The Basics of Perspective

Perspective:

The technique of representing three-dimensional objects and depth relationships on a two-dimensional surface.

Vanishing point:

The point at which receding parallel lines viewed in perspective appear to meet.

As an artist, you are creating illusions. You are making something look like something else. You are not drawing a cup. You are creating the illusion of a cup. In fact, artists could be considered magicians, since they deal with illusions.

The reason why perspective ‘works’ as it does, is due to the illusion of decreasing sizes as something moves away from you. The further something is, the ‘smaller’ its dimensions appear to be. That is the key to understanding how to use perspective.

Thus, the basic of perspective is:

as things move farther away from you, the smaller they appear to be.

Your job, once you truly understand this, is to find way to use it in the creations of illusions in your artwork.

In the real world, the car doesn’t get smaller as it moves away from you. The illusion is that it gets smaller, the reality is that it is getting further away. In art, perspective works by reversing that phenomena; you draw things smaller, to create the illusion of increasing distance.

Drill 1:

Go outside, and watch as traffic or people approach you, or pass away from you. Get your thumb and finger, and use that to measure the size of the car as it moves away, and you'll notice how much 'smaller' it seems to get.
(If you didn't do that drill, don't come complaining to me later that you are having difficulty with applying perspective.)

**Horizon:**

The apparent intersection of the earth and sky as seen by an observer.

To learn the mechanics of perspective, it is easiest if we use the 'horizon line'. The 'horizon line' is the line you use to represent where the horizon appears to you from your viewpoint.

**How to find your horizon line**

If you were to go outside, and see the horizon, you’d notice it is not higher or lower, but directly in front of you, at eye level. Since we are indoors, stand in the middle of the room, where you can easily see down to the opposite wall. Look at the exact far end of the wall, at your eye level. Even though you cannot see the horizon that is where it is. That is your horizon line.

Now this is important, because this is the reference point for a lot of the things you will see. You’ll notice when studying perspective, just how much that ‘baggage’ we’ve talked about earlier gets in your way.

Your horizon line is fixed. That is, it is always at your eye level. If you sit down, or stand taller, your horizon line is still at your eye level. Your horizon line is fixed relative to your viewpoint. This is important, as this idea explains a lot of visual phenomena.

Now, as you read and do the following, keep in mind this point;

"**Thus, the basic of perspective is that as things move farther away from you, the smaller they appear to be.**"

Read this following section, and then get up and do it. Make sure you do do it, or you'll be cheating yourself.
Drill 2

Get up and go to the middle of the room, where you can see the floor along to the far wall. While in the middle of the room, look at the tiles on the floor at your feet, and gaze along them up where the floor hits the wall. What have you noticed? They appear to be going ‘up’, don’t they. They are moving ‘up’ towards your horizon line.

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While standing in the same place, look at the bottoms of the chairs in the room in front of you. As you look at where the legs of the chairs sit on the floor, as you notice those further and further away from you, what do you see? They seem to be getting 'higher', don't they, towards your horizon line!

_______________________STUDENT

If you look at the ceiling, you’ll see that the tiles there are going ‘down’ to the horizon line.

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Interesting. Things above the horizon appear to go down to it, and things below your horizon line, appear to go up to it. Why? This is very important to realize. What is it that is happening that creates this illusion of ‘going up’ or ‘going down’? Well, you already know the answer; you just don't know you know it. This is one way of applying that basic key in perspective;

“Thus, the basic of perspective is that as things move farther away from you, the smaller they appear to be.”

How is this being applied? Well, remember, that as things recede, they appear to be getting smaller. What is it that is getting smaller in the above examples?

When dealing with perspective, the doors of perception usually open up to you if you ask yourself ‘What is it that is getting smaller?’ The answer is always a length of some sort. If you deliberately look for it, or for them, you’ll see what it is you have to do.

In this case, the vertical height between your horizon line and the ground, on which the subject stands, appears to be getting ‘shorter’ (smaller), the further that length moves away from you. And, since that length appears to be getting shorter, and since the horizon line is fixed at eye level, then the other end of that line that
ends on the ground has to be the one that is changing. And so it appears to be moving up towards your horizon line.

Also, the vertical height, the length of the 'line' between the ceiling and your horizon line, is also getting shorter. And, since your horizon line is fixed at eye level, then necessarily for that vertical line to get shorter, the top of it must be moving and so the ceiling appears to be getting lower.

This is far more complex to write down here, than it is for you to see it in front of you. If you have any questions, re-read this section on perspective, and re-do these drills. It is very simple, but perhaps my own illiteracy or poor examples in drills makes it more complex. If after reviewing what we have done this far, you still have confusions, CALL THE INSTRUCTOR!!!!!!! The rest of the study on how to apply perspective is based on your understanding of this phenomenon.

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So, how does this help us? Damned if I know!

Just kidding :={)

**How to apply ‘perspective’ to your artwork**

In drawing, we are dealing with two dimensions. In real life, we are dealing with three dimensions. (Unless you are an art critic, in which case you are dealing with vast dimensions of your own arrogance.)

What we are trying to do in drawing, is to create the illusions of three dimensions on a two-dimensional surface, the piece of paper.

One of the ways to create that illusion of depth on a flat surface is to use what we know of perspective. We make some things seem farther way from other things by placing them at different heights on the paper.

Although the horizon line is always as eye level, you can of course draw it anywhere on your paper you please.

**Drill 3**

Here is a simple exercise that you used to do as a kid all the time, remember?
Look at the following illustration;

(Hmmm… looks the telephone poles are leaning a little to the right as you look further down the tracks. That is not a phenomenon of perspective. It is more likely the phenomenon of being up at some god-awful hour in the morning.)

