Mid Value Cube

This exercise is where we start to put all the value judging practice we've done in previous exercises together into a real world painting.

We might be just painting a mid value grey cube, but once you can do this exercise well, you'll be able to translate what you learn directly into your paintings. You'll find you're able to create convincing light and depth – simply through reproducing value relationships accurately.

You *will* need a value scale to do it properly, as you'll see in a moment.

What you need:

1. A value scale. If you've produced a good value scale in the earlier exercises, you can use that. Alternatively (and preferably) you can use the value scale which comes with the Munsell Student book, which you can get a copy of here:

Second Edition

Third Edition

Either the second or the third edition should be fine, both come with a Munsell neutral value scale, and are worth buying in their own right if you're seriously interested in colour.

Whatever scale you use, as long as you consistently use the same scale throughout the

exercise, it will work fine.

2. A mid value grey cube. These are pretty easy to make. Get a piece of wood about 2 inches by 2 inches in section, and saw 2 inches off the end. Bingo, a cube! Now paint it with acrylic primer. When dry, paint it with acrylic or oil in the middle value of your scale.

3. A shadow box. You can make these very easily, see the pictures below. The interior needs to be mid value and non-reflective. You can do this by simply painting the inside of a cardboard box, or lining it with cloth.

4. Good lighting, either artificial (more complicated to set up and your mileage may vary) or natural light from a window (much preferred).

5. An easel.

6. Oil or acrylic paints and brushes.

Goals:

The overriding goal of this particular exercise is to match the values we see as accurately as we can.

But bear in mind always that with value, we're dealing with relationships, not absolutes.

Although in this study we can match the values we see within the range of the paint we have, we won't always be able to do that, particularly when we come to paint objects with black locals in the same painting as objects with white locals. So although we're looking at the values and matching them, what we're really interested in is how much darker or lighter a given plane of the cube is than the other planes.

That's why the Munsell chips are so useful here, they can give us an objective measure of the relationships as a starting point.

How to do it:

1. First we need to get our set up right. This is mostly about controlling the light on our subject and our easel.
2. Next we draw out the cube on our support. I'd advise a neutral light toned support, not white. A white support will make it hard to see the values as we lay them down.
3. Next we use the isolator and the chips to make a note of the average values of the scene in front of us. There will only be five or so average values for this exercise because the subject is nice and simple.
4. Mix up the paint to match the values we need for the study.
5. Paint! Nice and easy!

1. The Set Up

The shadow box:
Put your cube in a shadow box to cut down on reflected light as much as possible and simplify the values. No point making things more difficult than they need to be. The shadow box should have at least two adjacent sides, a top and bottom. Put the open side of the box towards the light. Either line the box with mid value grey cloth or paint it a value 5 neutral. If you paint it, make sure it's matte finish to cut down on reflected light (I know you've done this part, I'm just putting it in for completeness.)

Lighting:
It doesn't matter if you do this exercise in natural or artificial light. What you are aiming for though, is *form light*, or something close to it. The light source will be slightly above and to the left (or right) of the cube, and slightly forward of it. With the cube at an angle to you so you can see two sides, this will probably give you a shadow plane on one side of the cube, a mid-light plane on the other side, and the lightest plane on the top. In form light, about three fifths of the object will be in the light.

If you use artificial light, it's important that you have roughly the same amount of light on your panel as you have on your subject, so you'll need a separate light on the easel. If the amount of light on your easel is very different than that on the subject, the values won't

read true to you as you do them. The easel light needs to be isolated from the subject so that it doesn't affect the values. I do that with a little screen attached to the left side of the easel like this:

Making sure you have the same light on your easel as your subject can be difficult. There's a note a little later in the exercise on how you can check this.

Viewing position:
I'd recommend doing this exercise sight size. Since the subject is very small, you don't need to be very far back from the easel. I did this demo sitting down, about three feet back from the easel. That meant I just had to sit back to compare the cube and my painting, and then stretch my arm out to paint on the panel.

