

What's Your "Q" Time?

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Summer Research Can Ramp Meters Help Reduce Freeway Emissions?

Teaching Strategies

Big Idea

What is A Ramp Meter?

traffic signals on freeway on-ramps
to control the frequency of vehicles
entering the flow of traffic on the freeway

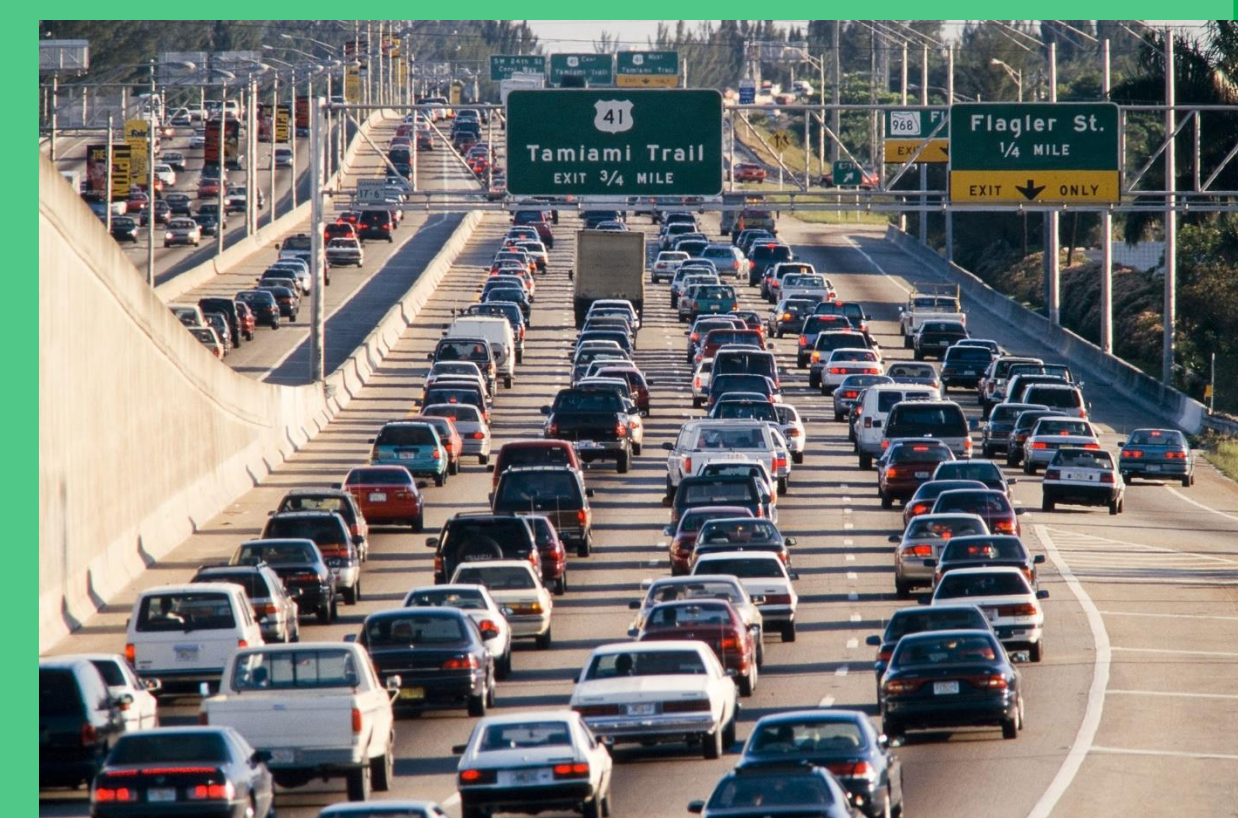
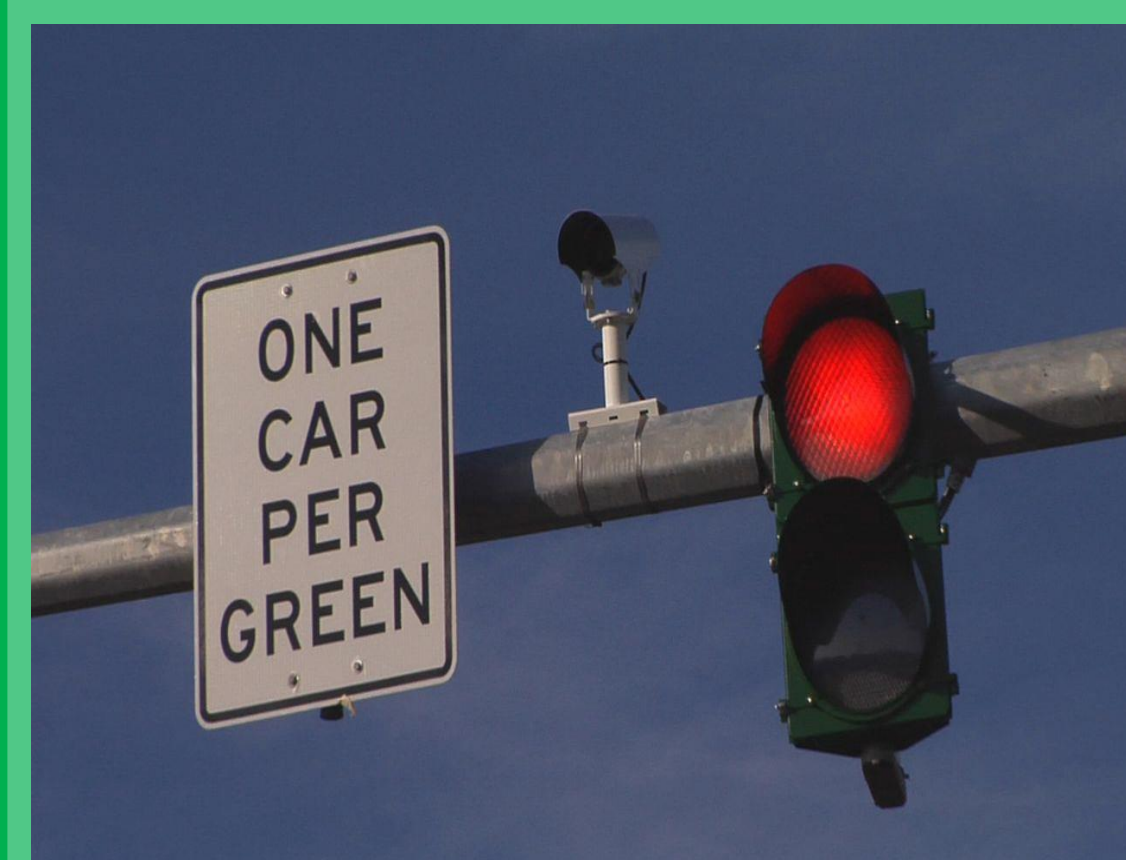


