



# COOLmob School Waste Education Project Report

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## Project Summary

The COOLmob Waste Education Project, funded by the NT Government and City of Darwin Council, was developed against the Australian Curriculum and was delivered to years 2 to 4 in primary schools and years 7 and 8 in middle schools in Darwin, Palmerston and Howard Springs.

The Project aimed to ensure students understand the relationship between waste and the climate, and learn to interpret the waste hierarchy in a school and home-life context.

Under the Project, two programs were developed, one for primary schools and one for middle schools. The primary school program focused on soft plastics and waste education in the home, and the middle school program focused on circular economies, with students critically analysing the local Darwin footprint by applying the circular economy framework.

The Project was extremely successful in connecting with schools to ensure awareness of the program and achieved an excellent result of uptake, going beyond the deliverables of the grant. The Project, delivered to 24 classes across 13 schools, was met with excitement and a high level of interest from schools, but unfortunately due to funding constraints was not able to deliver the Project to all schools interested. The excellent feedback from teachers, the current state of waste management in schools and the high demand for continued delivery in schools demonstrates there is a need and appetite for the program to receive continued funding.

## Marketing and Recruitment

The main engagement tool used was email with an expression of interest attached. COOLmob contacted all public schools and most other schools in Darwin via email and letters to the principal offering the program in a flexible way which suited the school. COOLmob was met with a high level of interest and modified the primary program to be suitable from the original years 3 and 4 to also include year 2 students. Additionally, COOLmob extended the program to include delivery in Palmerston, Howard Springs and Bakewell after receiving requests from areas outside Darwin.

If the Project was to receive ongoing funding, COOLmob is confident that schools who engaged in the program this round would be very interested in being involved again for other year groups.

## Program Development - Primary School

The Primary school program was developed to sit within the Australian Curriculum and includes 4 to 5 lessons plus an excursion to both the Shoal Bay Waste Management Centre and NTRS. Full details of the lessons can be found in the program outline attached but in summary students:

- Learn about the six R's of waste through the waste hierarchy and understand the link between waste and climate pollution and climate change
- Conduct a waste audit of bins after lunch
- Attend an excursion to NTRS Recycling Facility as well as Shoal Bay Waste Facility
- Play a recycling game to understand which household objects are recyclable
- Identify household items that are non-recyclable in the yellow bin but able to be recycled or repurposed elsewhere
- Identify ways their families can change their behaviour at home
- Use waste audit results to brainstorm ways the school can decrease waste via creating an action plan

- Take home a booklet for families covering tips to decrease waste at home, as well as information on yellow bin recycling, soft plastics and e-waste recycling, low-waste shopping, how to conduct a waste audit at home and where to find more information

*Copies of the program outline and lesson plans are attached.*

### Program Development - Middle School Program

The middle school program was developed to sit within the Australian Curriculum and includes 4 lessons. Full details of the lessons can be found in the program outline attached but in summary students:

- Understand the relationship between waste and the climate, and learn to interpret the waste hierarchy
- Identify household items that are non-recyclable in the yellow bin but able to be recycled or repurposed elsewhere
- Conduct a waste audit, including understanding how to weigh and tabulate findings. Use these findings to critically analyse ways students could reduce lunchtime waste
- Identify ways students and families can change their behaviour in the home to reduce waste
- Attend and excursion to the NTRS Recycling Facility and Shoal Bay Waste Facility
- Explore the idea of a circular economy.
- Critically analyse a local waste stream currently going to either Shoal Bay Waste Facility or NTRS Recycling Facility. Identify alternate options for reuse for this waste stream within a closed loop framework
- Take home a booklet for families covering tips to decrease waste at home, as well as information on yellow bin recycling, soft plastics and e-waste recycling, low-waste shopping, how to conduct a waste audit at home and where to find more info.

*Copies of the program outline and lesson plans are attached.*

### Program Delivery

COOLmob was met with high demand and interest from Darwin, Palmerston and Howard Springs schools and delivered the program to a total of 23 classes across 15 schools.

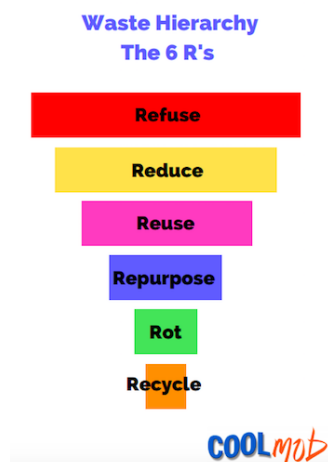
School	Classes	Number of students
Anula Primary School	1 x year 4 class	24
Parap Primary School	3 x year 3 and 4 classes	60
Alawa Primary School	Green team (all years)	10
Nightcliff Primary School	Green team (all years)	24 students
O’Laughlin Catholic College	4 x year 7 and 8 classes	80 students
Karama Primary School	1 x year 3 and 4 class	20 students
Good Shepherd Primary Howard Springs	2 x year 2 classes	50 students
Good Shepherd Primary Palmerston	1 x year 2 class	24 students
Good Shepherd Primary Leanyer	2 x year 2 and 3 classes	55 students

