National Institutes of Health
Office of Management

# *2021 HHS Kid's Earth Day Poster Contest*

# *Aryadev Bera*

## *Kindergarten*

# Benjamin McDermott

## Kindergarten

# Benjamin Berndt

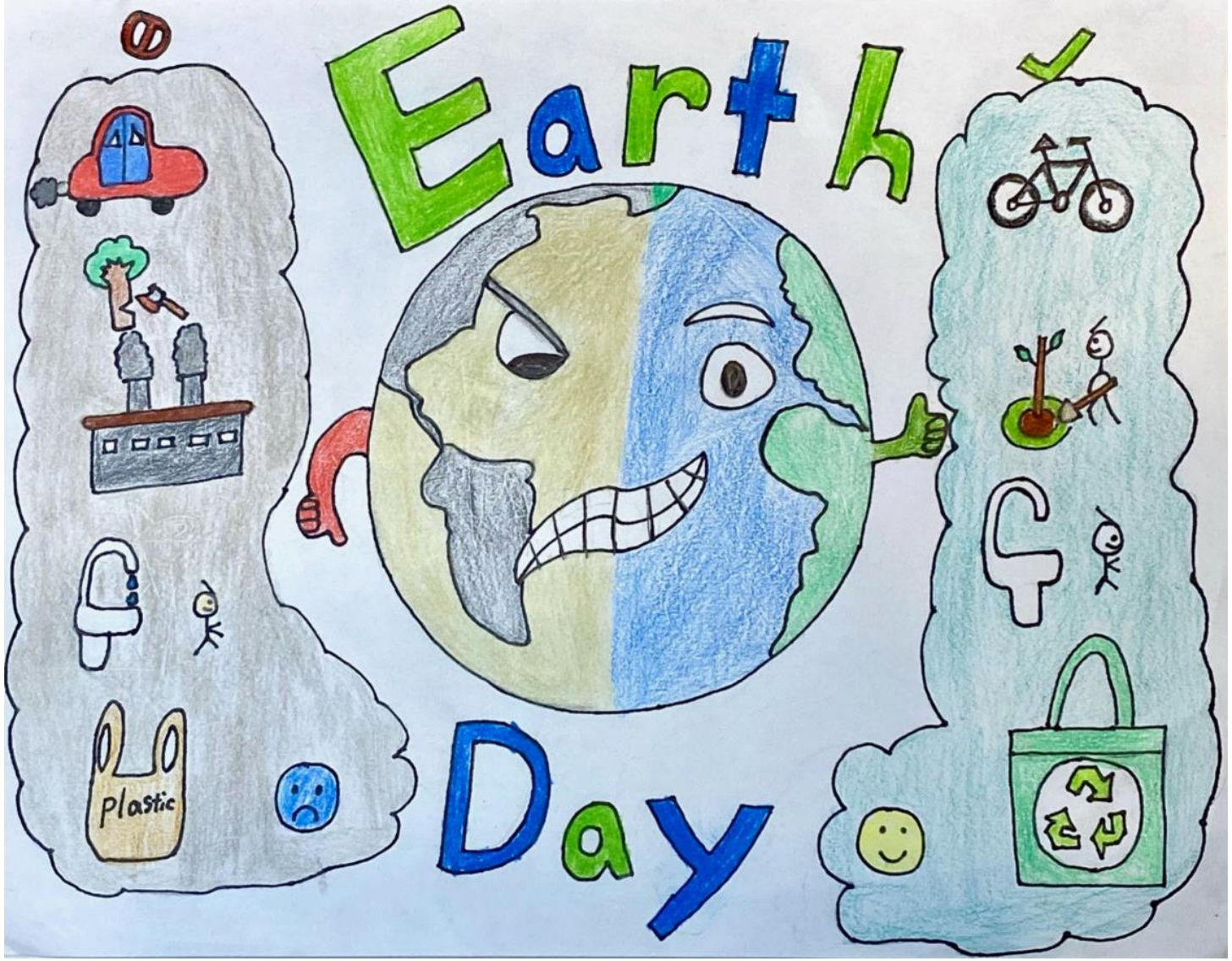
## Kindergarten

# *Bijan Anderson*

## *1st Grade*

# Charles Wang

## 1st Grade



# Clara Zhang

## 2nd Grade

# Eshan Dutta

## 2nd Grade

# Saving Electricity Consumption through LED

**Eshan Dutta, Second Grade , Ronald McNair Elementary School , Germantown, Maryland**

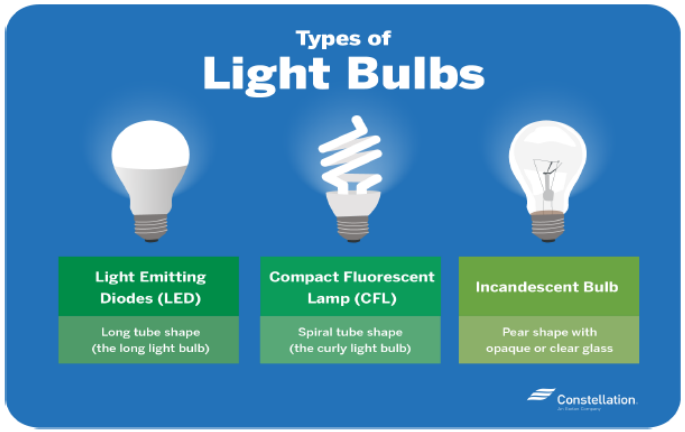
### Why saving energy is important

- Save energy save habitats
- When you consume less power, you reduce the toxic fumes released by power plants
- Conserve the natural resources and protect ecosystems from destruction
- If you reduce energy, then you save money in the utility bill

### What is a LED light?

LED ➡ "light-emitting diode."

A semiconductor light source which emits light when current flows through it




### Annual energy consumption calculation

| | LED | Conventional light (incandescent bulb) |
|---|---|---|
| Wattage (A) | 2.5 | 15 |
| Running hours per day (B) | 10 | 10 |
| Yearly consumption = [(A x B x 365) / 1000] kWh (kilo watt hours) | (2.5x10x365)/1000 = 9.13 kWh | (15x10x365)/1000 = 54.75 kWh |
| Energy saving | 54.75-9.13 = 45.62 kWh | |

