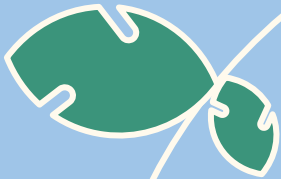


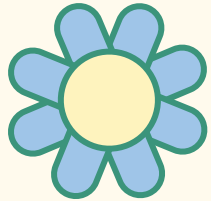
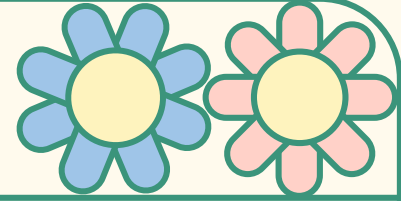
The Green Route



By: Samerah Walker and
Sarai Hurst



Our Project Goal!



Our project will demonstrate how implementing a Green Tuesday in our community would decrease CO₂-e emissions by more than 10,000 lbs in 10 weeks while saving money and encouraging people to take public transportation more often.

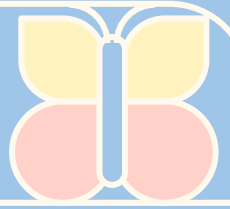
Variables

- Amount of car riders - people
- Amount of people that use public transit - people
- Amount of people in the area - people





Key Stock Variables



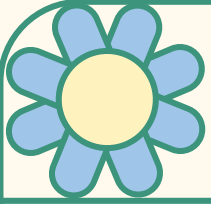
01

Car riders

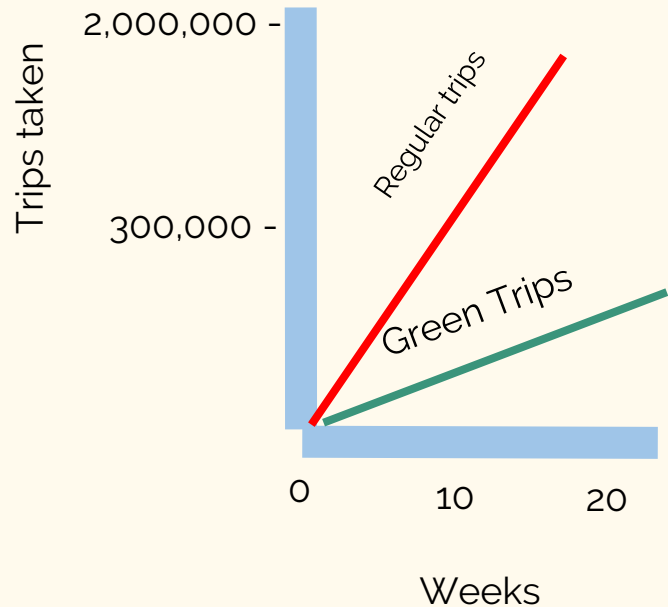
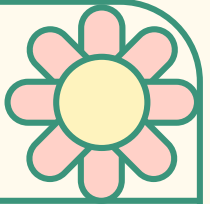
02

Public Transit
Users

The car riders and public transit users are both key stock variables because if we increase the amount of public transit users and decrease the amount of car riders we can decrease the amount of CO₂ emissions.



Sketch a Graph!



The population of Riverdale, IL is **12,793** and we assume that everyone travels at least once a day, **7 days a week**. We are extending our graph to 20 weeks so that we can have a realistic launch and goal. If everyone travels without our project, we would expect the total number of: **12,793 x (1 trip/day per person) x (7 days/week) x 20 weeks = 1,791,020 trips taken**

If we implement a Green Tuesday every person will travel green **1 day/week**, or **12,793 x 1 green trip/week x 20 weeks = 255,860 green trips over 20 weeks.**

Stella Model

Our key stock is the number of public transit users and the inflow is the private transit users switching to public transportation/green trips. We measured the time in weeks with it ranging from 1-20 weeks. According to "Greenhouse gas emissions from a typical passenger vehicle"

(<https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>)

A typical passenger vehicle emits **27.8 pounds of CO₂ per day**. According to, "Environmental benefits of Public Transport"

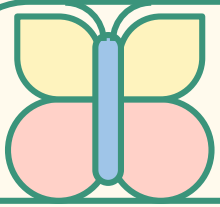
(https://www.kcata.org/about_kcata/entries/environmental_benefits_of_public_transit)

public transport decreases a person's **CO₂ emissions by 20 pounds per day** which is **7.8 pounds of CO₂**.