Draw the horizon line on the page, probably somewhere near the center. Then draw in the ‘railway’ tracks, and have them converge at the vanishing point on the horizon line. Don’t be sloppy. Make sure the lines are reasonably straight, and that they do converge into one point at the horizon. Notice how they are going ‘up’ on the paper, and that the various lengths, horizontal and vertical, are appearing to be getting shorter, i.e. smaller.

You could then draw how the telephone poles along side the track would look, and perhaps a road. The top of telephone poles would be higher than your horizon line, and the bottom of the poles below the horizon line, and so the pole itself straddles the horizon line. Thus, the lower part of the pole would be moving up the page towards the horizon line, and the top of the pole would be moving down the page to the horizon line.

**The cube illustrations**

This is an interesting drill. It will confirm if you really understand what we have discussed so far about how lines converge at a vanishing point and that the vanishing point is the horizon line. (Keep in mind that not all vanishing points converge on the horizon line. We are using the horizon line to show you the phenomena. Converging lines can converge anywhere! If you go down town, and look up at the tall buildings, you’ll see that the lines of the sides of the buildings
converge somewhere *up* in the heavens, not too far from where you wanna end up after a lifetime or two of screwing around.)

If you could draw a cube, usually it looks kinda weird, like below. Well, maybe not that bad.

This is an example of a cube drawn by someone who really doesn't understand how perspective plays a part in something so simple. Well, it does, it plays a *big* part and we need to know that.

What is wrong with this cube, is that it is 'out of perspective', which means that it doesn't follow the 'rules' of perspective.

Why is that? To understand the fault in that sketch above, let's look at the following illustrations.

In these illustrations below, what we have done is first draw in where we want our horizon line to be, which can be anywhere on the paper.

Then we draw in our *simple shapes*, in this case I'd use a square, somewhere above the horizon line. We can also draw one below the horizon line as well.

Now, we remember that lines *above* our horizon go where, up or down? Lines above our horizon go *down* towards it! So, since we are drawing a cube *above* our horizon, the lines that make up the sides of the cube must go *down* towards the horizon.

Notice how the lines that will form the side of the cube are going down. That is because those lines that form the *sides* of the cube are *further away from us* than is the *front part* of the cube. Putting the lines slanting 'down' will help give the illusion of distance within the cube, the sides moving farther away from us.
Notice how the lines that will form the side of the lower cube are going up! Why? Same reason.

Now we need to put in the rest of the lines to make the cube work. How do we do that? Remember how the railway tracks worked? How they got closer and closer together as they approached your horizon line? They were converging at the ‘vanishing point’.

It would be the same here. If we were to take one of those lines that we are going to use for the side of the cube, and draw it all the way to the horizon line, the vanishing point, then we can use that line we just drew to help us get the other lines drawn for the cube, and doing so will make all sides of the cube ‘in perspective’, i.e. the sides are moving away from us.

Here we have taken the given line from the illustration above, marked as the ‘length of sides’, and we extend that line to the horizon, as seen in the dotted lines. This is the old railway track perspective at work here.

Now we have the vanishing point for all the lines for that cube, and so we just join the other two corners of that cube to that same vanishing point. Now we have the sides of the cube all looking as if they are moving away from us. Perspective.
Here is the bottom cube, in perspective.

You need to drill this. It'll demonstrate how well you understand all we've done so far.

You should draw in the same lines for the top cube.

Drill 4

Now you will get to do what you were just shown, to see if you learned anything.

Draw a horizon line on your paper, probably near the middle to make it easy. Then, draw a good square on the paper, below the horizon line. Don't be sloppy, or this may not work. Basically all you are going to do is recreate the illustrations we just walked through. If you can do them, you have the basic understanding of perspective.

Now, as you were shown in illustrations above, you just assume one of the lines that is going to become one of the sides of the cube. It doesn't matter which one you pick, so draw it in, both direction and length, how long you want that side to be, just as shown in the illustration. Does this line go ‘up’ or ‘down’, and why?

Once done, the ‘trick’ is to get the other lines, sides, of that cube in perspective to the first line. To do this, take that first line you put down, and extend it to the horizon. This is the vanishing point. Then, take the other points on the cube that need to have a line drawn, and join those points to the same vanishing point on the

If you did the above steps correctly and weren't particularly sloppy about it, these lines will all now be in agreement with one another, and you used perspective to get that to work.

Next, since on the first line you indicated how long that line would be, use that to determine the lengths of the other lines. The cube should now be ‘in perspective’.

Do the same with a cube above the horizon.
Now, you'll have to get really into this. Do a cube which is not above or below the horizon, but straddling right on it, like a building.

Call the instructor to check out all your cubes. If you are having problems, then call the instructor right away.

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Two point perspective

These following illustrations are called 'two point perspective' because there are *two points on the horizon that will be vanishing points*. You are going to do the same drill you just did, but now you’ll do it twice on the same cube. There is no limit to the number of vanishing points you can have in any one work, and you treat them all pretty much the same way you do with one vanishing point, except there are more, and they go in different directions.

So, what happens if the cube is not so simple, but let's say is turned a little, like the drawing below. Here we have a cube that is still a cube, but being turned a little, gives us more to do. But, in reality, not much has changed.

In our previous cube, we had one full *side* facing us, a square, which we then had to get into a cube that didn't look weird, the sides moving away from us.

Here we have the same cube, twisted, and so we don't have a side facing us, we have one *edge* facing us, so that means we have two sides we have to figure out, two sides and the top. With the single vanishing point illustrations, there was only one side and the top.

Since we don't have a *side* of the cube to start with, we are given the one long *edge* that is *closest* to us. It is just a long vertical line. Then, as in the square, we draw in one line that is to become one side of the cube, but here, if you look at the illustration we have *two sides showing*, not just one, so we draw in *one* line for *each* side. Each of those lines will help us figure out that side. What lines we put in to become the two sides doesn't matter. In the examples below, we have one of the lines that is going to be a side coming from the top, and moving to the left. We could just as easily have had a line coming from the bottom, and moving to the
left. It doesn't matter. Same with the other side, we used a line from the bottom going to the right, but we could have used a line from the top going to the right.

