

# 3

## PROPORTIONS: TAKING THE MEASURE OF THINGS

SIGHTING • FINDING THE MIDPOINT •  
USING PLUMB AND LEVEL •  
LOOKING FOR COMPARATIVE  
MEASUREMENTS • FORESHORTENING •  
INTENSIFYING PROPORTIONS

All gifted draughtsmen seem to have in common an almost infallible eye. I once watched a demonstration by an illustrator who was known for his uncanny drawing skill. He was drawing from a model. He first made a mark near the very top of his paper, then another at the bottom. He began the top of the head at the upper mark and rapidly worked his way down, finally hitting the big toe of the foot exactly on the bottom mark. Of course, everything in between was accurate. This feat is simple enough to describe but exasperatingly difficult to execute. I have often watched a friend of mine of even more prodigious abilities draw sweeping, complicated passages without lifting his charcoal from the paper. In a single, beautiful line, he would draw the model's out-thrust hip, then follow down the leg, catching each curve of muscle and jut of bone, turn sharply at the foot, articulate the toes, cross over the overlapping second foot and up the other leg, all with flawless precision.

As inspiring as these virtuoso performances are, it should be reassuring to all that the eye and hand can be trained to perform such feats — not necessarily with the same style, grace or intensity as the most gifted artists, but with considerable accuracy. In fact, drawing accurate proportions is probably the aspect of draughtsmanship that improves most with training and practice. Proportions are relationships — one part to another and all the parts to the whole. Although all good drawing requires it, when the human form is the subject, accuracy is most important because the average human viewer knows the human form intuitively. Proportions are the one area of art that everyone feels competent to criticize. "That's a nice drawing, but isn't the (fill in the blank) a little too (fill in the blank)?" When proportions are badly drawn, it interferes with the viewer's appreciation of other qualities in the picture. When proportions are drawn correctly, it's hardly even noticed — which is just what we want.



*This drawing was done without using any sighting procedures. Notice the short legs and the extended upper torso.*

In this chapter, you are going to learn three simple strategies for taking accurate measurements. All of them employ the drawing tool as a measuring instrument in a method called *sighting*.

To demonstrate the immediate benefits of sighting, I asked a student to make an outline drawing of me. The left-hand drawing above was the result. I then explained just one of the sighting techniques — finding the midpoint — and asked her to try again. The difference is remarkable. In the first case, the torso is unnaturally elongated and the legs shrunken. These defects are corrected in the second drawing, producing not only the proper size relationships but also a natural and graceful pose. I hope you will agree that it is an altogether more life-like drawing than the first.

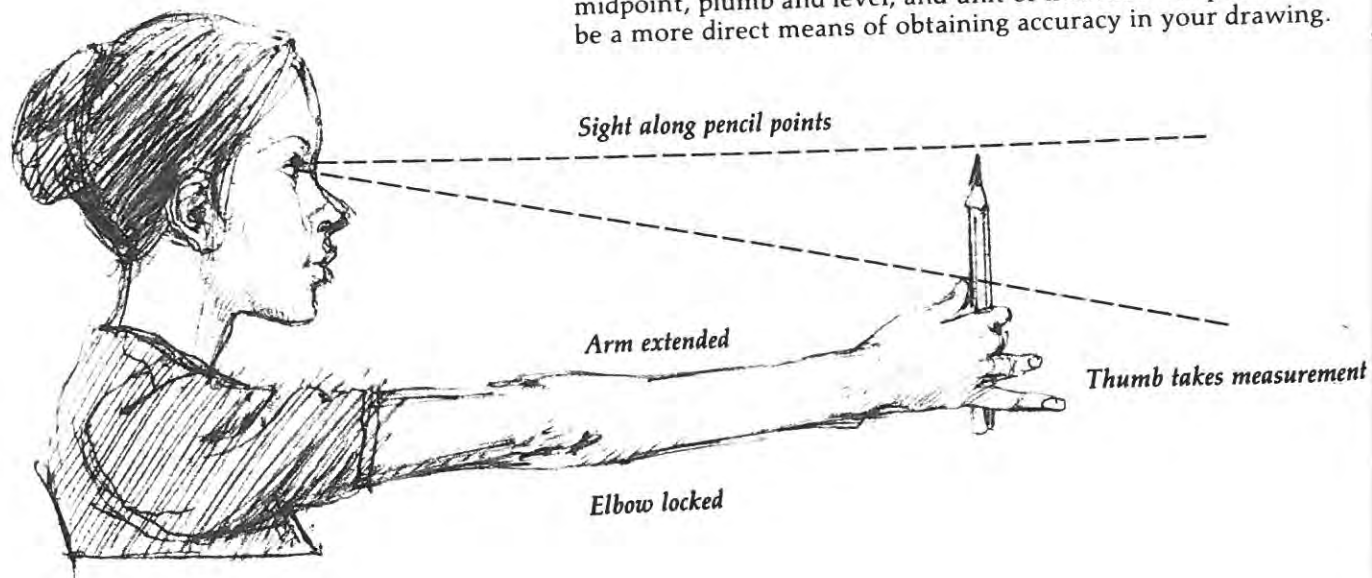
*This drawing was done by the same student after finding the midpoint. Here the leg-to-torso relationship is more credible and the pose seems more natural.*