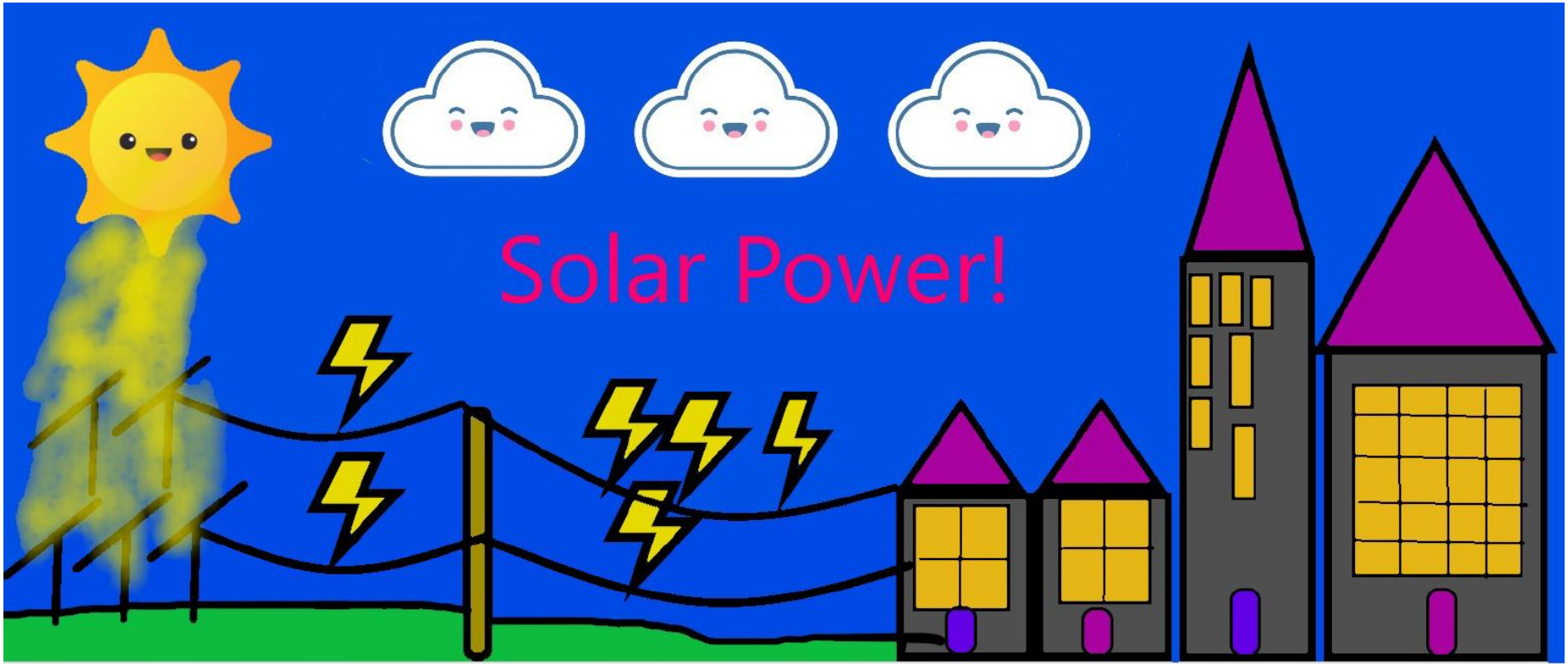
| Incandescent light bulb | 100 watts (most) |
|---|---|
| Fluorescent light bulb | 40 watts |
| Traditional light bulb | 15 watts |
| Led bulb | 2.5 watts (least) |

### Conclusion

- LED use 6 times less energy to produce same brightness of light
- It is measured in Lumen unit
- LED bulb uses only 2.5 watts to produce a light output of 115 lumen, while a traditional bulb uses 15 watts.