Stuart Park Primary School	1 x year 4 class + 1 x extended lesson overview on waste to 3 x year 4 classes	25 students for full program and additional 70 students
Jingili Primary School	3 x year 3 and 4 classes	72 students
Bakewell Primary School	2 x year 2 classes – only beeswax wrap lesson	55 students
Nightcliff Middle School	2 x year 8 classes	45 students
Sanderson Middle School	1 x lesson for 4 x year 9 classes on beeswax wraps and decreasing single use plastic waste	45 students
<b>14 schools</b>	<b>29 classes</b>	<b>589 students</b>

Once the program was developed, COOLmob worked with one primary school to ascertain how well the program integrated into school culture, expectations, teacher time and the curriculum. Whilst we had intended on doing one lunchtime audit during the program followed by one audit sometime after the program to measure changes, it became clear that this was not entirely possible within the program’s framework.

Principals and teachers were more than happy to have the program running over 4 lessons but any more than that meant other learning requirements were compromised. Fitting an audit into an hour lesson meant that we had to do a subsection of the playground waste and audit as many bins as possible in that time, instead of all playground waste. Timing constraints on teachers meant that scheduling a follow up audit for one class later in the term or in the following term wasn’t favourable within existing flows of subjects easily.

Instead of running a follow up lesson with a second audit, it was decided that it would be more suitable to run 1 x playground audit after lunch and have the students multiply what this would look like if it was the same amount of waste created weekly / each term and each year for the school. We then used this data to inform the final lesson where the students created action plans for the school to reduce the different types of waste found in the bins.



## *Copy of waste hierarchy*

### Take-home Education

COOLmob developed the '*Decrease your waste at home with the COOLmob*' booklet, a printed take-home resource for all students and an online, downloadable resource on our Facebook and website.

The booklet includes Darwin specific waste information on the following:

- The relationship between waste and climate change and pollution
- The waste hierarchy and the need to decrease consumption
- What is accepted in red and yellow bins according to City of Darwin
- Shoal Bay Tip Shop and the benefits of buying secondhand
- Why and how to recycle e-waste correctly and safely
- Why and how to recycle white goods correctly
- Avoiding soft plastics and recycling correctly
- BYO reusable containers and cutlery when eating own
- Composting correctly in Darwin's climate
- DIY beeswax wrap instructions
- Decreasing food waste in the home
- Toolkit to run a food waste audit at home

This booklet has been well received by students, teachers, parents and the COOLmob online community. Having this as a take home resource given to all 589 students engaged in the program exposed waste education to around 589 families in Darwin, increasing awareness on the need for waste reduction.

*Copy of 'Decrease your waste at home with the COOLmob' booklet attached*

### Excursions

All schools engaged in the program were offered the opportunity to participate in an excursion to both Shoal Bay Waste Management Centre and NTRS facility. The excursions were organised by COOLmob and schools which took up this offer organised their own transport on the day.

NTRS and City of Darwin Council offered the tours free of charge and demonstrated their willingness to assist with education young members of the community on waste reduction and the reality of Darwin's waste footprint.

The Shoal Bay Waste Management Centre excursion was held at the Tip Shop and was facilitated by City of Darwin Council in conjunction with HPA who manage the Tip Shop.

COOLmob created a worksheet activity as part of the excursion to guide inquiry of students and allow students to ask meaningful questions to the facilitators.

*A copy of the primary school worksheet is attached*

### Playground Waste Audits

Students engaged in a playground waste audit lesson to determine the quantities and makeup of the waste generated at their school. This baseline data collected was used to calculate an estimated total waste output

of the school playground bins. Students investigated landfill, co-mingled recycling, paper and organic waste. Based on this data schools were able to explore how to reduce their waste.

To undertake the audit lesson, students broke into small groups and were given a category to collect from the bins. Categories of waste items included paper, foil, gladwrap and ziplock bags, whole food (untouched and discarded food), food scraps, chip bags, muesli bar wrappers, yoghurt containers, plastic cutlery and straws, milk and juice containers, tin cans, and other. Playground bins were emptied onto a tarp and students collected their item and placed into buckets. Students used a worksheet to tally each item and then weigh their bucket of items.

Following the audit, students came together as a group and using the whiteboard, the data was collated into a chart with the tally of each item and the weight. Students then calculated the totals from the audit and used this data to estimate how much waste the school generates on the playground each day, week, term and year. As the waste audit needed to fit within an hour lesson, it was impossible to audit the entire amount of waste produced in a day from the playgrounds, but in estimating, students used the amount to determine daily, weekly and term waste amounts.