For vertical measurements



For horizontal measurements



## Drawing by eye

All methods we've discussed in the first two chapters amount to drawing by eye. Most of us have a pretty good eye, more accurate than we realize. When we judge which of two pieces of cake is larger, or whether a floor is level, or — impossible for me — whether a couch will fit through a doorway, we are relying on the same estimating skills used in drawing. These are the skills we've been developing up to this point. Now we're ready to add to these some objective measuring strategies.

## Sighting — a tool for measuring

By holding your drawing tool in front of you and sighting along it, you have a valuable aid to accurate proportions. The procedure is this: grasp your pencil between your thumb and first two fingers so that most of it extends vertically as shown. Hold it at arm's length, elbow locked. Now, holding your head still, one eye closed, sight along the pencil at your subject. This will be the basic position for the measuring techniques we call sighting.

I'm using the term *pencil* for simplicity's sake, but all of the following applies as well to pen, crayon, or charcoal.

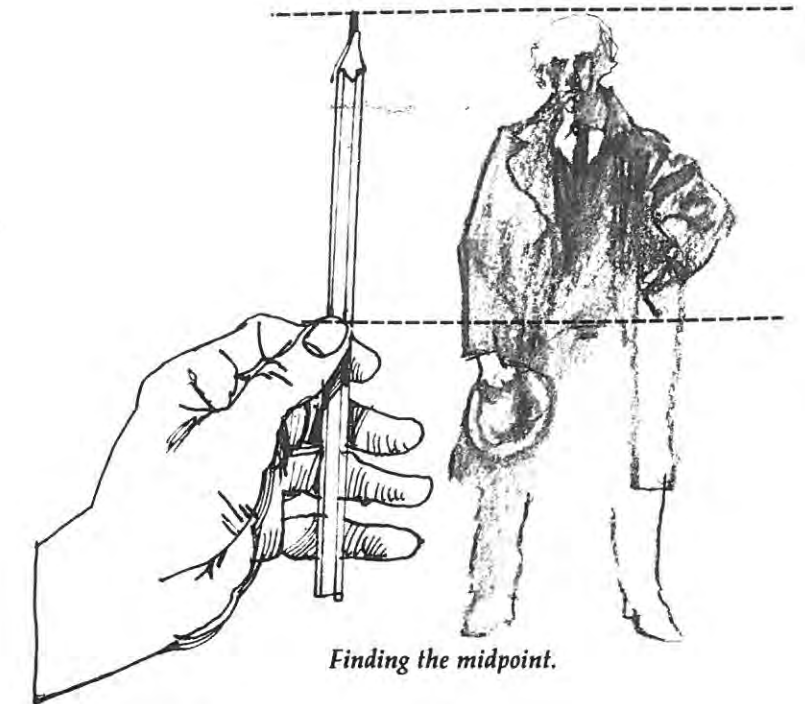
### Three sighting strategies:

1. Finding the midpoint
2. Using plumb and level
3. Taking comparative measurements

These immensely useful and versatile procedures yield immediate and effective results. You'll learn to measure proportions as you *see* them rather than as they actually are. Of course, we know that objects appear the way they do because of their underlying form, but we are going to draw what we see *rather than what we know*. It is a fact that the average human figure is about seven heads high, but when your model is slouched in a chair, legs pointed toward you, that information is of little help. Using the sighting methods of midpoint, plumb and level, and unit of measure will prove to be a more direct means of obtaining accuracy in your drawing.

