sweat, you might not realize how warm it is…until I asked whether or not you felt 'that', you weren't aware there was a 'that' to feel…]* We ignore the average smell of our surroundings unless something starts to burn or smell bad, or we smell dinner-and suddenly get hungry.

Drawing is the same way. The brain *wants* to ignore or gloss over details if you give it half a chance, just in case something else is more important around here.

Check this out: If I show you this, what do you see?

<*show the Leaf/Eye icon page, (pg 13) or draw similar icons on the board*>

Tutor: Right, it represents a leaf and that one, an eye. These simple drawings look enough like leaves and eyes that your brain can identify them, and move on. Some scientists call these simplified patterns "icons" of objects.[1] The word "icon" comes from the Greek word "*eikon*" meaning image. But a real leaf, a real eye, looks a little different.

[show the photos and line drawings based on leaves and eyes (pg 14) so the students can see the icons, photographs and drawings based on photos at the same time. Whether you are holding both papers lay both papers on a communal table is up to you.]

Our brains glossed over a lot of details to create these simple icons of eyes and leaves, which anyone, world-wide could recognize. The problem is, our default setting in our brains is frequently the simplest, fastest, route to the solution, in order to move on. These icons look close enough to the real thing so we can recognize what they represent—but they don't look realistic, and we missed a lot of details. We saw what we THOUGHT was there, but not what is actually there.

In fact, science students used to be formally trained in drawing in order to make records of their observations. Learning to draw had another side effect; it forced the scientist to become better observers of nature because they really had to look at the way their subject appeared in order to draw it. Even today, with photography, is preferred by many scientists and science instructors.

[1] Other scientists prefer the word "schema" for these patterns. "Schema" is Latin for "figure" or "appearance", so it's virtually the same thing.

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Which brings us back to today's lessons: drawing the mirror image, or other half of a symmetrical image.

A symmetrical image, of course, is an object that you can cut in half and have two nearly-perfect reflections of each other. There's lots of symmetry in nature: can you think of any animals that have bi-lateral symmetry, like this butterfly? Or radial (rotational) symmetry like this Maltese cross or starfish?

When we break a recognizable image in half, our brain has a harder time recognizing it at an icon pattern level. Because of that, you can more easily see the OiLS that make up the half-image.

And when you have to hand-draw the other half of that image, the part of our brain that wants to just make a simple icon pattern and move on has to stop and really look:

- Look at the length of the lines, relative to the lines around them.
- Look at the arc of a curve,
- Look at the angles and spaces that make up an image.

In order to get things to match, you can't just say, "It's a heart, draw the hook shape and be done". You have to ask, "How far before the curve begins?" "How fat is that curve?...how far out does the curve go?" All these things slow you down and help you LOOK at what is there, not what you think is there. Even when drawing more complex things, like the crown or castle, or face-vase, try to keep your internal vocabulary limited to lines, curves, angles.

Above all, remember **that learning anything, including drawing, is about the PROCESS and PROGRESS, not the PRODUCT**

"The trouble with progress is that it tends to happen slowly and quietly. It's not necessarily going to shout about itself, or make the nightly news ..." -Aaron Koblin

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Keep at it, and keep practicing. If you don't like the resulting drawing, remember Chuck Jones, and get the "bad drawings out". Even bad drawings, if you worked at them, really looked at how your reference picture is put together, help you draw better in the future!

Review:

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- What is a symmetrical object?
  - *An object that can be cut in half and both halves will be mirror (or rotational) copies of each other.*
- Drawing is about …? <*Process and Progress, not necessarily Product*>

What is the point to this exercise?

While we are only just beginning to study the brain and understand how it works, there is evidence that the brain has several modes of "thinking".

If you've ever heard of someone being "left-brained" or "right-brained", you may also have heard that "left-brained" people are more logical, mathematical, methodic, and "right-brained" people are more artistic, creative, and spontaneous.

We now know that brains are highly individualistic, and you use both sides of the brain. But the modes of thinking DO appear, it's just they are not attached exclusively to one side of the brain or another.

The Local-Logic mode of thinking likes step-by-step instructions, efficiency, checklists, rules. THIS is the mode that over-simplifies things.

The Global-Gestalt mode of thinking likes complexity, losing time in wonder, invention, possibilities. THIS is the mode that thrives when you draw.

But…Local-Logic is the mode that is easiest to test and assess. When was Napoleon crowned Emperor of France? 1803. BOOM! DONE! Success, move on!

But ask, "What would have happened at the Battle of Waterloo if Napoleon had WON?" and Global Gestalt gets involved. " Possibilities, possibilities…would he go home? Would he invade England? What If he had?:" And several hours of conversation and debate later, you might not have a "correct answer" but you will have a deeper understanding of Napoleon, the 19th century and more, as you debate what he might have done.

Because Local-Logic can be easily assessed through multiple-choice tests and the like, it gets stronger with that training and becomes the default-mode for most of our ways of thinking. By destroying half of a common image, we hamstring Local-Logic's ability to push Global-Gestalt to the side, take over, and move on. By forcing Local-Logic to sit out, we let Global-Gestalt do what it's better at, and the more Global-Gestalt gets to take time, observe, think through possibilities, the better your art, and problem solving, and creativity, will be.

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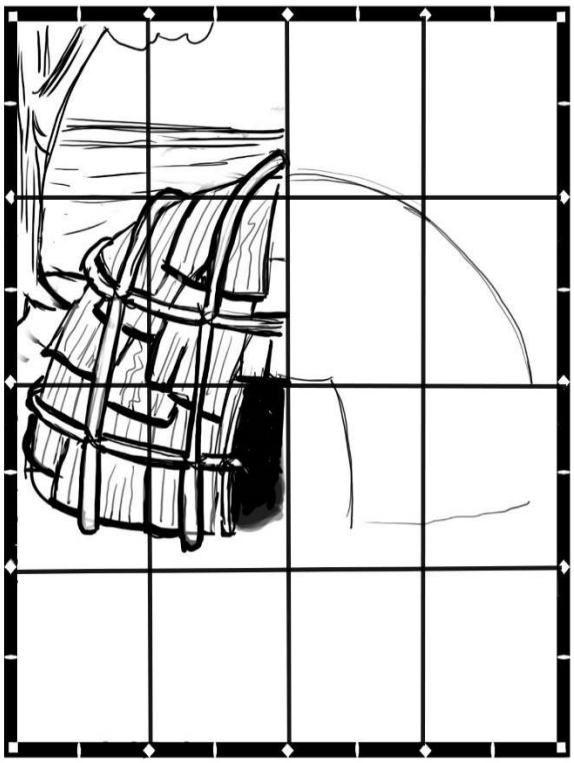
Exercises

Exercise #1: The Half-shapes Pgs. 16-22

There are four patterns included for this first exercises, each increasing in difficulty and details, and each also has left and right hand variations.

What's with the funny frame?



Some people have a hard time freehanding their first mirror images, or are quite anxious over "getting it right". If this is the case, the frame can help you "grid" an image.

You can draw a grid by matching diamonds to diamonds, football-shape to football-shape, or the corner squares to each other—or any combination. Drawing grids has been a traditional method of accurately transferring a sketch to another surface for continued work, or correctly scaling an image by hand. It will help students by giving them "measuring marks" to work with. "That curve crosses where these two grid lines almost touch…the horizon is halfway between the top of the frame and the first grid line down…" ect.

You can:

- Use just the corner squares for an "X-shaped Grid" (helps to keep some things centered)
- Use just the diamonds for a large grid (shown on the wetu image, PAGE NUMBER)
- Use the football/leaf shape grid • Any combination thereof

The more lines you draw, the harder it will be to erase the grid later, so if it's wanted, use it, but try to do a second version of the exercise free handed later.

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Exercise #2: The "Official" Art Mirror Image Exercise Pgs. 24-26

Yes, "official" is in quotations because there's nothing officially official about it, but so many art books, schools, and courses use this example, (which dates back to at least the 18th century) I thought we may as well throw it in here.

This is called the Face-Vase exercise. Look at the lines on pages 24-26 and try to copy a mirror image of it. The internal question then becomes, is this a pair of faces looking at each other, or is it a fancy vase/goblet in the middle? Being able to freely switch between seeing both is supposed to help your brain convert from seeing a "pattern image" to seeing how sections of lines and shapes that can be placed to form a larger image.[2]

These exercises are simple and relatively quick compared to the others, so you can start with this and hand out exercise #1 after or, you can do a variation on what Betty Edwards talks through in her book "Drawing on the Right Side of the Brain".

Edgar Degas, from Cycle 2, used a grid to transfer this ballerina. Many "great artists" used-and still use-grid to help them measure proportions or transfer a drawing from one surface to another, often final, surface.

Exercise #2A:

Ask your students (and their parents) to draw a profile on one side of their paper, leaving the other side blank (Left handers should draw on the right hand side, leaving the left-hand side blank and right handers should draw on the left-hand side, leaving the right side blank.)