Here we have the 'long vertical line' put in, the edge that is closest to us, and we've drawn two other lines that are to become the two other sides which are moving further away from us.

Now, how do we get this thing to look like a cube?

You already know the answer to that. We extend each of these two given lines to the horizon, giving us our two vanishing points, and then we connect all the other lines to their respective vanishing point, the lines on one side of the cube all going to the same vanishing point, and the lines on the other side of the cube all going to their vanishing points.

To keep this simple, what we will just work on a cube below the horizon. So, that means the lines will go up to the horizon line.

Let’s work the left side of the cube first. We take the line that is given for that side, which also has the length of that side on it, and extend that line to the horizon, as shown by the dashes. That gives us that side’s vanishing point. Now we extend the other line of that side to the same vanishing point, and that gives us the perspective for that whole side. Since we know how long that side is from the first line, we just draw that in, cutting that side to the length we want, which I forgot to do.
Now we need to get the right side of the cube set up, and that is done the exact same way. Here, the line we were given on the right hand side is extended to the horizon, and then where it meets the horizon, the vanishing point, and the other line is connected.

Now all we need to do is sort out the top of the cube. How do you think that would be done? Take a look and figure it out

Call the instructor, and tell him what is done to get this top worked out. If you don't know, then call the instructor anyway, and ask.

These exercises are called 'two point perspective' because there are two points on the horizon line that you need to pay attention to. It doesn't matter how many points there are, how distorted the original object may be, you still do it as above. I suppose there will always be some exception, but don't worry about it now.

I suggest that you review all that we have done so far, before you begin to do the drills for yourself below. So, go do the review!

**Drill 5**

Now you get a chance to demonstrate your understanding of what you were just shown.

Create the cube *above the horizon*, and then call the instructor to show them what you’ve done. You can draw it right here in the workbook if you prefer. If you aren’t sure, call the instructor over to review the previous drills. If he is busy taking a nap, wake him up. If he is drinking coffee, best you wait a bit.
Drill 6

Complete both cubes below.

You must visualize what the cube will look like even before you begin. If you cannot do it, it is only because you are not yet able to visualize it. So practice visualizing as you do it. The entirety of what you are being taught here at this school is based on getting you the skills necessary to visualize what it is you need to do ‘next’.

Now, do a two-point cube that straddles the horizon line, with the top of the cube above the horizon line and the bottom of the cube below the horizon line.

Call the instructor for a check out ____________________INSTRUCTOR
**Ovals and Circles in Perspective**

This is a very interesting application of perspective, and is the one that seems to be the most screwed up for some reason. This is a good example of an artist drawing what they ‘know’, and not what they actually ‘see’. This is because they are looking at, visualizing, previously made decisions as to what they think things look like, and not seeing what is in front of their nose right now. The eyes are pointing in the right direction, but whoever is at home isn’t paying attention. Or is that ‘whomever’.

Here is an example of how to use what you now know about perspective. Remember perspective as a subject is quite simple. The trick is to know where and when you can use it to improve the three dimensionality of your work.

Here is an illustration to help you visualize what we are talking about.

Here is the photo of the setup……

![Photo of the setup]

…and here is how it is usually drawn.

![Illustration of the setup]

Can you see the problem? It may look fine, but it is not.

Again, this is one of those errors we make when we draw what we 'know' instead of drawing what we should be seeing.

What the person 'knows', is that the turning of the bottle, the roundness of it, is the same along its full length. In other words, in the ‘real’ world, the bottom of the bottle ‘A’ turns around the same as the bottom of the label on the bottle, 'B', the
same as the top of the label on the bottle 'C'. And so these turns are all drawn the same, they all have the same roundness to them. In other words, none of these turns is flatter than any other turn.

But, no, this is incorrect. Perspective plays a part in this, and this you need to know!

Drill 7

Draw a perfect circle on a piece of paper, using the opening of a cup or something to make the circle perfectly round. Then, take that piece of paper, and lay it flat, and while looking at it from a low eye level angle, notice how the circle has changed.

Now, take the time to do this exercise, don't just keep on reading! ____________ Sign here!

Then call the instructor over, and show them your little circle, and what you did, and what you noticed!

______________ Instructor

Drill 8

Take a cylindrical object, such as a cup. The wider the opening the better, and it must be circular, not oval or distorted in some way.

Put the cup on the floor, and stand up and look straight down on it. Notice how round the opening looks. It should be almost a perfect circle. Then, pick it up, and keeping it perfectly level, slowly raise it up to your eye level, noticing how the ‘roundness’ of the opening changes. It starts to become more ‘ovalish’, until at your eye level, your horizon line, the opening is not open at all, but is a straight line.

What happened? Perspective kicked in, that is what happened. As things approach your horizon line, all lengths, thus all shapes, appear to get smaller. Well, the opening gets smaller, and become ovalish. The reason that the ‘circle’ of the opening doesn’t just become a smaller circle instead of an oval is also explained. See if you can figure that out, and then call the instructor and tell them why.
Anyway, the point being, that as the roundness approaches your horizon line, the roundness changes, it becomes more ovalish. If you had a tall clear tube, the curve along the top edge would be different than the curve along the bottom edge. The ‘rate of change’ would differ. This would be necessary to put into the sketch if you wanted the tube to look ‘right’.

Here is an illustration that shows you what happened to the opening of the cup as it approached your horizon line.

If you can imagine a clear cylinder, one that had lines drawn around its curve making circles, then you can see what we are talking about. If the cylinder reached from the floor to your eye level, which is where your horizon line would be, and if you looked at the circles on the tube, then you'd notice how those 'circles' change as they get higher up the tube, and closer to the horizon line. What happens, is that as they approach the horizon line, the circle's height gets smaller; it becomes more oval. As you reach your horizon line at eye level, the 'circle' has become a straight line.