Why a Ramp Meter?

- Increases freeway productivity
- Increases speed
- Allows safer operation on a freeway and its entrances

Emissions Control? How?

Time spent in
stop and go traffic
decreases



Average vehicle speeds
increases closer to
posted driving speeds

Amount of vehicle
pollutants released into
environment decreases

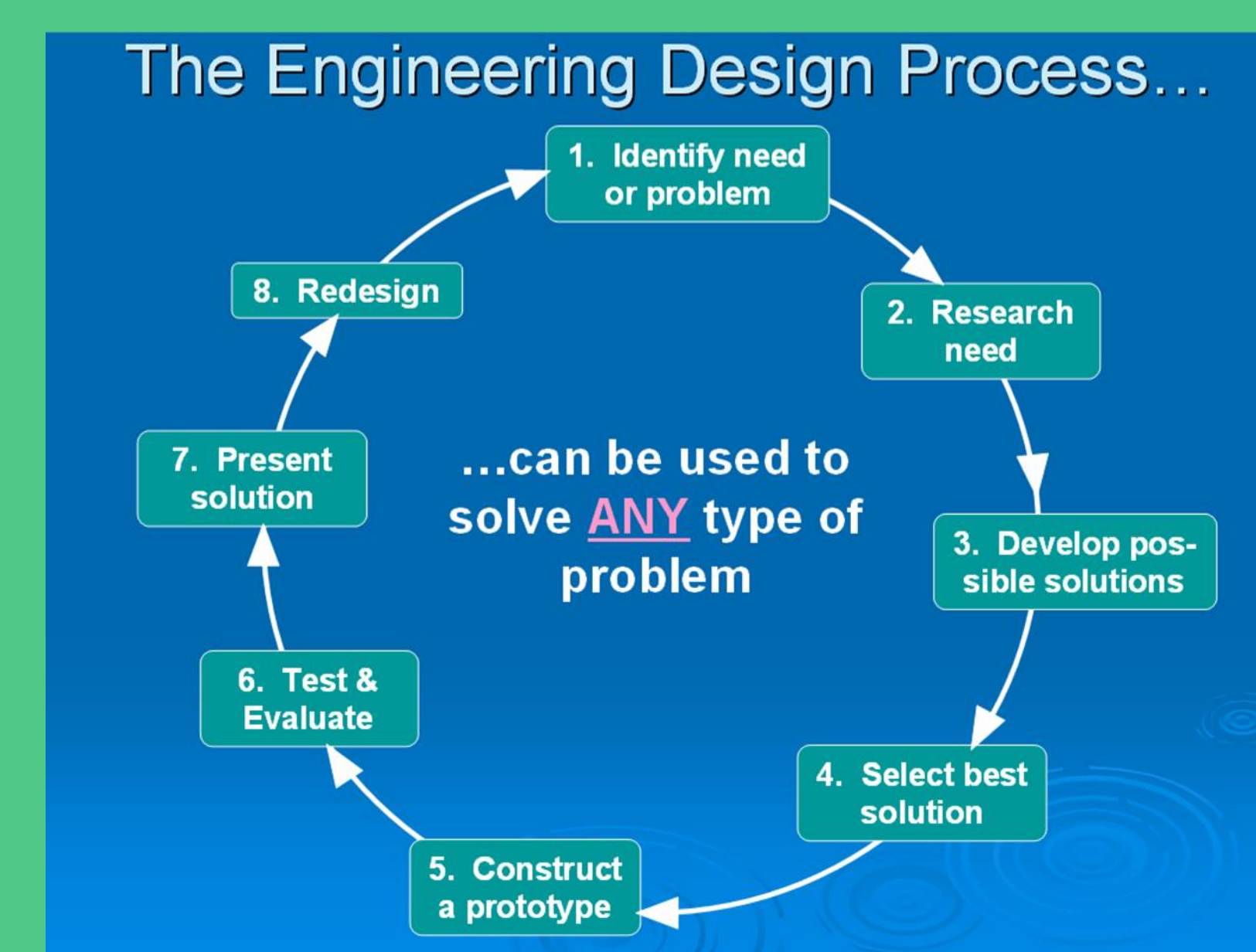
Challenge Based Learning

What: Collaborative learning experience in which teachers and students work together to learn about compelling issues, propose solutions to real problems, and take action.