[2] Betty Edwards, New York Times Bestselling author/art teacher of the book 'Drawing on the Right Side of the Brain" talks about using the face-vase exercise to force someone to switch from using the more commonly trained and rehearsed 'L-Mode' (Logic, verbal, mathematically driven) to the less-trained R-Mode (spatial, problem solving, out-of-the-box creative driven.) In her exercise, she mentions many students have to switch between seeing both profile and vase in order to complete the exercise correctly, rather than just copying one or the other.

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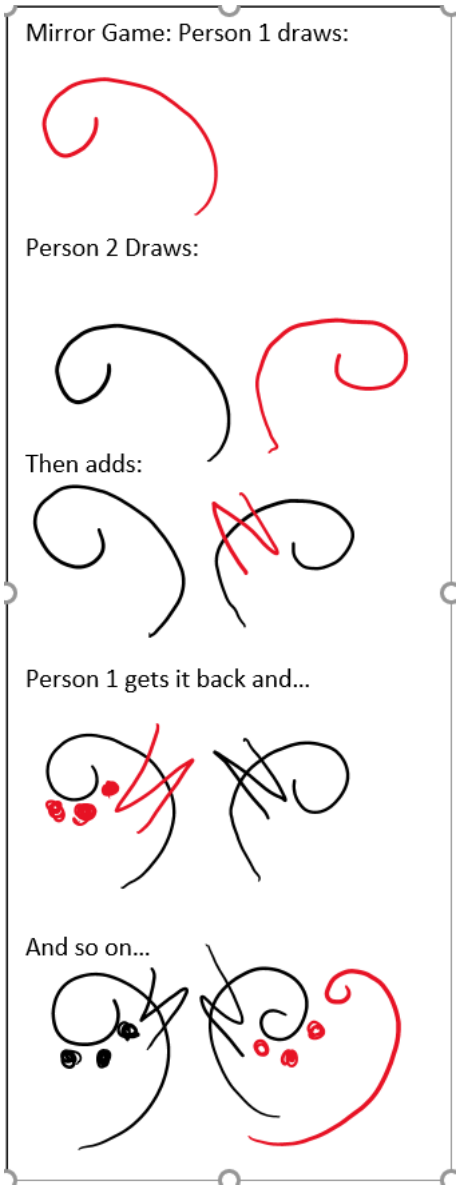
Once they've done so, now complete the other side, to mirror the first profile.

Exercise #3: A Mirror Game

Using two students (or a student with his or her parent) fold a piece of paper in half, and have one person draw something (a line, a shape, something simple) on one side, and hand the paper to the other person. The second person should match the first mark on the blank side, then add a second mark on their own side, then hand it back to the first person. Continue this way, practicing matching elements and lines back and forth. (See example at the right)

You can even do this on the board with one or more students, or as a suggested activity at home for the week.



The goal in all these exercises is:

1.) To help the student's brain more easily spot and break down any image into its component OiLS
2.) To help the student to practice proportions, visual distance and measuring.

Any of these exercises can also be used during the week!

Drawing and Memory, Math, and More:

Drawing is a Skill, not a Talent. With training and practice, you can improve and even become skilled at drawing.

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Drawing will draw upon mathematics: proportion, scaling, symmetry, dividing (for example, evenly dividing a form so certain marks are equally spaced apart), perspective (which we will get to in week 5) and creating or replicating patterns.

Drawing will also teach ***"gestalt":*** a German word which means being able to see the whole of something AND its parts, as well as being able to perceive how that thing is not just a collection of its individual parts. Being able to see the whole, the parts, and the combinations therein, helps with problem solving in multiple fields, and drawing naturally teaches this technique.

Many medical and science colleges at universities are either re-instituting required drawing classes as part of their curriculum, or integrating required drawing as part of the tests and note-taking. The quality of the final drawing is less important than the process of drawing a system, theory, or image under a microscope, because the process of drawing helps students learn and remember more quickly, and more deeply.

"We propose that drawing improves memory by encouraging a seamless integration of semantic, visual, and motor aspects of a memory trace"

-Abstract from "The Drawing Effect: Evidence for Reliable and Robust Memory Benefits in Free Recall"

by Jeffery O. Wammes, Melissa E. Meade and Myra A. Fernandes

Published in Quarterly Journal of Experimental Psychology, Vol 69, Issue 9; 16 Feb. 2016

In other words, drawing improves memory because it seamlessly combines language, visual concepts, and movement together, all of which encourages better memorization.

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SYMMETRY (N)

(First appeared in English in 1563)

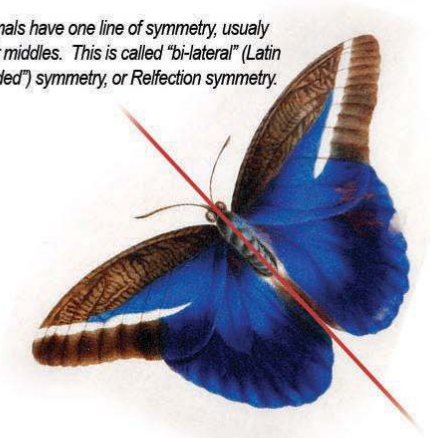
Original meaning:

relating to parts, correct proportion, how things fit together,

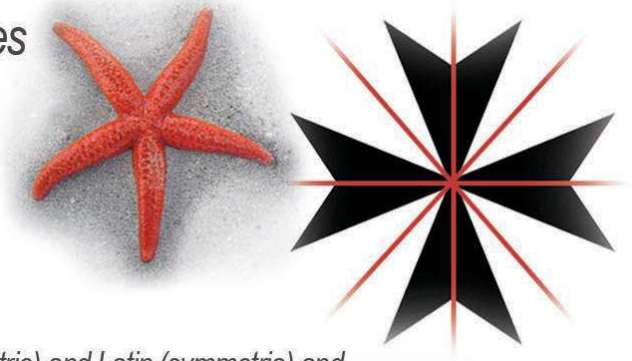
Modern defintition:

An object which you could draw at least one line across, and the two halves would look like mirror images of each other.

Many animals have one line of symmetry, usualy down their middles. This is called "bi-lateral" (Latin for "two sided") symmetry, or Relfection symmetry.



Some shapes and animals have multiple lines of symmetry radiating out from a single point. This is "Radial" or "Rotational" symmetry. Both "radial" and "rotational" refer to Latin words involving wheels.



ETYMOLOGY:

Comes to English through Medieval French (symmétrie) and Latin (symmetria) and ultimately from the Greek word "symmetria" (Συμμετρία)

Symmetria has two roots: "Sym-", meaning "together" and "metron" meaning "to measure", ergo, "to measure together"

A reflection is a type of symmetry often seen in nature.

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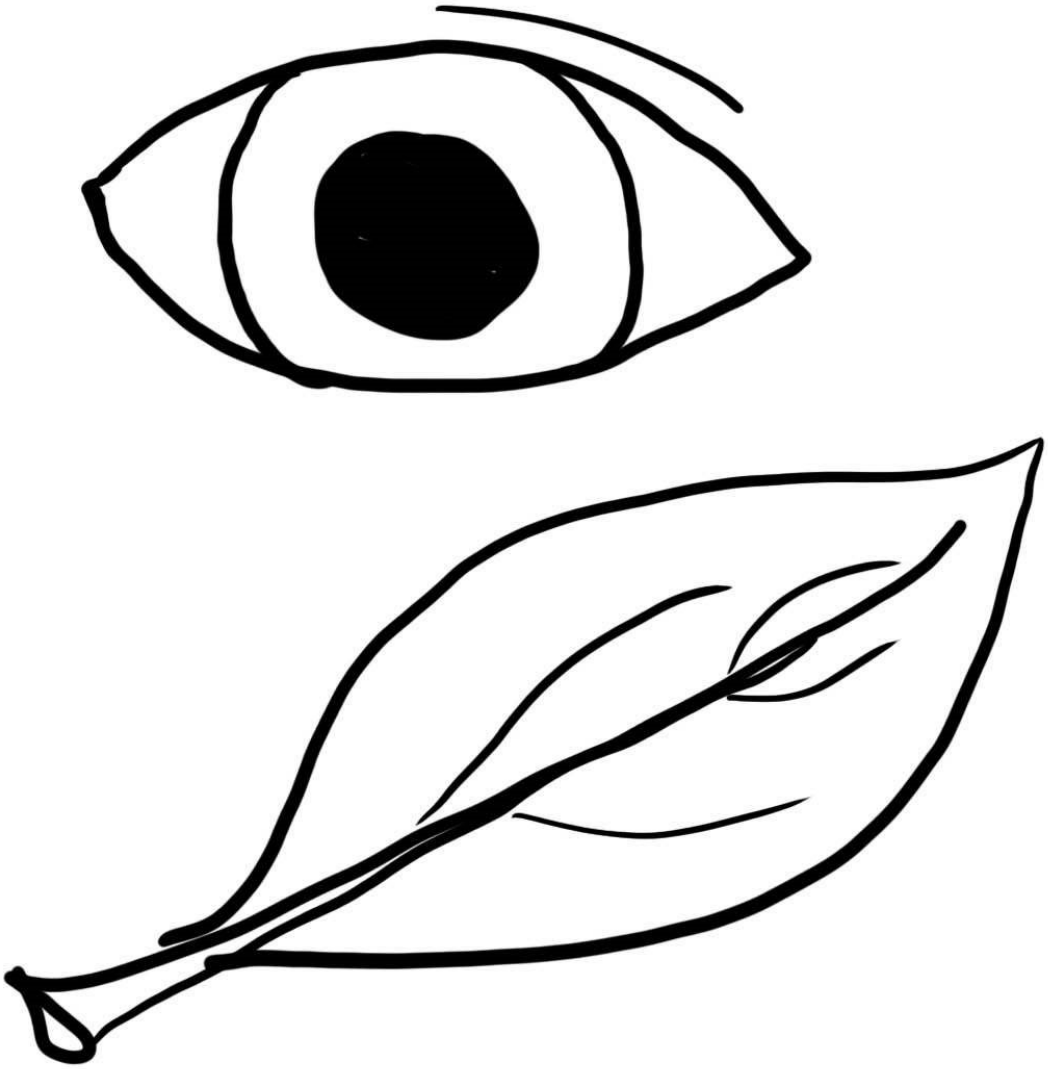