In this demo I've used a plumb line hanging down in front of the cube as I would for a Bargue copy or a cast drawing. It's as well to get the drawing of the cube at least reasonably accurate since the values won't read as well in the finished painting if the angle of any of the sides is really off.

I'd recommend holding your brushes near the end of the handle, not near the ferrule. This gives you the best combination of control and freedom of movement, although it might feel odd at first if you haven't done it before.

Here's a couple of pictures of my set up for this demo. I was working in natural light which

falls off less sharply than artificial light so I didn't need a separate light on the easel. Firstly, here's a pic from a little back from my seating position:


And another showing the position of the light source in relation to the shadow box and the cube. Working in natural light like this I have roughly the same amount of light on my panel as I have on my subject.

2. Drawing out

Now we need to draw out the cube. I've drawn mine in a rough approximation of sight size with pencil. All you need to do is to define the position of each plane and the cast shadow.
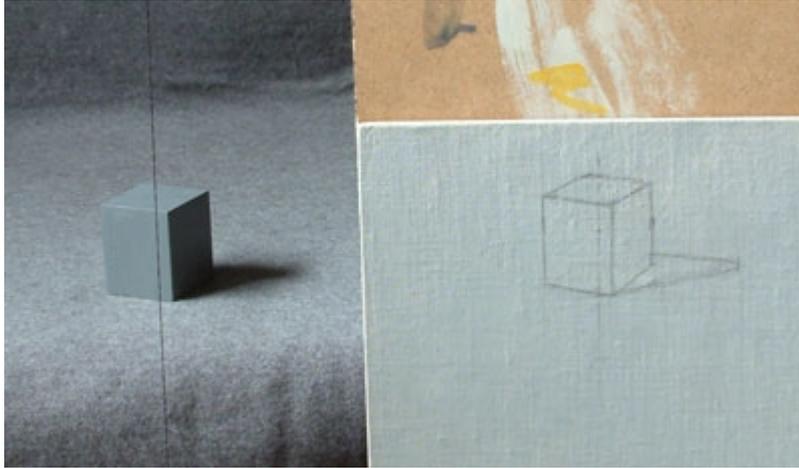
3. Finding the values

For consistency's sake we'll judge and note the values in the order that we'll be painting them.

Background

First we need to get the average value of the background.

Since we have a mid value cube on a mid value cloth here, the range of values we see can be replicated in paint. This makes the job much easier. Although the background value will vary, start by finding an overall average.

A handy way to find the value is to hold up a Munsell chip in front of the scene. If you use it in conjunction with a little isolator (a piece of black card with a hole in the middle to look through) you can get a good idea of the average value of any part of the scene.

It's very, very important however that you hold the chip at the same angle to the light as your panel, always. Don't angle it towards or away from the light because that will change the perceived value of the chip. You have to be consistent with this or the exercise doesn't

work.