Across all audits, the most common items were similar, with food waste, gladwrap and ziplock bags, other soft plastics like muesli bar wrappers and chip bags as well as milk and juice containers. It was also very clear that canteen products are a significant source of waste and potential changes made here can influence waste items. For example, if the canteen used reusable cutlery and plates, and had students rinse before returning, there would be an almost elimination of plastic cutlery and plates at most schools.

An overview of the data can be seen below.

In a way, it was a pleasure to see the student and teacher reactions to the waste collected at the audit. The primary students were excited to 'get messy' and thoroughly enjoyed the activity, although there was some squealing to the 'yuck' aspect. One major positive outcome COOLmob took from this activity was the surprise from students that this was waste they had created in one day, and not even all the waste created by students as it was only a portion of the bins. Once the waste was laid on the tarp, you could easily get a sense of volume and items, and students immediately began brainstorming how we could reduce the items. They also very keenly expressed interest to have more bins, for more source separation. This demonstrates an understanding of why waste minimisation is important, even in students as young as 7 years old, and also shows that should the schools implement waste reduction programs, there are fun ways to teach waste and students would happily get involved.

School	Audit undertaken (Y/N)	Results overview	Students developed action plan to reduce waste (Y/N)
Anula Primary School	Y	895 items sorted. High level of waste from canteen products and cutlery. High level of compostable food waste, some of which is going to chickens and compost at school.	Y

Parap Primary School	Y	Had been conducting waste audits prior to COOLmob program and used results from COOLmob waste as part of ongoing monitoring. The data collected fed into their termly audit, with organics sorted was 76.4kg per week, recyclables 19kg per week and landfill 14.5kg per week, totaling 112kg per week of waste.	Y
Alawa Primary School	Y	Eco team conducted waste audit to learn how to run this type of activity. The following week they were leading a whole of school waste audit of playground bins. The results are guiding the action plan they are putting in place for 2020.	Y
Nightcliff Primary School	Y	Conducted litter collection and audit with whole of school instead of playground waste audit. Over 400 pieces of litter were collected in the one session. Students then talked about how and why this could be solved and the environmental impacts of so much litter.	Y
O'Laughlin Catholic College	Y	Waste audit demonstrated cash for containers program going well. There was a need for on site food waste diversion, perhaps a compost or chickens that can be used as part of education as this was a middle school. High percentage of soft plastics waste, and a soft plastics bin was suggested.	N – students instead developed a circular economy idea for the Darwin waste context
Karama Primary School	Y	School have a kitchen garden program and already separate food waste for composting. Data was not recorded at the audit due to capacity constraints of class.	Y
Good Shepherd Primary Howard Springs	Y	Waste audit collected 179 items from classroom bins. Waste weighed 2.5kg. Students eat lunch in classroom so it was easy to see assess the student's actual waste and make realistic goals. Classroom already had a separate paper bin and a separate compost bin which is given to the chickens at the senior campus next door.	Y
Good Shepherd Primary Palmerston	Y	Photo attached. Sorted 215 items weighing 4.4kg. Students eat lunch in classroom so it was easy to see assess the student's actual waste and make realistic goals. Classroom already had a separate	Y



		paper bin and a separate compost bin which is given to the chickens / composted	
Good Shepherd Primary Leanyer	Y	Photo attached. 215 items of waste sorted, weighing 4.4kg.	Y
Stuart Park Primary School	Y	Photo attached. 202 items of waste sorted, weighing just over 3kg.	Y
Jingili Primary School	Y	Photo attached. 82 items sorted and counted. Audit done with 70 students at time of Coronavirus restrictions so capacity was limited.	Y
Nightcliff Middle School	N	N/A	N – students instead developed a circular economy idea for the Darwin waste context
Sanderson Middle School	N	N/A	N - students only participated in the minimising soft plastics and beeswax wrap lessons
Bakewell Middle School	N	N/A	N - students only participated in the minimising soft plastics and beeswax wrap lessons

Item	Tally from 5 bins	Weight from 5 bins
Paper	76	328g
Whole food	9	400g
Milk and juice containers	12	349g
Chips / tiny teddy wrappers	56	171g
Fruit / veg scraps	226	3561g
Food scraps	287	2156g
Plastic wrap and ziplock bags	110	171g
Lolly / museli bar wrappers	23	26g
Hard plastic (plates, cutlery, yoghurt containers)	84	215g
<b>Total</b>	<b>895 pieces of waste</b>	<b>7.4kg</b>
<b>Total for estimation of 14 bins</b>	<b>2506</b>	<b>20.72kg</b>