Thus, the turns around that cylinder, if you were to draw them, would look like the illustration and the turns would slowly go from a circle to a straight line.

So, when you are drawing something such as a cup or a bottle, you need to pay attention to the same phenomena.

If you were to draw a bottle, such as in the illustration, with labels and such, you’d need to take this aspect of perspective into account. Often an artist will draw the bottle on the setup stand in such a way that they don’t realize that what they are drawing is what they think they ‘know’, not what they actually see, and so don’t even look. (the baggage rack again!) They often draw the curve at the bottom of the bottle flat, because in the real world it is sitting flat on the bench. Same with the curves on the bottom and top of the label, and the curve on the lips of the bottle. All are drawn the same, either flat, or all turning the exact same, since in the real world they all do turn exactly the same. But, what we are doing has nothing to do with the real world, what we are doing is how thing look ... big difference.
However, if you want your bottle to look 'real' you need to 'see' that the curve at the bottom of the bottle is not the same curve as the curve at the bottom of the label, or the top of the label, or the top of the opening of the bottle. All these turns will turn at a different rate, the curves will be different, due to this phenomenon of perspective.

Here are some more illustrations to help.

Now, let's look at how these turns may be affected by perspective, and see if we can use perspective to help make this bottle look more real, more 'solid'.

Keep in mind the idea of how the circles slowly get flattened out and become ovals. Notice how 'A' turns differently than 'F'. 'A' is more round than 'F'. Now, in actual fact, you probably wouldn't have to change every single curve, making them more round or more oval. You only need to do what is needed to get your sketch to work. If you find that after having drawn a bottle or something like this, that it doesn't look quite right somehow, then check out how perspective is playing in the sketch. You probably would have to adjust one or two of the curves, but not necessarily them all. If it is working, then there is no need to do anything further.

What you must not do, ever, is to reverse the above perceptions. You cannot have the turns lower down on the bottle flatter than the turns higher up on the bottle, or, the turns higher up on the bottle rounder than the turns below. It will really be visible, even though no one really knows ‘what’ it is that is wrong.

Look at the following illustration on the next page to see why. (I can’t get them to fit on this page.)
This is what we see, but ........

........this ======\n
is what gets drawn.

What is wrong with the sketch, and why? Call the instructor and tell them what you think.

INSTRUCTOR

Drill 9

Get a bottle, preferably one with labels on it, or tall cylindrical object, and it would be best to get a bottle where the turn all along it's length is the same, not changing into a fatter turn or wider turn.

Do a rough sketch, and fix it up a little.

Then, take a good look and compare how the lower parts of the bottle turn in a different way than the top parts, the 'A' => 'F' relationships illustrated earlier. Keeping in mind how the roundness changes into an ovalish shape as you approach your horizon line, which is at your eye level, that the turns of the bottle must also change in roundness.

Do several of these, until you really have the technique down and know you can use it. Remember that you cannot make a turn flatter than the turns above it. So, watch for that. Everyone else will see it.

STUDENT
Drill 10

Look at the bottom of the bottle on the setup stand, the part we have been labeling as 'A';

Actually, I know you won’t bother to turn the pages, so I’ll put up more illustrations for you.

Look carefully. Notice how the part of the bottom of the bottle that is closer to you looks a little lower than the part of the bottom of the bottle that is turning further away from you. Why is that? Why is the bottom of the bottle not drawn flat, but is drawn curved, and why up? Remember the cubes?

Well, things look smaller as they get further away. The bottom of that bottle is the lowest point in the length from your horizon line to the bottom of that bottle. As the bottom of the bottle turns further away from you, the line that goes from the bottom of that bottle to your horizon line is getting shorter. Thus, the bottom of the bottle as it turns away from you appears to be moving ‘up’ towards your horizon line. This is the exact same phenomenon you noticed regarding the tiles on the floor and in the ceiling.

People, who draw the bottom of the bottle flat, ‘know’ that the bottom of the bottle really is flat, because it is, isn’t it. So they draw what they know; the bottom of the bottle is flat. They just aren’t looking. Goofy. But we’ve all done it.
Drill 11

Here are some drills to get you thinking. You have all the data now to figure out the answers. The last few lines in the last section are your clue.

Why is the front edge of the setup stand, the edge closest to you, looking lower than the props that are sitting on it?

_____________STUDENT

Why is the bottom of one prop looking higher up than the bottom of another prop?

_____________STUDENT

Make sure you do this. If you can’t figure it out, call the instructor.

Common Errors in Perspective

These again are just things you need to think about. Once you have the idea of perspective;

“Thus, the basic of perspective is that as things move farther away from you, the smaller they appear to be.

Here is a good example of an error you will often find artists miss. The reason they miss it is because they are looking at pictures in their head, or they are 'thinking' rather than 'looking'.
This is the setup actually looks like, the subject off to the side a bit, but….

… this is what the person 'knows' it looks like, they aren’t even looking, they are ‘thinking’, unfortunately.

….this is what gets drawn! See the problem, the person is thinking, not looking.

There are many such examples of how you can fall into the trap of 'thinking you’re looking', but you are not. Your eyes are pointing in the right direction, but all you see are things in your head. Your mental figuring blinds you to what you need to see.

This is not a minor error. It is the number one source of probably every difficulty you’ve ever had in your life, not just in drawing. Relying on previous decisions is
just a way of not ‘needing’ to see what is in front of you now. Sometimes is works, sometimes it doesn’t. It’s when it doesn’t work that you are in trouble, so that is where you have to put your attention. Always be willing to revisit your previous decisions about anything. Nothing ever remains the same.

