# Building & Using an Armature for Figure Sculpture

## Advanced Project

**Building and Using an Armature for Figure Sculpture**

**Teaching Artist**

Chloe Rizzo

**Descriptive Overview**

In this lesson, we will focus on the formal element of proportion and the process of building an armature by completing a figurative sculpture. The sculpture may remain solid for use in mold making applications, hollowed out for firing in a kiln, or created with non-firing clay (homemade, oil clay, air dry, etc.).

**Arts Learning Community**

High School and Adult

**Time Required for Lessons**

This could be used as an entire 4-6-week course. On average my students spend at least 8 active hours to sculpt a figure on this scale.

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<th>Step</th>
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<td>Research Classical Figure Sculpture</td>
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<td>Draw and Collect References</td>
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<td>Build Armature Stand &amp; Wire Form</td>
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<td>Construct &amp; Model Figure in Clay</td>
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<td>Self-Assessment &amp; Critique</td>
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**Learning Goals for Arts Learners**

- Utilize effective planning, visualization, and design strategies to build a representational figurative form in clay or modeling material.
- Synthesize experimentation, discovery, and flexibility into a successful creative process.
- Critically assess artwork made in this lesson by identifying and comparing formal aesthetic concepts specific to proportion and anatomy.
- Demonstrate an ability to express visual and technical concepts related to proportion and the figure in practice and discussion.
- Demonstrate a working knowledge and application of different sculpture media, tools, techniques and different forming processes utilized throughout history.
- Recognize contemporary and historical artists working in figurative sculpture and relate their work to the context presented.

**Resources & Equipment Required**

- **Optional:** Figure Model
- Clay or other soft modeling material
- Clay Modeling Tools: wooden sculpting tool, wire tool, and rib
- An assortment of finer sculpting tools (optional)
- Small Paint Brush
- Calipers (optional)
- Spray Bottle of Water & Plastic
- Turntable or Sculpting Stand
- Pencil & Eraser or other Drawing Media (no mechanical pencils)
- Paper
- Ruler or Tape Measure
- Permanent Marker
- Aluminum Sculpting Wire, 3- or 4-gauge or 16-gauge galvanized steel wire
- Wire Cutters & Pliers
- Base Board (at least 15x15") of laminated or painted wood
- Assorted ½” Diameter Steel Pipe Fittings for an 18-24” figure (this may be altered for other scales & forms, see video), 12” Steel Nipple, one 3” Steel Nipple, two 3.5” Steel Nipples, one Tee, one 90-degree elbow, and one Flange. A third 3.5” Steel Nipple may be substituted for the 3”.
- Screws of the appropriate length and thickness to attach the flange to the base. A ¾ inch base will accommodate a ½” #10 (3/16” diameter) screw.
- Drill & 5/64” bit & Screwdriver or appropriate bit
- Hard Insulation Foam (small wedge) or Wooden Wedge to fit in ½” pipe
Internet access and capable device if utilizing the accompanying video or resources. If internet access is not available, utilize the following texts and provide a binder of reference images specific to the assignment, loaded into clear sheet protectors.

Human Anatomy for Artists by Eliot Goldfinger

Gray's Anatomy
https://www.worldcat.org/search?q=grays+anatomy&qt=owc_search

The Human Anatomy Coloring Book

Video: How to build a Reusable & Multipurpose Armature with Chloe Rizzo
https://youtu.be/i-xQAbtu5z0

Diagrams by Holliday Studios:
Armature Diagram

Armature Diagram with Classical Figure Proportions & Dimensions
https://drive.google.com/file/d/1xHT90CPYfwo0uA88MSbfHSj8FHFf1LGM/view?usp=sharing

Armature Diagram with Figure & Dimensions Alternate Views
https://drive.google.com/file/d/1khqYgwYHYg4n73COgZJ4dmPrqY_WXAMJ/view?usp=sharing

Figurative Drawing & Sculpting Online Teaching Resources:
Models (clothed and nude selections are available)- https://line-of-action.com/

Gesture Drawing & Mass Conceptualization Tutorial
http://www.drawsh.com/search/label/Anatomy

Smithsonian Learning Lab 3-D Image Search
https://learninglab.si.edu/

How Art Made the World
https://www.pbs.org/howartmadetheworld/episodes/human/

It is suggested that students research some of the following before beginning:

Armature https://en.wikipedia.org/wiki/Armature_(sculpture)


Golden Ratio http://ispub.com/IJPS/9/1/14475

Michelangelo
Kritios
Archaic Kouros & Kore
Polykleitos & His Canon
Brancusi
Rodin
Giacometti
Christina West
Christina Cordova
Doug Jeck
Avantika Bawa

Lesson Tasks & Activities Towards Outcomes

1. Students begin this assignment by completing 5 or more figure drawings. They may be gestural, but proportion is key. You must be able to see a clear illustration of student’s ability to record accurate proportions, weight, symmetry, balance, and direction through use of your mark-making and spatial relationships on the paper.