Hold the chip and isolator together, level with your panel like this:
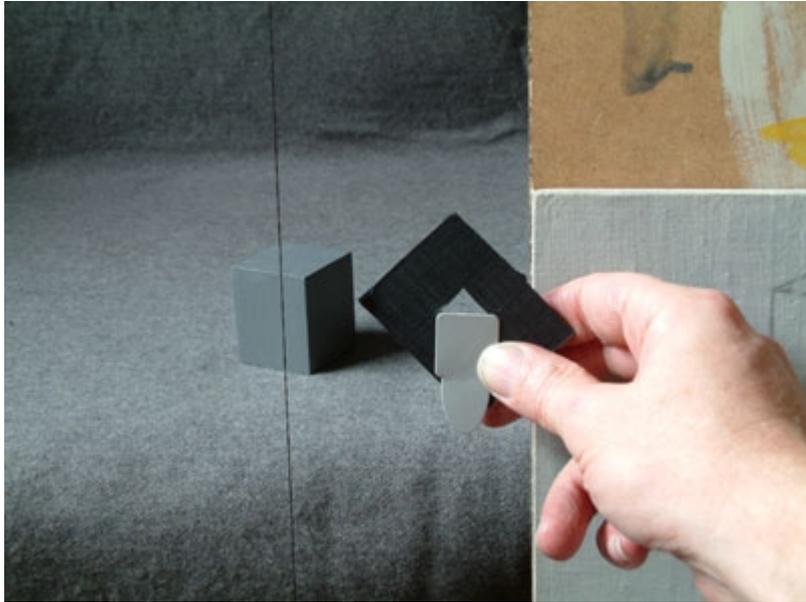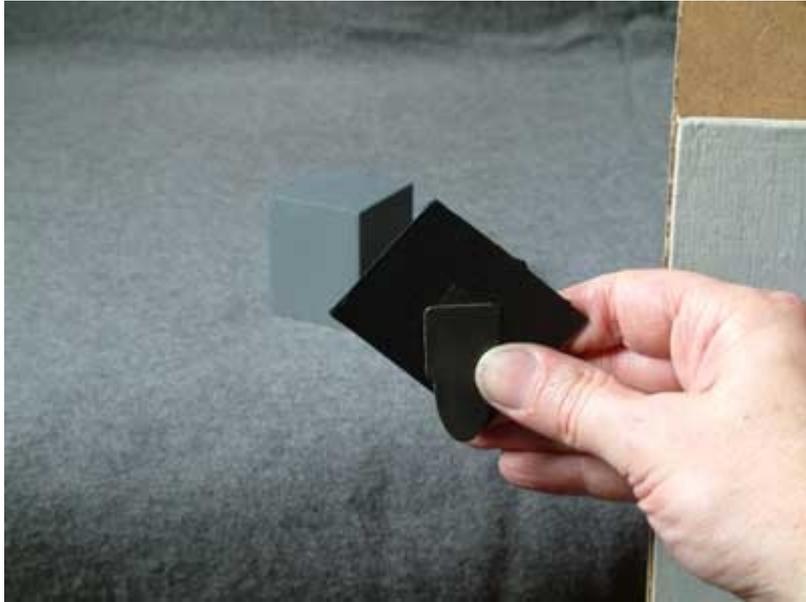

I've got around a value 7 here for the background, so that's one of the values I'm going to need to mix up. Note that it's higher than the local value of the cloth (which is a 5 in my study) because it has direct light falling onto it.

Make a note of the value you'll need for the background.

Cast Shadow
This can be judged using the isolator in the same way as the background value:

I came up with around a 2 for this, the second value I need to mix up.

Shadow Plane

If the local value of your cube and your background are similar, you'll probably find that the value of the shadow plane of the cube is similar to the value of the cast shadow. Why? Because the value of a shadow is determined by two things: 1. The local value of the plane it is cast onto and 2. Any reflected light bouncing into the shadow from elsewhere. We've cut down our reflected light to almost nothing with our shadow box, so it follows that if the local values of our cube and background are similar, the local value of the cast shadow and the shadow side of the cube will be similar too.

Judging the value of the shadow plane in the same way with the isolator, I got around a 2 for this too. So far I still have only two values I need to mix up ready. Depending on your locals, you might have three.

Front Plane

In my study, the front plane was very slightly darker than the value of the cloth. Yours might be different, depending on the local values you have and the angle of your cube to the light.

At this stage, just judge the value of the front plane as best you can in isolation from everything else, and make a note of it. Try squinting, or blurring your eyes so they're out of

focus, or both, in order help you get this value right.

Now I have three values I need for the study.

Top Plane

This should be self explanatory at this point, do this one in the same way as the others. In my study, it averaged very very slightly lighter than the value of my cloth.

It was very close though, as it should be. Why? Because it's the same local value as my background and because it's at the same angle to the light as the horizontal surface that the cube is sitting on.