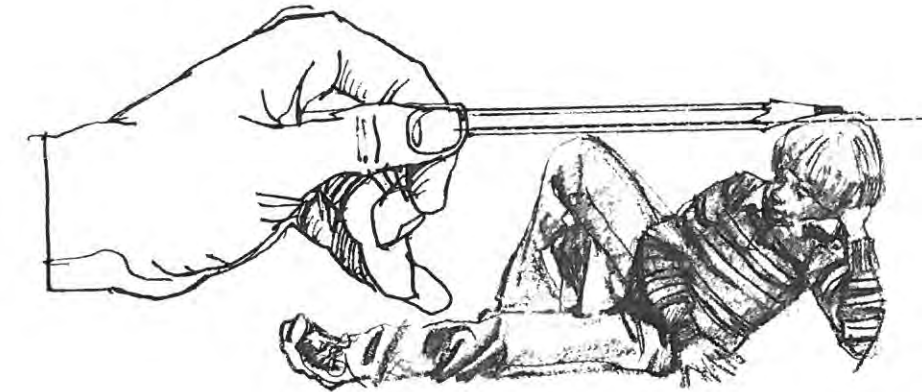
## Finding the midpoint

Think of your subject as a shape which you divide at the midpoint. That half above the midpoint must fit into the top 50% of your drawing area and the half below must fit into the lower 50%. Studiously finding and using the midpoint in this way ensures that each half of whatever you divide will be in proportion to the other.



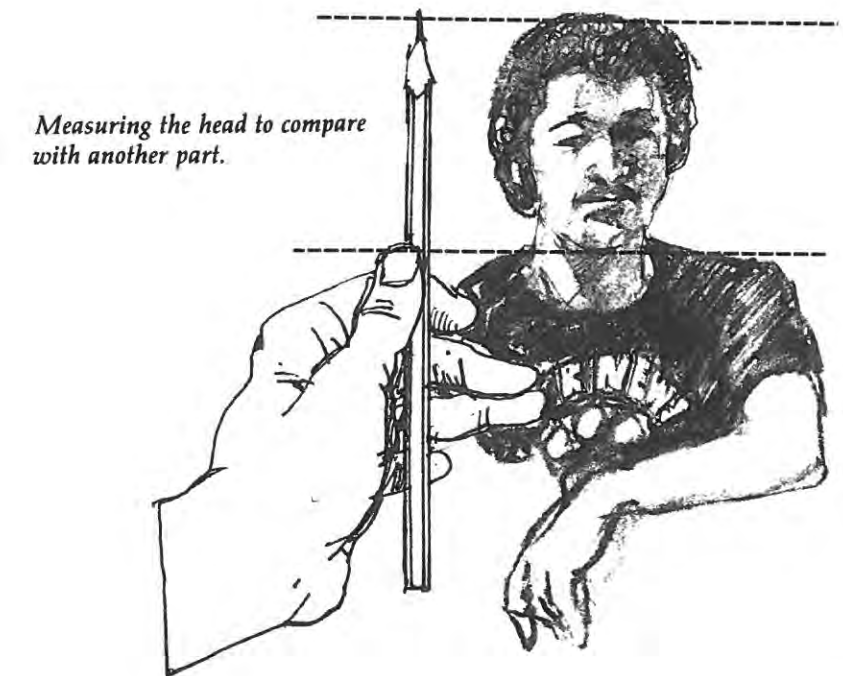
## Using plumb and level

Using your pencil like a carpenter's tool, you can establish the vertical and horizontal alignments of your subject and transfer them one at a time to your paper. This strategy is especially useful in establishing the action of your pose.



## Using comparative measurement

In this strategy you measure with your pencil the length of one part of your subject and compare it to the length of another part. The head is a commonly-used unit of measure, for instance, and might be compared to upper arm length or to shoulder width. This procedure is basic to finding proper proportions.





## Finding the midpoint

Finding the midpoint starts you off on your drawing with a major proportional problem solved. Your subject will have been divided into two manageable halves, and, more important, they'll be placed correctly on your page. This measurement is used in the early stages of the drawing, probably only once, and it will save you a world of trouble later on.

To find the midpoint, first regard your subject — in this case a standing figure — as a shape. Lightly and loosely sketch that shape the size you desire on your page. This sketch need be little more than an amorphous indication, but make sure you clearly indicate the top and bottom of the shape. Now study your subject again and estimate the halfway point between the top of the head and the bottom of the feet. Make a mental note of that spot.