# Everleigh Durham

## Kingergarten



# Gloria Li

## Kingergarten

# *Henry Cheng*

*Kingergarten*

# Gouri Katti

## 2nd Grade

# *Lydia Machiela*

## *1st Grade*

# Pragya Sil

## 1st Grade

# Rick Li

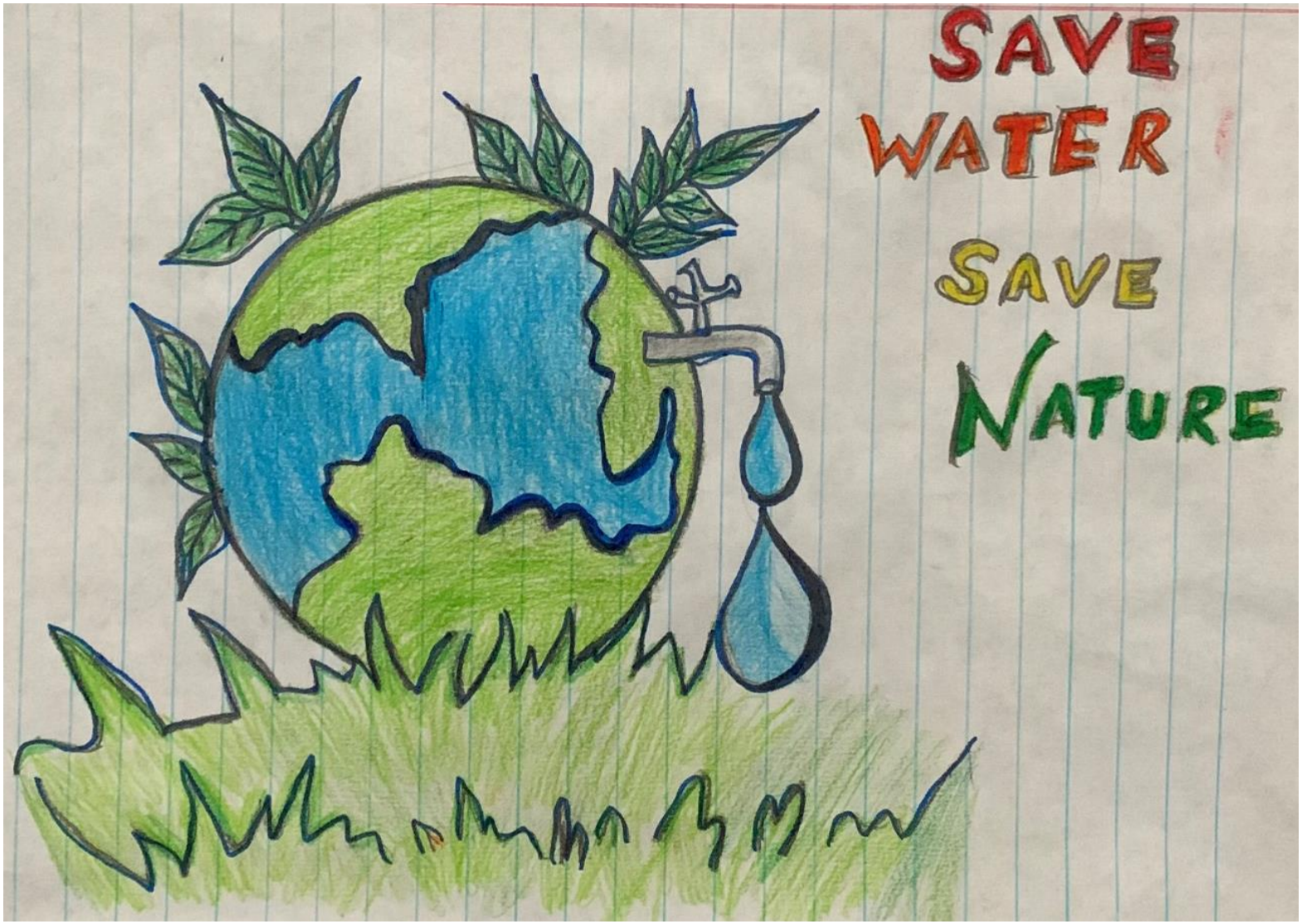
## 2nd Grade

# Ryan Cheng

## 1st Grade

# Samson Abhishek Kama

*Kindergarten*



# *Sara Saxena*

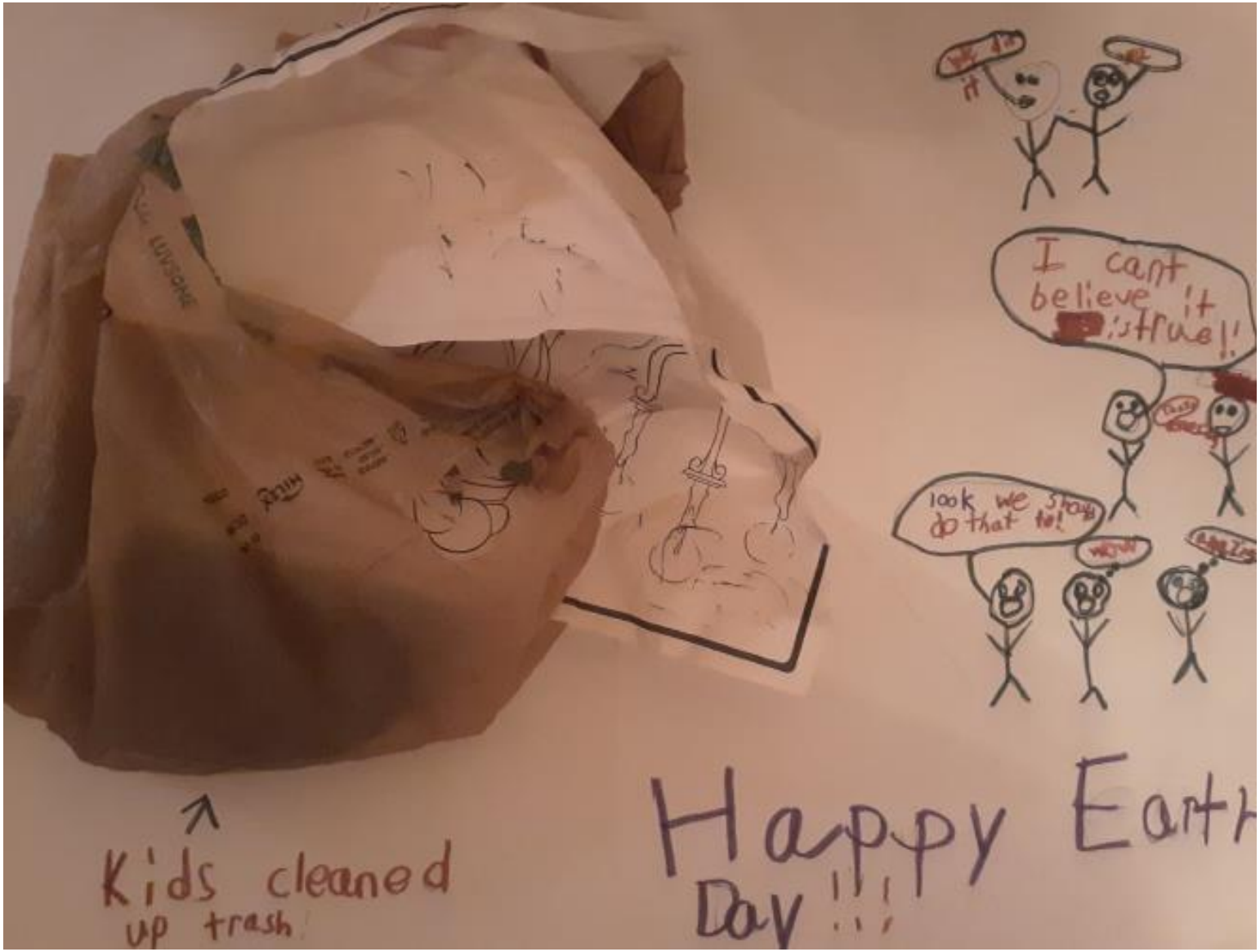
*Kindergarten*

# *Skye Payaggapandha*

## *1st Grade*

# Sloane Shabman

## 2nd Grade

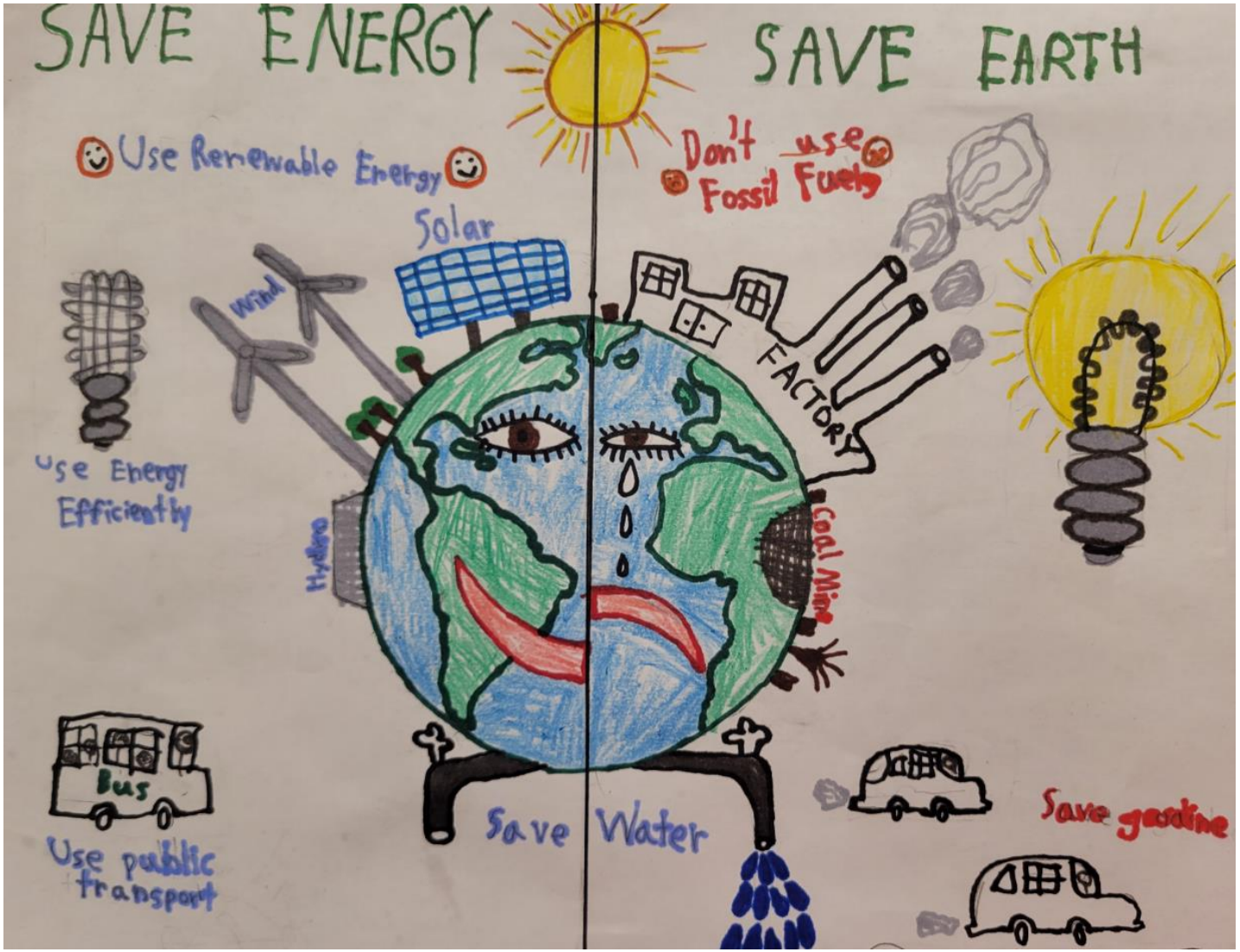


# *Vihaan Patel*

*Kindergarten*

# Aadith Eadhara

## 3rd Grade

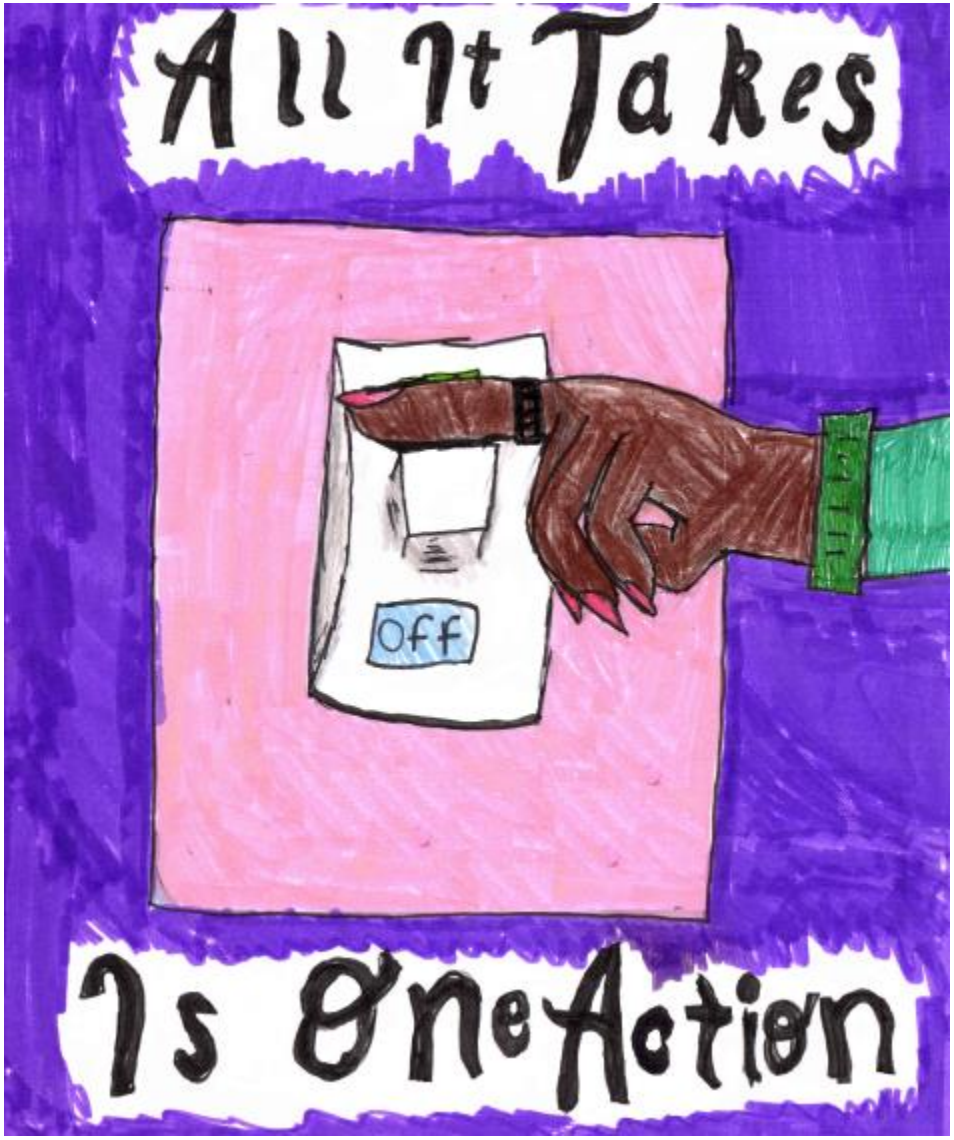


# Angela Li

## 3rd Grade

# Audrey Porter

## 5th Grade



# *Elise Berndt*

*4th Grade*

# Eric Ma

## 3rd Grade

### SAVING ENERGY

Energy makes objects move,and there are different types of energy, like solar energy, wind energy, heat energy, light energy, and even more. There are also renewable and newable energy. Renewable energy can use many times, but newable energy can't. To save energy you should use more renewable energy, so you can use it many times. You can also help save energy by picking up trash and litters.

### SAVING EARTH

The Earth is the planet we live on. You can help the Earth by composting food and re-cycling everything you can. You can also conserve water by using less water when taking a bath. Another way to help the earth is to ride bikes instead of driving, because driving can cause pollution. You can also plant trees, because tree are pollution fight-ers trees can take pollution from air and water.

### SAVING HUMANS

Saving Earth saves humans. Trees on our planet help us breathe. Trees can also clean pollution from air and water. The sunlight helps us stay warm, and it helps plants grow too. We can't live without water. We drink water to stay hydrated. Some water isn't for drinking. It may be for sea creatures.