The reason it's very slightly lighter is that the cube is further forward (and so nearer to the light source) than the part of the background I can see behind it. It has very slightly more light on it.

You may find some differences between the values I've got in this study and the ones you have. That's fine, the set up will be slightly different. But I'd encourage you to think about the reasons for a given perceived value as you go along. It will always be determined by the amount of light falling on a given plane together with the local value of that plane. The amount of light will depend on proximity and angle to the light. We're learning about relative values here, but we're also learning about light since, given a constant local, value differences are created by light.

A note on the value of the isolator and optical illusions

The really useful thing about the isolator is that it cuts out optical illusions created where the edges of the values meet. One of these is called 'fluting'. When we have a darker and a lighter value next to each other, the darker value will appear to get darker at the joining edge and the lighter value will appear to get lighter:
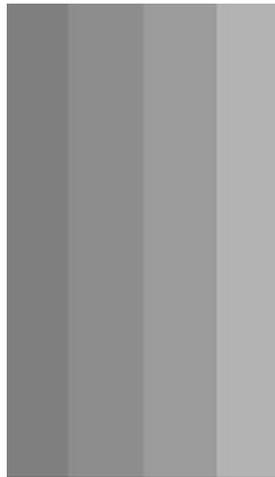
This kind of thing can affect your perception of the values. The isolator neatly avoids this problem. We're trying to get the values as accurate as we can. Any optical illusion like this that we see in the subject should be replicated naturally in our painting if we nail the values.

4. Mixing the Paint

This takes a bit of practice, but don't rush it. Get as close to the values you see as you can. You'll have a list of four or five average values that you need to paint this study now and you need to mix up a pile of each one.

You can just use ivory black and a white, flake or titanium, if you like, but the mix will be a little blue. If you want to hit a proper neutral, you'll need to add a little brown to counteract the blue in the black pigment.

You can double check your values as you mix them by putting a dab on a piece of card and holding it up with the isolator as you did with the chip, in front of the scene and at the same angle as your panel. Don't rush this part, make sure the values are as close as you can humanly get them. It's a bit like sight size drawing practice: aim for absolute accuracy, and doing so will stretch your sensitivity to value. The more you do it, the better you get at it.

If you have wide value gaps between any your values, for example between your cast shadow value and the next value up, your front plane, you should mix up a couple of intermediate value steps too. These will help you when you need to blend smoothly from

one value to another.

A note on mixing neutrals

To mix up a given Munsell neutral, mix ivory black and titanium (or flake) white to the right value. Check it against the chip. It will be too cool, but just get the value right. Now mix either burnt sienna and titanium (or flake) or burnt umber and titanium (or flake) to the same value.

Put a smaller proportion of your black and white mix aside, and gradually mix some of the brown mix to the remaining black and white mix until you get a perfect (or as perfect as you can get it) match for the chip. If you put in too much of the brown, mix back in some of the black and white mix you put aside. It's not easy, and it will take you a long time at first. It gets easier with practice as your eye becomes more finely attuned to judging value. Again, don't rush this bit, it's an important part of the exercise.

5. Let's Paint!

Now we'll paint the study in the same order as we judged the values. We've got our cube drawn out, and we've got the values we're going to need mixed. So we just need to put the right values in the right places and handle the edges.

Background
Note on light levels: At this point you can check the relative light levels on your subject and your easel. You know what value you've judged your background to be, and your easel should be set up next to the subject.

Take some of the value you've mixed up for your background and paint it on the left side of your support, right up to the edge. Now look at it next to the background. If you have a screen on the left of your easel to screen off your easel light from your subject, move back from the easel so that you can see your support and the subject together.

Squint, or blur your eyes. If the light is about right, the values of your background and the value you've just painted on your support should be the same, or at least very close. If they aren't, try moving your easel light backwards or forwards until they match. Let me know how you get on with this.

