



Siemens We Can Change The World Challenge

Recycle Because You Care's Application Details

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• Step 1: Choose It!

Our team selected Recycling as our environmental topic. To most environmentalists, recycling is old news, but there are still many, many people who do not recycle. Our team noticed that less than one quarter of the households in our neighborhood recycle.

Failing to recycle affects our community in many ways. Failing to recycle increases air and water pollutants and the greenhouse gas effect. It also increases garbage that sits in our landfills for decades. If everyone made the commitment to recycle their Sunday papers alone, we would save the equivalent of 500,000 trees each week! An aluminum can thrown in the trash will still be in a landfill in 100 years. When recycled, it will be back on the grocery store's shelf in only 60 days!

Through our experiment, we wanted to figure out why our neighbors were not recycling. Was it that they didn't know about recycling? Did they know how to get a recycling bin? Was the \$6 per bin charge too much? Or did they just not care?

What will happen if the problem isn't solved? Some of the beautiful things that we enjoy in our lifetime may not exist. We may lose the rainforests, blue skies, and clean, fresh air, just to name a few. By adopting recycling as part of our daily routine and encouraging others to do so, we are ensuring that our generation and generations to come will be able to enjoy this beautiful place we call home, planet Earth.

• Step 2: Research It!

We used many resources to gather the information that we needed for this project. We went to the library to get books on recycling. Our team found many websites that had a lot of very helpful waste disposal and recycling information.

We met with Kay McKeen and Meghan Grember from SCARCE (School and Community Assistance for Recycling and Composting Education). They gave us ideas and shared information that was helpful for our project. They shared a video that showed how recycling centers operate including the sorting function. It was very interesting because rarely anyone gets to go into a recycling plant due to the dangerous environment. They had a great model of a landfill, including a bisected view of the many layers. We learned how complex and complicated it is to create and manage a landfill. Landfills can also be potentially hazardous to the environment. They also shared some information about other environmental topics, such as vermi-composting, energy efficient light bulbs, old school books, and more.

Leslie Beulle from the Village of Addison's Public Works Department, was very cooperative and supportive. She answered questions about Addison's recycling program, reviewed our plans, and made copies of the flyers for us. Richard Vandermolen from Allied Waste Services, our local waste company, provided us with recycling statistics for Addison. Allied Waste also provided recycling bins for use in our experiment. Their customer service department gave us some very interesting information about our neighbors who called to request bins. The State of Illinois, through ISTEP (Illinois Sustainable Education Program), provided bookmarks with recycling information, which we gave to our neighbors. Everyone we came in contact with seemed very excited about our experiment.

We asked Richard Vandermolen from Allied Waste for the annual amount of waste that is recycled in Addison. He told us that out of the 16,416 tons of waste last year, only 1,515 tons were recycled. That is only 9%!!

We also had our parents drive us around the six blocks that were included in our experiment. This was completed on Friday mornings before school. Fridays are our garbage pickup day, which allowed us to identify who recycled and who did not. There were a total of 108 houses in the six block area. Only 25 of those recycled, which is 23% of the total. We determined the percent of recyclers by group with the data collected.

Block 1 – 36%

Block 2 – 15%

Block 3 – 24%

Block 4 – 33%

Block 5 – 13%

Block 6 – 26%

The issue we identified was that very few of our neighbors were recycling. Our experiment was designed to figure out how, using different methods, to increase the recycling rate. We felt that if we educated our neighbors on the science, technology, process and benefits of recycling, they would change their behavior.

There is no promotion of the recycling program in our city. If a resident is interested in recycling, they can try to find the outdated information on the village's website after navigating through six levels of screens. We have a very good recycling program but not many people seem to know about it. It provides weekly curbside pickup and offers single stream recycling, which means the residents do not have to sort items into different bins.

When the neighbors heard or read the information we provided they seemed very excited. Many said they never knew how to obtain a bin, others didn't know how the program worked, but all seemed interested and eager to start recycling. We think that very few people truly understand how recycling works and realize the benefits to the planet. We believe once they understand how it saves natural resources, reduces pollution and our reliance on foreign oil, and prevents habitat destruction, they will want to start recycling right away.

• Step 3: Plan It!

We picked six blocks in our neighborhood as our test area. One block was used as the control block in which we measured their recycling but did not contact them at all. On block #2, we simply dropped off a flyer to each house with information about how to recycle, the many benefits of recycling and directions on how to obtain a recycling bin. We did not talk to these neighbors, just left the flyer by their front door. On block #3, we visited each house to explain the recycling program and let them know how to request a bin. We gave each person the same flyer as on block #2 and at the end of the conversation we asked if we could count on their participation in the program. Almost every person we contacted said they would call to get a bin. On block #4, in addition to explaining the recycling program and delivering a flyer, we actually brought the recycling bins to our neighbors and offered to sell one to them for the standard \$6 price. On block #5, we dropped off a free bin with a flyer and a few informational bookmarks at each house. We did not personally talk to these neighbors. On block #6, we visited each house, explained the program, and left them with a free recycling bin, a flyer and bookmarks.

We drove around the six blocks on Friday mornings for three weeks before and after the experiment to make sure we got accurate information.

We started the planning process in early September, contacted our neighbors in September and October, measured usage early September and again in November. We analyzed the data and put together our report in December. In January we presented our results to the Mayor, our Public Works representatives, and two people from Allied Waste.

