Chapter 3 Perspective – just a point of view

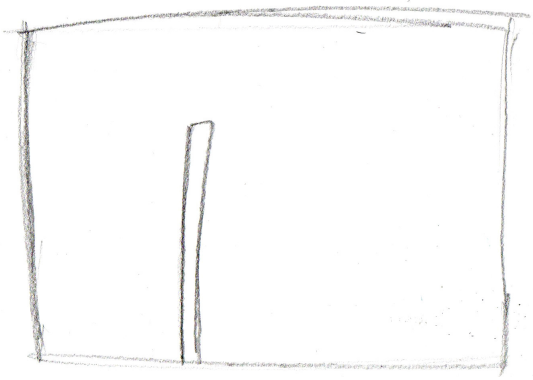
Perspective: (dictionary definition)

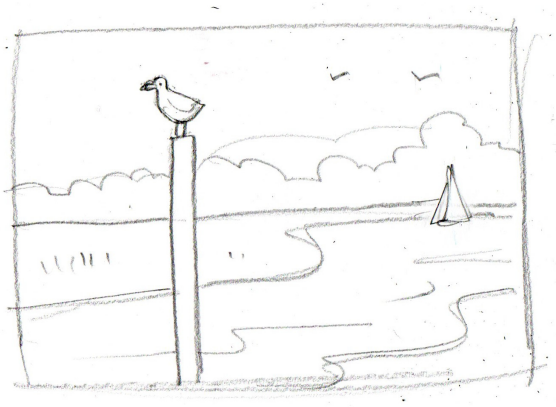
(1) the art of representing three-dimensional objects on a two-dimensional surface so as to give the right impression of their height, width, depth, and position in relation to each other.

(2) a particular attitude towards or way of regarding something; a point of view.

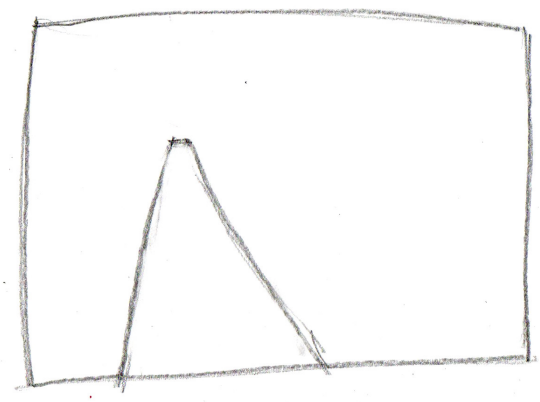
Most artists find perspective a challenge – I certainly did. When drawing something 'in perspective', which means you are dealing with odd angles and difficulties of scale, there is a bigger than usual contradiction between what you know and what you are seeing.

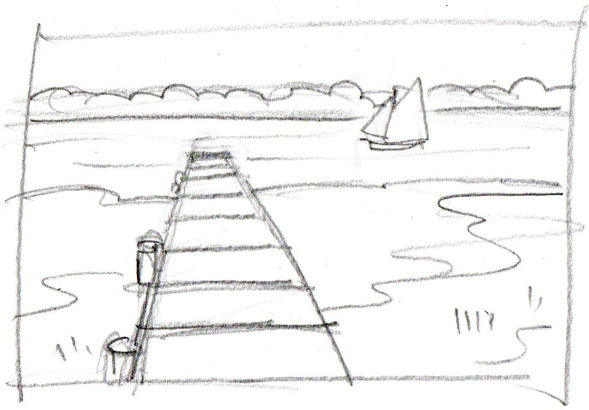
When we draw something parallel to our eyes – in other words, not at an angle - the shape we see is the same as the shape we know. In other words, what our eyes see matches our internal reference of what that object looks like. In this first drawing, it's reasonable to assume that the lines represent something upright, like a post. The second drawing confirms this, as we can tell from the context that it is a post, vertical lines to represent a vertical object.





But the next drawing is more ambiguous. It could still be an upright post, one that is tapering, perhaps? But by the time we place it in context, assuming I have drawn the lines correctly, it's impossible to 'read' it as upright any more. It has now become a pontoon – a horizontal object represented by vertical lines. As hard as you try, you cannot see it in any other way, just as if I show you the word 'cat' and try and tell you it's a dog.





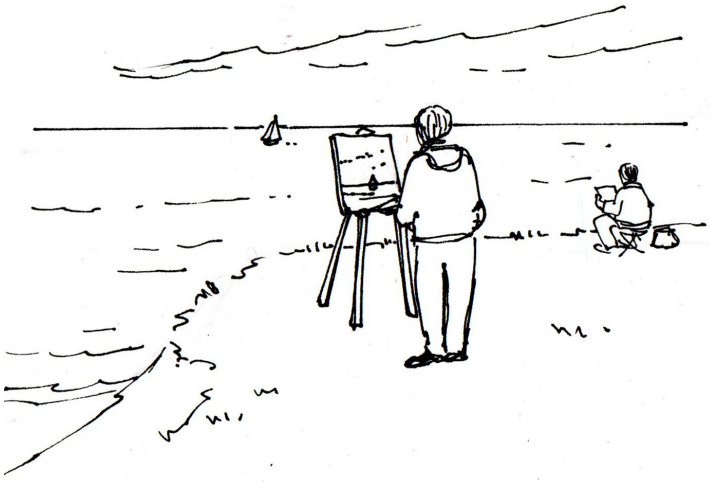
So we can ‘read’ the language of perspective drawing very well indeed. But to ‘write’ it for ourselves, we need to stop and work out how to get the language right. It’s like looking at the individual letters of the words rather than jumping straight to the meaning of the sentence. For the illusion of perspective to work, the angles and relative sizes of each line need to be correct. If they’re not, the image is unreadable, like a word misspelt.