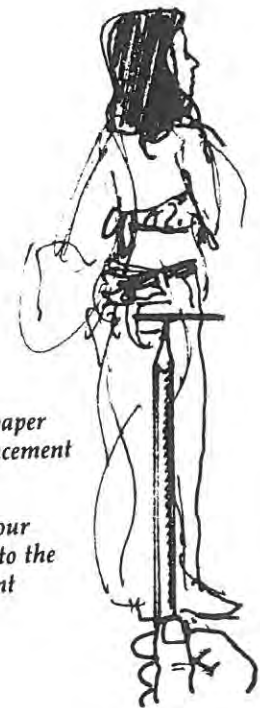
To see if it really is the midpoint, do a sighting with your pencil. Align the point with the top of the model's head and place your thumbnail against the pencil at the point that aligns with your midpoint guess. Now, keeping your thumb in place, lower your pencil tip to the midpoint and see if your thumb aligns with the bottom of the model's feet. If it does, you succeeded in dividing the model in half; and your eye is very good. If it doesn't, take another guess and try again; your eye will improve with practice.

Remember to keep your head straight and your elbow locked in the same way every time you measure. When you've found the midpoint, return to your paper and find the midpoint of the shape you've drawn. Mark that spot lightly, corresponding to the midpoint of the figure. Sketch it in. Now you've divided both your subject and your drawing into two manageable halves, your boundaries are set, and you're ready to proceed.

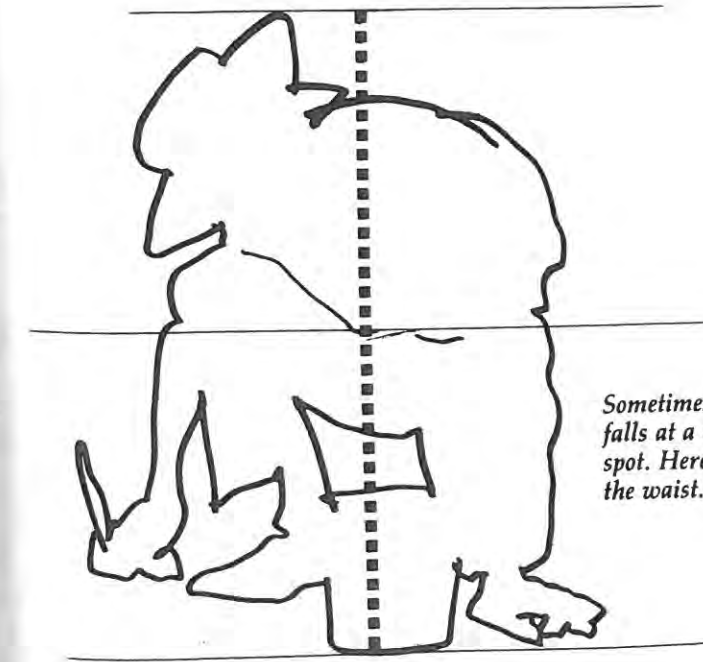
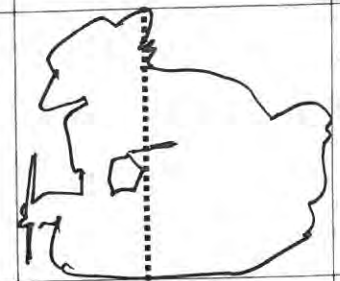


First indicate on your paper the general size and placement of your subject.

Find the midpoint of your subject and transfer it to the center of your placement shape.



Using comparative measuring, check to see if your subject is a more vertical or a more horizontal shape. Surprisingly, this one is more horizontal. Midpoint is at the top of the trapped shape.



Sometimes the midpoint falls at a convenient spot. Here it occurs at the waist.





Figure cut off at ankles.



Figure drawn too small in relation to paper.



To get the most size out of your drawing, the center of your shape (in this figure, it's at the woman's finger) should coincide with the center of your paper.



Lower portion distorted to fit paper.