In drawing, it is the same. Never assume something is right. That is where you will make your mistake. You’ll know when you are sliding into that pit because you will notice that you are avoiding changing something in your work. “It’s good, so I’ll leave it.” is a road to ruin. It may well be ‘good’. It may well be ‘done’. Just be willing to change it and you’ll do okay.

(So often in painting, the artist will only take out the colours etc., necessary for what he ‘thinks’ he is going to work on in his painting today. Well, he better be willing to redo that entire painting, because as soon as he changes one thing, he has changed a relationship, and that may bring into view more changes being needed. If he doesn’t think that way, he’ll be fighting his own present perceptions with his past decisions about what he has to do now. He’ll even resist getting out the colours needed to do the job properly. No kidding! I’ve seen artist unwilling to bend over and take a tube of paint out of their over loaded tool box from Canadian Tire, just because they already decided they won’t need it today. And, of course, they need it desperately, and so they find themselves in a terrific battle with themselves. Silly)

Here is another example of an error in perspective. Children do this almost one-to-one when they first get started, but so do adults.

Here is what the setup looks like……but…..

….this is what gets drawn.

The reason is that we 'know' that all the props are sitting flat on the setup stand so it gets drawn that way.
Also, the top of the prop stand is at the same height as the bottom of the props, more or less, so it is drawn at the same height as the bottom of the props. What you want to know is what you 'see', not what you 'think' you see.

As was said much earlier on, *don't draw what you 'know', apply what you know to what you are drawing.*

There is a big difference.

**Drill 12**

Get a setup such as shown in illustration ‘Perspective Errors Setup 1’ as page or two ago. Make sure that the setup is angled a little, so you may have to set it up off to one side and not directly in front of you.

Then, keeping in mind what you have learned here, do the sketch. You can use a plumb line to sort out how much of a slant the prop stand should be, relative to you. Use the plumb line a lot, you may be lost without it.

When done, call the instructor for a checkout.  

____________Instructor

Here is another very common error you will find many make.

Look at the illustrations below. Notice that the opening of the cup is quite round, but if you were to lay the cup on a stand, it looks less round, and more and more oval. Well, if someone were to draw the openings of these cups, they tend to draw them as perfect ovals. But, there may be problems with that.

The line A to B is the *same* length as the line B to C, which is how they'd be in an oval. Once again, too much thinking and not enough looking,

because this is *not* how it looks!
The illustration below will give you something you may need to pay attention to when seeing 'ovals'.

Look at the lengths between point 'A' and point 'B', and compare that length with 'B' to 'C'. They are not the same, are they!

Why?

One of the most missed uses of perspective is when a prop, such as a cup or bowl, has a circular opening which is fully visible. Usually artists draw the opening of a cup as a perfect oval, since they see it as a circle on an angle.

Remember, the farther away things are, the smaller they appear to be. That’s the illusion.

Because of perspective, the length farthest from us, 'A' to 'B', is going to appear to be shorter than the closer length, 'B' to 'C'. If you look at tiles on the floor, as you look at the ones by your feet, and scan the tiles towards the far wall, they appear to be getting smaller. Each tile is the same size, but one tile closer to you than another one will seem bigger. You can see the difference! It is there to be seen.

Let’s take a closer look at the photo of the cup. The illustration fades a bit, but what I want you to notice is quite clear.

Look at the edge of the cup as it approaches and leaves the string. Notice how the turn is different on both sides of the string, one turn is longer, the other turn is shorter. Why?

So, it is not an oval, is it! The curves are not the same, perspective!
But, again, if you don’t need to deal with this, just be aware of it in case something in your work doesn’t seem right.

**Drill 13**

Set up a cup on the prop stand, and do a good little sketch of it.

If you were to take a piece of string, and place it across the opening directly in the center of the prop, from left to right, you’d discover something. The string divides the *circle* into two equal parts right? Right! But that is not what you will 'see'. Go back and sit down, and look at the opening, now ovalish.

The oval should look like it has been cut directly into two parts as well, equal, one a mirror image of the other. But if you look at it, that is not the case, is it. The farther half seems to be smaller. It is not as ‘tall’ as the bottom half.

Correct your sketch accordingly. Check out the turns of the sides as well, keeping in mind they are not the same. (As shown in the previous illustration)

Call the instructor over for a check out.

___________INSTRUCTOR

**Summary of main points**

Perspective has to do with helping you create the illusion of three dimensions on a two dimensional surface.

The basic idea behind perspective is very simple, as is the whole subject. We’ve all seen how railway tracks apparently get closer together, and at the horizon, they blend into one, and disappear. This point of blending, of disappearing, is referred to as the ‘vanishing point’. I wonder how they figured that name out?

The reason the tracks appear to join is because as things get farther away, they appear to get smaller. Thus, the space between the tracks appears to get smaller. Of course, that is an illusion, as the space is not getting smaller. What is occurring, is that the space between the observer and that particular point is increasing, and the illusion is that the ‘thing’ itself is getting smaller.

Well, the reason perspective works is because we ‘know’ that the rail lines are not getting closer together; they are always the same distance apart. Thus, we ‘see’ the
space is extending outward in front of us.

In art we reverse that process. By actually drawing the spaces smaller, we are creating the illusion of space extending outward in front of us. We can visualize the depth, the third dimension.

This is the essential point of perspective is that things appear to get smaller the farther they are away. Thus, to make things look like they are farther away, we draw them smaller. Simple. That is how you apply the basic concept of perspective.

There are a couple of other points you need to know as well to fully grasp perspective. The horizon is always at eye height. In other words, no matter how tall or short you are, how high on a mountain you stand, if you can see the horizon, it is always at eye level. Thus, two people standing side by side, of different heights, will have their horizon level different. Fortunately, other people’s horizon line is irrelevant to you, but you need to be aware of it if any question arises.