If like me you are not mathematically minded, drawing perspective seems to involve a confusing list of rules and formulae. The words ‘vanishing points’ and ‘two point perspective’ were enough to make my heart sink. But I found that once I understood the basic principles I could do without the complicated technical understanding. If you are particularly interested in architectural drawing or townscapes you may well need to dig deeper (and there are plenty of good books on the subject), but I’m going to focus on the three things you need to know and some techniques to help your drawings a look ‘right’ without getting too technical.

(1) – The horizon is always at your eye level

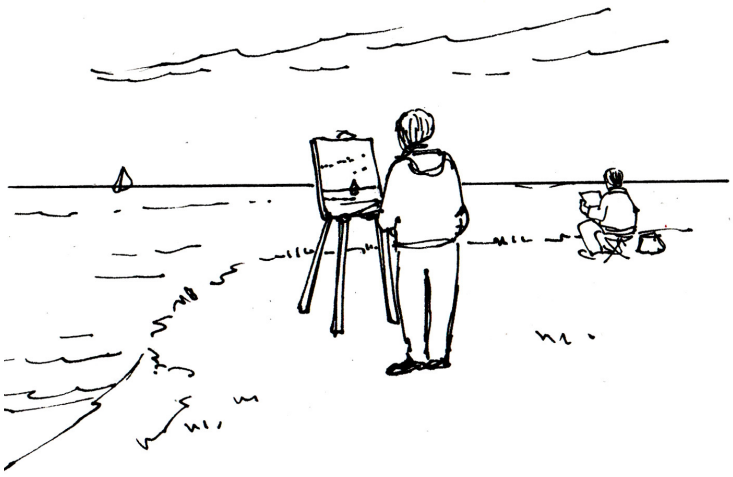
Before I started sketching I hadn’t realised that the horizon is always at eye level. That's **your** eye level as the invisible artist – not necessarily the eye level of the people in the sketch unless you’re all on level ground and sharing the same eye level (give or take variations in our height).

Next time you go to the coast, make a point of noticing where the horizon is. If you stand on top of the highest cliff, the horizon is at your eye level. When you go and lie down on the beach, the horizon has dropped - it's still at your eye level down there.



In this image, I’m the artist standing….

…but in this, one, I’m the one sitting.



Why do we need to know this?

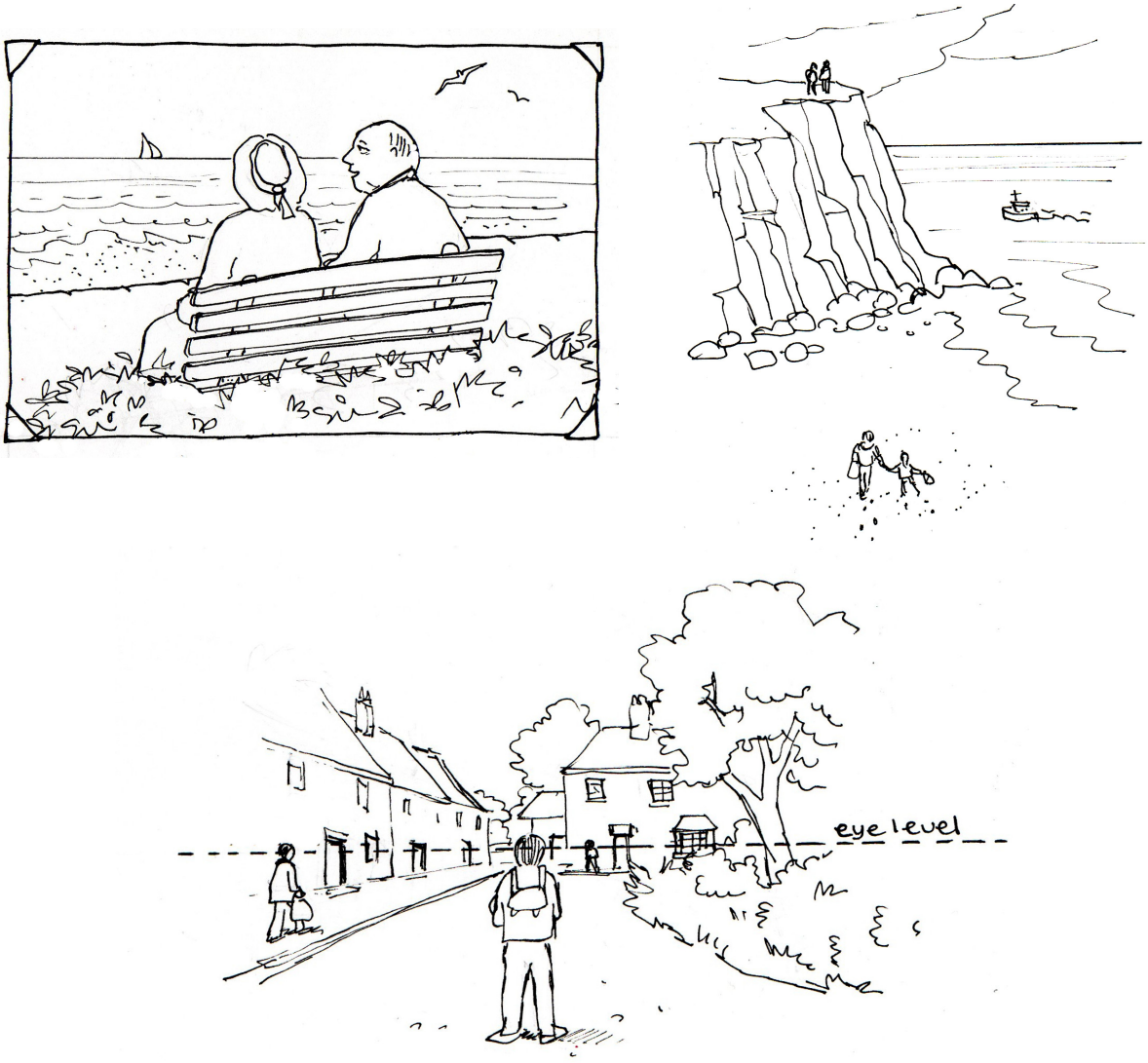
Firstly, so that we can place things (and people) correctly on the page.