*Anula Primary School waste audit results*





*Alawa Primary School Waste Audit*



*Canteen waste from Anula Primary School audit*



*Parap Primary School waste audit*

① muesli bars			Other 11
② Food scraps	### III	8	Sock 11
③ whole food	###	5	*Le snack
④ yoghurts	### II	7	Tab: 4 bins
⑤ paper	"	2	Total #:
⑥ milk/juice	### II	7	(82)
⑦ glad wrap/bags	### ### ###	15	
⑧ foil	### ### I	11	
⑨ fins	### II	7	

Jingili Primary School audit results

Koutzi

Items	Tally	Weight
food scraps	45	1652
whole food	30	558
chip wrappers	30	257
yoghurts	12	324
glad wrap + bags	10	348
plastic paper	16	284
muesli bars	5	311
poppers + milk	9	359
	<u>215</u>	<u>4406g</u>

Reflective Knowledgeable Risk-Takers Open Minded Thinkers Principle

Leanyer Good Shepherd audit results



Koutzi

Items	Tally	Weight
food scraps	45	1652
whole food	30	558
chip wrappers	30	257
yoghurts	12	324
glad wrap + bags	10	348
plastic	16	284
paper	52	313
muesli bars	5	311
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	<u>215</u>	<u>4406g</u>

Reflective Knowledgeable Risk-Takers Open Minded Thinkers Principle

Palmerston Good Shepherd audit

Food scraps	38	352	Which ch p
Whole food	19	790	
plastic	38+12	290 338	
paper	2 buckets	177+129	
chips	44	325	
muesli			
yoghurt	6	344	
glad wrap + ziplocks foil	5	223	

### Stuart Park Primary audit results

#### Classroom-led Waste Reduction Action Plan Development

Following the audit, the next lesson of the program focused on developing a waste reduction action plan that could be led by the students for their school. Students used brainstorming ideas like 'idea slap-downs', case studies and videos of successful school waste reduction campaigns to develop possible actions the school could take.

Through identifying the school's communication channels to students, such as posters, assemblies and announcements, students then thought of different programs the school could implement, and how these would work.

Below is an overview of what ideas the primary school students developed. During the lesson, COOLmob guided students to think through:

- Identifying the problem (the different waste streams)
- Linking this back to the school's waste footprint and the waste hierarchy
- Thinking of *what* they could do as students to reduce these waste items
- Thinking about *how* they could do this as students
- Thinking about how to make it exciting so that other students want to get involved



<b>Actions to send less waste to landfill</b>	<b>How these could be implemented by students</b>
Nude food days	Letter to the principal to ask for permission to implement waste reduction programs like
Soft plastic collection bins	Presentation of waste audit results to all students at assembly
Composts / worm farm	Ongoing waste presentations at assembly tied to school waste reduction goals
Chickens	Monthly or termly school playground bin audits to track progress tied to goals
Changing what the canteen sells to reduce packaging and introduce reusable cutlery and plates	Waste to art competition
Taking home uneaten food	Design a competition linked to house points to encourage and engage students. One example was running a nude food day and those who participate successfully receive a house point
A share food table for food that is untouched and uneaten	Incentivise students to join school eco warriors program
Make your own snacks without packaging	Have students eat and dispose of waste in classroom bins and do a weekly weigh in linked to goals
Use 10c collectable containers to raise money for school	Creating videos for other students to be played at assembly and put online for parents.
Nightcliff Middle School used the circular economy framework and applied it to high school formal wear. Their idea was to run a campaign to promote second-hand dresses at the formal by asking ex-students to come in and sell their dresses	

26.2.2020

day 2 February 2020

HOW?

- \* house points for competitions.
- \* Special bias run by yr 3 → 5
- \* Challenge for announcements house points
- \* letter to principal
- \* eco school starting up again
- \* posters

② paper	22	waste to art competition	
pencils	8	• food waste	* special containers
① Food scraps	25	• recycle bottles	* fertiliser (compost)
Whole food	-	• reuse for jellyfish	* soft plastics
plastic wrap	6	• compost bin in each room	CW 6
foil	1	• compost	PT 4
poppers	7	• recycle styrofoam	RRR 1
yoghurt	10	• trash free tuesday	Refuse
③ Chips	2	• plastic free day	reduce
muesli bars	-	• recycle club	reuse
hard plastic	4	• no waste lunch	reuse
coffee pods	8		recycle

