Alternative Access:

Building a Robotics Program in an Alternative School
Dr. Pedro Albizu Campos High School
Alternative Schools Network
Instituto Abayarde Robotics Program

Instituto Abayarde, a 21st CCLC program

The teachers: Corinna Christman and Diamond Montana

The students: Tony Williams, Christian Botello, and Jessica Morales

The Site Coordinator: Rodolfo González

The Program Director: Michael Hannan
A Gumdrop Challenge
A Gumdrop Challenge

THE GOAL: Build a pedestal to display a ball

THE RULES:

- No more than 75 toothpicks
- No more than 50 gumdrops
- Must support the ball for at least 30 seconds

*The tallest stable pedestal wins*

WINNER GETS TO DRIVE THE STUDENTS’ ROBOT
Why should I care about gumdrop engineering and robots?
What students like...

- Hands on
- Teamwork
- Collaborative atmosphere
- Discussion and debate
- Tech experience
- Working toward a goal
- Passionate instructors
- It’s fun
# 21st Century Skills

<table>
<thead>
<tr>
<th>Learning Skills</th>
<th>Literacy Skills</th>
<th>Life Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking</td>
<td>Information Literacy</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Creative Thinking</td>
<td>Media Literacy</td>
<td>Initiative</td>
</tr>
<tr>
<td>Collaborating</td>
<td>Technology Literacy</td>
<td>Social Skills</td>
</tr>
<tr>
<td>Communication</td>
<td>Productivity</td>
<td>Leadership</td>
</tr>
</tbody>
</table>

- See more at: https://k12.thoughtfullearning.com/FAQ/what-are-21st-century-skills#sthash.vFaTsIING.dpuf
Next Generation Science Standards

- defining the problem
- developing possible solutions
- improving designs.
Alternative Schools Network

- Partner to 24 schools across Chicago
  - Resource development
  - Technical assistance and training
  - Advocacy
- 150 - 300 RE-enrolled out-of-school youth
- Mentorship, social-emotional support programs
- Out-of-school time programming
What is an alternative school student?
Alternative Schools Network

We know the challenges...
But what about the possibilities?
Dr. Pedro Albizu Campos High School

Founded in 1972

Dropout rate of 71%

Chicago’s West Town/Humboldt Park Neighborhood

1972: 20 students, church basement

Today: 185 students
MISSION: Provide a quality educational experience that empowers students to engage in critical thinking and social transformation, from the classroom to the Puerto Rican community, based on the philosophical foundation of self-determination, a methodology of self-actualization and an ethics of self-reliance.

Motto “La educación rompe las cadenas”

Education breaks chains.
Robotics comes to PACHS!

A passionate teacher: Curious, active, learning

A 21st CCLC program opportunity--ASN

A partner: Center for College Access and Success

Student survey, student interest

Time, persistence, and patience
Defining the problem
Defining the problem

Students work together to identify the goals and challenges for the project.
Developing possible solutions
Students work independently—individually and in teams—to research solutions to the challenge…
Improving designs

Students continuously use trial and error, debate and research to improve their robots.
Always a work in progress...
Always a work in progress...
Always a work in progress...
What’s next?
What’s next?

- Seeking additional funds to replicate
- Working with NEIU to develop funded collaborations
- Looking for hands-on programming models
- Seeking instructors that can lead this learning