If you had to move your easel light back, be very careful that the light doesn't spill over onto your subject and bleed into your shadows. It's worth spending some time trying to get this right since the exercise will be a struggle if it isn't.

OK, on to painting the background.

The background is the first thing to go in. When coming up to the edges of the cube and the cast shadow, paint over the lines, not up to them. Painting up to them will produce ridges in the paint at the edges. Don't make a hard edge, scrub out the overlapping edges so that they're soft and feathered. When you come to paint the planes of the cube, they will physically sit over the background paint which helps the believability of the form in the painting, especially if you build them up with a bit of impasto in the lights.

You can adjust the background as you get further through if you like, but it's as well to finish it as much as you can at this stage, when you have the most freedom with the brush.

I paint the background in with a 'bright', a flat hog brush with short bristles which is good for scrubbing in a thin, even layer of paint. Hopefully you can see here that I'm going over the edges of the cube with a rough, feathered out edge:
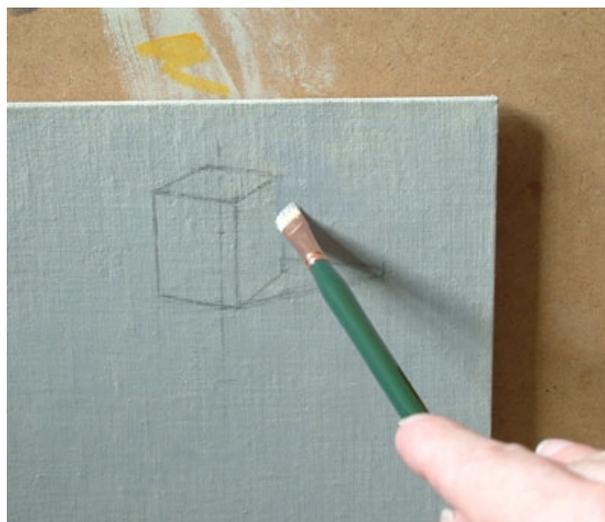
Cast Shadow
Next to go in is the cast shadow.

I'd recommend using a different brush for each section of the study, so that the values stay clean. First I simply block in the shadow in a flat average value:

Once the shadow is blocked in, the edges can be handled. This part takes a lot of observation and fine tuning, so working sight size helps here. I want to get as close to what I see as I can. It might seem unnecessary in a study which is all about value relationships, but I've found that if I really push myself to make a believable study, it's easier to see if I've got the values even slightly out as I go along. And all eye training is good, right?

The delicate part of this stage is the penumbra around the shadow. To get this, I judge the values by eye and lay in stripes of intermediate values around the main cast shadow. Once they're in, I blend from the outside in, merging the background with the outside of the shadow first:

Take your time on this part, because the edges of the shadow will be impossible to blend cleanly where they meet the shadow plane of the cube once you've painted the cube itself, without messing up the shadow plane of the cube. At this point, you can mess with the edges as much as you like without affecting anything but the background. That's the point of building up the study in this order. Alla prima requires a more logical sequence of painting than layered painting for this reason I think, so that you don't mess up what you've already done when you paint in a new section.

To blend the paint, I mostly stroke over it in the direction of the edge with a soft dry brush, usually a natural mongoose round, wiping it off after every stroke. You'll need plenty of paint on the panel for this to work, since the dry brush will lift off some of the paint. You can also hatch across the edges and then drag over in the opposite direction to the hatches, parallel with the edge.

If the paint is too thin on the panel, it'll be pretty obvious because you'll reveal the support when you start blending. Load your brush a little more and try again if you have that problem. At this point we still have a lot of freedom with the brush, but this is the last stage when we'll have that freedom already.

Look at where the edges of the shadow are harder and softer. You'll be used to this of course form your atelier training and should have no problem with it. Generally speaking, the edge will be harder where it's nearer to the cube, particularly at the front corner. Where

the edge of the shadow meets the shadow plane of the cube at the back, it will be soft because it's still a distance away from the cube. Getting these things accurate goes a long way to creating a sense of depth and reality.

