Set of Dominoes

PHOTOGRAPHS BY JEAN GRACE

Chris Grace is definitely game for making a set of dominoes in time for a competition!

I belong to the Sussex Woodcraft Society, a group with wide ranging interests in wood, from model makers to woodturners, instrument makers to carvers, pyrographers and more. Their annual show and competition is well worth a visit. Last year, their set competition was to provide members with a piece of oak *(Quercus robur)* to create their entry.

It would have been easy to either carve something or turn a small bowl; however, I decided that I wanted to make something a little different to what I have done before.

The block only measured 183 × 96 × 49mm, and after a bit of thought, seemed as if it was big enough for a set of dominoes. Following a bit of research, I was reminded that there are 28 tiles in a double six set of dominoes. This would mean I would need to create 14 strips, which would later be cut in half for the correct number of tiles.

As the block was roughsawn and had a slight twist in it, I determined that I could just make the dominoes 86 × 43 × 5mm. This met the requirement for them to be twice as long as they are wide; however, they would be thinner than I would ideally have liked.

Rather than simply paint them black, I did some research into blackening oak in a more traditional way, using the reaction of iron and tannin to create a chemical change on the surface of the wood. There is a lot of conflicting advice on the internet, but after a bit of experimentation, and a chat with a chemist, I settled on the wire wool in white vinegar method. For further details see page 41.

1 The block of roughsawn oak provided for the competition was about 183 × 96 × 49mm, though it was difficult to measure accurately as it was slightly cupped and not square. The first cut was to trim one edge straight on the bandsaw so that subsequent cuts would be parallel.

2 Having measured the kerf of my bandsaw blade, I calculated that if I cut 5.2mm strips I might just be able to get 15 from the block. Therefore I set my bandsaw up and ran a scrap test block through until it produced 5.2mm strips.

3 The first tile cut is shown here halfway through.

4 To make the cuts safely, I needed to use a pushstick to hold the wood against the fence while pushing it past the blade, and another stick to push the cut strip just past the bandsaw blade so that it didn't get trapped or scorched.

5 With all of my strips cut, I trimmed them to width on my chopsaw using a jig and hold-down block to keep my fingers clear of the blade. The strips were trimmed on both sides to 43mm.

6 Another jig – scraps glued to a piece of MDF – was used to hold the strips for sanding on both sides. I used a 60 grit disc to speed this process together with dust extraction.

7 Following machine sanding, the strips were finish sanded to 180 grit by hand parallel with the grain.

8 More scraps were used to make a zero clearance jig to help control breakout when cutting the strips into tiles. First they were cut in half and then trimmed to exactly 86mm.


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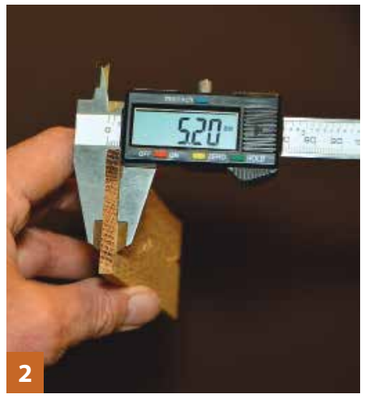

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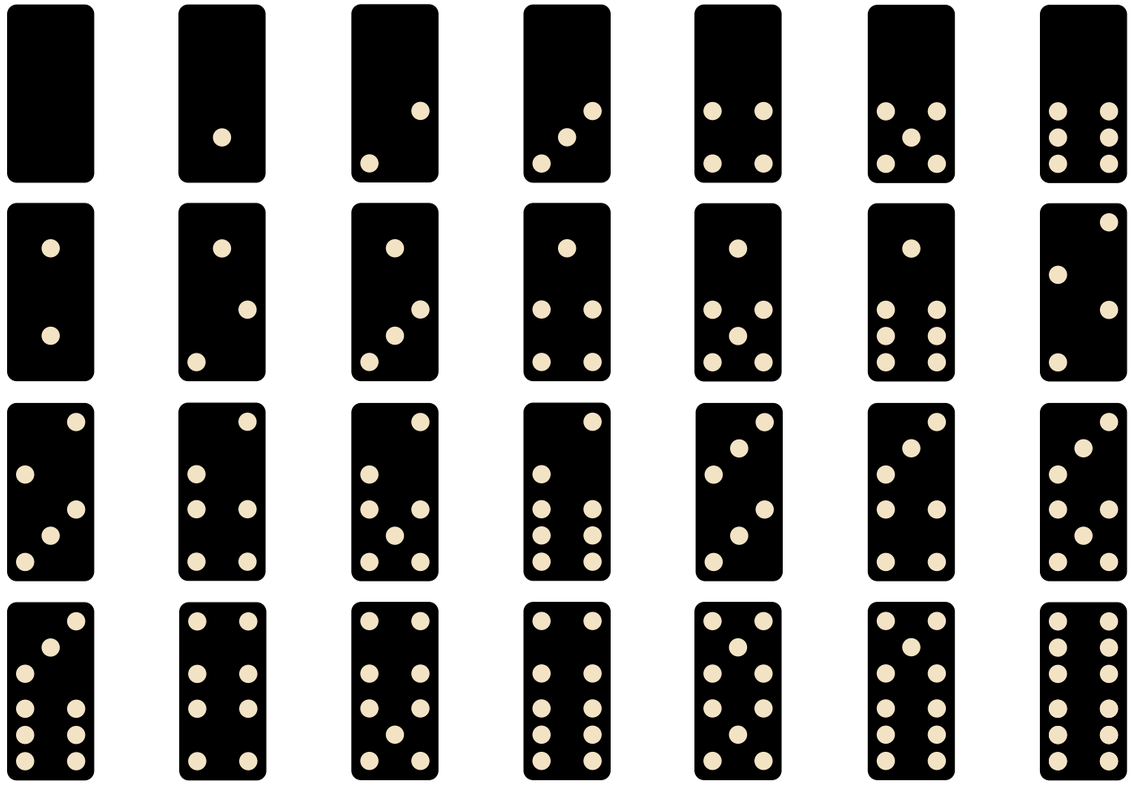

9 The edges needed to be rounded slightly, which I did on my belt sander, although this could just as easily have been done with a hand sanding pad.

