Problem of the Week
Problem D
A De-Light-Ful Machine

A machine has 2020 lights and 1 button. Each button press changes the state of exactly 3 of the lights. That means if the light is currently on, it turns off, and if the light is currently off, it turns on. Before each button press, the user selects which 3 lights will change their state.

To begin with, all the lights on the machine are off. What is the fewest number of button presses required in order for all the lights to be on?

Hint: Start by thinking about a machine with fewer lights.