## Why find the midpoint?

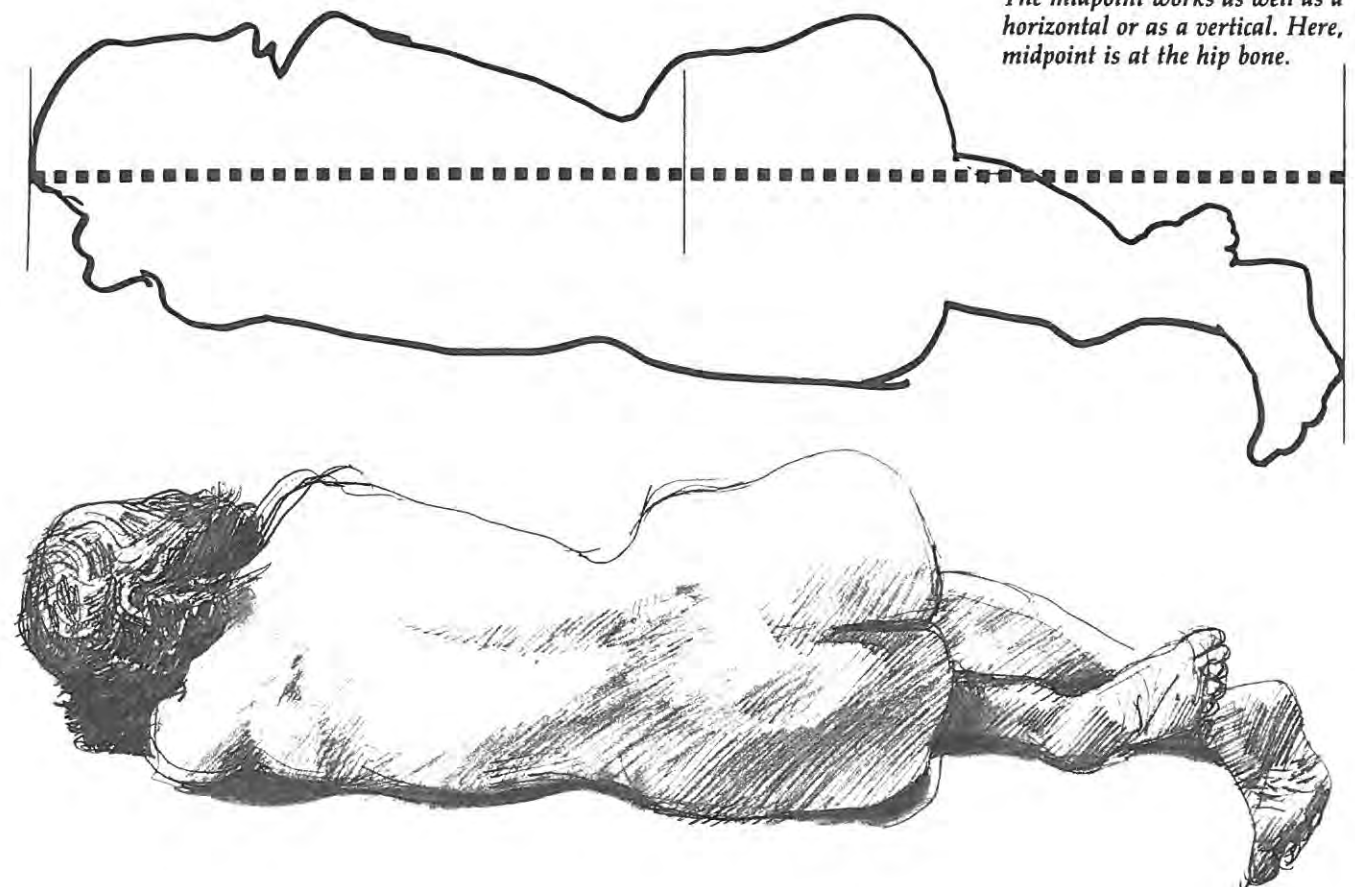
One of my strongest grade school memories is that of my art teacher pacing between our desks with a frequent injunction, "Don't make little drawings in the center of the paper. Fill the entire page." It was good advice, but we soon realized what a trick it was to fill the page *and* get everything in at the same time. Invariably I'd end up having to choose between cutting something off (usually the feet) or compressing the proportions (usually the legs) when I began to run out of paper. For a long time, every horse I drew was either hoofless or pygmy-legged.

One of the great values in finding the midpoint is that it helps you "place" your drawing on the page. Without those top, bottom, and midpoint marks on your paper, it is difficult to draw a figure head to foot so that it just fills the area. Finding the midpoint solves the problem of running out of paper or leaving too much blank. If, with a few indications of head and upper torso, you find you have extended your drawing below the center mark of your paper, you will know you are drawing too large. If you end up above the center mark, you are drawing too small. In either case, you can quickly make the proper adjustments by restating.