Teaching Chart VOWEL SOUNDS

Teaching Chart CONSONANT SOUNDS

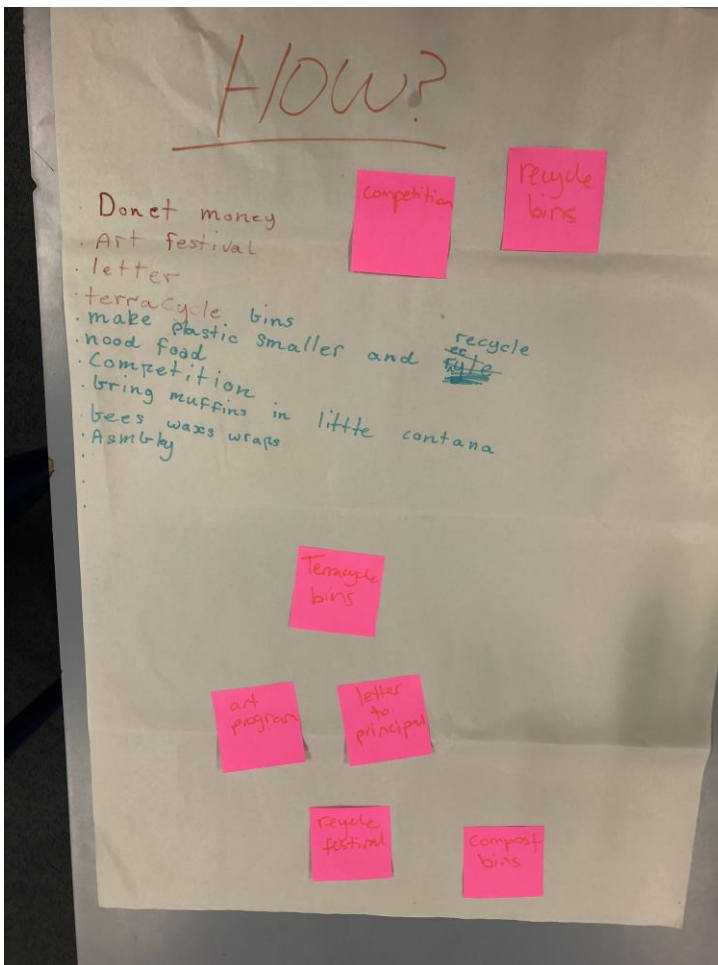
Leanyer Good Shepherd audit results and action plan brainstorm

Milk/ juice	<ul style="list-style-type: none"> <li>- waste → art</li> <li>- buy in bulk → bring in bottle</li> <li>- recycle</li> </ul>
Whole food	<ul style="list-style-type: none"> <li>- talking to who packs lunch</li> <li>- take uneaten food home</li> <li>- pack own lunch</li> <li>- afternoon tea</li> </ul>
Food Scraps	<ul style="list-style-type: none"> <li>- scraps → chickens</li> <li>- reuse food</li> <li>- compost</li> </ul>
Chips	<ul style="list-style-type: none"> <li>- instead of little packs, buy big bag + bring in container</li> </ul>
hard plastics	<ul style="list-style-type: none"> <li>- make your own snacks</li> <li>- wash station for reusable items (plates / cutlery)</li> <li>- bulk buy sauce</li> <li>- compostable cutlery</li> </ul>

Anula Primary School brainstorm

The brainstorming board is organized into several sections with sticky notes:

- BINS**
  - recycle plastic
  - separate
  - make bag for plastic
- NUDE FOOD**
  - make your own food to school
- COMPOST**
  - Food scraps can go into compost
  - compost apples
  - mostly veg compost food scraps for art club board
  - put in the compost bin
  - compost food scraps
  - we can put a worm from down
- CANTEN**
  - plastic bottles
  - plastic bottles
  - plastic bottles
  - plastic bottles
- CHICKENS**
  - apples
  - food scraps
- COLLECTIONS**
  - Reduce Plastic
  - Reduce Plastic
  - Reduce Plastic
  - Reduce Plastic



### Beeswax wrap workshops

COOLmob developed and delivered 10 beeswax wrap workshops to students as part of the program. This interactive workshop linked decreasing soft plastic use, like that of gladwrap and ziplock bags, with the environmental benefits of reusable wraps.

Schools included Sanderson Middle School, Karama Primary School, Anula Primary School, Good Shepherd School Palmerston, Nightcliff Middle School, Stuart Park Primary School and Bakewell Primary School. There was additional demand for these workshops, although time constraints were a barrier.

In addition to this, COOLmob also delivered 4 x booked out, paid beeswax wrap workshops to the wider community at a cost. Delivered to 50 people these paid workshops demonstrate popularity and appetite within community. COOLmob will continue to offer these.



*Karama Primary School students making their beeswax wraps*

### Feedback

COOLmob developed an evaluation survey, asking all teachers to complete at the end of the program to inform program improvement and to measure impact on teachers, students and learning outcomes. Unfortunately we did not get 100% completion, but 11 teachers completed the survey and additional teachers sent their own forms of feedback, included below.

How satisfied were you with content of the Project delivered at school. This includes the lesson plans, classroom activities and waste audit.