The only resources we needed were bins and copies of our brochures. Allied Waste was very helpful and donated the bins for our project. Office Depot and the Village of Addison were kind enough to make copies of our brochures. The biggest resource we used was time. It ended up taking a lot longer than we originally thought. We ended up going to many homes two or three times before reaching them and some we never were able to contact.

All three team members were involved in just about every step. We all were involved in determining the problem, designing our team logo, planning the experiment, visiting our neighbors, and analyzing the results. The only things we split up doing were the morning drives and writing the report. After we each wrote our sections, we all got together to review everything and edit it together.

• Step 4: Do It!

As mentioned, we drove around the neighborhood to count how many neighbors were actually using their recycling bins. We had a chart for each block with individual addresses listed. We collected information about whether or not they recycled before the test began, when and how many times we attempted to contact them, whether or not the contact was complete, if they bought/accepted a bin, and who recycled after the experiment was over.

We found out that recording actual recycling behavior was very important because people don't always do what they say they are going to. On the third block when we told them about the program and gave them a flyer with the telephone number, just about every single person we contacted said they would call to get a bin. When we counted the number of people recycling, we realized that many of those that said they would never did call to get a bin. We think they were sincere when we talked to them but just forgot about it. This wasn't on the top of their priority list.

We took many pictures and videos throughout the experiment. We took pictures while researching the issue, delivering the flyers and bins, during the planning and analyzing process, and presenting the results. We created a video explaining the experiment, results and our recommendations.

We also have many pie and line charts to show the results in a visual format. The results are impressive in a table, but when you see them in charts, they are AMAZING!

• **Step 5: Analyze It!**

We were amazed by the results! Here is a summary of the data collected:

	# of Homes	Recycled Before	Did Not Recycle	Recycle Now	New Recyclers
Control – No Activity	14	5	9	5	0
Drop-off Flyer	27	4	23	8	4
Explain Flyer	21	5	16	11	6
Sell Bin	12	4	8	9	5
Drop-off Free Bin	15	2	13	13	11
Explain & Free Bin	19	5	14	17	12

Here is a chart showing the percent of recyclers on each block before and after our test.

	% Before	% After
Control – No Activity	36%	36%
Drop-off Flyer	15%	30%
Explain Flyer	24%	52%
Sell Bin	33%	75%
Drop-off Free Bin	13%	87%
Explain & Free Bin	26%	89%

The “Conversion Rate” table shows the percent of neighbors that were converted from non-recyclers to recyclers. The difference between this and the previous table is that it included all of the neighbors and this only includes the neighbors that weren’t recycling.

	Conversion Rate
Control – No Activity	0%
Drop-off Flyer	17%

Explain Flyer	38%
Sell Bin	63%
Drop-off Free Bin	85%
Explain & Free Bin	86%

Our team hypothesized that the method we used on block #6, which was to explain the flyer and leave a free bin, would be the most successful. The problem we experienced with this solution was trying to make personal contact with each neighbor.

On block #5, where we delivered a free bin but did not make personal contact, the conversion rate was almost as high as on Block #6. It was very easy to deliver these bins because we just dropped them off. When we started this test, only 2 of the 19 homes were recycling. After the test only 2 of the 19 are NOT recycling.

Before the test, we did not expect a good response from block # 4, where we sold the bins. The 63% conversion was better than we expected.

The difference between block #2 at 17% and #3 at 38% was all about personal contact. We used the same flyer, but in one case we didn't talk to them and the other we did. Obviously, explaining things did make a difference.

• Step 6: Share It!

After completing our experiment, we started many new projects to make a difference through education and communication. Our school is starting a new recycling program and we are sharing information with all of the students about our project. They have each been asked to educate their parents on recycling and get their parents to sign a pledge card, promising that the entire family will start, improve or continue their recycling efforts. Our school had to request a new dumpster for recyclables, since we quadrupled the amount recycled every week. We have been asked to share the results of our study on our local television station (ACTV). The producer was thrilled to hear the results. In addition to sharing our results, ACTV wants to include a segment that will teach Addison residents about the curbside recycling program.

Our contact at Allied Waste was so excited about the test and results that he put together a grant proposal requesting funds from the State of Illinois to buy bins for every resident in our community. He used the results from **our study** to help make the case for the grant!! He said he had never seen an actual test to measure usage before and thought it would help him win the grant.

Our team presented the project to Larry Hartwig, Mayor of Addison, Gregory Brunst and Leslie Beulle, Public Works, and Richard Vanderمولen and Robert Boerman of Allied Waste Services. They couldn't believe the results and are eager to start changing things to get more people to recycle. It was so cool to be teaching these grown-ups about this important experiment. We actually felt like adults because they were treating **US** like the experts.

If we had unlimited resources and time, we would make sure that every resident in Addison had at least one recycling bin. We would also make sure they received information about the program, through flyers, newspapers, cable television, and a door-to-door campaign.

There are approximately 7,500 homes in Addison and the bins are \$6 each, which equals \$45,000. We hope Allied will get the grant money from our state to make this happen. We believe that the money saved by recycling products (rather than creating them from raw materials) and the savings from avoiding more garbage in the landfills would cover the cost of the bins. We proved that if people receive free bins with some basic information, they will actually use them and start recycling. This experiment should convince recycling companies, state and local governments that it makes sense to give out bins to try to increase recycling rates. This solution would apply to every community that does not currently distribute recycling bins to residents, urban, suburban or rural.