Secondly, the horizon – whether you can see it or not - splits the page. Above it, we see the underneath of an object; below it, we see the top. If you’re drawing complicated shapes and get confused about how much of anything you’re seeing, it can help to bear this in mind.

Thirdly, because everything we see gets smaller and smaller towards that line until it disappears (more on this later).

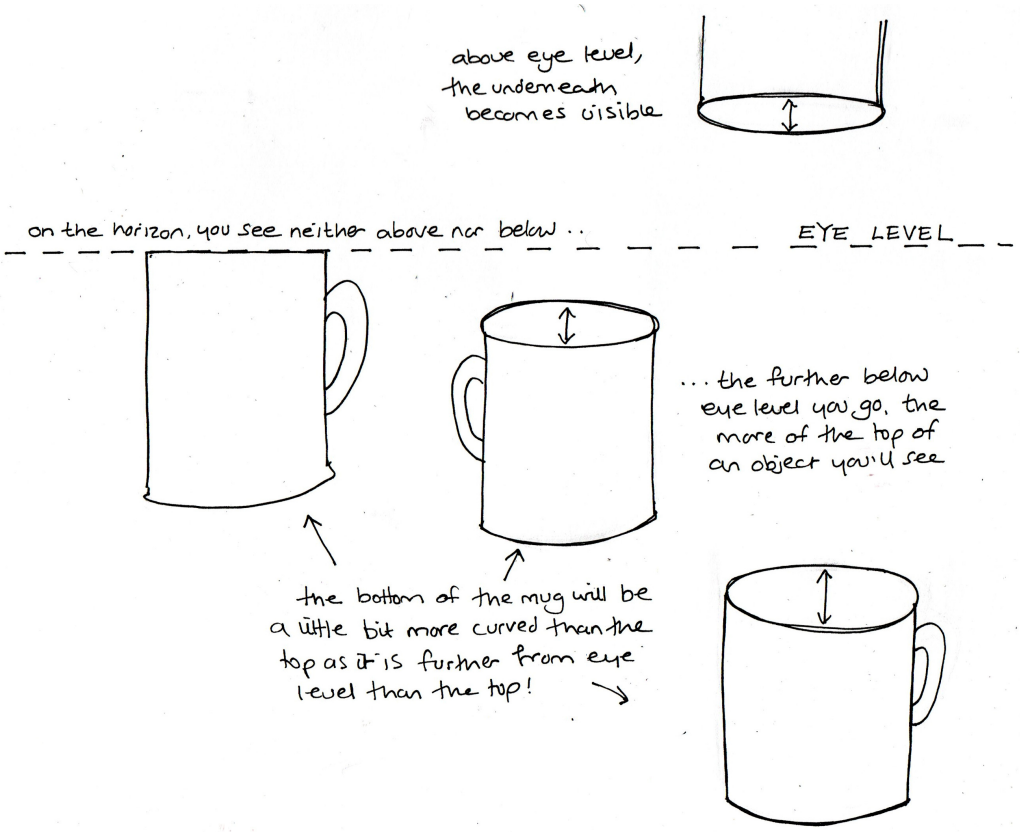
If you are placing figures in your drawings, their eye level may or may not be the same as yours…

In the drawing of the couple on the bench, I have the same eye level as the people in my scene. I am obviously sketching on a similar bench behind them! But in the second scene, my viewpoint is different to the all the figures in the picture. I'm standing on a cliff which is slightly lower than the one on the other side of the bay.

