

### **Game 1: Turning Shells**

Rules: A horizontal line of  $n$  coins is layed out randomly with some showing heads and some showing tails. A move consists of turning over one of the coins from heads to tails, and in addition, if desired, turning over one other coin to the left of it. Two players take turns to make a move. The person makes the last move wins.

### **Game 2: Northcott's Game**

Rules: A position in Northcotts game is a checkerboard with one black and one white checker on each row. "White" moves the white checkers and "Black" moves the black checkers. A checker may move any number of squares along its row, but may not jump over or onto the other checker. Players move alternately and the last to move wins.

### **Game 3: Mock Turtle**

Rules: A horizontal line of  $n$  coins is layed out randomly with some showing heads and some showing tails. A move consists of turning over one, two, or three of the coins, with the right most from heads to tails. Two players take turns to make a move. The person makes the last move wins.

### **Game 4: Ruler**

Rules: A horizontal line of  $n$  coins is layed out randomly with some showing heads and some showing tails. A move consists of turning over any number of consecutive coins, with the right most from heads to tails. Two players take turns to make a move. The person makes the last move wins.

### **Game 5: 2-D Nim**

Rules: There a nite number of counters on the squares on a quarter-innite board. A move consists in taking a counter and moving it any number of squares to the left on the same row, or moving it to any square whatever on any lower row. A square is

allowed to contain any number of counters. Two players take turns to make a move. The person makes the last move wins.