■ Extremely satisfied ■ Very satisfied

“Lou was fantastic with the children. They were all engaged and excited to be working with her.”

“Thank you for teaching me so many things about waste management!!!”

“Greatly appreciated Lou taking the time to visit me at school to discuss options, not just for this, but also to support our school's new Green Team.”

“In 2020 Bakewell Primary School have established an Environmental Science program. The program has been identified as an area of passion and importance by leadership, teachers and students alike. Providing quality education to students about our responsibility to manage and minimise waste generation is high on our agenda. COOLmob’s waste education program would provide a unique opportunity for students to not only learn about the impact of not consciously managing and minimising waste, but to also rise up and be leaders in this area. Lou from COOLmob recently delivered 2 beeswax wrap making workshops as part of the Environmental Science program at Bakewell Primary School. The students loved the activity and were excited to use their new knowledge to pack lunches with less plastics. Lou was a fantastic educator. She interacted really well with the students and made connections immediately. We feel very grateful to have received such a great opportunity to increase waste awareness in our young students. We look forward to learning about and participating in other exciting environmental activities with COOLmob in the future”. - *Kristin Cowan, Bakewell Primary School*

“I was impressed with Lou's flexibility in adapting her program to suit the specific needs. I can see the real value of this for Humanities students, with the connection between the environment and business/economics. We used it for English in this case, and while it worked well, I would certainly prioritise it for humanities classes. Having someone come in from COOLmob definitely gives this important area more gravitas. Kids can get a bit sick of hearing from their teacher, so a new face and voice is really important”. – *Nightcliff Middle School*

Over half the teachers were extremely satisfied when asked how successful the project was in delivering against the outlined curriculum links, and the remaining were very satisfied or satisfied. Comments included “The structure was well thought out and the learning outcomes were achieved”.

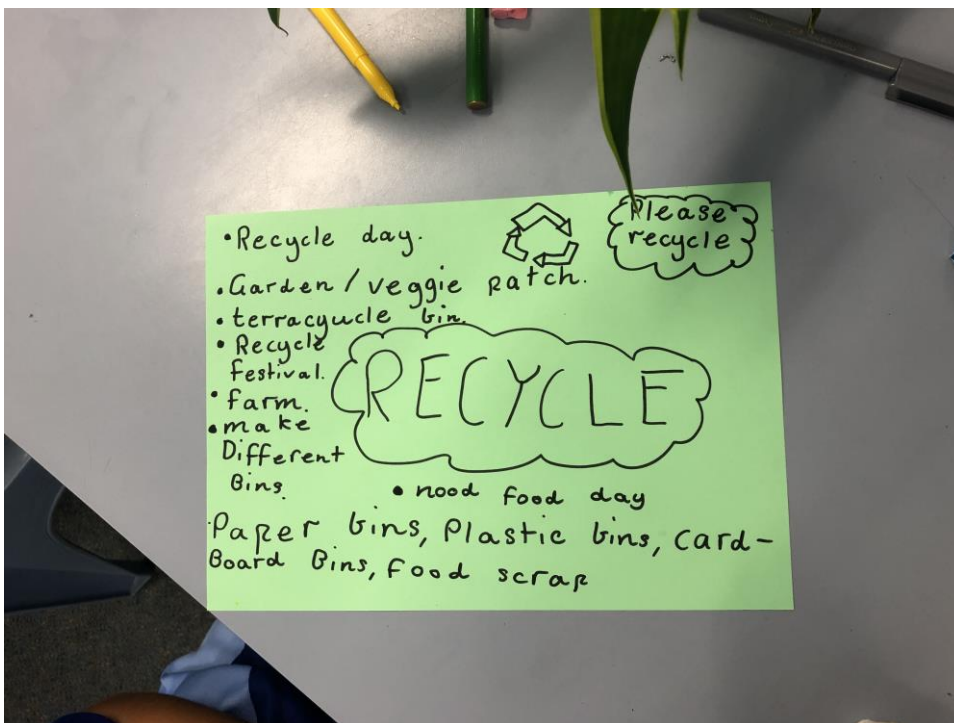
9 out of 11 teachers were extremely satisfied when asked how satisfied were you with the way in which the COOLmob Officer delivered the Project.