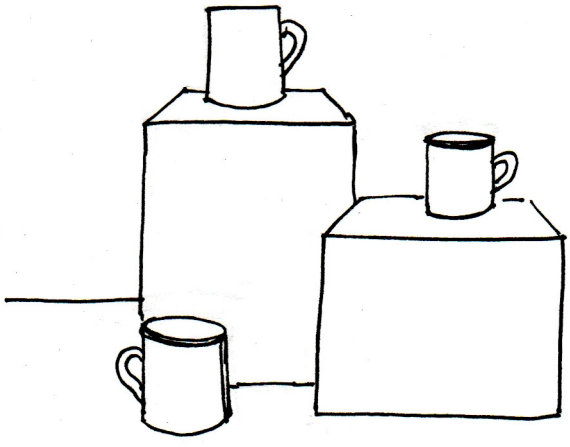


It's always useful to know where your eye level is when you start to draw, even when you can't see the horizon. In a street scene, for example, it can be helpful to draw it as a horizontal line across the page so that you can keep everything in scale and in the right place on the scene. On level ground, doorways in particular need to be positioned right so you could walk through them without being a dwarf or a giant!
This may seem confusing and/or irrelevant at the moment, in which case file it away for future reference. It will come in useful as your drawing progresses, I promise!

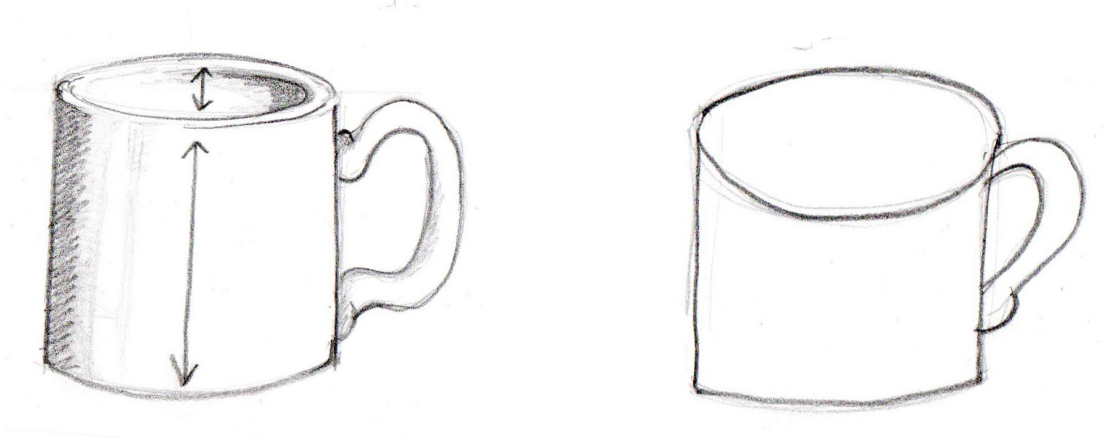
Wherever you are right now, look straight ahead and imagine a line across your eyes, dividing your world in two. Now pick up a mug if you have one to hand and hold it so that the top is at eye level. What shape is the top of the mug? Now lower it a few inches. What shape is the top now? Lower it further, notice how the ellipse grows as you lower it. Only when you are finally looking down on it does it become the shape you know and recognise – round.



Now make a still life arrangement of two or three mugs at different levels in front of you and try and draw them. The sides of each one will all be the same – vertical – but the shapes at the top and bottom will vary. If you get confused, remember the picture plane - that sheet of glass in front of your eyes. Take off your 3D glasses and focus on the shapes your eyes are seeing as if you were tracing the imagine from a photograph.



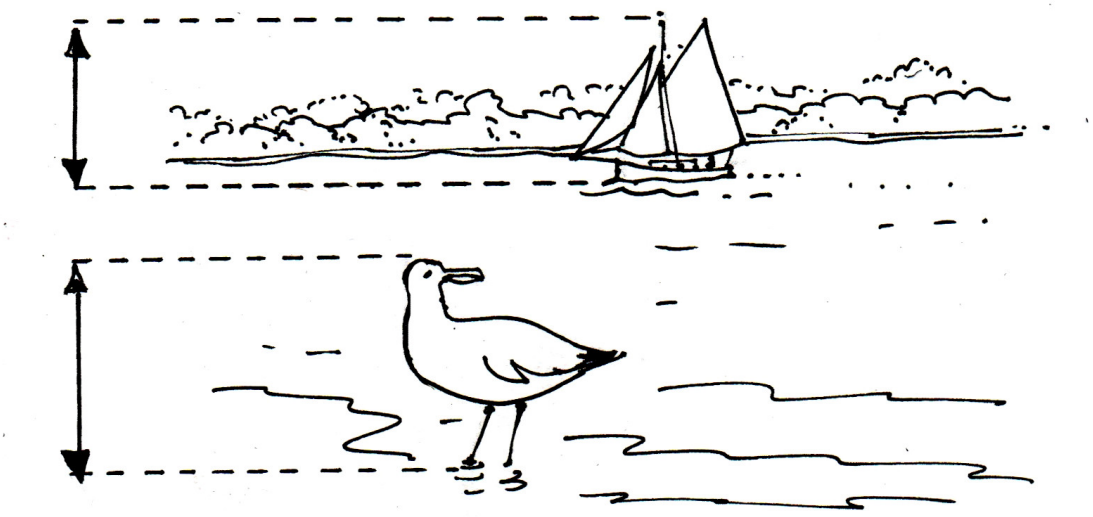
Measured drawing can help here. It's so hard to judge how wide to make that ellipse, as your brain will be telling you 'it's a round thing!' and you try and find a compromise between what you see and what you know. The result pleases neither your eyes nor your brain!