What is relevant is that if you look at things, and keep in mind how the ‘railway’ lines work, you can observe a vital piece of data. Things that are below your horizon that you can look down upon, as they extend away from you have the illusion of getting higher. Thus, the chair in front of you, looks as if it is lower than the chair farther away, and so on. The tiles in a floor, if you look at them, seem to be higher as they get farther away. What they are doing is approaching the horizon line, which is at eye level. So they have to go ‘up’. The tiles on the ceiling also move toward the horizon line, but the are moving down. Thus, things below the horizon line move up towards the horizon, and things below the horizon move down toward the horizon. In both cases, the phenomenon of looking ‘smaller’ applies. The distance between the part you are looking at now, and the part you looked at previously, relative to your horizon line, is smaller. Just take a look and see. If you have a floor and ceiling with tiles, stand back and take a look. The lines of the tiles seem to get closer together, just as the railway tracks, plus, they move up or down towards the horizon, plus the tiles themselves seem to get smaller.

In drawing, you can create the illusion of the third dimension, of space going back into your paper, by applying the above data. By making those lines appear to converge, by making the things smaller, by moving up or down towards a ‘horizon’ on your paper, you give the illusion of depth.

Although there are numerous ways to use perspective in drawing, it is all based on
the above. If you truly have the above, you have it. The rest is just seeing where you can use it to improve your drawings.

________________STUDENT
WHAT DO LINES ACTUALLY DO, EH?

First, answer me this question, what are lines? What are they? Since I haven’t got time to wait for you to answer, I’ll go ahead and answer for you.

Lines don’t exist on your subject matter. We use lines to separate spaces from other spaces on the surface of the drawing paper, which is flat. That is the basic function of line drawing, to create a sense of two dimensions, one length going up and down, and another length going left to right, and by combining the two, we get curves.

It is all *two-dimensional*, there is no sense or illusion of a distance also going backwards into the paper, the illusion of a third length, or third dimension, or depth. Lines by themselves are strictly two-dimensional. The shapes they produce look flat, two-dimensional because the lines are two-dimensional. I suppose the reason is the same as some wise old sayings, “like father, like son”, “the apple doesn’t fall far from the tree”, “Eddy with your money will disappear”, that kind of thing.

However, lines *can be manipulated* in a few ways to create the *illusion of a third dimension*, an illusion that there *is* depth in the drawing, a length does seem to be receding into the distance.

And folks, once you have your basics down well and know you can draw, this is where the real magic in drawing begins. This is where your little fingers will lift your heart into the heavens.

When you begin to vary the *characteristics* of the line you are using to draw a shape, you also begin to vary the characteristic of that *shape* as well.

So, how can we actually use the above info?
CREATING A SENSE OF DEPTH IN YOUR DRAWINGS

Paper is of course purely two dimensional. It has a height and a width. The magic in fine art is to create the illusion of a third dimension, that of depth, onto a two dimensional surface.

Lines can be used to help create a sense of ‘depth’ in your work. By this I mean that there is the impression in your sketch that there is a sense of volume, as if you can reach ‘into’ the sketch and grasp something. Lines are quite limited in that function, but there are things you can do to help you with lines to help create some of that magical effect.

The easiest is what you’ve always done, even since being a kid, and you are still doing it here at the studio, without really thinking about it.
INTERSECTING LINES

For example, one of these techniques is simply intersecting lines. This you have been doing as kid, so it is not new, but it is important that you revisit that simplicity now, because you can now use it to your greater advantage in your sketching.

Here are some simple illustrations to bring it back to mind.

The illustration to the right works because when you see the line ‘A’ cut part of line ‘B’, it gives the impression that line ‘B’ goes behind line ‘A’, and so you get a sense of depth, ‘B’ is ‘behind’ ‘A’.

As you add more and more lines intersecting one another, you can get a greater and greater sense of depth.

Here is another example of what works, lines intersecting lines.

So, how can you apply this same principle to your now wonderful, magnificent drawings? Simple. Just do the same thing.

In some cases it is obvious. You draw a bowl of fruit, and the front edge of the bowl cuts the fruit off, and so the edge of the bowl looks closer to you than the fruit. The fruit cuts off the ‘back’ side of the bowl, so the fruit looks closer to you than the ‘back’ side of the bowl. It’s all illusion.

However, you can introduce this into your work, and emphasize it, so that you can give a better sense of depth than what you may normally get in a simple sketch. Just add this to your list of tools. When you are looking at your subject, make it a point to notice what lines are cutting off other lines, and then do the same thing in your sketch.
Do you remember way back when I used to tell you that you need to erase the lines you don’t want, to get the line you do want, because ‘later’ in the course, we will be doing something with that line? Remember that? Well, it’s now ‘later’ and this is what I was referring to. This is the ‘focus’ step you learned way back the very first day you walked into the door and did the introductory class. Remember?

Look at how Mike gets a real sense of depth in his figures, by having lines intersect lines. In this sketch, he also uses the lights and darks, but even without them, you can still get a sense of that arm going up, up and away!

Look at the face! Same thing, lines cutting off lines.

This is a technique which is so simple, but it does merit being mentioned. Use it.

As a side note, that horrific situation of ‘foreshortening’, when something like an arm is pointing at you and causing you all kinds of grief, is totally solved, 100% by;

a. looking at it and not thinking,

b. use overlapping lines.

The above sketch by Mike is full of it.

**DRILL 1**

Go to the book shelves, and bring some books with drawings in them to your bench. Usually figure drawings tend to have the most overlapping edges. Look through the books and see how well this technique works. It’s quite enlightening as to how simple this procedure really is, and what it can do in a drawing.

**STUDENT_______________________________**

**DRILL 2**

Get a setup, or maybe a photo of a person. Even sitting down with a mirror and use the mirror to create a mirror image of your hand holding onto a cup or something, is fun to do. You draw the mirror image of your hand holding the cup. Or, maybe
just your hand leaning towards you. Actually, this is probably the best way to do this drill.