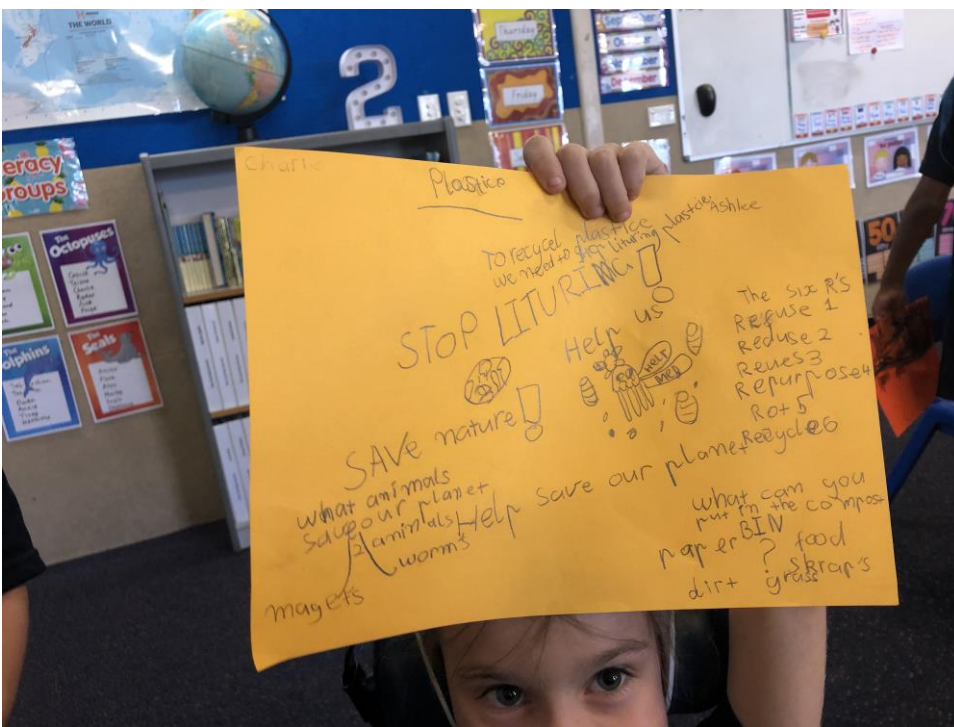
### Barriers

There were barriers faced in the delivery of the program which prevented aspects of the initial deliverables being achieved, and so when this became apparent, COOLmob modified the program to find suitable alternatives.

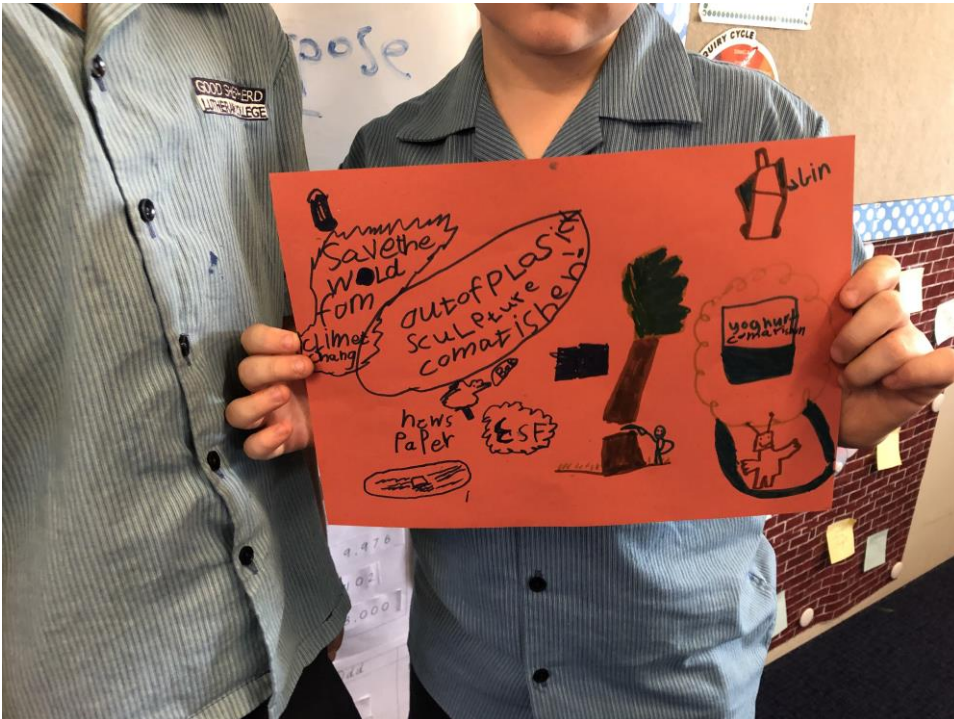
### Video development

COOLmob were expecting to deliver 5 x educational videos created by students to share on social media on waste education, but had to modify this deliverable as the primary school classes did not have the necessary out of lesson time and resources available to work on this without the COOLmob officer. It was decided that the primary school students were more suited to using the hour lesson timeframe to begin developing something to present on their waste action plan to assembly. At the end of the lesson, students practised by presenting to the class in groups. Examples of these included posters, signs and letters to the principal and can be seen below.