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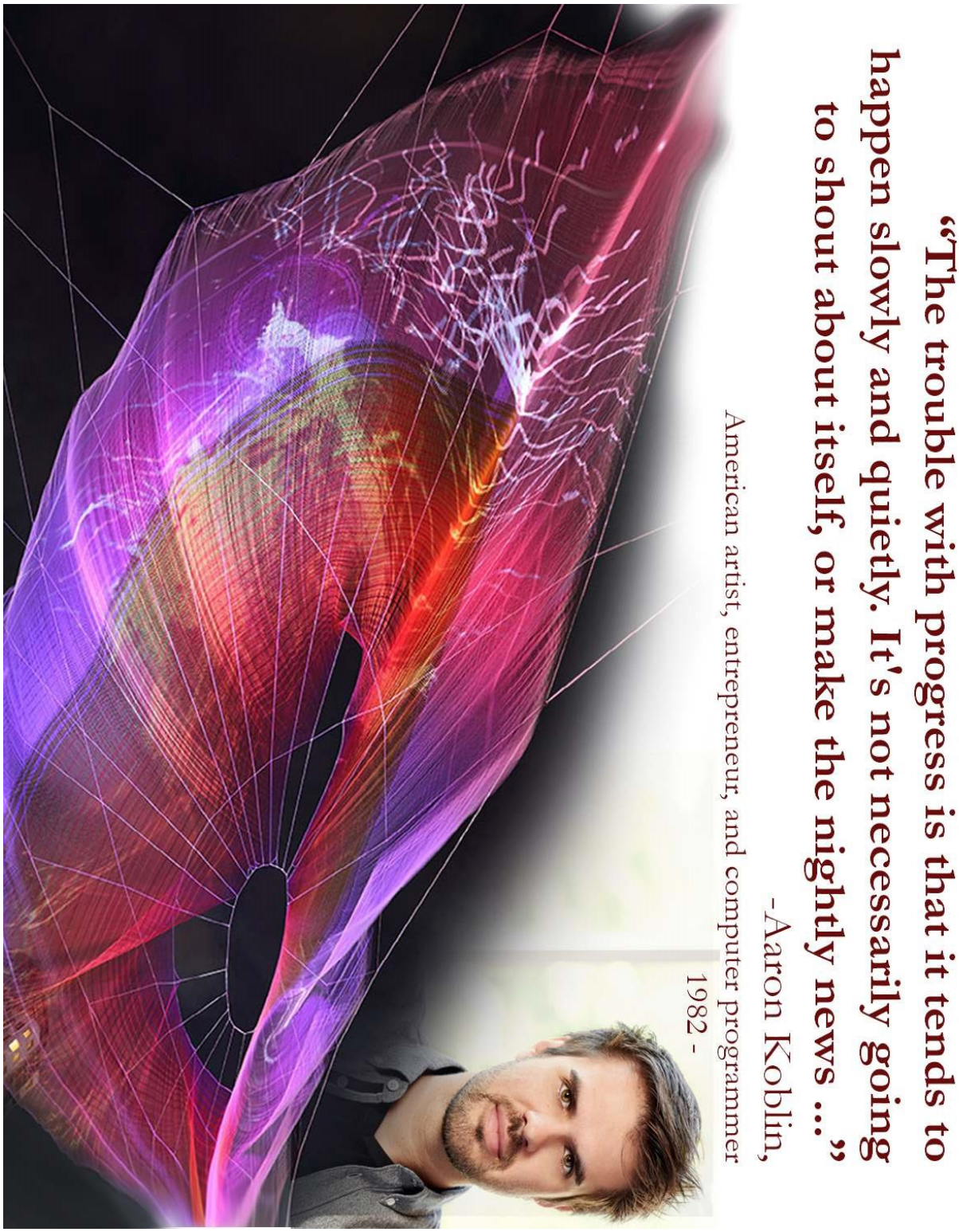

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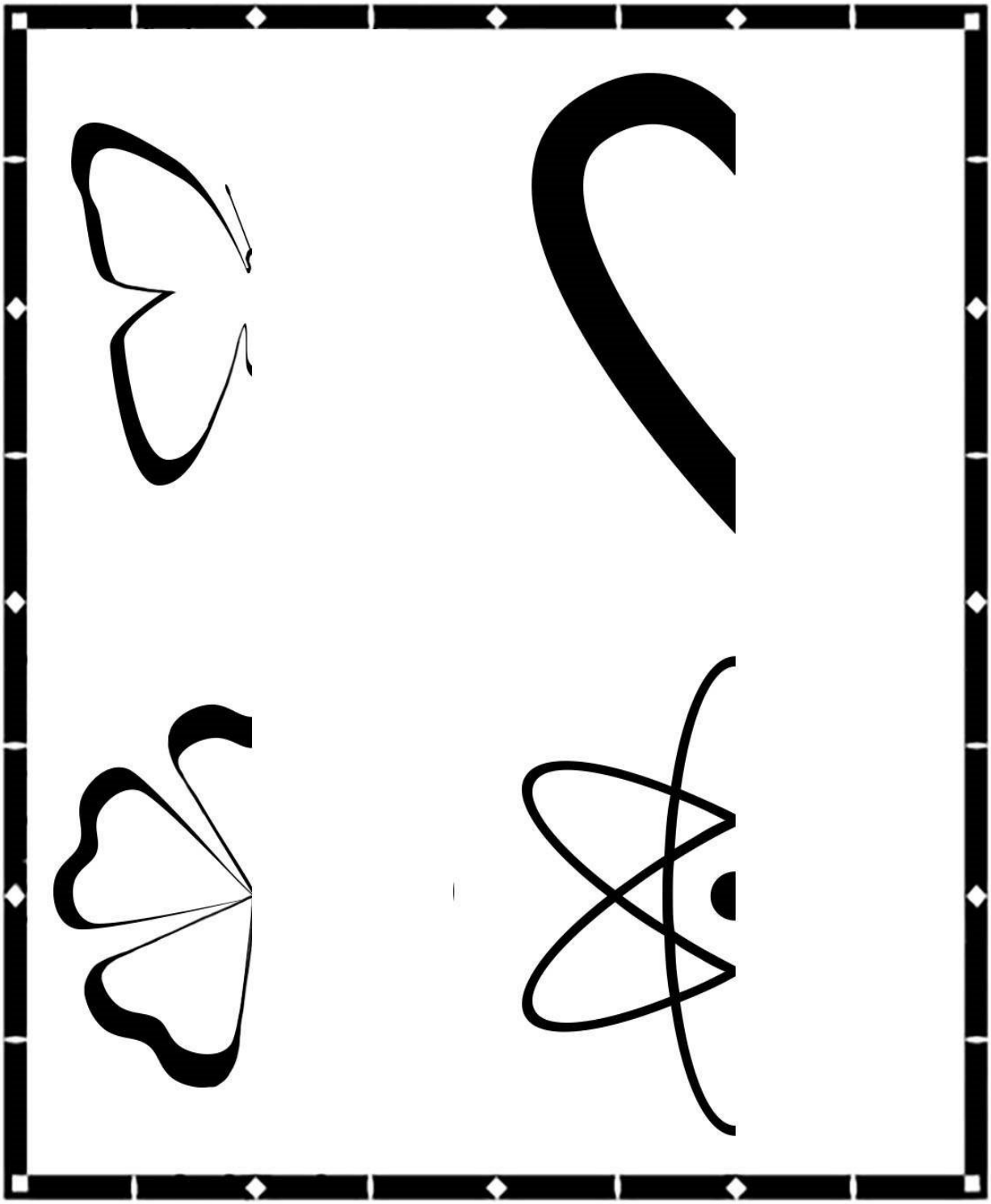