# Esha Padmakumar

## 3rd Grade

# *Kate Cho*

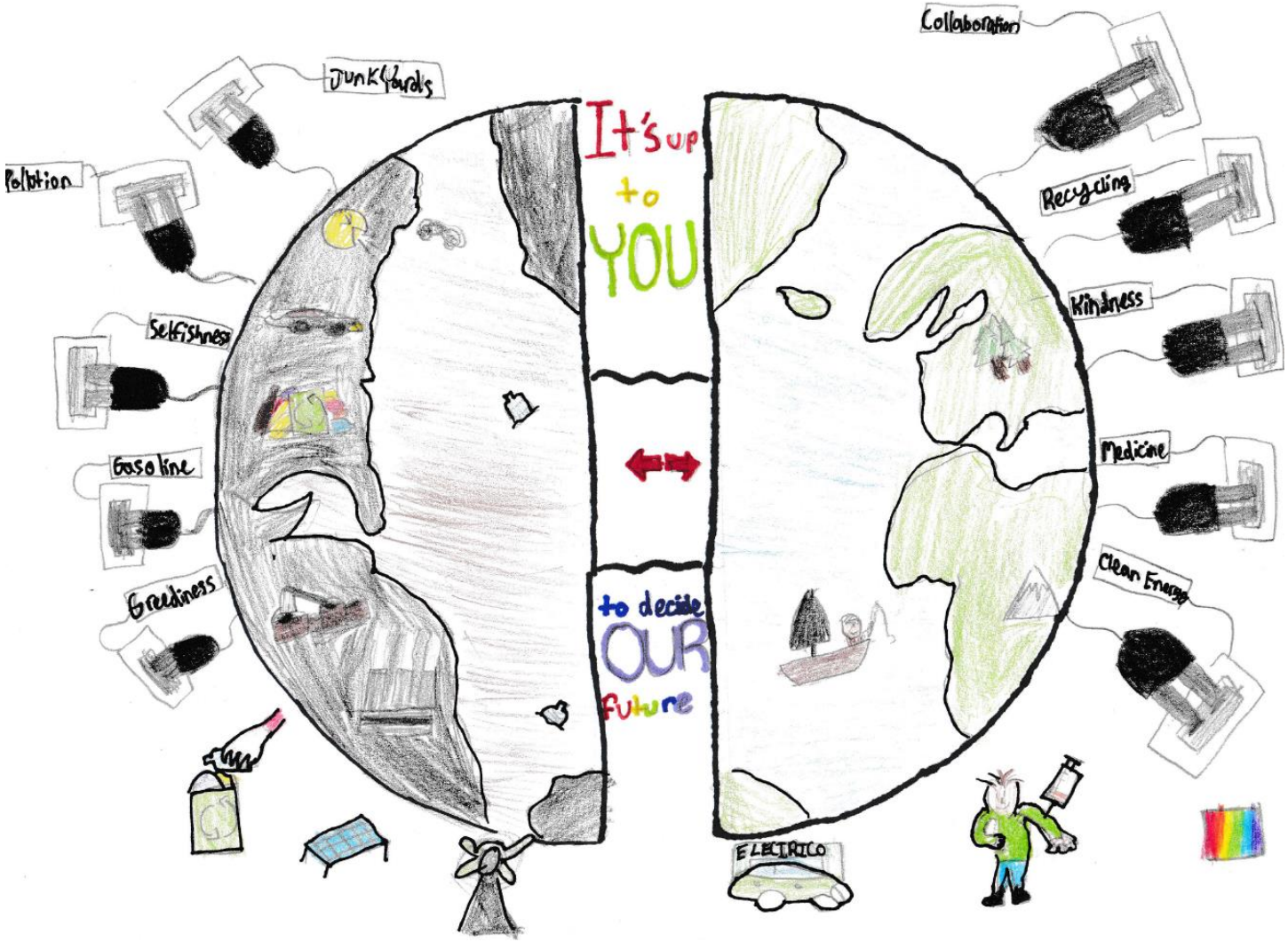
*5th Grade*

# *Lakshmi Nikhila Boreddy*

## *3rd Grade*

# *Mircea Gotea*

## *4th Grade*

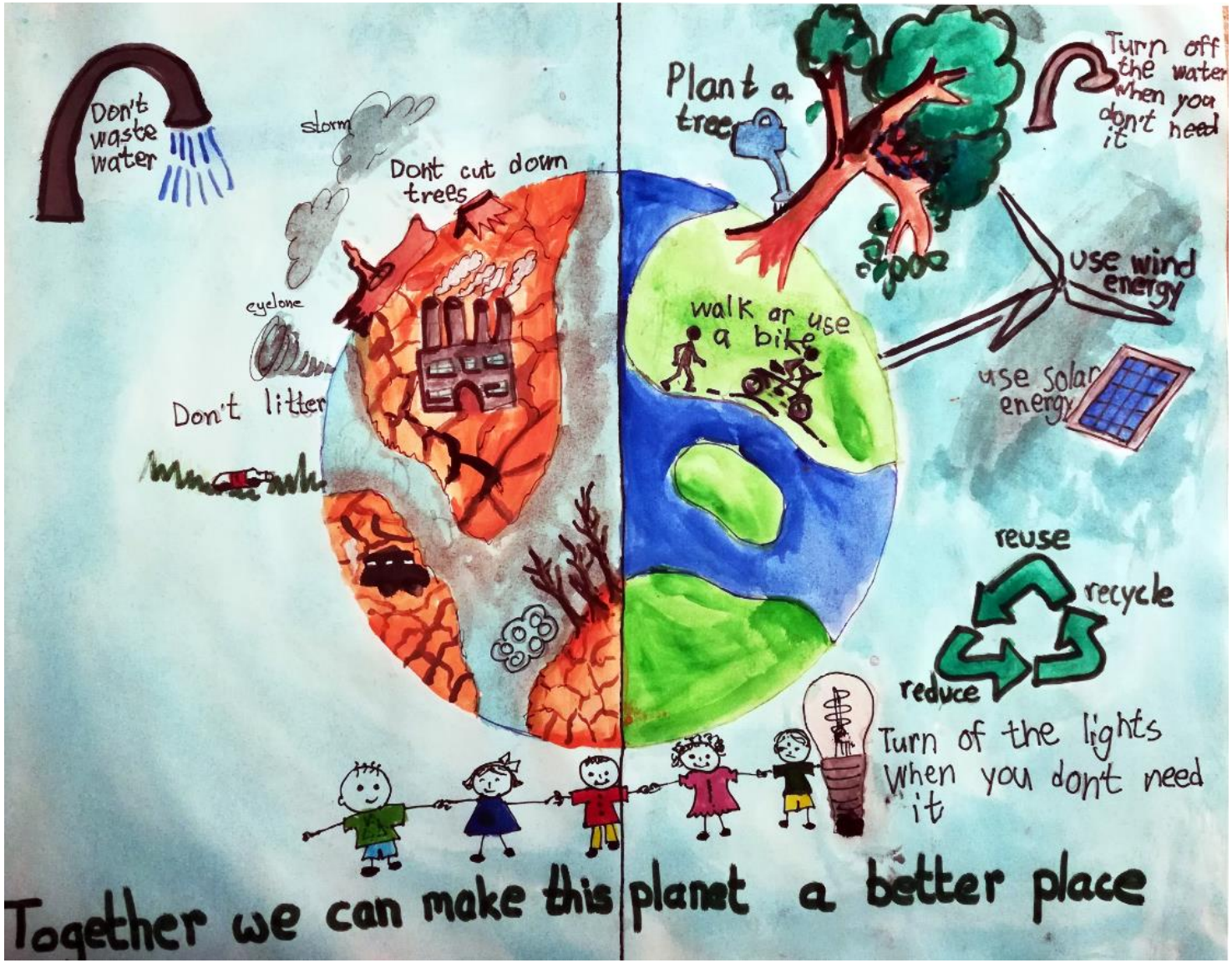


# *Moses Paul Kama*

## *4th Grade*

# Shuvayan Jana

## 5th Grade



# Simon Machiela

## 3rd Grade

# *Simrin Sawnani*

## *3rd Grade*

# Sloane Stein

## 5th Grade

# Vedant Kadalli

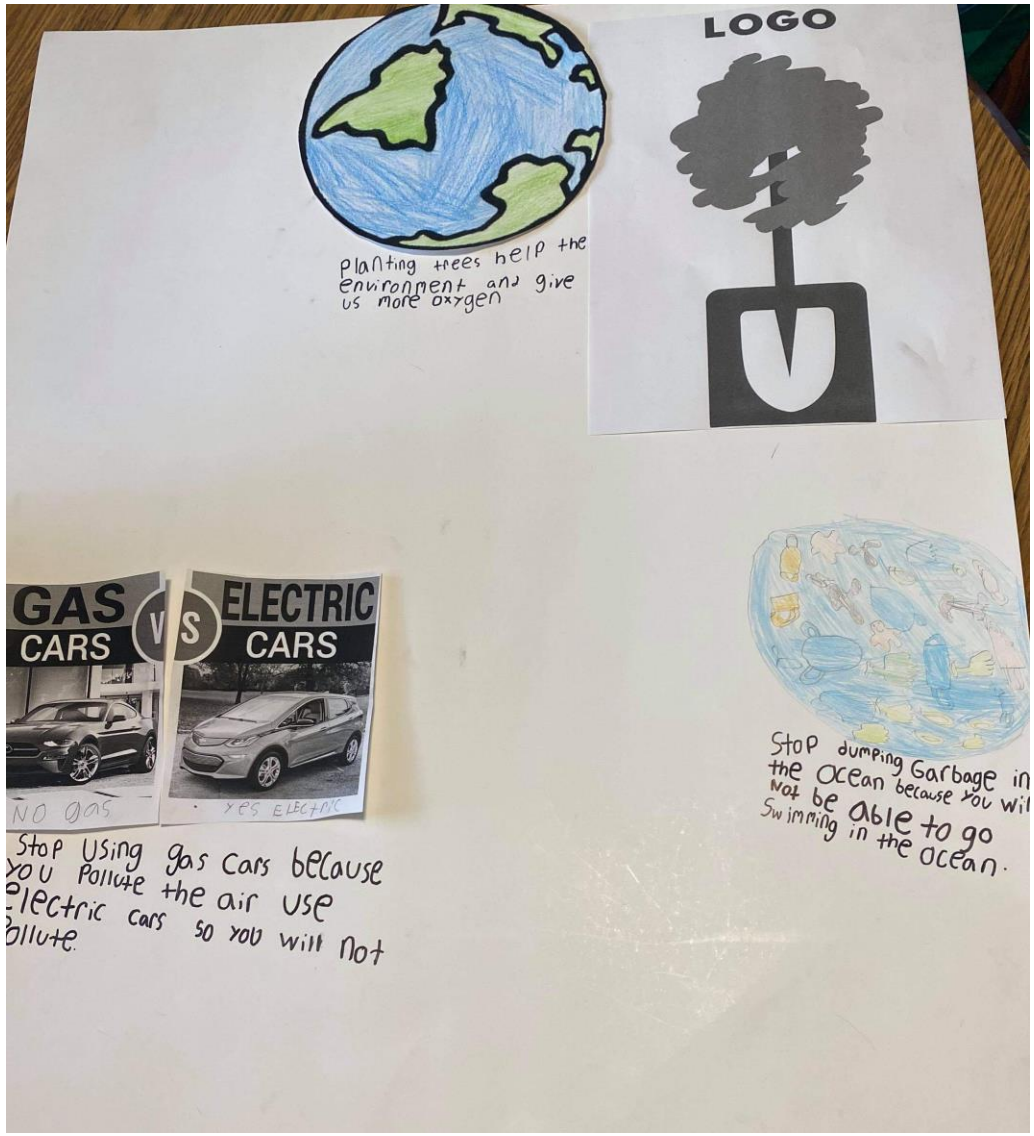