STUDENT________________________

Do a really good drawing of it, measuring, plumb lines, flows, etc.

Then take a look and see where you could apply this principle of overlapping or intersecting lines.

Visualize how you want to proceed then put them in!
LINES HAVE SHAPES

Yup, lines have shapes. They can have characteristics which will make a very big difference in the effect your drawing can produce.

Here is an illustration to help you ‘see’ what I’m talking about.

In the illustration above, look at the differences in the lines.

First, understand that we are not talking about the direction of a line, be it straight or curved. That is too obvious. We are talking about how the line varies within itself. It can go from dark to light, thick to thin, can have one side of it sharp and one side of it kinda fuzzy, or one part of it sharp and the next part of it fuzzy.

In the illustration above, lines ‘A’, ‘B’ and ‘C’ are your usual lines and those are NOT the ones we are talking about here. Look at line ‘D’, how it goes from dark to light. Line ‘E’ goes from thick to thin and dark to light. The fact that they are straight or curved is irrelevant. Look at line ‘F’, how one side of it seems fuzzier than the other side of it. All these lines are just lines, but the change in them creates different effects in your work. You need to know what these various characteristics can do for you, so you will know when to use them. They are very, very powerful. Once you have your basic drawing techniques well learned, then these pointers I’m giving to you now will be the difference between mediocrity and masterpieces. It is that valuable.

There are ways you can use these variations in a line’s characteristics to give a sense of ‘depth’ to your drawing, among other things.
Let’s look again at changing and unchanging lines, and what the difference is in what they do. Remember that we are talking illusions here. We are using lines to create illusions, to fool people. Eddy is quite good at that, fooling people.

Here are a couple of Bob’s Rules for Learning Something, which you can discard once you have learned that particular something…

\[
\text{Change} = \text{change.}
\]

\[
\text{Nonchanging} = \text{nonchanging}
\]

… which leads to the brilliant observation…

\[
\text{An unchanging line gives the impression that the shape itself is unchanging}
\]

\[
\text{A changing line gives the impression that the shape itself is changing.}
\]

Just what it is that is ‘changing’ in the shape depends on how you manipulate that line.
‘HARD’ LINES VERSES ‘SOFT’ LINES

This is one of the ‘things’ you can do to ‘change’ your lines.

The first and probably the most important effect in the manipulation of the characteristics of lines have to do with the edges of the shapes. Lines ‘are’ the edges of the shapes in drawing, aren’t they, and so by changing the characteristics of the lines, we can give the impression that the characteristics of the edge of that shape is also changing.

I guess I’m going to have to create a definition for ‘hard’ and ‘soft’ lines, so here goes;

A line can be considered ‘hard’ when the ‘edge’ of the line, the actual side of the line itself, not it’s ends, goes into the blank page quite abruptly; the edge between the side of the line and the space next to the line is dramatic and distinct. The line is clearly separate from the part of the page next to the line. See the illustration below.

A line can be said to be ‘soft’ if the ‘edge’ of the line, the actual side of the line itself, is soft and fuzzy; the edge between the side of the line and the space next to the line is blurry, not distinct. The separation of the line from the part of the page next to it is blurred, less distinct. See the illustration below

Line 2 is ‘soft’ compared to line 1, but, line 2 is ‘hard’ compared to line 3. The differences in darkness of the lines is not supposed to be there, but, after all, I did the illustrations and I haven’t a clue how to do them. So, ignore the differences in the darknesses.
Characteristics of lines follow the principle of relationships, as does everything else. A line or part of it is harder or softer compared to another line, so a soft one is hard compared to a softer one.

Here is an example of an ‘unchanging’ line.

Note that the line is pretty much the same, no real changing in how hard or soft the line looks. The little ‘bumps’ you see on it are because the computer graphics don’t do what I want. Ignore them. These lines are purely two-dimensional. If you draw using these, the shape will also look two-dimensional, i.e. flat.

Here is an example of a ‘changing’ line

Note in this illustration how the blurring of the line gives a different impression than that part of the line that is not blurry. Also note that one ‘blur’ is more ‘blurry’ than the other ‘blur’, so even in this line, the softness on the left is ‘harder’ than the softness on the right.
Since lines create edges, you can make the edge of the shape look softer or harder by making the line look softer or harder. What this does to the image, we’ll get into later.

The notion of a ‘hard’ edge and a ‘soft’ edge is again a relationship between two lines, or two parts of one line. One line that is ‘soft’ compared to another line, that same line can be seen as ‘hard’ compared to a third line. It is all relative, so, when you start working soft and hard lines, keep in mind you are working more than one line, you are deliberately comparing the line you are working on to at least one other line. This should be no surprise, its old news to you at this point; everything is relative to everything else; everything is in comparison to something else. Are you getting the idea of the difference between a soft line and a hard line, or a changing line and an unchanging line? It is very important that you can visualize these different characteristics of lines.

Drawing a ‘hard’ line or an ‘unchanging’ line is easy. It is what you have been doing all your life. The skill is being able to make a line soft, or to draw a line and all the while changing the hardness or softness of the line as you are drawing it!
USING THE NATURE OF LINES TO IMPROVE YOUR DRAWING

Lines are not ‘boring’, as the idiot yahoos and their wannabe minions would like you to believe. Those bozos who think a can of poop or a jar of urine are examples of fine art, well, you can bet they don’t have any of those in their homes, although their life is full of ‘it’.

Lines can be very exciting, and you can get very creative with them. Lines can make your work really ‘hot’, just like our new Governor General…what’s-her-name…the one that socialized with and shared sympathies with people who promoted the breakup of Canada, that Liberal appointee…what’s-her-name…hmm …what’s-her-name…what’s-her-name…you know the one, the one that idiot Liberal Prime Minister Paul Martin appointed … whatwashernamagain … hmmm

(Clearly this is an act of insurrection. Maybe now we can get rid of this dumbass ‘author’ once and for all. –ed.)