Naturally, there will be times when you will want to fill the paper with only a part of the figure or to draw the figure quite small in a large empty space. Here again, finding the midpoint will help you place your subject exactly where you want it. If you wish, you can use finding the midpoint to further divide each half for more careful consideration.

## Project 3 - A — Standing Figure

Draw a proportionately accurate figure, filling the page from top to bottom. Coax or cajole someone to take a standing position for you about ten feet away. Make two small marks on your paper, one near the top and one near the bottom to represent the extreme of the figure. Next include a center mark between those two points. Then spend less than a minute lightly and loosely sketching in some general placement of lines to indicate head, shoulders, hips, legs, and feet. Now, using the sighting method, find the midpoint of your model. This point will correspond to the center mark on your paper. Finish drawing the figure in detail, working with a top half and a bottom half. Use pencil or charcoal and restate as necessary. Allow 30-40 minutes.



The midpoint works as well as a horizontal or as a vertical. Here, midpoint is at the hip bone.

## Alignments — using plumb and level

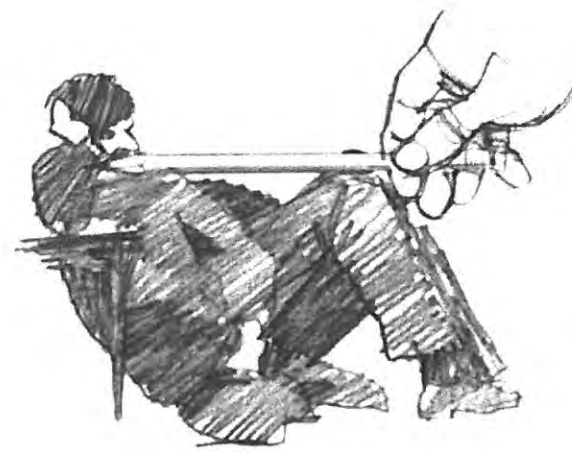
Proper use of alignments will capture the action of a pose. A plumb line is a vertical line, a level line is a horizontal one. All of us, with our sensory and balancing equipment, can judge verticals and horizontals quite accurately. Again, using our pencil as a measuring tool, we simply extend it in front of us over the subject and turn it this way and that at key points on the model to see what lines up vertically and horizontally.

There is a specific action to the pose of the figure drawn below. We can gather a sense of that action by lightly sketching in a simple shape or gesture and then employing our plumb and level alignments. Any protrusion such as a knee, shoulder, hip, elbow, toe or chin is a potentially good place to use alignment measurements. On the facing page, I've diagrammed the plumb and level measurements used in the drawing below.

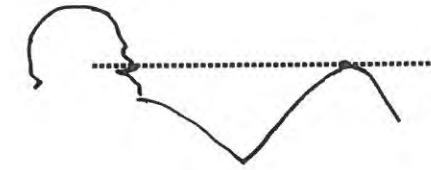


After making a preliminary sketch to place the figure, I sighted a level line from the point of the knee, determining that it was on a line with the model's nose. This was an important measurement because, beyond placing the nose, it gave me the location for the entire head. This information was transferred to my drawing where horizontals and verticals were easily made parallel by using the edges of the paper as guides.

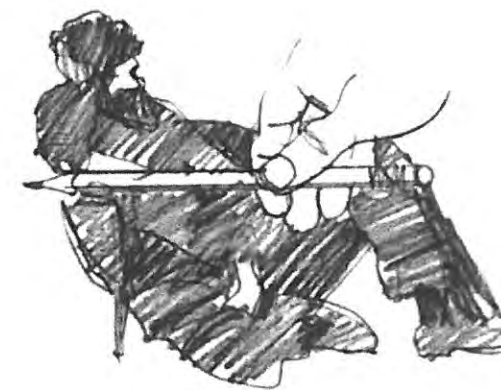
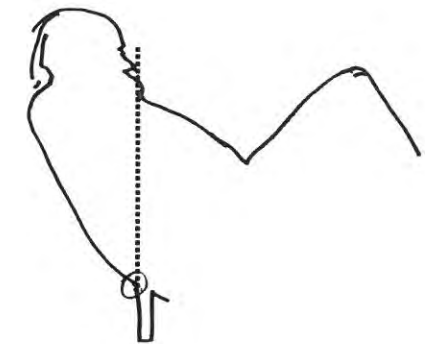
With this one alignment, I felt confident to sketch in the head, right shoulder, and chair. The chair itself offered some alignment information. By following down its back and legs, I could see the various points at which it intersected the figure. I