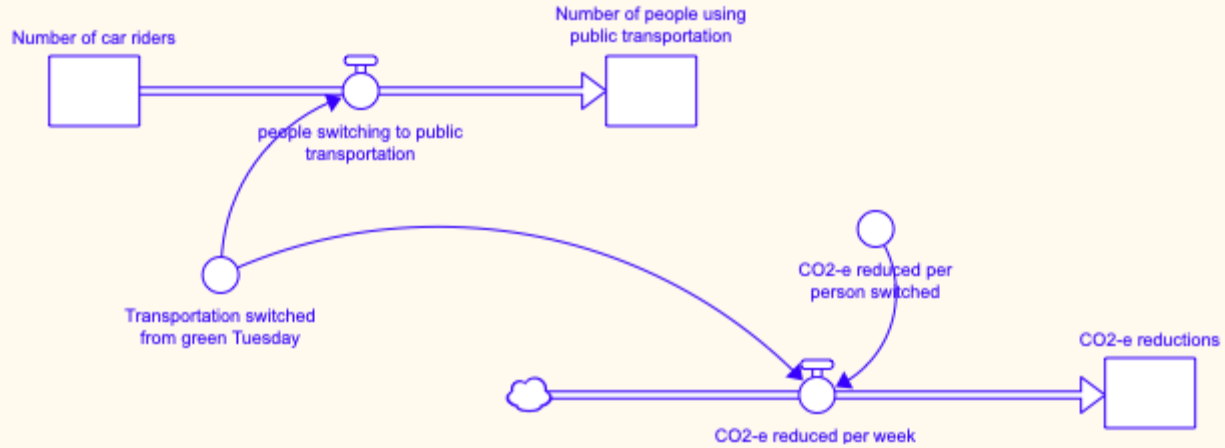
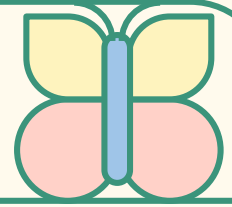
If we assume that someone travels everyday emissions saved per day will be determined by the amount CO₂ emitted by private transport minus the CO₂ emitted by public transport divided by one trip per day.

$(27.8 \text{ lbs of CO}_2\text{-e/day} - 7.8 \text{ lbs CO}_2\text{-e/day}) / (1 \text{ trip/day}) = 20 \text{ lbs CO}_2\text{-e/per trip}$.

For the converter 20 lbs CO₂/trip is entered the equation for CO₂-e emissions reduced per week (lbs CO₂-e /week) is CO₂-e emissions reduced per week = Changing mode of transit x CO₂-e emissions reduced per green trip. With the program it would look like, 12,793 residents x 1 green trip/week per resident = 12,793 green trips/week.



Stella Model (Continued)



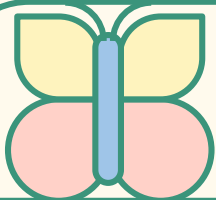
Considering the other parts of the system

We learned that using public transportation saves money – for example, a bus trip from Riverdale, IL to Dolton, IL (1.7 miles) costs \$2.25, on the other hand if a person were to use a car it would cost \$23.08 (gas price per mile; $\$0.14 \times 1.7$ miles). If a person switches from private to public transportation, they'd save about \$20.83 with that trip. If the money saved from public transportation was accounted for and combined with the program that shared the benefits of saving money with residents, we think that traveling publicly could become more attractive, causing more people to use public transportation.

