

**A board for playing Whytoff's Game  $W(10, 11)$ .**

Recall that Whytoff's game is played with two piles of counters. At each turn a player can take any number of counters from either pile, or the same number of counters from both piles. Play this game with your partner. Then compute the Grundy values for each of the games on the second sheet, and check your answers with those on the third sheet.


## The Grundy values for Whytoff's Game

$\oplus$	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0																
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																

The Grundy values completed for Whytoff's Game.

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1	2	0	4	5	3	7	8	6	10	11	9	13	14	12	16
2	2	0	1	5	3	4	8	6	7	11	9	10	14	12	13	17
3	3	4	5	6	2	0	1	9	10	12	8	7	15	11	16	18
4	4	5	3	2	7	6	9	0	1	8	13	12	11	16	15	10
5	5	3	4	0	6	8	10	1	2	7	12	14	9	15	17	13
6	6	7	8	1	9	10	3	4	5	13	0	2	16	17	18	12
7	7	8	6	9	0	1	4	5	3	14	15	13	17	2	10	19
8	8	6	7	10	1	2	5	3	4	15	16	17	18	0	9	14
9	9	10	11	12	8	7	13	14	15	16	17	6	19	5	1	0
10	10	11	9	8	13	12	0	15	16	17	14	18	7	6	2	3
11	11	9	10	7	12	14	2	13	17	6	18	15	8	19	20	21
12	12	13	14	15	11	9	16	17	18	19	7	8	10	20	21	22
13	13	14	12	11	16	15	17	2	0	5	6	19	20	9	7	8
14	14	12	13	16	15	17	18	10	9	1	2	20	21	7	11	23
15	15	16	17	18	10	13	12	19	14	0	3	21	22	8	23	20