Plain Bob Minor

Any change-ringing method can be described by rules telling how the bells rearrange from one row to the next. Plain Hunt has just two rules. First, at every handstroke, each bell takes one step forward toward the beginning or end of the row. Second, at every backstroke, the bell ringing first (*leading*) and the bell ringing last (*lying behind*) stay put, and each bell in between takes another step forward.

On 6 bells, those rules produce 12 unique rows before they bring you back into rounds. At that point you might stop, or the conductor might tell you to *keep going* and ring the same again. But to ring for longer without repeating a row, you need to change the rules.

Plain Bob Minor is constructed by adding just one more rule. The number 1 bell, called the *treble*, follows the same path as it does in Plain Hunt. But at the backstroke when the treble is leading (called the *lead-end*), the other bells don't obey the normal backstroke rule. Instead, the bell ringing in 2nd place stays in 2nd place (*making 2nds*) and the bells in 3rd through 6th place each *dodge* one step backwards. Then the bell that made 2nds leads again, and the other bells return to hunting forward.

That same rule applies at every lead-end. Each time the lead-end comes, each bell will be in a new position and do piece of work. You won't reach rounds again until the fifth lead-end, after a total of 60 unique rows.

The pairs of bells still follow the same patterns familiar from Plain Hunt on 6. But whenever your two bells do different things at a lead end (for example, when one makes 2nds and the other dodges), you jump onto a different pattern. Based the two places where the bells come down at backstroke, you can determine which pattern you're on and where you're picking it up from.

Column 1 (red line — bells 1 & 2):

```
123456      12   Coursing
 4365
4 635
4 6 53
46 5 3
645 3
6543
5634
536 4
35 6 4
3 5 64
3 546       13
35 64       14   2–3 pattern
3 546
3 456
34 65
436 5
4 635
46 53
645 3
654 3
56 43
5 634
536 4       15
5634        16   Symmetric pattern
5 36 4
53 64
35 46
3 54 6
3456
4365
4 63 5
46 35
64 53
6 45 3
6543        16
645 3       15   2–3 pattern
6 543
65 34
563 4
536 4
35 64
3 546
345 6
43 56
4 365
4 635
46 53       14
4 635       13   Coursing
4 653
46 53
645 3
6543
5634
536 4
35 6 4
3 5 64
3 546
3456
4365        12
3456        12
```

Column 2 (blue/green — bells 3 & 4):

```
123456      34   Symmetric pattern
21  65
2 16 5
2615
6251
6 52 1
65  21
56  12
5 61 2
5162
1526
125 6       25
1526        26   2–3 pattern
125 6
21  56
2 165
2 615
26 51
625 1
6 521
65 12
561 2
516 2
15 62       36
156 2       45   2–3 pattern
51 62
5 126
521 6
25 16
2 561
2 651
26 15
621 5
6 125
61 52
165 2       45
16 52       36   2–3 pattern
615 2
651 2
56 12
5 621
526 1
25 61
2 516
2 156
21 65
126 5
1 625       26
1 26 5      25   Symmetric pattern
1625
6152
6 51 2
65  12
56  21
5 62 1
5261
2516
21 56
12 65       34
12 56       34
```

Column 3 (green/blue — bells 5 & 6):

```
123456      56   Coursing
2143
241 3
42 1 3
4 2 13
4 231
4321
3412
3 142
3 1 24
31 2 4
132 4       46
13 2 4      35   Coursing
312 4
3214
2341
243 1
42 3 1
4 2 31
4 213
4123
1432
1 342
1 3 24      24
1 342       23   2–3 pattern
13 24
312 4
3 214
32 41
234 1
243 1
42 31
4 213
412 3
14 23
1 432       23
1 4 23      24   Coursing
1 432
1 342
3124
3 214
3 2 41
32 4 1
234 1
2431
4213
412 3
14 2 3      35
142 3       46   Coursing
41 2 3
4 1 23
4 132
4312
3421
3 241
32 14
32 1 4
231 4
2134
1243        56
1234        56
```