Figure 1: Simple Shapes for the right handed draftsperson

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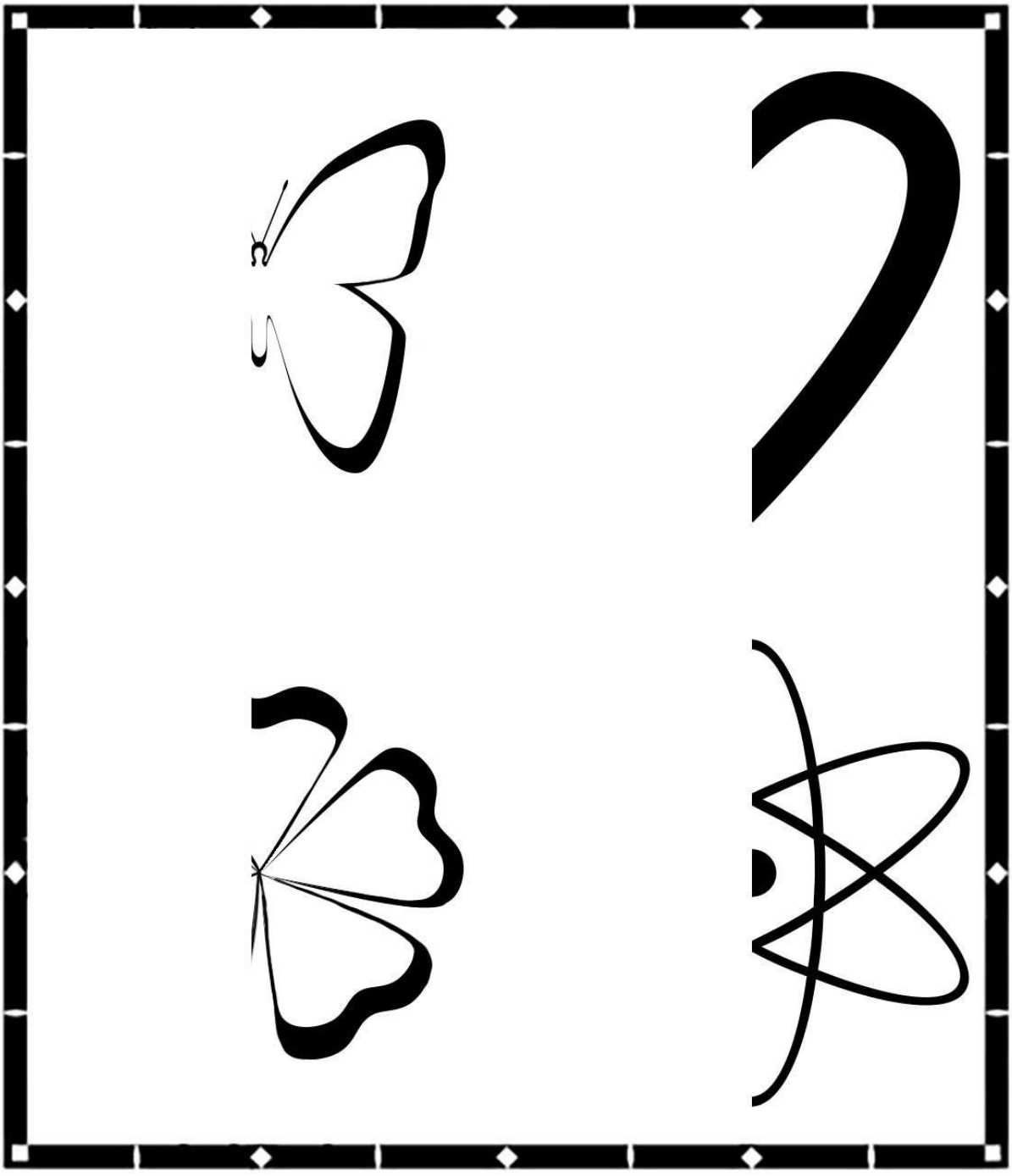

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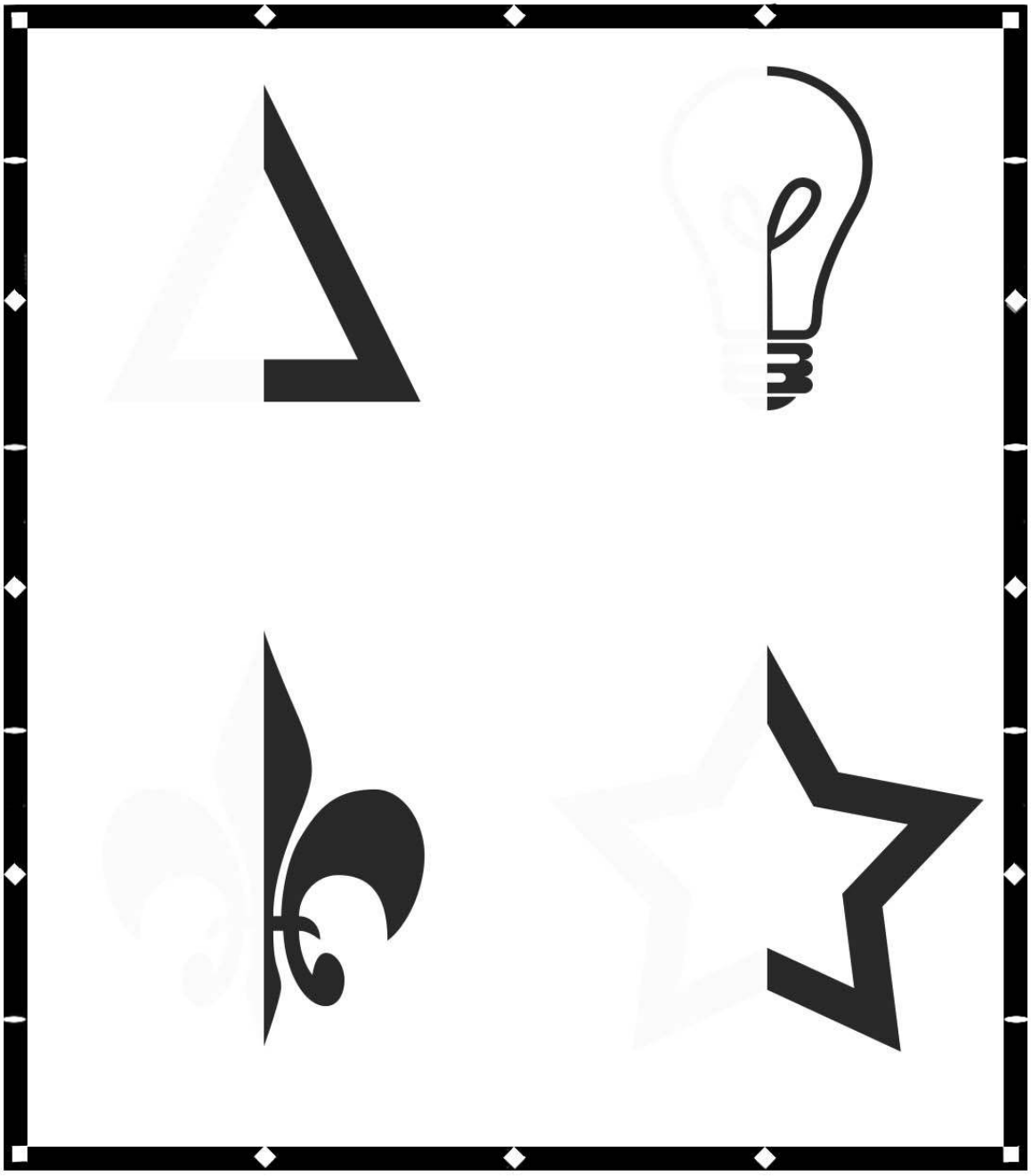