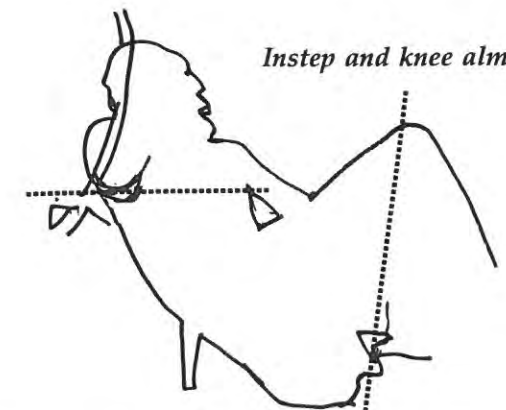
*Nose and knee align.*



*Nose and chair-leg align.*



*Elbow and arm/leg intersection align.*



*Instep and knee almost align.*

## Taking comparative measurements

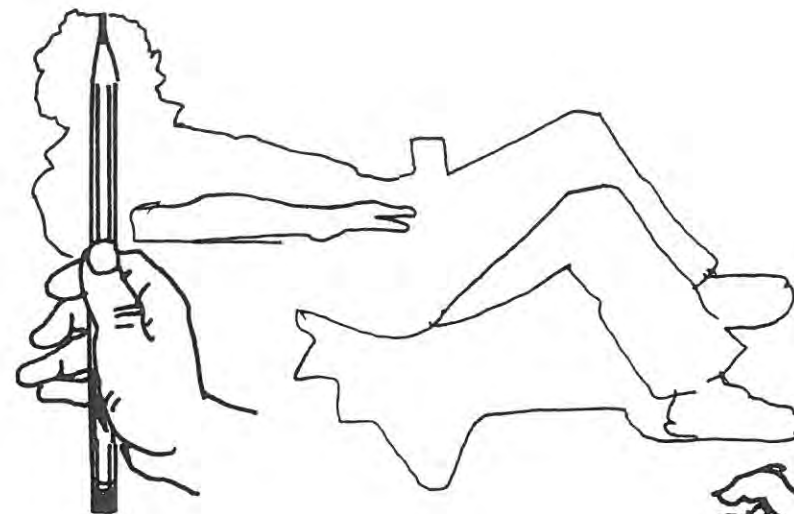
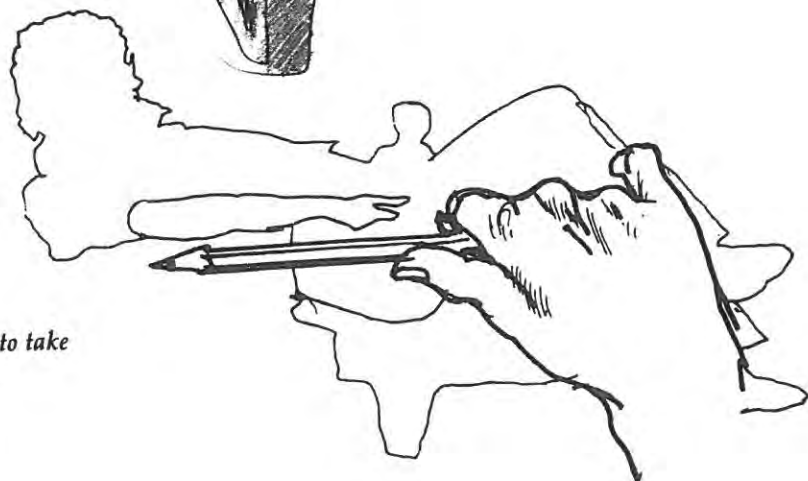
Taking frequent comparative measurements is a good way to check on proportions during the course of your drawing. Use your pencil as a measuring tool to compare the length of one part of your subject to the length of another part so you have an idea of their relative sizes.

Although you can use any part of your subject for this purpose, the head is a common unit of measure so use that as an example. Using our sighting method of pencil held upright, arm extended, one eye closed, put the tip of the pencil at the top of the head and mark the chin with your thumb. Now you have a means of comparing that distance to other parts of the model — perhaps to the length of the upper arm or width of the shoulder.