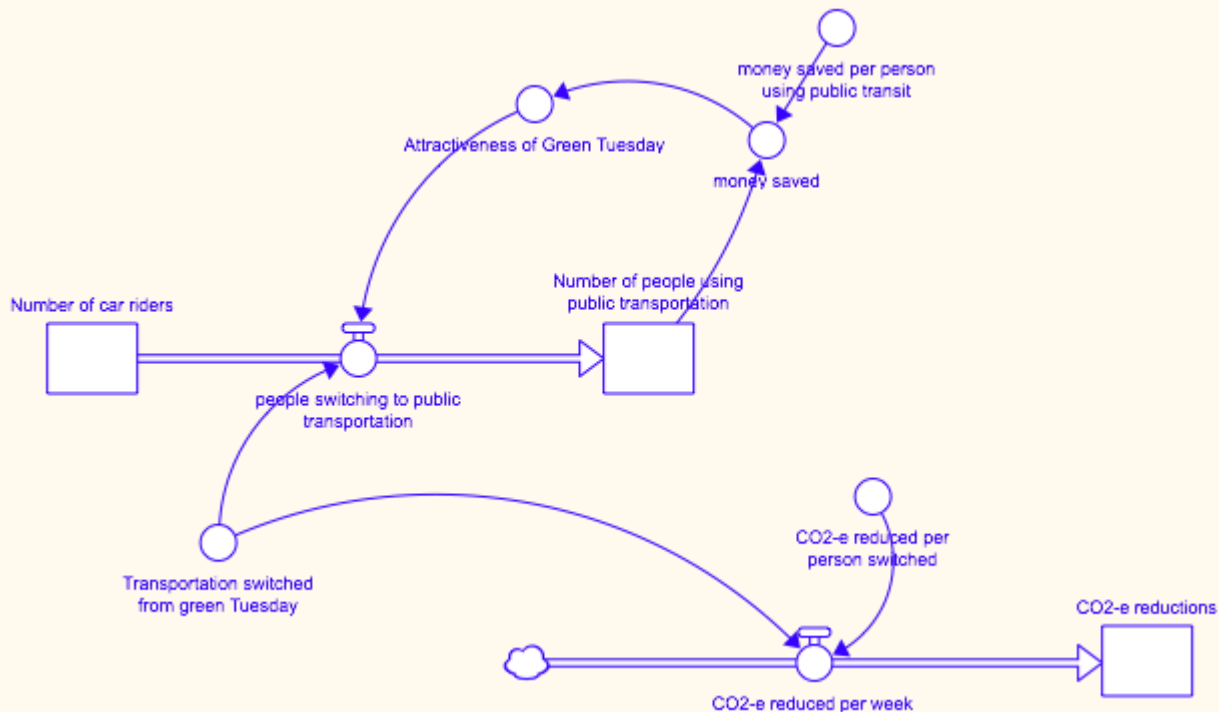
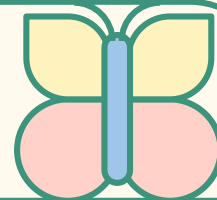


Added variables:

- Attractiveness of public transportation (dimensionless)
- Money saved per person using public transportation
- Money saved (Money)



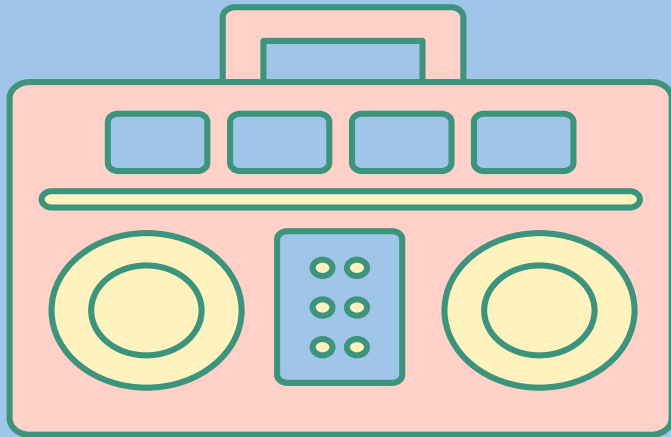
Stella Model



In

Conclusion

Let's all go greener together!



Green

Tuesday!