But if you take your upright pencil and measure the width of the ellipse and see how many times that goes into the height of the mug, you'll get the correct shape – used the 'language' of perspective.

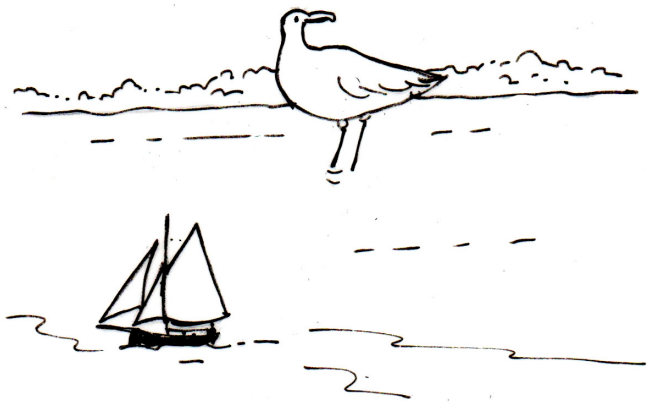
(2) – Things get smaller the further away from you they are

Yes, of course you know this, but do you realise how much smaller they get, and how quickly? We know that everything recedes into the distance and disappears into the horizon, so your brain reads the shapes and context and lets you know without even being asked that you are looking at a large object far away rather than a small object close up.



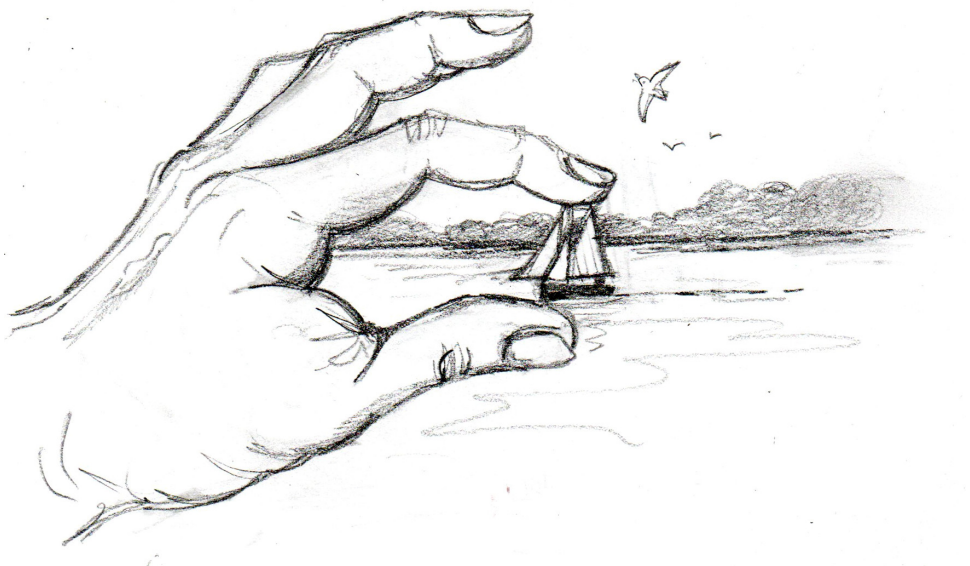
Both objects are a similar size in this sketch – but we know without question that the bird is a small object close up and the boat is a large object further away.

If I switch the objects round, what happens? Both objects are still the same size on paper – but not in your head!



We are used to the convention that nearer objects are at the bottom of the page and further away objects are towards the horizon (or generally, the further objects are higher up the page in a landscape as there is often just sky at the top of the page). Any variation from this order throws our brain into confusion.

Look out of the window at something in the street – a tree, a car, anything. Hold up your hand and see how big the object is between finger and thumb. Has the car parked in the street or the boat on the river shrunk to a couple of centimetres within the distance of a few metres? Did you realise just how much and how quickly objects shrink with distance?