Here's the cast shadow done. You can see how the background and the cast shadow have overlapped the edges of the drawing of the cube. You can also see that my background value is very close to the average value of the background in the study. In effect, I'm 'sight-sizing' value.
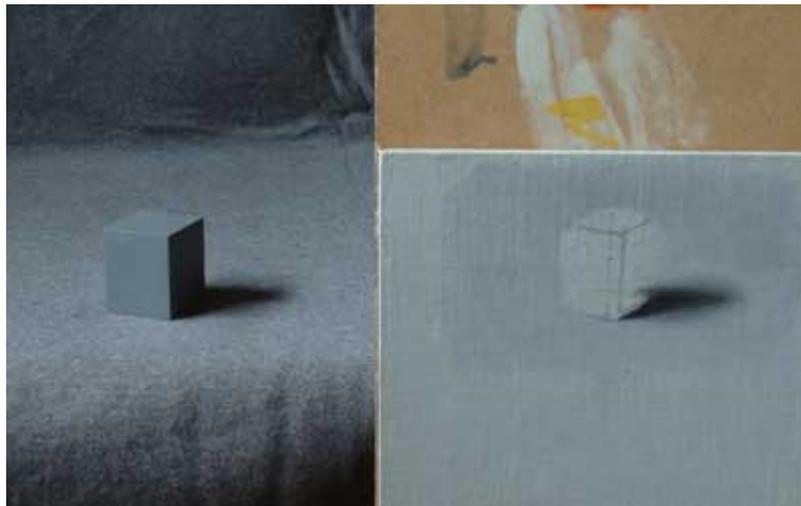
Shadow Plane

The next stage is to put in the shadow plane of the cube. This is the first time we meet any hard edges. Although you could overlap the forward-most edge of the shadow plane, I've done it up to the edge of the drawing here. I don't mind getting a ridge on the front vertical edge there, since there's one on the cube anyway. When it comes to getting defined, straight edges, I still hold the brush at the end. Using a mahl stick makes this job much easier.

Putting this part in is fairly simple. I tend to keep areas in shadow like this quite flat, thin but still opaque, and without detail. There's a soft, darker line where the cube meets the cloth and there's no light at all. That can be put in now too.

Front and Top Planes

Most of the hard work is done now, the bits where I need to blend carefully behind solid planes have been done and the overall lighting conditions in the picture have been defined. For my study, I've spent by far the most time on the edges of the cast shadow. Now we just need to get the values of the mid-light, front plane and lightest top plane in. First, the front plane.

The isolator can also show you things that are happening in small areas like this:
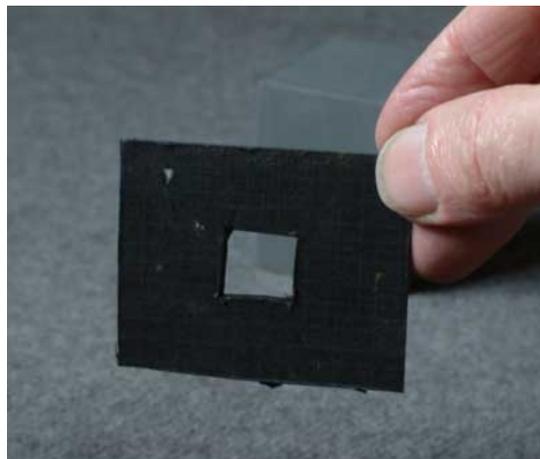
You can see clearly here how the value of the cloth changes around the corner of the cube. Mostly the effect is caused by light reflecting off the front of the cube onto the cloth, lightening the value there. Put this kind of thing into the background before painting the plane of the cube if you can, so that you can still overlap the edges as before.

