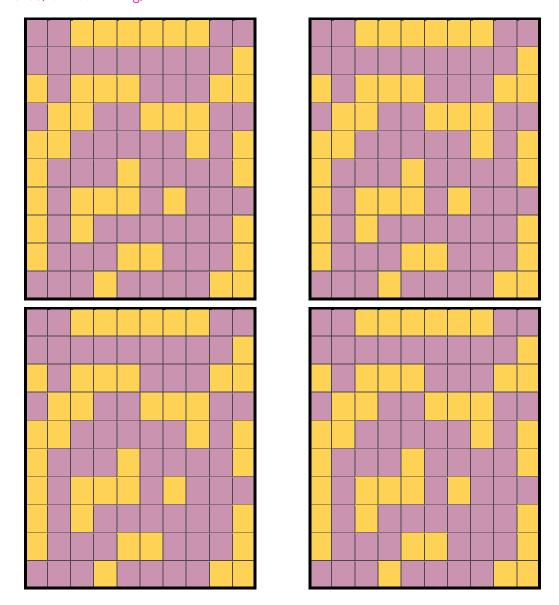


AMS Engaged Pedagogy Workshop Mathematical Foundations for Democratic Processes

Introduction: Redistricting is hard! In real life, there are a huge number of factors to consider in drawing lines, and data can be complicated. We will consider a toy example to get a sense of what happens when we try to draw fair districts and what techniques are effective for gerrymandering.

Goal(s): Develop a familiarity with redistricting and gerrymandering techniques in a toy example.

Activity: Take 10 minutes to redistrict this square state in four different ways. Divide into ten contiguous districts of ten squares each. Try for unbiased maps in two different ways. Try to gerrymander for Orange. Try to gerrymander for Pink. You'll have an opportunity to share with larger group. If you prefer, you can use this (somewhat cumbersome) online tool: https://www.secularhub.org/meeting/2020-10-03/Redistricting/index.html





Discussion Questions: Once you've completed the exercise, use the following questions to reflect on this exercise (we'll also discuss them together in a little bit):

- 1. How many seats did you expect Orange to win with unbiased district lines? Is this what happened?
- 2. Which of these maps are fair? Unbiased? Good?
- 3. What techniques did you use to gerrymander?
- 4. What is realistic and unrealistic about this exercise? What further complications would a real example pose?

