Formulaic Drawing Method

Formulaic figure drawing systems involve using abstract rhythms and interlocking shapes to construct the human body. Those shapes can then be built upon and fleshed out for a full human figure. The benefits of this method of drawing compared to pure observational drawing is that it gives you a set of tools to draw from your mind’s eye when there is no reference material available. However this method will also develop the beginner artist’s observational skills and speed up the overall sketching process. The formulaic method is perfect for surgeons to use - to quickly put to paper patients’ conditions and even post operative exercises!

In this workshop we will be looking at an adapted Reilly method. Frank Reilly, an illustrator in the mid 20th century, created a system of teaching that enabled students to quickly and easily construct drawings and paintings, by using anatomical landmarks and defined schematics to build a step-by-step action of figure drawing.

It should be noted that this method is simply a learning tool. All systems of drawing are designed for teaching and should be left behind as soon as they are mastered, like stabilisers on a bicycle.
The Method

This approach to drawing is a linear one. Start with the structure of the figure before advancing on to the anatomy. Once this is complete you may like to add the focal point of your sketch, such as a patient’s condition, surgical incision lines, or underlying structures.

To start the drawing, make six lines: the head; the centre of the head and neck; the shoulder line; the spine; the triangular relationship of the shoulders to the base of the pelvis; and finally the triangular relationship of the hips to neck. These lines define the core of the pose. Once the core is established the arms and legs are added. With the head attached, you can measure the height and width of the torso, or adjust the drawing to a more accurate scale throughout the pose, by using the 7.5 head proportion scale system.

Of course not all poses you will be drawing involve the individual facing anteriorly to you. You must be mindful of perspective and foreshortening as landmarks pass further around the body and eventually out of view. As soon as the body is in its lateral view the shapes marked out in an anterior view have slightly changed, but their anatomical landmarks and proportional scale have not.

The fundamentals of the Reilly method are easy to grasp, but it is flexible enough to adapt as your drawing skills develop. Once the abstract underpinning system of the figure is grasped then the lines can be rearranged to suit any pose and situation.
Breaking Down Components

Drawing the Torso
1. First find the action of the pose and start with a centre line through the middle of the torso, which divides through the centre of the sternum, and continue through the line that splits the abdominal muscles down to the pelvis.
2. Next use boxes or ovals to block in the pelvis and the rib cage and find the three quarter vertical line that separates the front and side of the body.
3. Mark anatomical landmarks like the clavicle, xiphoid process, tenth rib, ASIS and umbilicus
4. Once the overall shaped is established block in the torso muscles.
5. Finish by sorting out connections between the components of the torso.

Observe the main muscle masses to help give your sketch more form. The larger muscle masses of the torso are pectoralis major, rectus abdominis, external oblique and serratus anterior, trapezius and lattisimus dorsi. Create rhythm between these muscle masses and blocks or ovals you have created for the ribs and pelvis to give a gracile appearance.
**Drawing the Shoulder and Upper Arm**

Drawing this part of the body begins just like any other part. First gesture the pose, then accent the lines you are comfortable with using for the final pose before defining the body masses in more detail.

6. It is important first to understand the shape created by the scapula, clavicle and humerus. Then plot anatomical landmarks, such as the most medial and lateral parts of the clavicle, the acromion, inferior and superior angles of the scapula, and proximal head and distal point of the humerus. These bones create the shoulder girdle and give a base for the form of the shoulder and upper arm.

7. Marking out these basic points on your sketch will allow you to add your origins and insertions of your muscle masses to create a dynamic form to your drawing.

**Drawing the Forearm**

8. The forearm is a complicated area considering all the tiny muscles and tendons and can be rather frightening to draw. However, for pure surface anatomy drawing, splitting the muscles into the extensor and flexor groups can make life easier.

9. Firstly mark out the crook of the elbow and the wrist in circular oval forms.

10. Draw the main muscle bellies for the flexors, extensors and the supinator brachioradialis.
Drawing the Hands

Many artists fear drawing this part of the body, but apply the principles you’ve learned and knowledge of the anatomy and you will find the process much easier.