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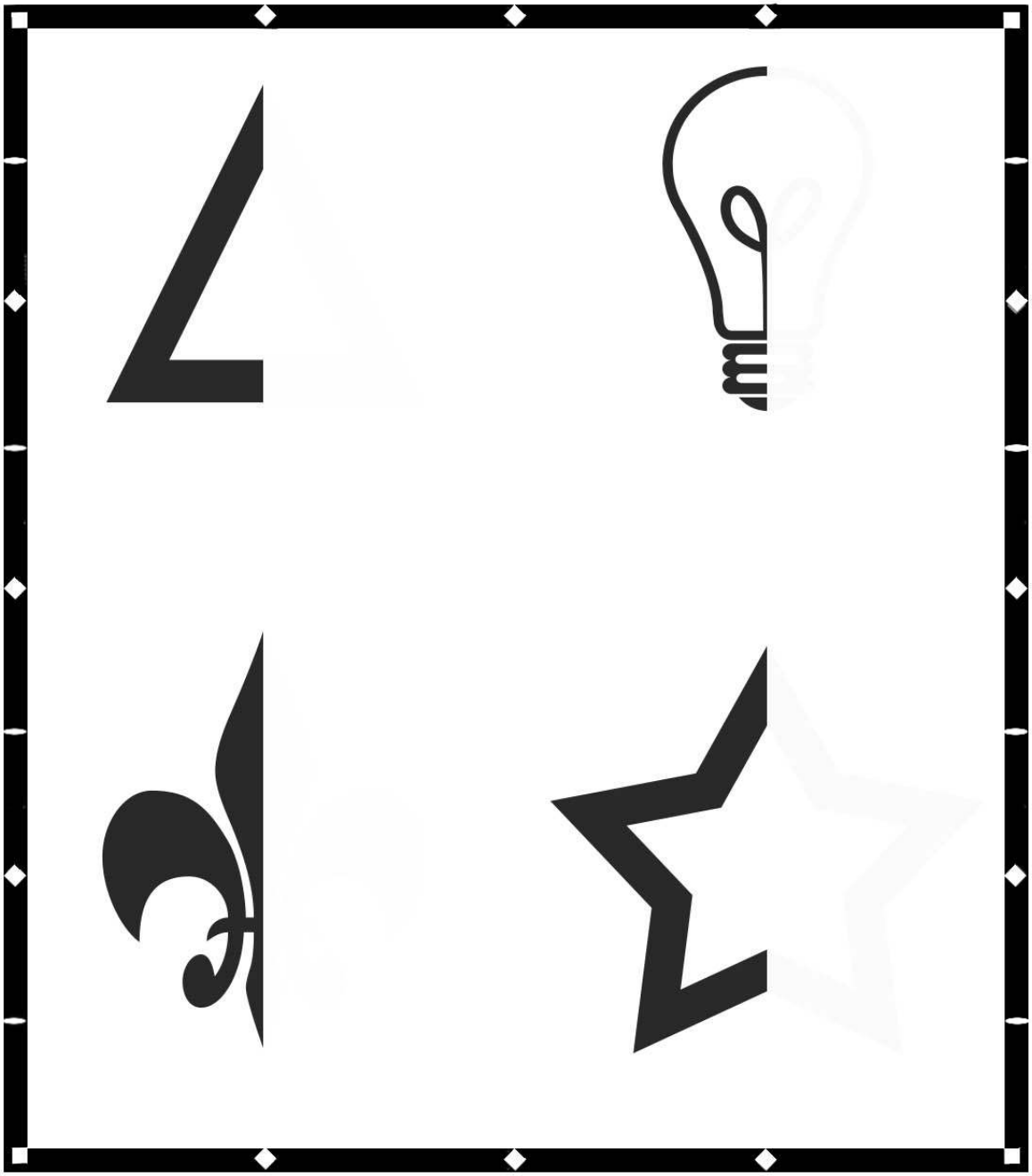

Figure 2: Simple Shapes for the Left Handed Draftsman

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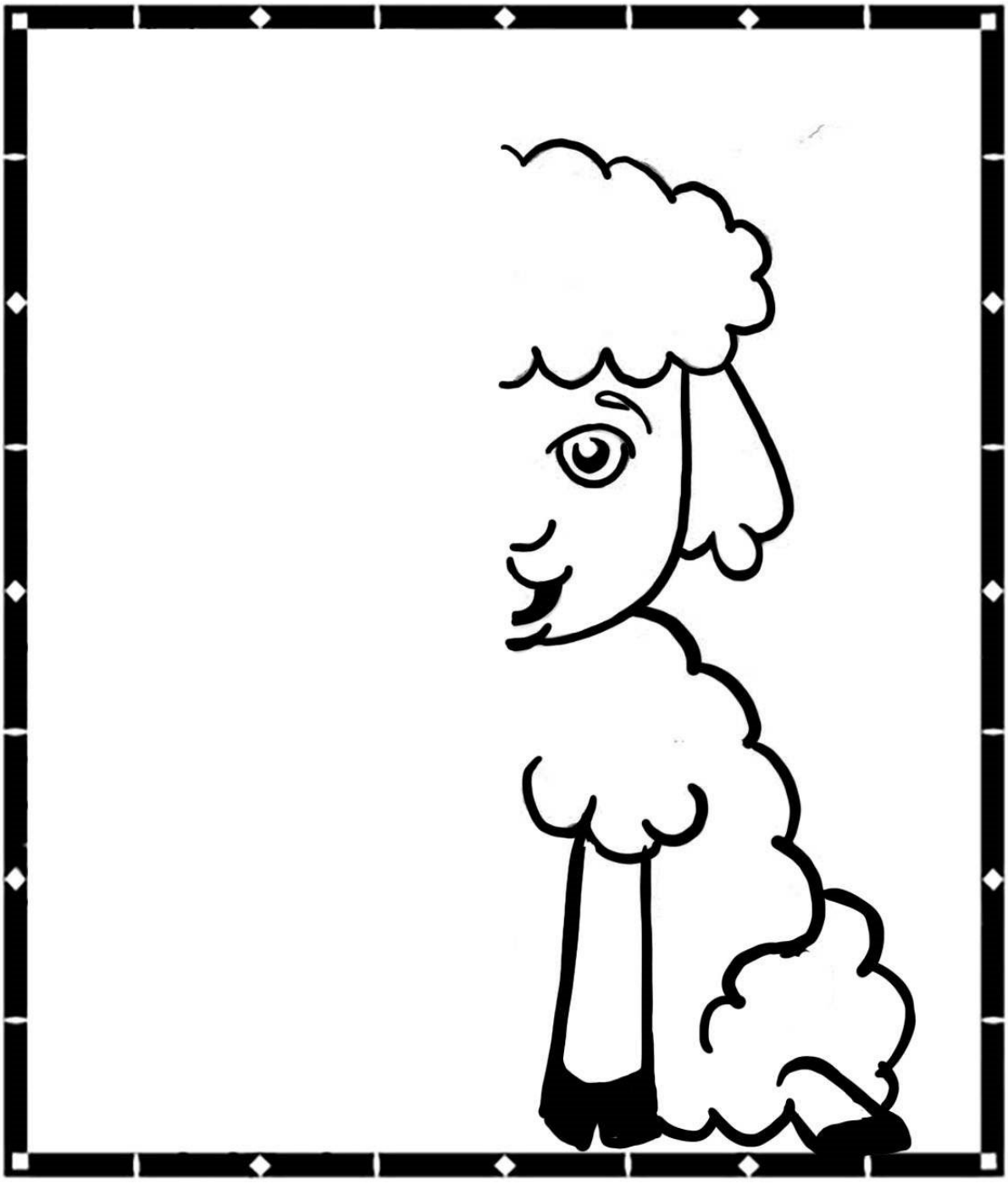

Figure 3: Lamb for the Left Handed Draftsperson

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Figure 4: Lamb for the Right Handed Draftsperson

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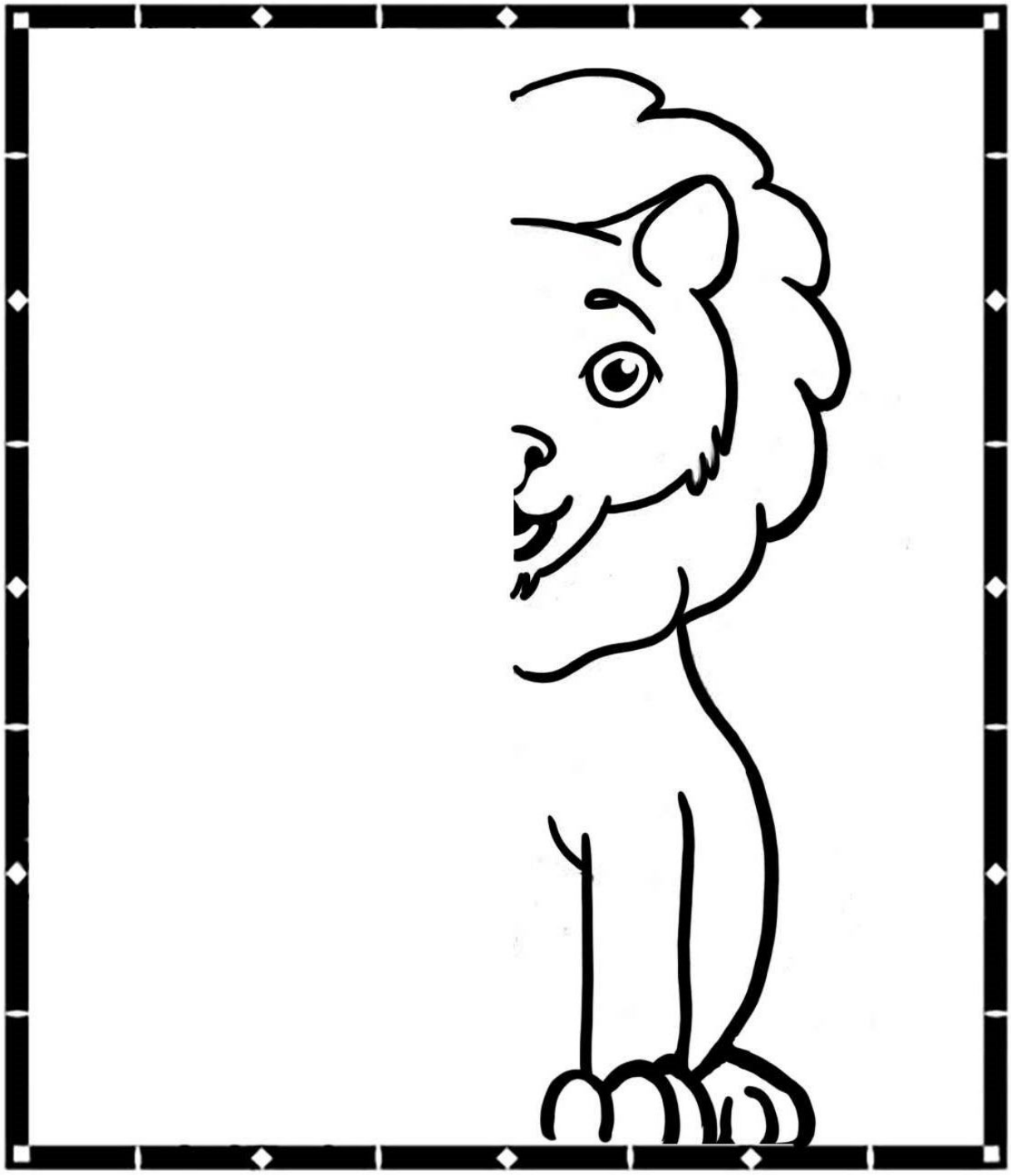