2. Have students select the drawings of the pose they most want to sculpt and present them to the class. As a group you will discuss the viability of the selected poses.
3. Students will then create an armature using your pipe materials. If the pipe is not the correct size, they will not be able to proceed with this assignment. Please refer to the instructional diagrams.

4. Use wire to create the figure, measuring the length of each limb and the distance between each joint. The bends & connections created in the wire should correlate with the joints of the human body. Treat the wire as if it is the connected bones of the skeleton. Accuracy at this level is key. Should measurements be incorrect at this level, the rest of the sculpted layers will be inaccurate.

5. Secure the completed wire figure into the pre-assembled pipe structure.

6. Begin sculpting the figure. If the piece is not being fired, students may use pieces of pink foam & hot glue, aluminum foil, or other materials, to build-up the larger areas of musculature and bones of your figure.

7. When the musculature or mass conceptions of the body parts are in place and reflect the correct weight & gesture of the figure, students may begin to sculpt the figure in either additive or subtractive methods. Most often, students will use a combination of methods.

8. The last step will create the “skin.” This is where students will determine the level of detail that should be consistent throughout the entire figure. They will then finesse the texture into a desired surface quality.

9. When the sculpture is completed, reflect on the process and results. Record a self-assessment for use in the final group critique.

Please consider the following in the self-assessment:
- Proportion and Accuracy
- Formal Relationships and Aesthetics
  - Focus Specifically on Movement, Gesture, Texture & Form
- Is the detail work developed at an equal level over the entire figure?
- Is the surface harmonious with the figure sculpted?
  - If you cut the piece in half, would you expect the visual appearance of the interior to be the same as what you've applied on the exterior?
  - Is the surface more dynamic than the figure? Does it seem separate or contradictory to the subject matter?

*Materials will have differing drying times. Plan accordingly by wrapping and rewetting strategically.*

When approaching the sculpting process, demonstrate use of the following techniques:

- Use drawings to create a visual map, using mass conceptions of the figure.
- Lines should be used to designate the direction of the features and pose.
- The joints of the figure should be delineated through mark making and should be proportionate and symmetrical. Use measuring device to compare proportions to the diagram.
- Are students controlling the vantage point or selecting images that give the necessary information about the subject? Without a model, the student should be referring to multiple images that include overviews of the whole figure and details.
- While sculpting, have students work far enough from their sculpture so they can see it as a whole, and stand back regularly, to view it from across the room.
- Develop all parts of the sculpture in progress, at an equal level of progression. One area should not be overly developed or detailed, while another remains undone.
- Work in stages, slowly building up angles and masses that delineate basic forms, before carving or modeling any details. Focus on proportion and the gesture within the pose, its balance first. Move on to the shifts in the pose, where the weight & musculature change, second. The final surface and small features are last.
**Evaluation Methods for Assessment of Learning Goals**

<table>
<thead>
<tr>
<th>Technical:</th>
<th>How well are the techniques and materials incorporated with the form and content of the assignment? Did the student utilize the process technique and demonstrate mastery of anatomical proportion?</th>
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<tbody>
<tr>
<td>Aesthetic:</td>
<td>Is it evident that the student took the elements and principles of design into consideration while transforming the material, form, and assignment into a work of art?</td>
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<tr>
<td>Concept:</td>
<td>This is where you take into consideration a student’s demonstration, application, and mastery of techniques and concepts relevant to the assignment and the amount of conceptual or visual risk-taking exhibited. For this assignment, focus heavily on proportion (rather than detail), choice of pose, and surface treatment.</td>
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<tr>
<td>Critique:</td>
<td>Did the student use the appropriate vocabulary and artistic references to describe their work and process? Did the student make connections between the artwork created in this lesson and what was presented in the lecture or research?</td>
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**Lesson Alignment to State/National Education Standards or Community Learning Goals**

<table>
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<th>Standard 1: Create or make in a variety of contexts in the arts area using the artistic foundations.</th>
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<tr>
<td>9.2.1.5.1 Strand II: Artistic Process: Create or Make</td>
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<tr>
<td>9.4.1.5.1 Strand IV: Artistic Process: Respond or Critique</td>
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| Standard 1: Respond to or critique a variety of creations and performances using the artistic foundations. |
| 9.2.1.5.1 Strand II: Artistic Process: Create or Make          |
| 9.4.1.5.2 2. Justify choices of self-selected criteria based on knowledge of how criteria affects criticism. |

| 1. Analyze, interpret and evaluate works of visual art by applying self-selected criteria within the traditions of the art form. |