## 3rd Grade

# *William McDermott IV*

## *3rd Grade*

# William Patterson IV

## 5th Grade



# *Yug Mehta*

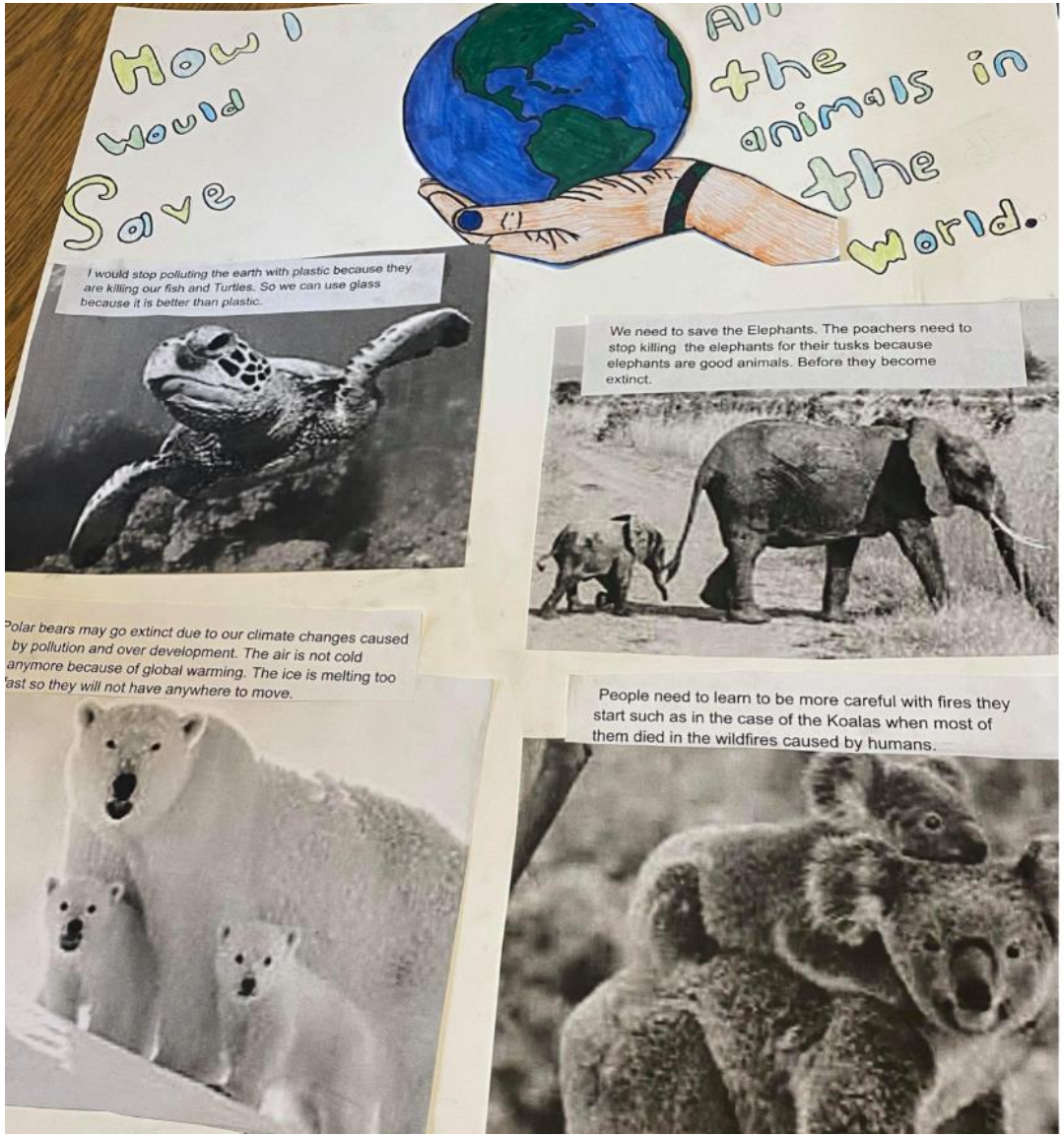
## *3rd Grade*

# *Arthur Pandey*

*7th Grade*

# Aubrie Patterson

## 6th Grade

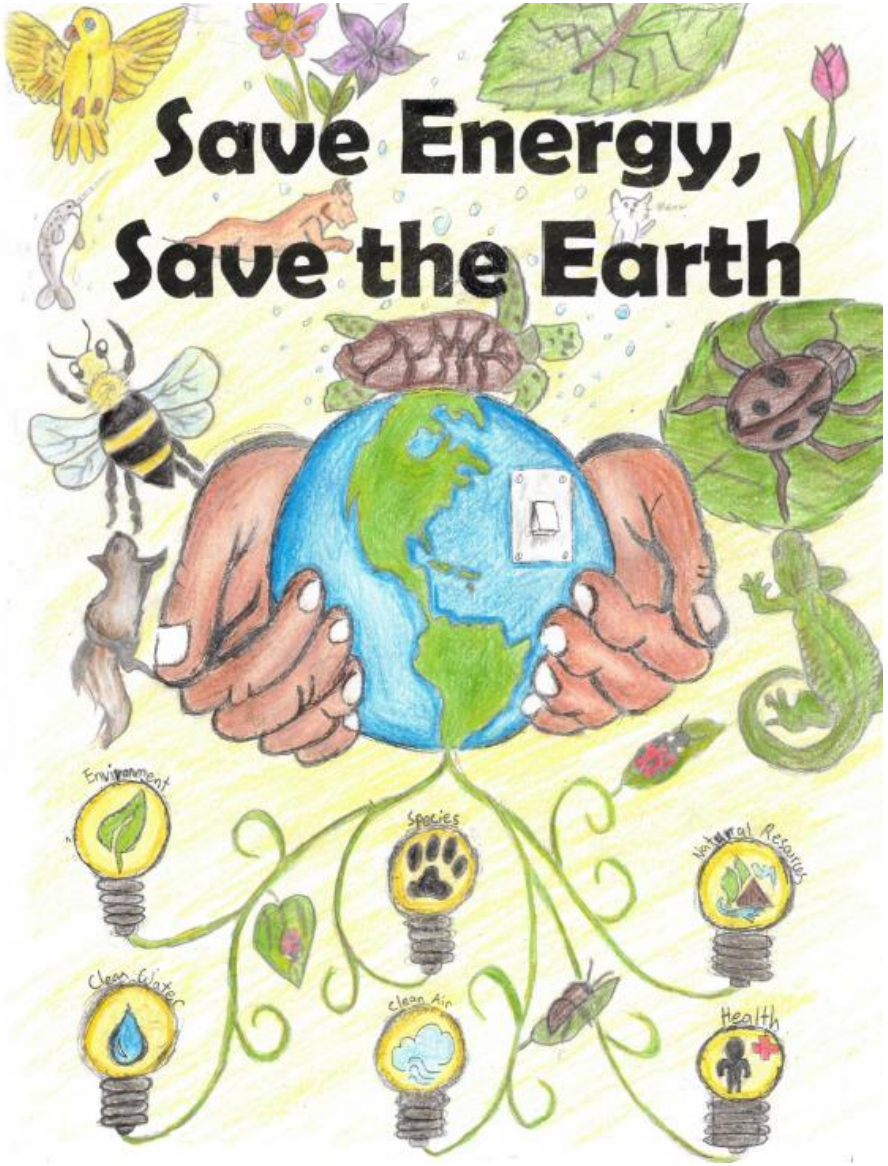


# *Eden Templeton*

## *8th Grade*

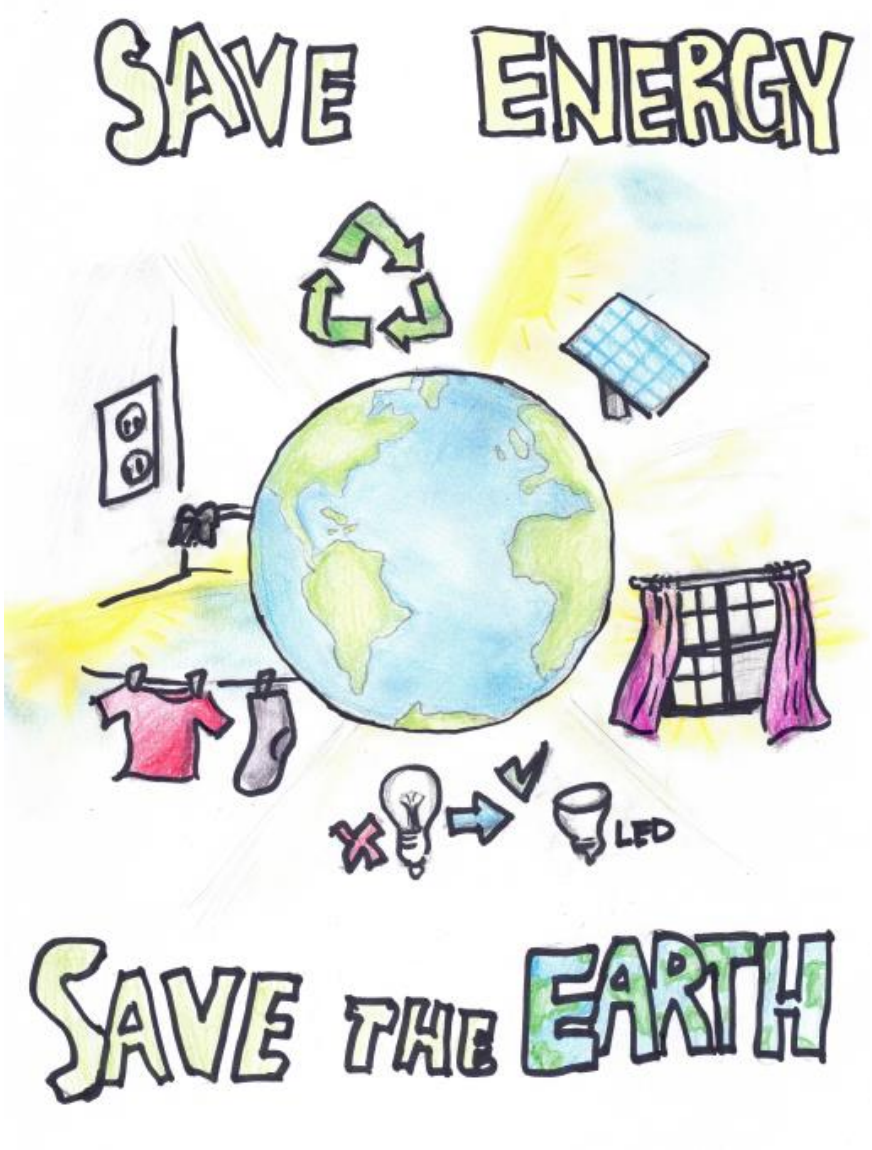
# *Ethan Liaw*

## *8th Grade*



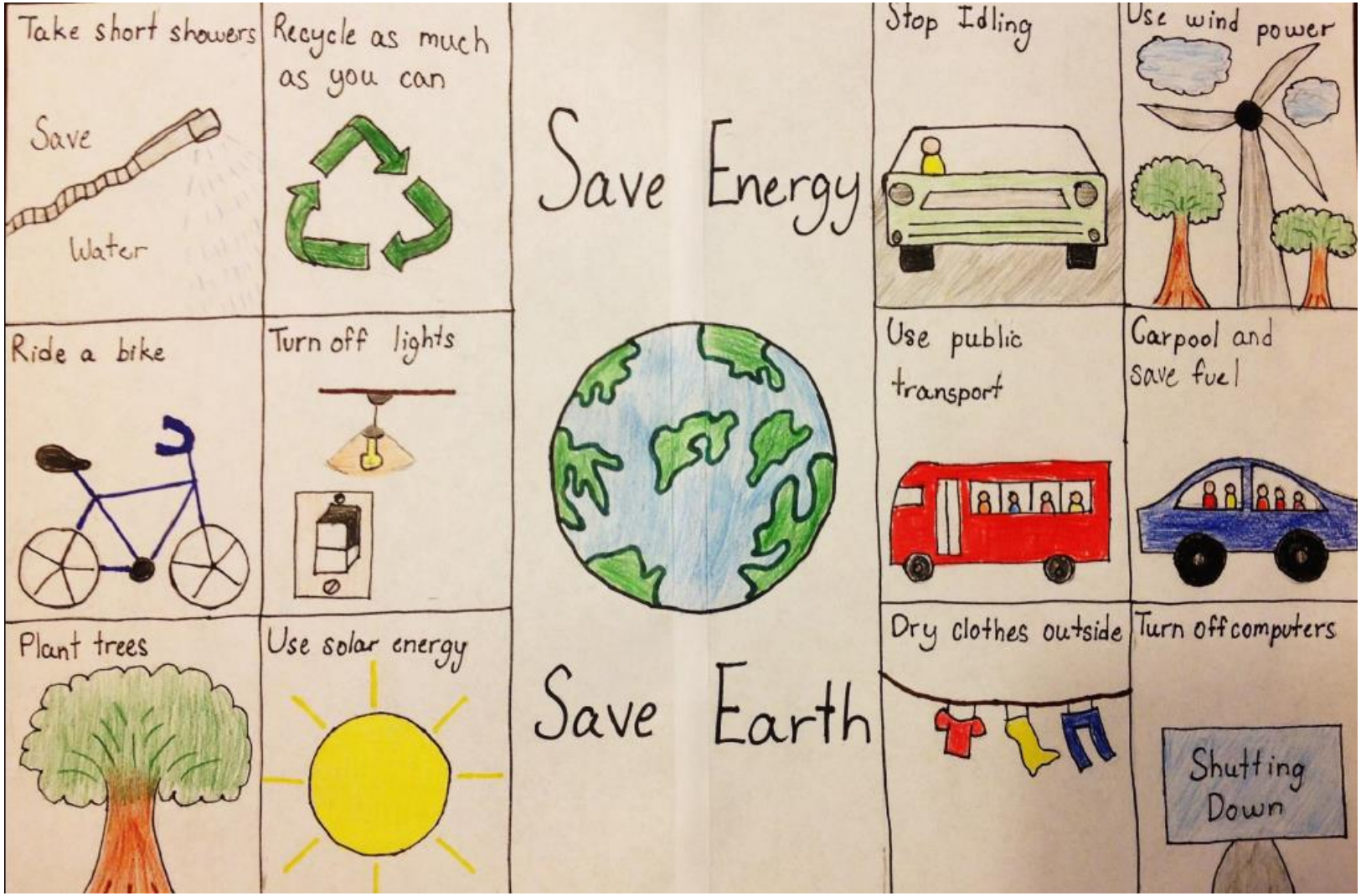
# *Kimberly Lee*

*7th Grade*



# Meera Anil

## 6th Grade



# *Riley Jackson*

## *6th Grade*

# Samriti Venkat

## 6th Grade

# Sarah Parker

## 7th Grade

# Sourish Dutta

## 7th Grade

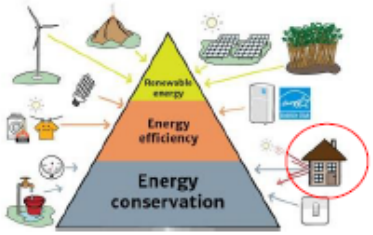
# Energy Efficient Households to Save Earth

Sourish Dutta Grade:7 School: Kingsview Middle School, Kingsview Road, Germantown, Maryland

## How saving energy helps nature

Saving energy helps to protect nature by reducing carbon footprint, controlling global warming, and reducing natural resource consumption. Saving energy can be done in many ways but having an energy efficient household is a great way to help nature.