Figure 5: Lion for the Left Handed Draftsperson

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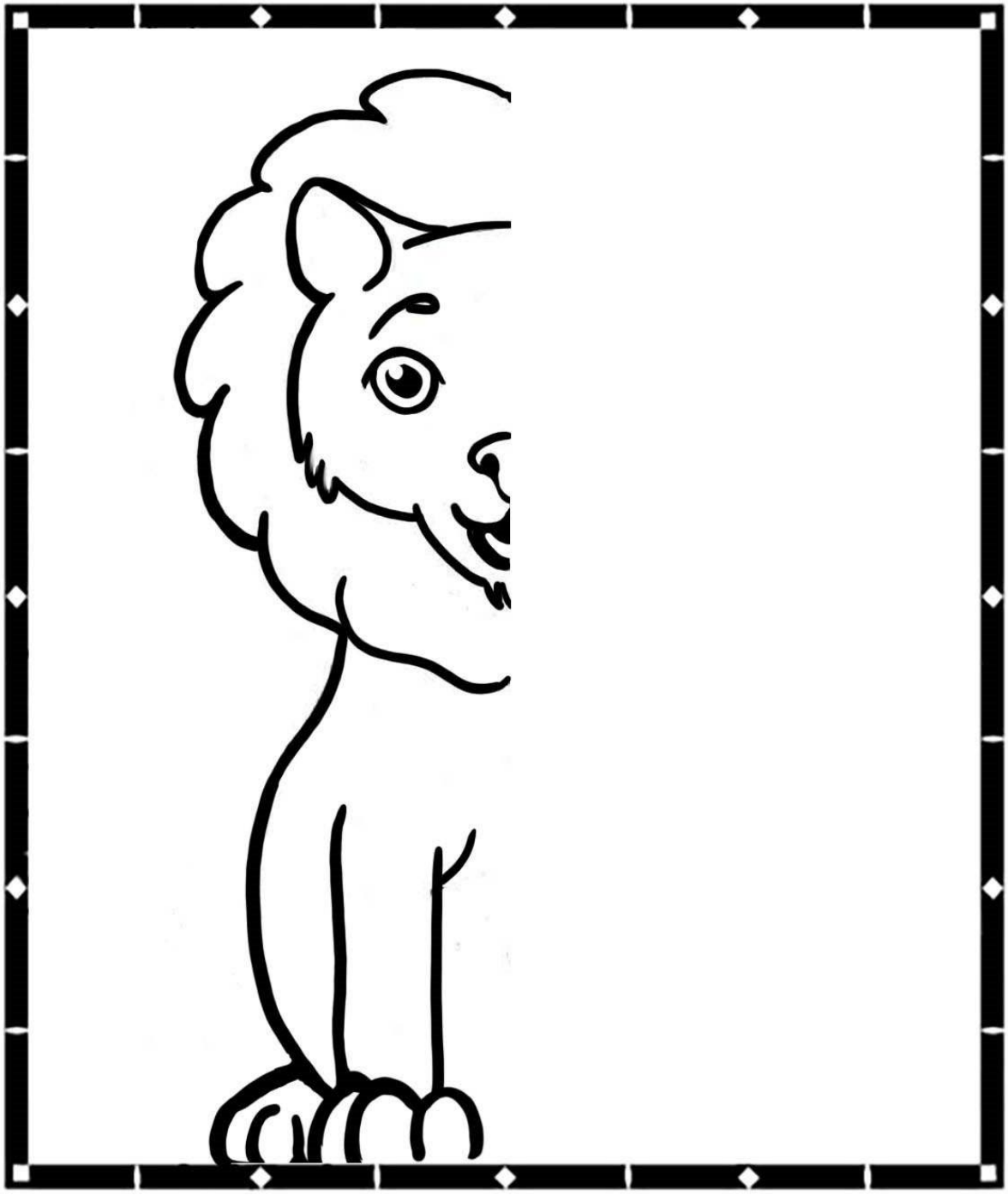

Figure 6: Lion for the Right Handed Draftsperson

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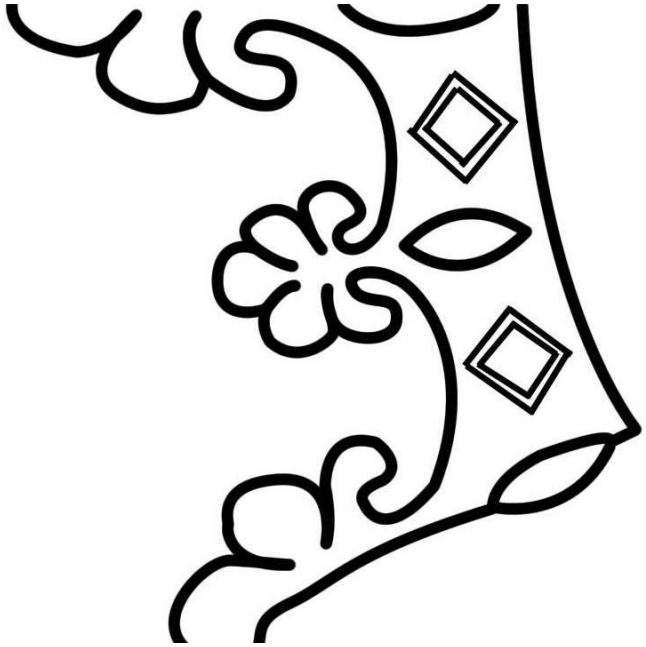

Crown of Medieval England

Based on multiple illustrations and tomb effigies of William I through Henry III

Crown of Medieval England for the right-handed draftsman

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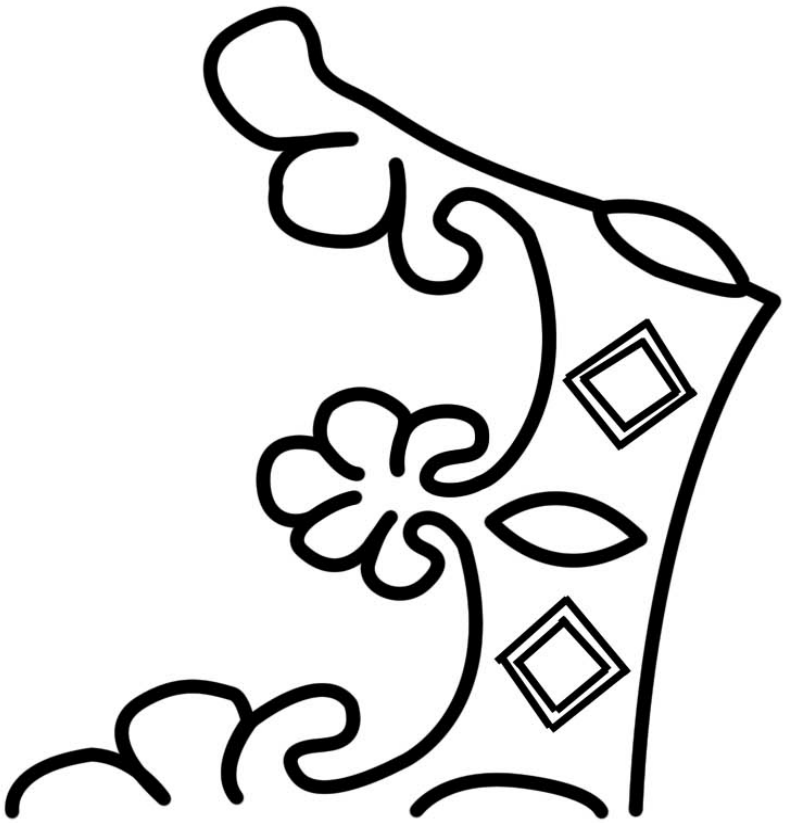

Crown of Medieval England

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Crown of Medieval England—for left handed draftsmen