You’ve seen how lines have shapes, so here are some ways to use that little golden nugget. Given your basic drawing skills, this is where you can now strike out as a draftsman to be as good as any of the Greats ever were!

Depending on how you draw that line, you can give that space a sense of character that it might not normally have. By manipulating lines, you can give a sense of depth to your sketch, the illusion that the sketch is three-dimensional.

Following are some illustrations from some Greats to show you how they used what you now know, working the lines.
To our left is a Degas drawing of a head. There is something I want you to see in this simple sketch, how he used this technique of changing the character of your line to change the character of the space.

Here is a close up of the head so you can see better what I’m showing you that Degas is showing you. Take a good look at the lines along the edge of the face. Are they all the same thickness, or hardness, or darkness? No. The character of the line is varying, isn’t it!

Degas doing this deliberately, because he wants to use the line itself to help give the impression that the thickness of the head at a given point turns around towards the back differently than at any other point. I’ve marked places where the line changes. Take a look. In these places, 1-6, the side of a real face has different thicknesses, so, the head would turn towards the back of the head differently. Those parts of the side of the face that were more ‘fleshy’ would turn around to the back at a different rate than those parts that are less ‘fleshy’.
At point 1, the temple area just behind your eye, if you were to feel your own head, and look at another’s, you would see this part of the head is flatter compared to the cheek bone area. This part of the head from the front to this temple area turns ‘faster’.

At point 2, the cheekbone area, the turn of the head is ‘slower’ because the cheekbone is ‘fatter’ at that point, the bone is sticking out. So, in order to show that, Degas changes the character of the line.

At point 3, the face tends to change again. Here the cheekbone is gone, and what you have is basically muscle and fat. So the turning of the face towards the back of the head again changes compared to point 2. Again, Degas show that a change is occurring by changing the nature of the line.

At point 4, we are again at a different facial structure. This part is a little fatter than at point 3, so again the turn of the face towards the back of the head varies, and again Degas gives the impression with this line that a change is going on.

Points 5 and 6, and others not marked, are all drawn the way they are drawn because of what you just read.
To the right is another portrait by another artist who never had TV to interrupt his life.

Look at the lines in the face. I’ve focused in the side of the face for you to see what this genius is showing you.

Look at how the lines along the edge of the face are constantly changing! Beautiful. Also, if you look very carefully, you can also see along that turning face a point where there are intersecting lines to even give a bigger hit towards a changing volume.

Brilliant! Boy these guys are good! Unreal!

Are you getting the idea here? You can use a single unchanging line, or, you can begin to work miracles by changing your line, and hence changing the nature of the space that that line delineates.

I’ve shown you in these examples lines that are pretty easy to see, which is why I chose them. They are perfect to introduce to you this technique, so you can begin to visualize this on your own. However, it is not just the ‘edge’ of the head or face that you can use this technique, you can use it anywhere. You can use it on any line whatsoever, if you need to. So, if you go looking at drawing masterpieces, look at the eyes, nose, shoulders, hair, ears, nostrils, eyebrows, elbows, whatever.

This also works on still lives, landscapes, florals, and so forth. Any point where the mass of the shape changes in how it turns towards the back, you can change the line you are using to draw that mass to give that mass a varying sense of volume, and thus the impression that as that space turns around towards it’s back, it will turn at a different rates.
DO NOT UNDERESTIMATE THE POWER OF THESE TECHNIQUES! THEY AND THEY ALONE CAN MAKE THE DIFFERENCE OF TRULY GREAT ART AND MEDIOCRITY. LEARN THEM, MASTER THEM, AND YOU WILL SOAR TO THE STARS

(Unless you watch too much TV or voted for Chrétien once too often. Actually, once is too often)

Wonderful, eh!

NOW YOU DO IT
Drill One:

First, go and get some basic drawing books from the ‘library’, and look at the images. What you are looking for are lines that are varying in nature, and you want to look and see why the artist is doing that. Usually, this technique is done only when the artist is intending to do a complete drawing, so incomplete sketches will unlikely have this tech. This is at the ‘focus’ stage of the drawing, the very end of it.

Also, you can look at paintings, and look at the edges in the paintings. Even though the artist is using paint, he is also drawing, and the edge of the image is a line, and that line will vary from point to point according to how the volume of that shape varies. Take a look and see.
CHANGING THE CHARACTERSTICS OF YOUR LINE

In these illustrations, you’ll see how to shift the angle of the pencil on the paper so that your line goes from hard to soft, or visa versa.

In the above illustrations, you can see how the hand has simply shifted down from one angle to a lower angle, relative to the paper. The result is that the contact point of the pencil shifts from the tip of the head, to the side of the head. And the trace on the paper shifts from an unchanging line, to a changing line, in this case, from hard to soft.

NOW YOU DO IT

You’ll need to practice this to get the hang of it, but frankly, it is about as difficult as picking your nose.
**DRILL 1**

Get a pencil that has been shaved properly, or shave one yourself, and just draw lines on the drawing pad, shifting the pencil head from the tip being on the paper, to the side of the head being on the paper. Try straight lines, curved lines, any line you can think of, just to get the hang of it. Don’t try to draw anything yet, just get skilled at shifting from one kind of line to another.

Do quite a few, because from now on, you’ll be using this technique in your drawings.

**DRILL 2**

Now apply what you’ve learned.

Get a setup, or a photo, or use a mirror like before, and start doing a sketch. If you want, you can pick some of the photos of paintings from the book shelf, and pick out some examples of this from the Masters, and just practice what they did in that image.

Do a good drawing to the point where you can begin to ‘focus’ on details, because that is what this is, details. I

When you are ready, go ahead and visualize just how soft the line should be, and shift the pencil from the tip to the side, and make the line softer.

The more you do, the better you’re gonna get!

Have fun!!!