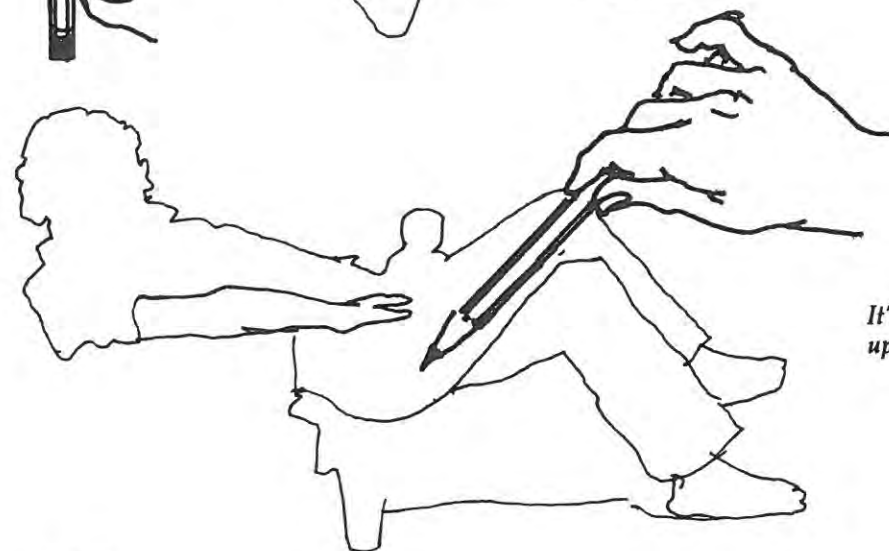
That measured distance on your pencil is for use *against the model*. It doesn't translate directly to your paper unless you are drawing what is called sight-size. More than likely your drawing is proportionately larger or smaller than you've sighted on your pencil. Your pencil measurement keeps relationships within the model straight in your mind.



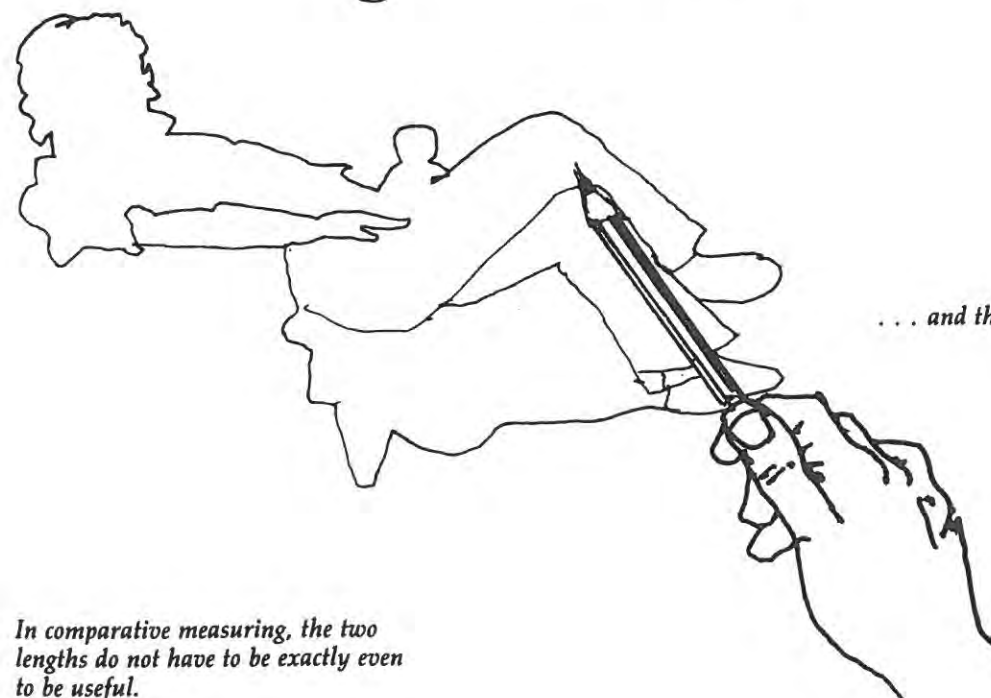
*I use this portion of the arm to take comparative measurements.*



*Forearm length closely corresponds to the distance from elbow to top of head.*



*It's almost the same length as the upper leg . . .*



*. . . and the lower leg plus foot.*

*In comparative measuring, the two lengths do not have to be exactly even to be useful.*