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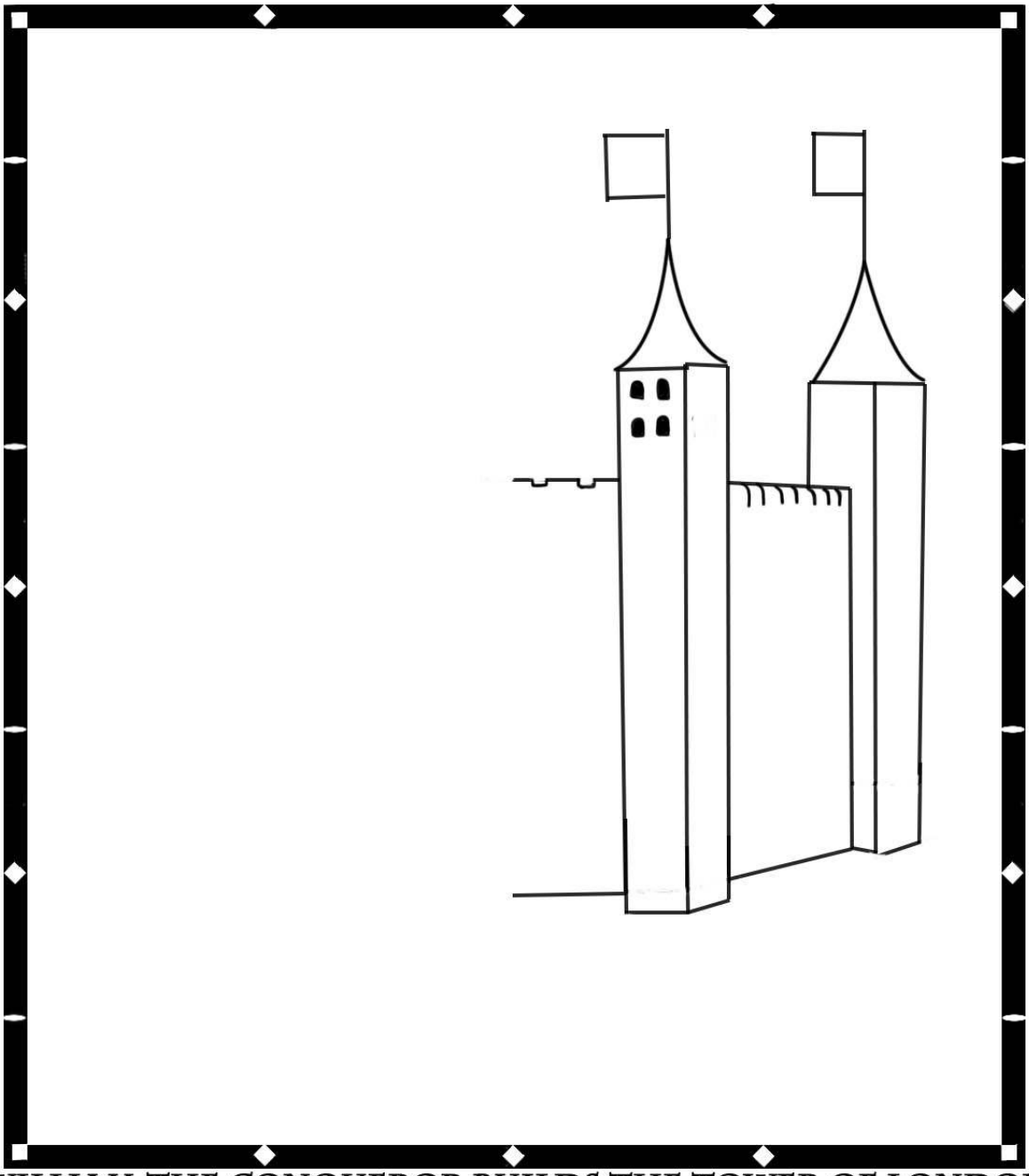

WILLIAM THE CONQUEROR BUILDS THE TOWER OF LONDON

After conquering England, William the Conquror built the 'White Tower', now the center of the Tower of London. It is a nearly symmetrical tower. Based on a 13th century illustration.

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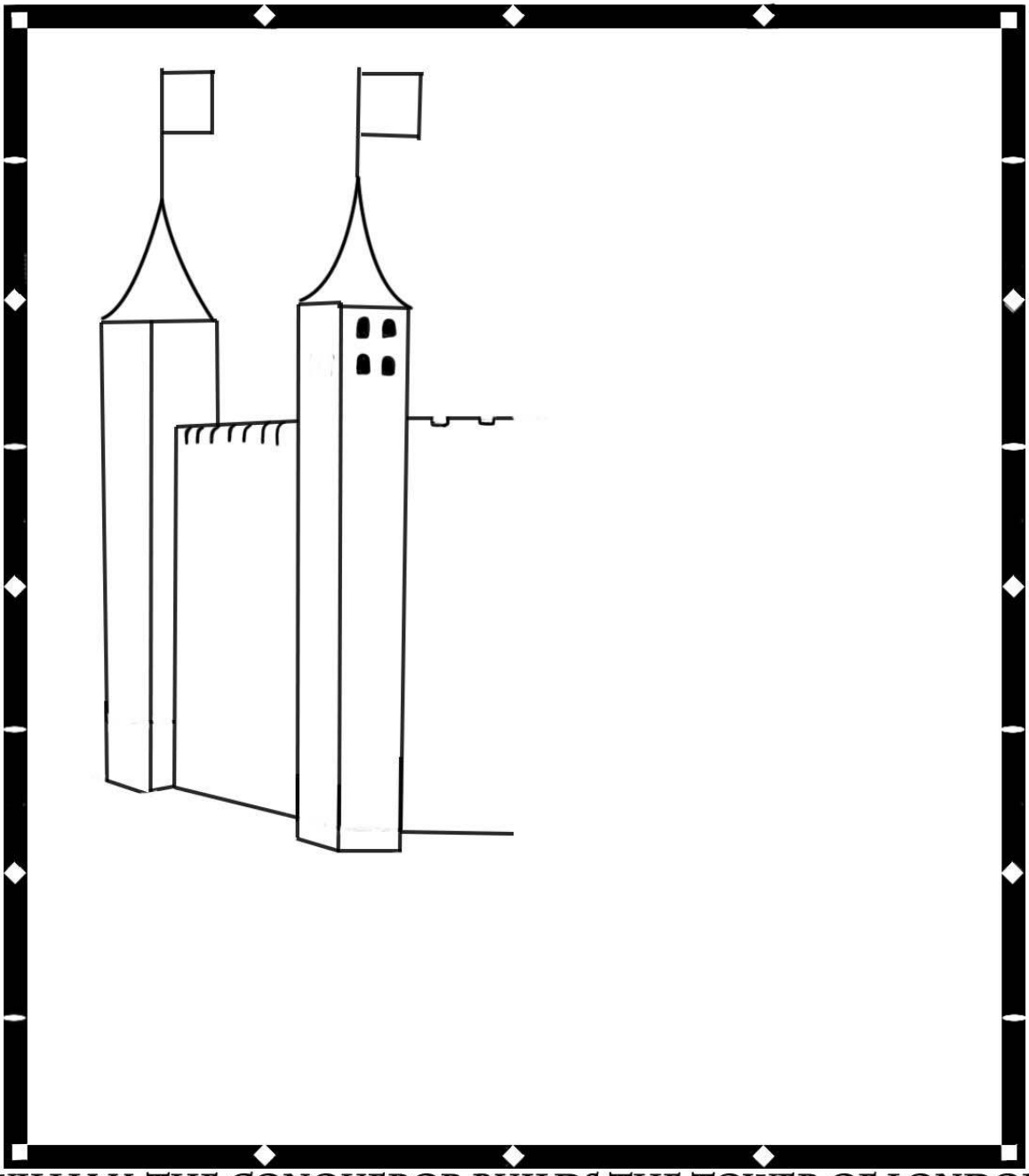

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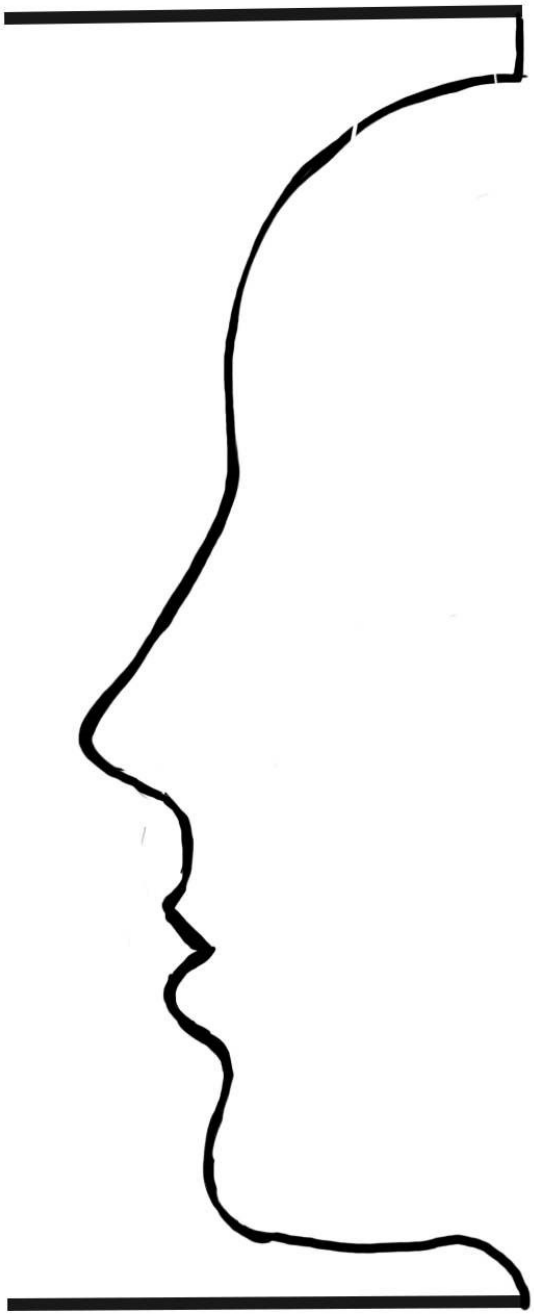