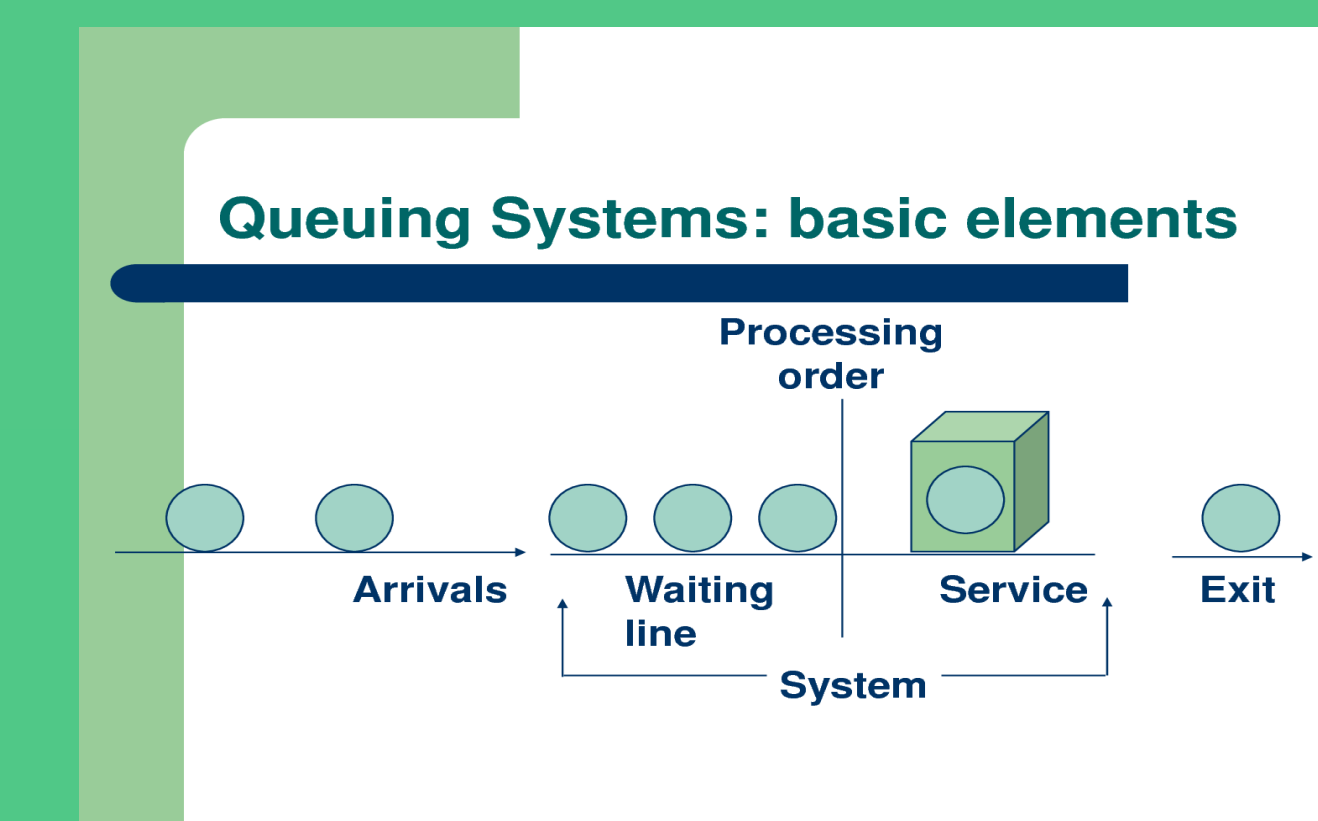
How: Implement the Engineering Design Process into a unit of study on queue theory where student teams find multiple solutions under given constraints

Engineering Design Process



Queue Theory

Mathematical study of waiting lines



Often used in:

- Telecommunications
- Traffic Engineering
- Operations Research



Did you know that 2-3 years of your life
is spent waiting in line?

