

# SAND CREEK ELEMENTARY

- **PROJECT TITLE:** RENEWABLE ENERGY AWARENESS – PUSHING TOWARD SUSTAINABILITY
- **ADVISOR:** JANA BREY
- **SUMMARY:** THE UNITED NATIONS SEVENTH GLOBAL GOALS PROCLAIMS THAT ENERGY IS CENTRAL TO THE NEARLY EVERY MAJOR CHALLENGE AND OPPORTUNITY THE WORLD FACES TODAY. SAND CREEK ELEMENTARY (SCE) STUDENTS RESEARCHED HOW STUDENTS, CLASSROOMS, AND HOMES CONSUME ENERGY AND IMPACT THE COMMUNITY AND ENVIRONMENT. STUDENTS AT SCE WORKED WITH THE SCHOOL'S STEM TEACHER AND DISTRICT'S ENERGY MANAGER TO DETERMINE THEIR BUILDING'S CARBON FOOTPRINT, RESEARCH RENEWABLE ENERGY, COMMUNICATE THOSE FINDINGS TO STAFF, STUDENTS, AND OTHER STAKEHOLDERS, AND CREATE AN ACTION PLAN TO REDUCE THE SCHOOL'S CARBON FOOTPRINT.



Goal: Educate Sand Creek Elementary Staff and Students about energy consumption and its impact on the environment

#### Activities and Tasks:

- Invite guest speakers such as the district's Energy Manager to talk to student and staff
- Review historical utility bills
  - Students discussed ways to make the school and home more energy efficient.
  - Switching to LED lights.
  - Taking advantage of natural sunlight.

#### Student leadership:

- Third and fourth grade students use self created posters to educate students about energy consumption and SCE's impact on the environment
- Students talked to parents about their impact on the environment at home

#### Resources:

- District's Energy Manager
- Historic utility bills
- Department of Energy
- Various websites

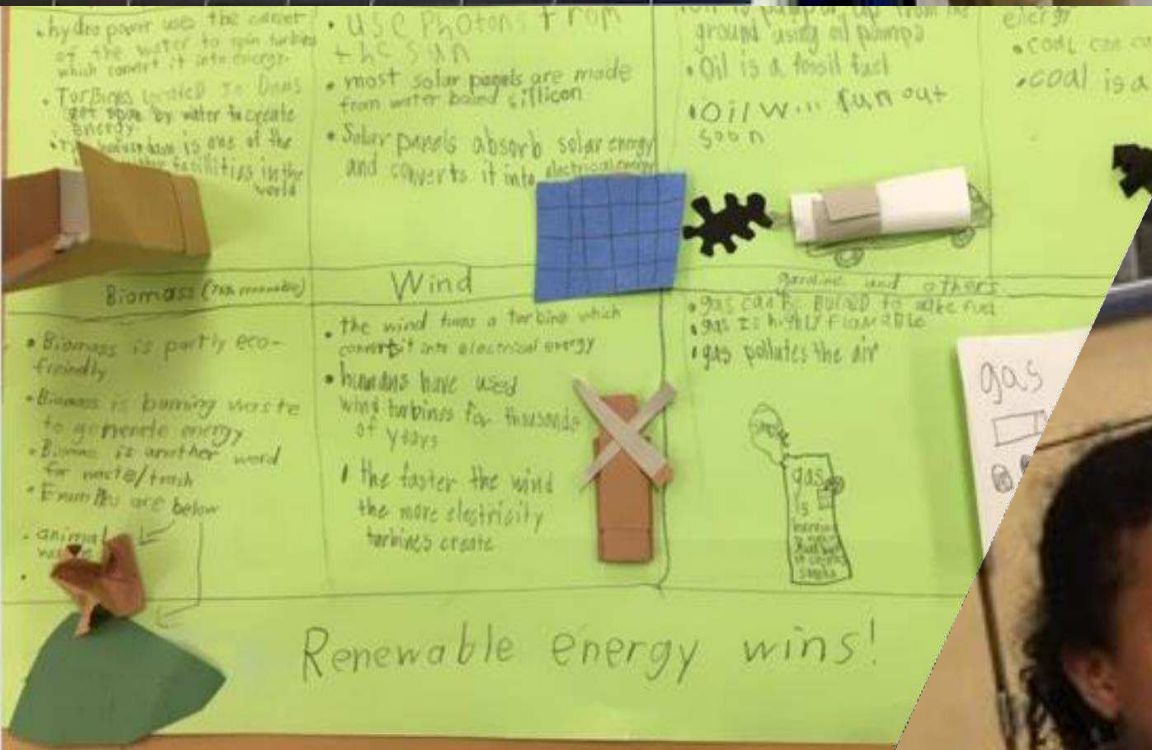
#### Evaluation:

- Students were evaluated through community circles, narrations, journaling, and self evaluation



Images include:

- District Energy Manager talking to students about energy production with a focus on solar arrays
- Students researching various energy resources
- Student created poster communication research to peers



Goal: Conduct an energy audit at our school and home and identify ways to reduce energy consumption and increase energy efficiency.

#### Activities and Tasks:

- Energy Audit of classroom, school, and homes
- Classroom discussion on what was discovered
  - SCE has recently made several improvements to increase energy efficiency and reduce energy consumption such as replacing all fixtures with LEDs and installation of a ground mount solar array. These efficacy upgrades lead to conversations about what could be done at other schools, buildings, and homes.

#### Student leadership:

- Students conducted energy audits and discussed which areas in the school use more energy.
- Students lead community talking circles to share ideas
- Students talked to parents about ways to decrease energy consumption at home and increase efficiency

#### Resources:

- NEED.org
- Energy.gov Do-it-yourself home audit

#### Evaluation:

- Students presented their findings to the school STEM teacher



Goal: Research energy production. Students would then evaluate the pros and cons of various energy production methods

#### Activities and Tasks:

- Students researched the various ways energy can be produced
- Students researched the pros and cons of various energy sources
- Students built and tested wind turbines using the engineering design process
  - Student groups investigated and tested several design topics such as...
    - What material is best for blades (paper, cardboard, Styrofoam, 3D printed)
    - What is the best shape of a blade
    - What is the best length for a blade
    - What is the best blade pitch

#### Student leadership:

- Students' posters were used to educate peers about the various energy resources
- Students worked collaboratively to design and construct wind turbines
- Students presented their design to peers

#### Resources:

- NEED.org
- Kidwind.org
- Department of Energy
- Various websites
- 10v DC motor

#### Evaluation:

- Students built and tested wind turbines
- Students created posters describing the various energy source



**Conclusion and next steps:** The production of energy has an impact on the environment. The students at Sand Creek Elementary have learned about their role in the consumption of energy and are taking steps to reduce their impact. As a school, based on information discovered in the audit, students are turning off lights, utilizing natural light when available, turning off projectors when not in use, and making wise choices with energy use. This project has also impacted homes in our community. Our students have become empowered energy leaders and help to educate their parents. Moving forward, Sand Creek Elementary will continue to find ways to reduce their energy use, increase efficiency, and lower the impact on the environment while empowering students to make meaningful changes.

