

**Teacher:** Jessica Novillo Argudo, Harrison Fung

**Unit Plan:** Ethics

**Lesson:** Gerrymandering

**Grade and Course:** Grade 10 AP CS Principles

**Date:** Fall 2022

**Learning objectives:**

- Students will learn how gerrymandering works.
- Students will discuss gerrymandering ethical issues.
- Students will practice redistricting to create gerrymandering.

NYS Standards	Assessments
<p><b>9-12.IC.3:</b> Debate issues of ethics related to real world computing technologies.</p> <p><b>9-12.CT.7:</b> Design or remix a program that utilizes a data structure to maintain changes to related pieces of data.</p> <p><b>Vocabulary:</b> Gerrymandering, redistricting</p>	<ol style="list-style-type: none"><li>1. <b>Lab:</b> Python function to generate gerrymandering</li><li>2. Reflection handout</li></ol>

**Materials/Resources**

Smartboard

Computers

Programming language Python

Replit

Reflection handout

Slides

Gerrymandering game: <http://polytrope.com/district/>

## Sequence of Lesson Plan

<b>Time Allotment</b> 5 minutes	<b>Anticipatory Set - Warm-up</b>  The teacher will ask students to work in pairs and respond to the following question:  <i>Imagine that you have to split the state into districts to have the same number of voters in each district: How would you do it?</i>  The students will come back as a group and share their responses. The teacher will guide the discussion.
15 minutes	<b>Lesson</b>  <b>Note:</b> The teacher uses slides for this lesson.  The teacher will define gerrymandering and provide background information.  The teacher will explain the gerrymandering techniques: cracking and packing.  The teacher will open a class discussion by asking the following questions: <ul style="list-style-type: none"><li>• <i>In your opinion, are there any ethical issues with gerrymandering? Explain why?</i></li><li>• <i>How do you think districts should be drawn?</i></li><li>• <i>Should a party be favored when creating districts?</i></li></ul> <b>Note:</b> These questions will be students' opinions, and there are no right or wrong answers. The teacher should manage the discussion, encouraging participation and ensuring that students' opinions are appropriate and students are respectful of each other.
25 minutes	<b>Practice</b>  <b>Activity 1:</b> (8 minutes) <ul style="list-style-type: none"><li>• The teacher will indicate that students will apply gerrymandering by practicing redistricting on this website <a href="http://polytrope.com/district/">http://polytrope.com/district/</a></li><li>• The teacher will demonstrate the first 4 exercises from the activity website.</li><li>• The teacher will randomly pair the student to work on the following exercises on that website.</li></ul> <b>Activity 2:</b> (17 minutes) <ul style="list-style-type: none"><li>• The teacher will indicate that students will create a function in Python to generate gerrymandering.</li><li>• The teacher will provide the starter code <code>gerrymandering_lab.py</code>.</li></ul>

5 minutes	<b>Closing</b>  Students will respond to the following questions on the “Reflection” handout provided: <ul style="list-style-type: none"><li>• What are your thoughts about gerrymandering?</li><li>• How difficult was generating gerrymandering in your two activities?</li><li>• Which gerrymandering technique did you use in your activity?</li></ul>