10 As I did not want to sand the tiles following the staining process, the grain was raised on all of them using water...

11 ... followed by a quick hand sand with a block.

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1. Always make a test cut when sizing is critical; it saves wasting project wood.
2. My pushsticks have holes in so that I can grip them easily without fingers getting near the blade. I also have a stop on some so that they also hold the work against the fence.
3. When cutting timber that splinters easily, like oak, try to support the underside and back with a piece of sacrificial wood.
4. Using a large sanding block minimises the unwanted rounding over of edges.

Methods of blackening

There are a variety of methods of darkening oak, including:
Fuming with ammonia
Treating with steel wool and vinegar
Using black dye
Painting black
Scorching/burning
All give slightly different effects, just choose the one you like best.

12 I needed to make an iron solution to dye the oak using steel wool and white vinegar. The steel wool benefits from having any residual oil/grease removed first and then needs to sit in the vinegar for several days – I left it for a week. The lid must be loosely fitted to allow any gas to escape.

13 My test piece proved that I needed to add tannin to obtain the look I wanted.

14 The first tea wash doesn't seem to have done much, but experimentation proved it would be worthwhile.

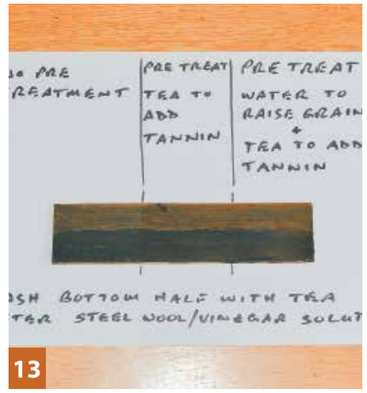
15 Painting the blocks with the wire wool/white vinegar solution, however, had a dramatic effect, with the tiles going black almost instantly. Here I am just touching them up to ensure full and even coverage.

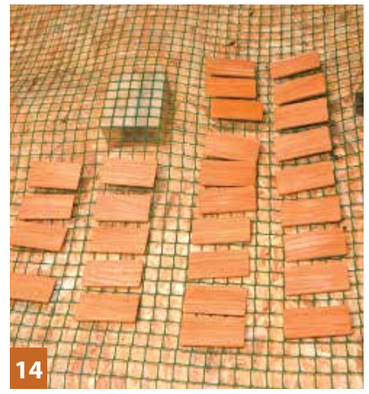
16 Experimentation had proved that more tannin was required to obtain the depth of black I wanted, so I gave the tiles a second coat of strong tea.

17 The result on the nearly dry tiles turned out to be a bit bluer than I had anticipated and not in line with the test results. However, that was a different piece of oak as my block was too small to yield any scrap.

18 The hole spacing was drawn onto a piece of paper and taped to a piece of MDF cut to exactly the same size as the tiles to aid the drill jig setup.

19 I set the drill jig up by using a small scriber point in the chuck to line up the centre with the mark on the paper before clamping the jig to the drill press table.





20 The bull-nosed router bit is set to a consistent depth using the depth stop on the drill press and a spacer block.

21 The jig holds the tile firmly with just a little pressure from one finger while the indentation is cut. The drill is set to maximum speed to provide a clean cut.

22 By designing the jig and setting it up carefully, some marks were able to be cut by simply rotating the tile through 90°. Here are all the marks cut with the first jig setup.

23 Having dusted off the tiles, they were sprayed with a coat of acrylic lacquer. Two coats were required on each side, allowing time for drying in between.

24 Following a quick de-nib with 800 grit abrasive and a coat of microcrystalline wax, the dominoes are ready for a game.

25 All the effort was worthwhile as the dominoes won first prize in the set piece competition at the Sussex Woodcraft Society annual show using the supplied oak block. ■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TOP TIP Plans & Projects

5. When trying a new finishing process for the first time, make some samples to test the process and see if you like the result.
6. Where possible, do tests on the same wood you will use for the project, particularly when they may influence colour.
7. When using jigs and spacers to set up tools, always try them out on a test piece first to ensure you haven't made any errors.
8. When creating jigs make sure you don't build in sawdust traps, my jigs are cut away in the corner to allow sawdust to be easily blown out between cuts.
9. With intricate processes I use a printout/drawing showing the operations I will do so I can see how far I've got, and exactly what I needed to do next.
10. When spraying it helps to hold items away from a flat surface, I use plastic netting when I need to accommodate lots of small items.

Blackening with steel wool and vinegar

There's lots of anecdotal information available on this method; however, whenever combining chemicals – steel wool contains iron and vinegar contains acid – you should take precautions – ventilation, gloves and face protection – and ensure you understand the process. With this process, variable results appear to be due to a lack of tannin, rather than a lack of iron. Therefore some steel wool covered with white vinegar and left in a loosely covered jar for a few days provides plenty of iron. I used a wash of strong tea before and after applying the iron solution to ensure a really deep black. You must allow each wash to dry before adding the next, otherwise you simply get a reaction on the surface that will brush off. Using less tannin simply results in a greyer result.