

Energy: Conversion Introduction

A Heavy Load

“Wow! That’s a heavy load you are carrying, Angelina!” Mylo shouted as he ran to catch up with his friend on the way to school.

“This is the last day for the food collection drive,” Angelina responded as she shifted the heavy bag of canned goods to the other hand.

Today was the final day of the food collection drive at school. Mylo had totally forgotten the bag of canned goods he had prepared last night.

“I left my bag on the counter last night so I wouldn’t forget,” Mylo admitted. “I can’t go back now or I will be late to school. Do you think Ms. Morales will let me call my dad when I get to school to see if he could drop it off?”

“Since it is something that will help people in our community, I think she might let you today,” Angelina responded. “You know that Ms. Morales is big on students taking responsibility for their own stuff. Maybe she will be okay letting you call this time.”

As the two friends turned the corner, Suzi was coming out of her house carrying bags in both hands.

“Hey Suzi!” the two friends said at the same time.

“Maybe I can help you with that load since I left my bag of food at home,” Mylo offered.

Suzi gladly passed one of her bags to Mylo.

“Thank you, Mylo. I didn’t think about how heavy these bags would be,” Suzi said.

As Angelina shifted her load again, she asked, “How many pounds of food do you think our class will contribute to the food collection drive?”

The friends spent the rest of their walk debating how many pounds of food their class would collect and even went on to estimate the amount that would be collected by the whole school. The school goal was 600 pounds of food. With almost 300 students, the three friends calculated that they would need around two pounds per student to reach the goal.

Their school was collecting food to contribute to a local community food pantry. Suzi, Mylo, and Angelina were especially excited about this year’s food collection drive because they had volunteered to be part of the team that would load the food onto a truck and then unload the food at the community food pantry.

A Problem to Solve

Just before the end of the school day, the principal announced that they had collected 632 pounds of food. The class cheered as they celebrated going over the school goal.

Angelina, Mylo, and Suzi hurried to the gym after school where they were supposed to meet the group that was delivering the food to the community food pantry. Soon the students were working with a group of teachers to pack the food into boxes and then load the food onto a truck.

“That was hard work!” Angelina said as she sat down to rest.

“I never thought about how much effort it would take to lift that much food onto the truck,” Mylo added. “But I’m okay with being tired if it means that people in our community will have the chance to get the extra food they need for their families.”

“You’re right,” Suzi said. “It is worth the effort.”

Just then the principal gathered the workers together. They boarded a school bus to make the drive to the community food pantry.

On the way to their destination, the students began to talk about unloading the truck.

“I’ve been thinking,” Angelina began. “I wonder if we will just carry the boxes of food like we did at school.”

Suzi said, “That made me think of what we’re learning about energy conversion. How could energy conversion be used at a place like the community food pantry? I bet they often have trucks of food to unload.”

“Well, it starts with the chemical energy stored from what we eat being converted to mechanical energy when we lift the boxes,” Angelina stated.

“What do we know about other situations where energy is converted that could give us some ideas?” Mylo asked.

The friends spent the rest of the drive brainstorming and discussing ideas of how they could move the boxes of food from the truck into the building. The bus ride went by quickly as they planned solutions.

“Okay, now I really have some ideas of how we could design something!” Suzi said as she looked around at the layout of the food pantry.

What ideas do you have for designing a way to unload boxes of food at a community food pantry? What do you already know that could help you design a solution? What do you need to know?