It's easy to underestimate how much smaller objects look at quite short distances. Try this:

Look at your face in the mirror at a comfortable distance (say around 18 inches). Use a felt pen to mark on the mirror the top of your head and the bottom of your chin. You might need to shut one eye to do this! Now step away and while looking for a ruler or tape measure guess at how much smaller than your real face the reflection will be. You're in for a surprise.

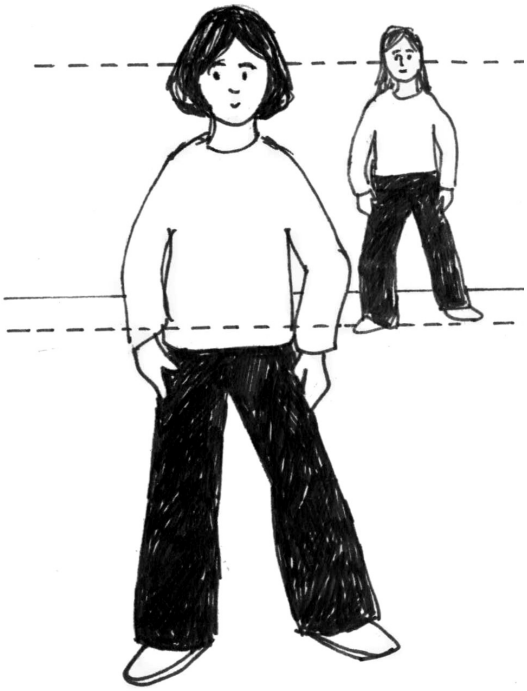
So if you're struggling with trying to get elements of a landscape to fit the scene, check that you have their relatives sizes right. Use measured drawing to compare one thing to another.

Figures in perspective

This one brings out the importance of eye level as well as scale:

Get together with a few sketching friends or helpful family members and find a reasonably large room or open space. Position one person close to you and another (ideally about the same height) some distance back (anywhere between 5 and 20 metres is useful). Both should be facing you. The person at the front can have a guess at how much smaller the one behind is (and so far no-one has ever got this right – your brain is too tricky).

Standing in front of the two, look at what your eyes are seeing. Ignore your brain which is telling you the two are the same size. If you were to draw the pair of figures (and if they are happy to stand there for a bit longer, have a go), how far up the side of the first person would the feet of the second one start?



Even at a distance of only 10 metres or so, the second person has shrunk to about half the size of the first. Her feet will start at about the other's waist. This is the kind of information you will only notice when you are trying to draw, and it is astonishing how different it is from your 'normal' life observation.

Now before your volunteers can swap around and see this for themselves, have you noticed that the eye level of both has stayed the same? The person at the back has shrunk from the feet upwards rather than from the head down. This awareness is helpful when placing figures in a scene (there will be more about this in Chapter 5).

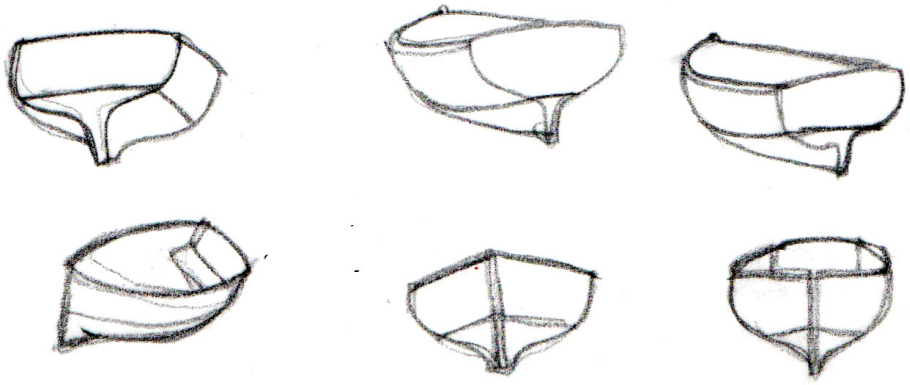
How to get scale right

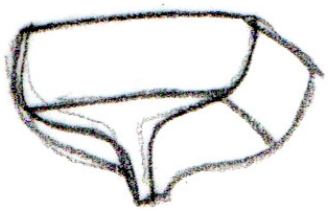
On a landscape scene you might be looking at a depth of several miles, so it's all too easy to get distant objects too big – and close up objects too small. If in doubt, measure and compare one object with another, either with pencil and thumb, or even with a ruler.

In close up scenes like interiors or still life, scale is less of a problem as everything is going to be fairly close. But don't get complacent, there will still be quite significant differences even over small distances.

(3) – The shape of an object changes depending on your viewpoint. (An object only appears in its 'true' shape when parallel to the picture plane)

In Chapter One I we looked at how the shape of a familiar object varies depending on our viewpoint, but we recognise it from any angle because of our knowledge about it and all the visual clues within what we see. A boat may be ‘boat shaped’ only from the most recognisable viewpoint of sideways on, but we still know it’s a boat whatever angle we see it from.





You can draw an object from one position, then take two steps to the left, look at it again. From your eye’s viewpoint it has become a different shape and needs to be looked at afresh.