Face-Vase #1 for left-handed draftsmen

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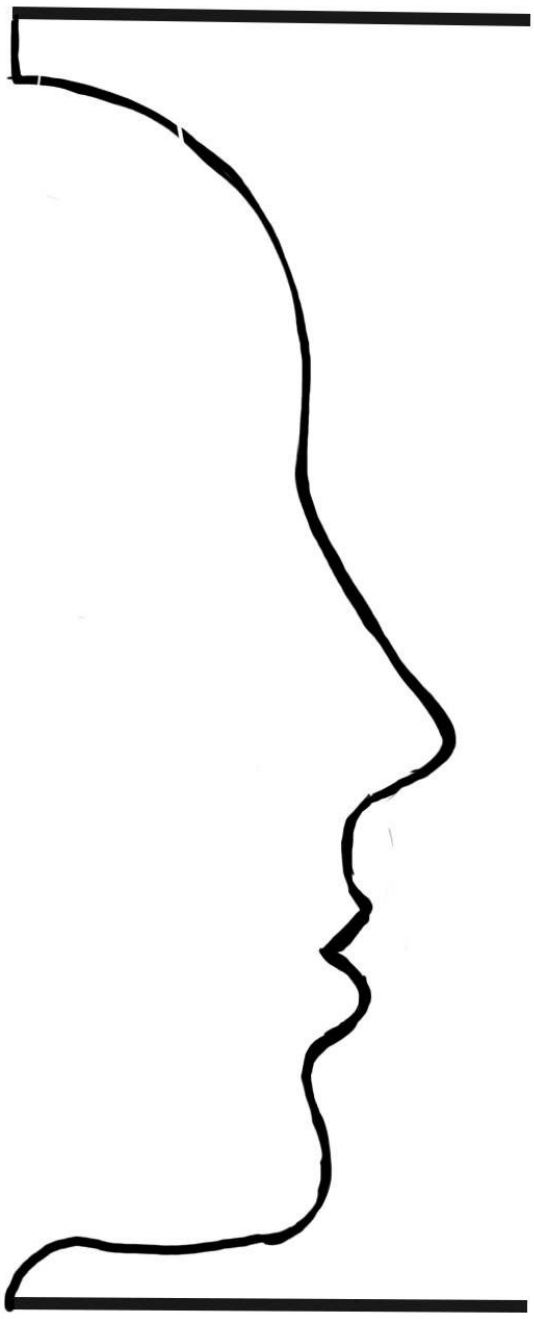

Face-Vase #1 for right-handed draftsmen

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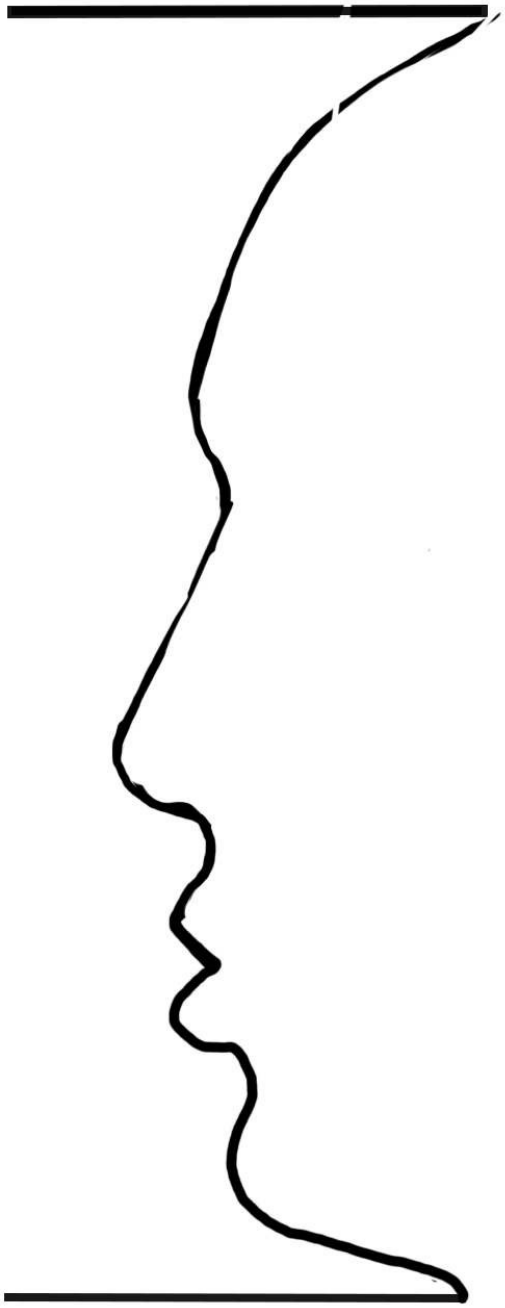

Face-Vase #2 for left handed draftsmen

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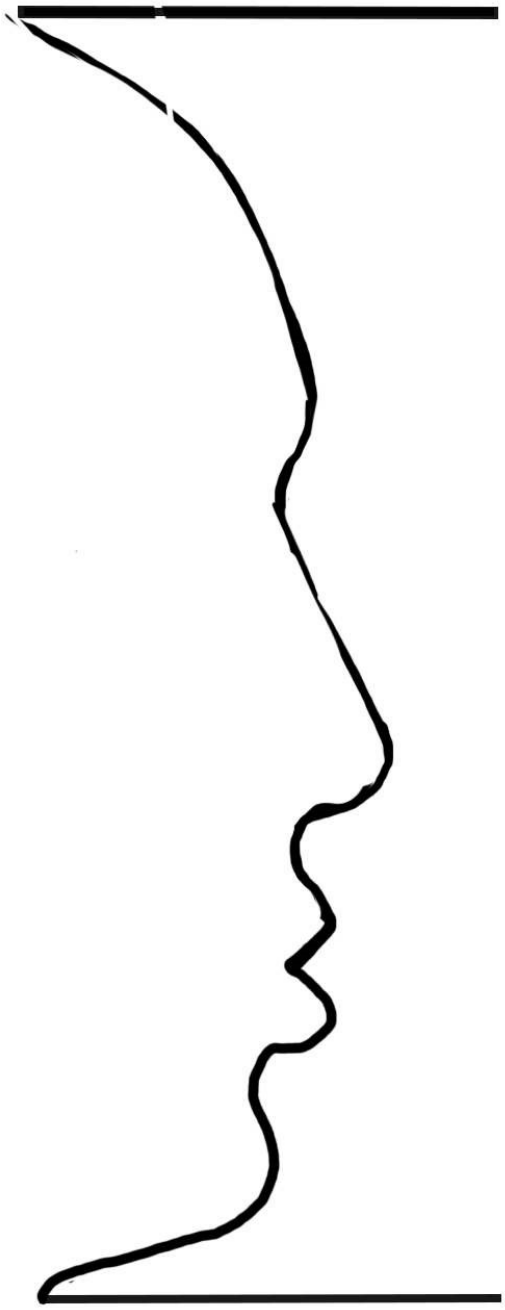

Face-Vase #2 for right handed draftsmen

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At Home Suggestions:

Keep looking for examples of symmetry during the week: insects: animals, leaves, reflections, things with mirrors….there's many examples of symmetry.

If you find a symmetrical image (magazine, online, ect.) ask, "what OiLS would you use to complete this picture if I cut it in half here? 29

Google "Mirror Image Worksheets", and you'll pull up a lot of suggestions you can print off and draw.

Fold the paper in half and ask your student to write his or her name in bold letters along the fold. Then ask them to write their name, mirror image on the other side of the paper

Try a mirror image drawing website like the Kalidosketch on http://www.pumpkinpirate.info/ks/. Experiment with different lines of Rotation (reflection) and see what you can draw!

Continue allowing lots of free drawing and open play with art supplies, in addition to deliberate lessons a couple of times a week. Don't worry about realism, keeping things an encouraging environment will yield results!

"I give no points for the aesthetic quality of a doodle, because the perceived skill [of the artist] has nothing to do with the quality of the learning experience for the doodler."

-Sunni Brown

Author of "The Doodle Revolution"

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