Here's the study with a bit more work on varying the background values and the front mid-light plane painted in:
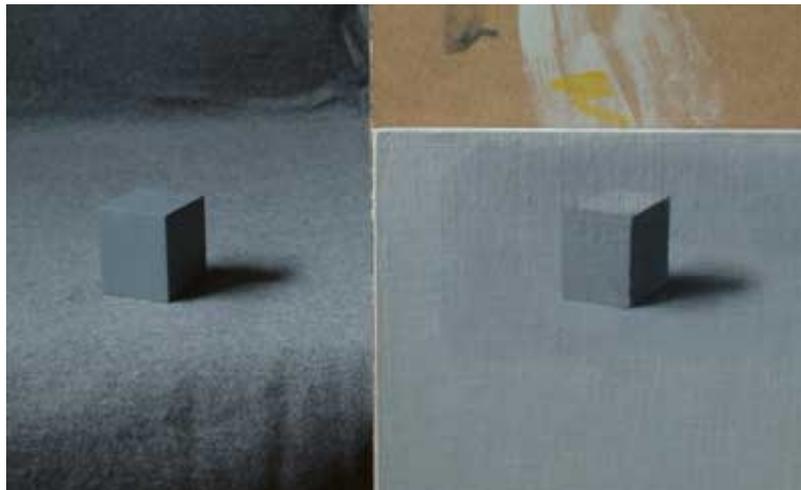
There's another dark line where the bottom of the front plane meets the cloth. I've done that here by putting it in before painting in the front plane, softening it, then painting the front plane over it and softening it again very slightly afterwards. Look closely, and try to replicate what you see as faithfully as you can with the paint.

The top plane is a fairly simple job now. Pick up some of the pre-mixed average value and bang it in. You can lay it in quite thickly if you like and it will appear to physically stand out from the background.

Finishing

Finishing is really just a case of making little adjustments now. It's also the part that really brings the study to life, and I spend a good amount of time here. If you need to change the background where it meets an edge of the cube, paint the background over the cube edge and then put the plane of the cube back in again over the adjusted background.

The main part we need to add at the end is the lighter strip of light along the horizontal

front top edge of the cube where the front plane and top plane meet. I did this with a small, fine sable round first, jabbing the end into the pile of titanium white (flake works for this too) and pulling it out again sharply. This usually gives you a fine little tail of paint hanging off the end of the brush that you can literally just lay down onto the edge, supporting the brush with the mahl stick. Once it's in, it can be very gently softened with a soft, dry brush. A single light stroke across it should do. If you mess it up (as I often do) just paint the top and front planes up to the edge to obliterate the highlight and try again. Just get it as close to what you see as you can.

Here's the finished study. In this one I've softened the farthest back edge of the cube on the right to create a bit more visual depth. This one was done in one session, on a linen panel primed with lead white and toned to around a value 7. It took about four or five hours.
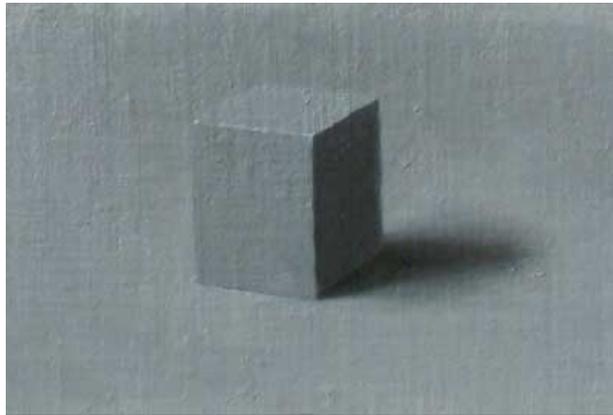

Where next?

A great way to connect this kind of study with real life painting is to find real world objects, of a fairly even local value (i.e. Without too much variation across the surface) and paint cubes and spheres in the same local value as the object.

