The Pairing Game

NEED: Paper and writing implement.

1. Introduce this game. Draw a number of points roughly in a line. Say 7 points. The game is that players take turns joining two CONSECUTIVE points, except that a point can be used at most once. The first person to be stuck loses.

For example, here is a game where the second player won:

```
1

2
```

After students play with each other a couple of times, ask whether they would prefer to be the First Player (the one who moves first) or the Second Player. If the First Player, ask what their best first move is.

2. Postpone analysis and simplify the game: do it with smaller number of points, say 3, 4 or 5.

In each case point out that either the First Player can ensure a win (with the 3 or 4 points), or the Second Player can ensure a win (with the 5 points).

3. Resume discussion of the 7-point version.

The First Player wins, and they have options for their first move.

4. The Game with an Even Number of Points should always be won by the First Player. Present the “sneaky” mirror strategy. The First Player takes the central pair. Then copies whatever move the Second Player makes on the other side.

For an odd number of points, sometimes the First Player wins sometimes the Second. There is no simple rule as to which (but the answer is known).

(This game is sometimes called “Dawson’s Kayles”.)