The Energy Pyramid




## Why should we make our houses energy efficient?

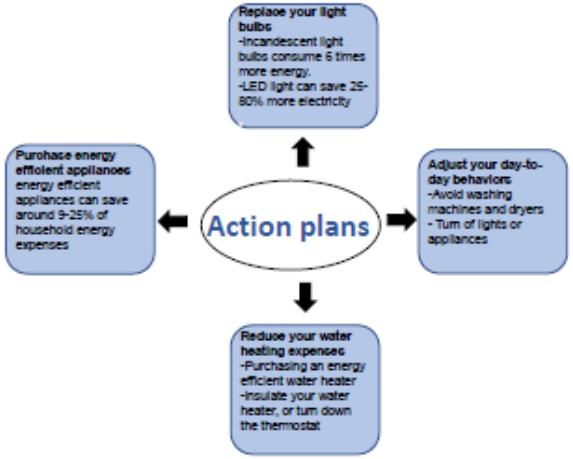
## Basic steps

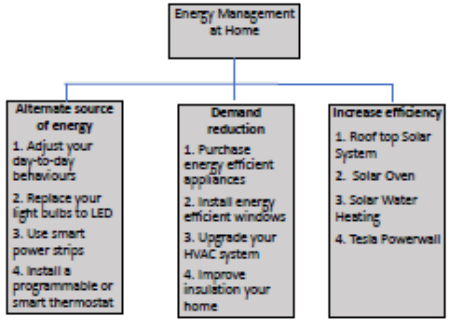
**Energy Audit**

- Identify gaps in the energy system
- Identify the appliances in your house that consume extra energy

**PDCA- Plan, Do, Check, Act**

-Make a plan
-Check the plan
-Do the necessary steps
-Carry out the plan




| RECOMMENDED ACTION | POTENTIAL SAVINGS (AS A PERCENTAGE OF UTILITY BILLS) | *AVERAGE ANNUAL SAVINGS IN $ |
|---|---|---|
| Install exterior low-e storm windows | 12%-33% annually on heating and cooling bills | $100-$274 |
| Seal uncontrolled air leaks | 10%-20% on annual heating and cooling bills | $83-$166 |
| Plant shade trees | 15%-50% of annual air conditioning costs | $35-$119 |
| Use a power strip for electronic equipment and turn it off when not in use | Up to 12% of electric bill per year | $100 |
| Replace an older toilet that uses 6 gallons per flush with a WaterSense model | | $100 |
| Turn back your thermostat 7°-10°F for 8 hours a day | Up to 10% annually on heating and cooling bills | $83 |
| Weatherstrip double-hung windows | 5%-10% annually on heating and cooling bills | $42-$83 |
| Replace your home's five most frequently used light fixtures or bulbs with models that have earned the ENERGY STAR | 9% on electricity bill annually | $75 |
| Lower water heating temperature | Save 4%-22% annually on your water heating bill | $12-$60 |
| Insulate water heater tank | Save 7%-16% annually on water heating bill | $20-$45 |
| Fix leaky faucets; one drip per second wastes 1,661 gallons of water | | $35 |
| Use sleep mode and power-management features on your computer | Up to 4% of annual electric bill | $30 |
| Insulate hot water pipes | Save 3%-4% annually on water heating bill | $8-$12 |
| | | |
| **TOTAL POTENTIAL SAVINGS | | $723-$1,182 |

## Conclusion

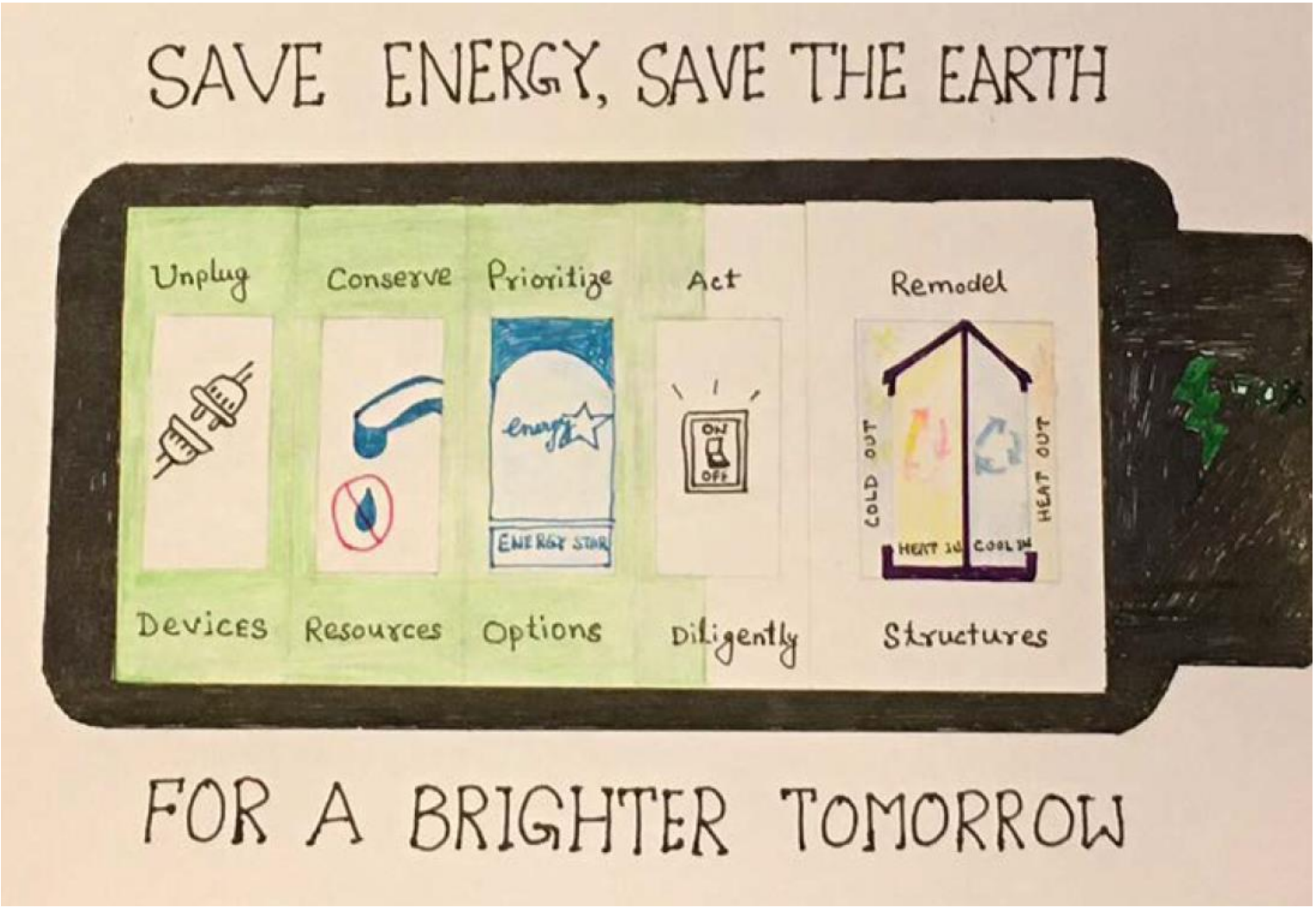
Energy efficient houses helps to decrease our day-to-day energy uses. Changing our houses little by little helps nature and at the same time lowers our bills.

# Zoe Baker

## 6th Grade

# Arushi Singh

## 12th Grade



# *Emily Mu*

*9th Grade*

# *Jacob Bruckheim*

## *12th Grade*

# *Lily Luby*

## *9th Grade*

# *Lucas Petrosyan*

## *9th Grade*

# *Mimi Bafor*

## *11th Grade*

# *Shreya Sathish*

## *11th Grade*