



Young  
Innovators.

# BIG IMPACT.

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Grade 6 students, Gwen and Liz, gamifying waste with an interactive basketball hoop.

# Grade 6 ADST Projects on Sustainability and Responsibility

In a recent exploration of creativity and responsibility, the Grade 6 students immersed themselves in a transformative Applied Design, Skills, and Technologies (ADST) project.

Themed around sustainability and guided by the United Nations Sustainable Development Goals (SDGs), our young innovators undertook a variety of projects designed to address environmental concerns and create a positive impact on both their school and the broader community.

The students began by getting to know the grounds of the schools a little better. They connected with the land through some Forest School activities designed to help them stop, take a moment, and reflect upon their relationship with the land. These included using their sense of smell to explore the plants, stopping and creating a sound map of the area to listen to the land, and looking for shapes and colours. This led to some meaningful expressions of connectedness as they carefully considered how they acknowledged the land on which they learn, grow, and play.

After digging deeper into the SDGs the students focussed on one they would work together on. They selected to work in small groups, or individually, and started to follow the YHS Design Cycle.

The following projects were the result.

## **GAMIFYING WASTE WITH INTERACTIVE BASKETBALL HOOP:**

The team focusing on waste management empathized with the challenge of promoting responsible disposal habits. Defining the issues at hand, they ideated and prototyped an interactive basketball hoop. The goal was to aim trash at a switch above the hoop, which activated a buzzer. Testing its impact on waste disposal habits prompted reflection on how to make the gamification aspect even more compelling and effective in future projects.

## **BIRD FEEDERS FOR LOCAL WILDLIFE SUPPORT:**



Applying the empathize phase, another group sought to understand the needs of local wildlife. Defining the issue of diminishing habitats, they ideated and prototyped bird feeders which involved using vegetable shortening and bird seed crafted from recycled materials. They developed a way to help Grade 1 students make some feeders of their own and then hung them around the school. This helped ensure the project aligned with their initial goals of supporting local biodiversity.

## **EDUCATIONAL AIDS FOR QUALITY EDUCATION:**

For the project focusing on educational aids, empathizing with gathered data was crucial. Through a questionnaire about what Yorkies loved about learning, gaps were identified and then solutions were ideated. Students worked with teachers to find out what kind of aid they could use in a classroom setting allowed for valuable insights, fostering reflection on how to continually improve the integration of quality educational resources.

## **JIGSAW PUZZLE FOR CLIMATE CHANGE AWARENESS:**

In their exploration of climate change, students empathized with the need for tangible awareness. Defining the challenge, they ideated and prototyped a visually striking jigsaw puzzle. Using the scroll saw was a highlight of the prototyping process, as they were able to bring their puzzle to life, whilst practicing using the saw, and demonstrating a keen awareness of how to work safely.



*Zoya and other students in this group ideated and prototyped an AR experience on climate change, using a Merge Cube and CoSpace software.*

### **AR IMMERSIVE EXPERIENCE ON CLIMATE CHANGE:**

Applying the YHS Design Cycle, the group used augmented reality (AR) and began by empathizing with the need for engaging and immersive learning experiences.

Defining the parameters of their project, they ideated and prototyped an AR experience on climate change, using a Merge Cube and CoSpace software. Through testing and reflection, they fine-tuned the experience to effectively convey the message they were eager to share.

### **OCEAN PLASTIC CLEANUP EXPLORATION:**

Applying the YHS Design Cycle, the group explored ocean plastic pollution and began by empathizing with the severity of the global issue. Defining actionable solutions, they ideated and prototyped proposals for effective plastic cleanup. Testing the feasibility of their solutions prompted reflection on the most practical and impactful ways to contribute to the fight against plastic pollution. Their prototype used a model rover that was sympathetic to ocean life, and an interactive remote control.

### **FOOD WASTE TRACKING FOR THE CAFETERIA**

Guided by the YHS Design Cycle, students began by empathizing with the issue of food waste in the cafeteria.



*A food waste tracking system for the cafeteria.*

They delved into understanding the patterns and challenges, defining the problem at its core. Through ideation and prototyping, they developed a food waste tracking system featuring a large cardboard pineapple, with a simple scale to record the number of bags of waste food the cafeteria would generate in a day. As the number increased, the sunglasses would slip down the pineapple's face, giving it an appearance of disappointment. Testing the build allowed for refinement, and the group were able to present their idea to Grace Yang, Assistant Director of the Junior School.

These Grade 6 ADST projects transcend mere academic endeavours; they represent a collective commitment to instilling the values of the United Nations Sustainable Development Goals in the hearts and minds of our future leaders. By integrating the YHS Design Cycle, these initiatives not only showcase innovative solutions but also build in students a structured approach to problem-solving that they can carry forward as they continue to make a positive impact on the world. Through innovation, creativity, and a deep sense of responsibility, these students have proven that even the smallest actions can contribute to a more sustainable and harmonious future for all. 🌱