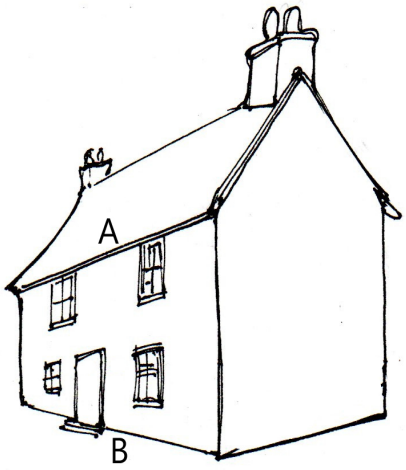
Many words that apply to drawing apply to thinking and reasoning too. A discussion will include the phrases: 'Look at it from my point of view', 'from this perspective....'

These words highlight the fact that if you change your viewpoint, you change the scene, and you are painting an entirely different picture.

So much about seeing happens at an unconscious level, but to draw we need to make those observations conscious.

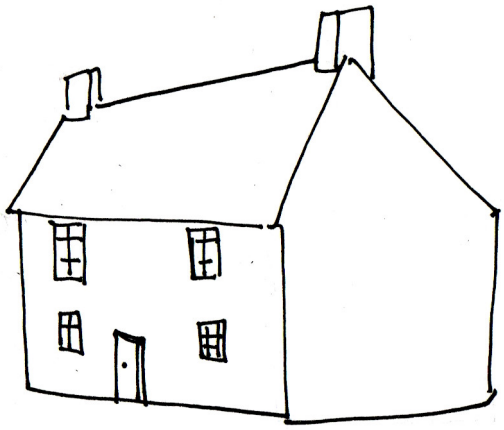
Measuring angles

When drawing an object ‘in perspective’ - that is, from any other viewpoint than face on, you have the problem of sloping lines and angles to deal with.



You know when you look at this drawing that lines A and B are parallel to each other, parallel to the ground, and that this is a normal house not a crooked one, even though the lines drawn are sloping. This is because the lines are correct for this viewpoint (or close enough!).

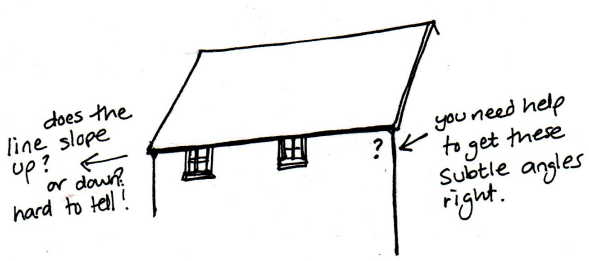
Our brains are used to this apparent contradiction and have made a rapid translation: 'It's a normal house just looked at from a different viewpoint'.

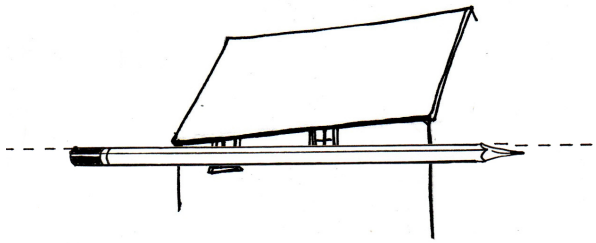


But when you come to draw it, the difference between what you see and what you know causes confusion. You can't please both your brain and your eyes, so you try and compromise, which pleases neither. When the lines and angles you have drawn are badly wrong, we can't do the bit of magic in our heads that makes a two dimensional set of lines become a three dimensional object. This one is just a wobbly house!

Measuring angles

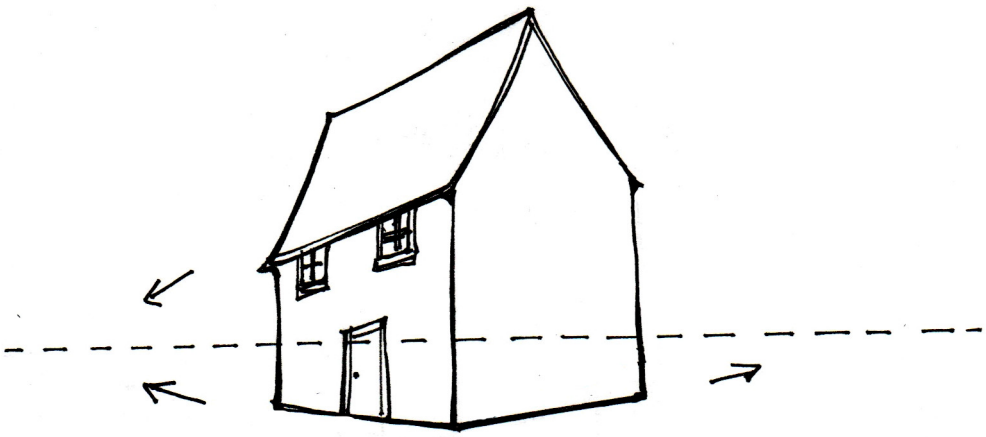
Getting angles right is key to drawing in perspective. Some are easy to recognise – you can usually tell when something is more or less than 90 degrees, but the more subtle ones can be harder to pin down. It helps to hold your pencil up horizontally in front of your eyes to see whether a line dips above or below the horizontal and by how much:





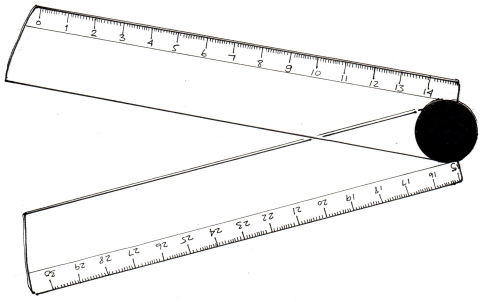
Hold your pencil level - now you can see exactly how much the roof line slopes up to the right.

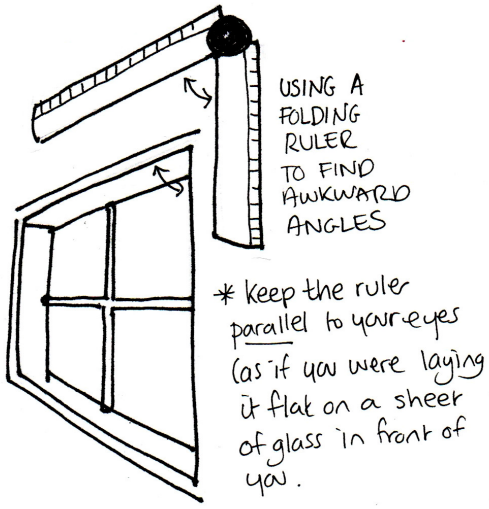
That elusive eye level/horizon line can come in useful here, as lines above the horizon will dip towards it and lines below the horizon will rise up to meet it. You'll also notice that the furthest corner of the house is smaller than the nearer one, as it's further away. So all three principles of perspective start to come together and hopefully will help you make sense of what you are seeing.



A great tool for measuring angles in a drawing is a small folding ruler (available from high street stationers).

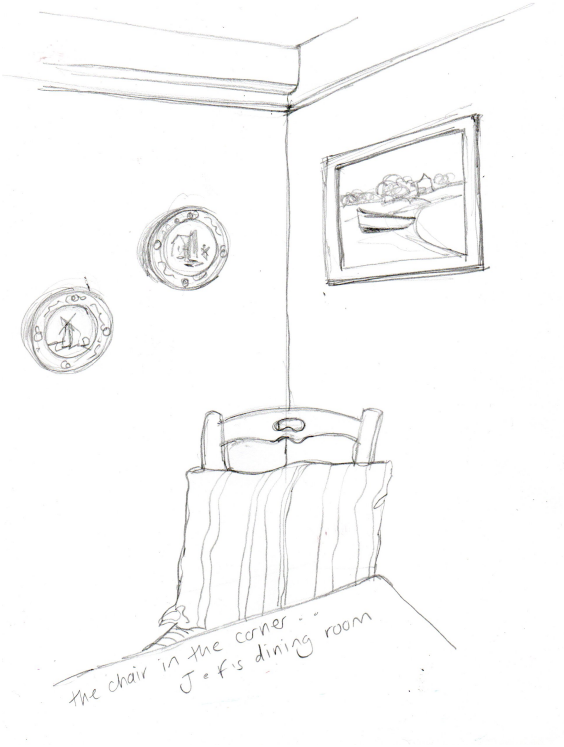
Line one side of the ruler against the vertical or horizontal line, then adjust the other side until it matches what you see. Now transfer this directly to the page for an accurate angle.





Make sure the ruler is always parallel to your eyes (pressed against that invisible sheet of glass, the picture plane)

This is particularly useful for buildings and structural shapes, as you'll find that the angles of an object in perspective dip away much more sharply than you think. The 'angle finder' supports the evidence of our eyes whenever it is in contradiction to what our brain is telling us that we know.



If you measure and observe what is actually there and transfer that to the page, it will look right. Honestly. You will be drawing 'in perspective' from observation, without the need for construction lines and vanishing points.

Find a corner of a room and draw a simple outline of everything in that corner. You don't need to go into too much detail. Use the folding ruler to get the angles of the ceiling in perspective.

Now move to a different position, from one chair to another, perhaps. Look at the scene again – same object, but different angles, shapes and overlaps. It needs studying afresh – only the vertical lines will stay vertical as in the previous sketch.

Finally…..

TRUST YOUR EYES AND NOT YOUR BRAIN

Don't get too bogged down by rules of perspective. The only thing you really need to remember is that your tricky brain is making all kinds of decisions and assumptions on your behalf about what you are seeing. If in doubt, deal with what is actually in front of you, right now, from where you are standing. Forget what you know, look hard at what you are seeing. Take your 3D glasses off and remember that flat 'picture plane' in front of you – it will stop you trying to peer round corners and draw things that you're not seeing!

If you move to a different position, your brain will tell you that you are looking at the same object, but you won't be – it will be a different shape. It all depends on your 'point of view'!