You can then use the cube to find the main values you will need to do a value study of the object. The sphere will use the same values and in addition, give you practice modelling value changes across a curved surface. Then, when you come to paint the object itself, all you'll have to worry about is the accuracy of your drawing and modelling. Your values will be sound.

Here's a couple of examples of studies painted this way, ofa lemon – about a local value 8 – and a green pepper – about a local value 4:
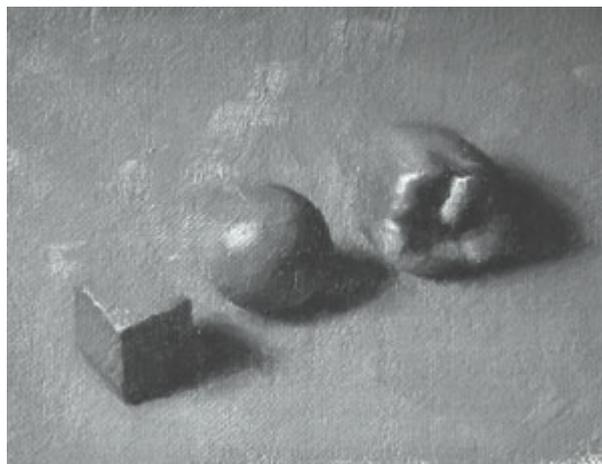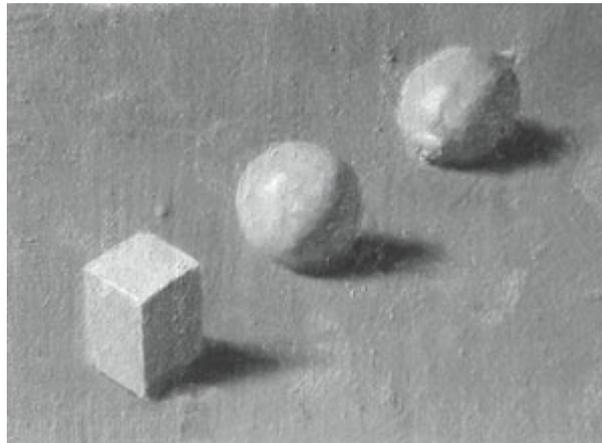
 You can stretch this exercise even further by painting multiple objects of different locals in the same study. For example, a good thirdstudy to go with the two above would be to paint justthe lemon and the pepper in a valuestudy together.

If you want to see some of the related value exercises I've done, have a look at the below series of posts on Learning to See. Many of these exercises will be finding their way onto Creative Triggers too, with full descriptions, forum discussion and video demonstrations.

Reading through the six posts linked below will give you some insight into the thinking and experimentation that went into this approach to developing skill with value. You can even try them out for yourself!

http://www.learning-to-see.co.uk/value-cubes

http://www.learning-to-see.co.uk/three-cubes

http://www.learning-to-see.co.uk/munsell-tone-studies

http://www.learning-to-see.co.uk/tone-studies-4

http://www.learning-to-see.co.uk/tone-studies-5

http://www.learning-to-see.co.uk/tone-studies-6

I hope you enjoy this exercise, and I hope it helps you. It's a part of a structured set of exercises from the Creative Triggers Art Practice Community, designed to help develop your core drawing and painting skills.

The most effective way to improve our art is to get into a daily practice habit of focused, effective exercises.

But it's not easy. Too often we practice in fits and starts, becoming discouraged and letting things slide. It's hard to know what to practice, where to start. Too many developing artists struggle to grow towards the artist they have the potential to be.

The value exercises that make up this short series will help you get more of a handle on value. But they will be effective in proportion to how often you do them, and for how long. It's much better to do a little every day over a long period than a big block all at once, then nothing for a while.

Creative Triggers is designed to help you get into a regular practice habit and then keep it going whilst you develop your core skills through exercises like these. There are exercises for design and composition, drawing accuracy, as well as value and, later, colour mixing and design.

http://creativetriggers.com/

Best wishes,
Paul