11. Begin with the central part of the hand and then extend the wrist lines from the forearm to give the hand its general shape.

12. Image the hand as a soft, block form with a squishy palmar side, and a firm dorsal side which is flanked by thin medial and lateral boarders. This will help you to draw a more physical object.

13. Extend the rhythm lines of the hand beyond the finder tips and the lines will meet at this point. It is at this point you can start marking in the ends of the fingers and knuckles. Remember that the fingers are roughly the same length as the hand mass.
Drawing the Legs

14. As always start with a simple gesture, such as the line connecting the hips and then work down to the knee and the ankle.

15. The hip muscles flair out in an A shape and act in a broadly similar way to the shoulder muscles by connecting the leg to the torso.

16. Moving down the leg the femurs taper inwards, forming a semi-V shape between them. The figure will look knocked-kneed at this stage, but that is normal until we place muscles over the bones. In an anatomical standing position the knees are almost directly below the iliac crests of the pelvis.

17. Divide the thigh into its three major masses: the front mass containing the quadriceps and sartorius; the inside of the thigh containing the adductors, and the back of the thigh, with the hamstrings. These all start out large but taper down around the knee as the muscles terminate into tendons distally.

18. Block in a shape for the patella and include a little tail down onto tibia’s anterior tuberosity to represent the insertion of rectus femoris.

19. The lower leg is a triangular cylindrical shape, with the tibia as the sharp edge facing forward and the side as gastrocnemius. The lower half of the leg is about two thirds muscle mass, tapering to a block form at the ankles, with the medial malleolus being higher than the lateral.

20. When developing the legs, stick to muscle groups rather than focusing on individual muscles.
Drawing the Feet

Another dreaded part of the body for many artists to draw - the ugly cousins to the hands - the feet. The foot is as long as one head and a little less than half the width.

21. To start, it would be wise to begin with a ground plane to work out the correct perspective for your sketch. This will help keep the foot in correct scale.

22. Begin by drawing footprints on the floor, and this will give the correct foundation for the pose.

23. Draw the foot with straight lines along the surface of the floor to give it more connection.

24. Start blocking in the toes, not by drawing lines in between each toe but by using simple rhythm lines or block shapes. Toes step downwards like stairs from the metatarsal bone to the toe's tip.

25. Be careful not to add too much detail to the toes of the foot to start with.

26. Now you can add the arch on the inside of the foot as well as some arches across the top of the foot towards the ankle.

27. Don't forget that the foot is a full shape with six sides, like a block, with corresponding planes.

28. To add it to the ankle, think of the foot and ankle as a stirrup shape, with the medial malleolus being higher than the lateral.
Drawing the Head

It is important to master your drawing method for the head, as the skull is the traditional academic measuring stick for the human form. Ensuring the correct proportions will help scale the who figure.
The head is split roughly into three even sections. Measuring the skull from a lateral angle the head fits into a square box, as you can see from the illustrations to the left. From the front (excluding the ears) it is about two thirds the width of that box at its widest point.

29. Always start by drawing an oval and its centre line.
30. Draw a line to find the inside corner of the face, or the change of plane from the front to the side.
31. Divide it into three sections. The top will be the top of the forehead, ending on the brow line. The next section finishes under the nose.
32. The first feature to start with is the slit between the eyes or the glabella. It is wedge shaped between the eyebrows, just above the bridge of the nose.
33. This is followed by the nose as a hall triangle, flat against the face plane. The top of the triangle should overlap the glabella. This will create the medial line of the orbits.
34. Extrude the bridge of the nose and try to make sure it stays centred.
35. Fill in the bottom of the orbits.
36. The cheeks (zygomatics) and maxilla can be drawn as a rhythm starting with an arc that crosses through the face plane from cheek to cheek. In the side view the ears can be used to help with the rhythm of this line.
37. Drop the line of the maxilla towards the chin to define the mental eminence.
38. The top of the skull, while rounded, can actually be dawn as a block.

When drawing anything organic, think about the shapes with edges and corners first. The perspective of a form is found much more easily if there are points to use as landmarks, with a line connecting them.