**Follow up playground waste audit**

The difficulties faced in this program in receiving permission to run a whole of school waste audit demonstrated that this would require much more coordination, effort and involvement from the whole school rather than one class. Attaining accurate data for a whole school waste audit means all students need to participate, business managers, all teachers and maintenance staff need to be engaged and involved to record baseline data and conduct a follow up audit to measure change. COOLmob sees great potential for all schools involved in this program to now be involved in such a program geared to this outcome and recommends that such a program be funded. It would be a logical next step for all schools involved in the current program.

This has been difficult to achieve in the current program as there has been minimal engagement from school principal and administration officers. If this program is tweaked to include engagement at this level, it will be easier to obtain waste tonnages / invoices which can be linked to the education program, allowing for reduction goals.

## Impact Evaluation

### Impact on students

It was clear the program had an impact on students' knowledge although measuring this was difficult without a post program audit. At the end of the final lesson COOLmob asked students the following four questions to quantify impact on knowledge and their families. The questions included:

1. Since we started the waste program, has anything different been done at school yet?
2. Have you started planning for anything different to happen at school?
3. Have you told your families about what you've learnt?
4. Have you suggesting doing anything different at home?

Unanimously students answered positively to these questions, excitedly sharing the conversations they had started with their families. Throughout the program, students were encouraged to go home and check their own recycling bins, and talk to their families about where to take items such as soft plastics, electronic waste, and food waste. Students reported a range of suggestive given to their families such as setting up a soft plastics bin, making a compost, getting chickens, and making beeswax wraps for lunches.

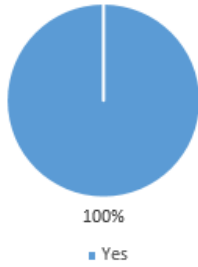
In undertaking the audit, COOLmob can comment that students were shocked by the amount of waste in the bins after just one day, and that they seemed excited and motivated to implement even small changes as a school, such as more bins for a higher degree of sorting. Once students saw the amount of food waste, and we talked about the specific impact of food waste decomposing in landfills on climate pollution, students easily made the connection of composting and diversion from landfill as a simple fix for schools and homes.

In lesson 1, students watch a video of a landfill, learning about methane gas, how a landfill works and about the Darwin Shoal Bay waste management centre. This combined with the excursion to the landfill and recycling centre, led to students asking lots of interesting questions as to what is going to happen when the landfill is full, the impact on animals and wildlife and what they can do at home to send less waste to landfill.

### Impact on teachers

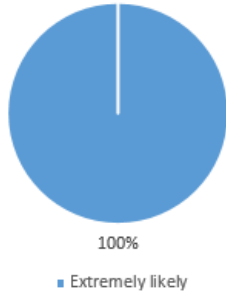
Teachers were extremely positive and supportive of the program, with all teachers agreeing that waste is an essential topic that fits very easily into almost all year groups' expected learning outcomes. Teachers were grateful to have someone come in with more expertise on the topic, mentioning that all the information can be confusing and daunting. Teachers supported the inclusion of hands-on activities like an audit, and recycling game as well as a student-led campaign to engage with and challenge students. All teachers who filled out the survey answered that they project covered relevant and important information that all school students should be exposed to.

Would you say that this Project covered relevant and important information that all students should be exposed to?



When asked how likely you would be to recommend the Project to other teachers to participate in, all teachers answered extremely likely. In addition to this, when asked if your school had conducted a whole of school waste audit in the past five years, all answered no and yes to being interested in being a part of a program which focuses on this. This reiterates that there is demand for a program which ties education into a large scale, school wide waste audit and reduction campaign.

How likely would you be to recommend the Project to other teachers to participate in?



*“The children were so happy to have Lou attend and were very engaged in the content. They all have some excellent ideas on how to reduce waste and recycle more in our school. Thank you, Lou!”*

- **Impact on households and families**

COOLmob shared the waste booklet on its website and Facebook and through the Environment Centre NT’s monthly e-newsletter and Facebook and was met with an extremely positive response from the community.

Through referencing community organisations like the Plastic Makers Space in Nightcliff and services like HPA’s Tip Shop in Darwin, Darwin residents were able to learn how to reduce their waste at home and take further action if interested. COOLmob recommends that Council assist with the promotion of this resource to all Darwin residents.

COOLmob screening the 'Clean Bin Project' film at the Nightcliff Seabreeze Festival in 2019 to a large outdoor audience. COOLmob communicated to all schools to promote to parents and families. The event was also promoted via the Festival campaign and on ECNT and COOLmob Facebook.

In the feedback survey COOLmob asks teachers to complete, we asked if teachers received any feedback from parents regarding their interest or their child's interest in this Project.

### Recommendations

1. COOLmob be funded to continue delivering these existing waste education programs to both primary and middle schools in Greater Darwin.
2. Should Covid-19 interrupt in-person learning, COOLmob be funded to adapt the program to be deliverable online, focusing on a home food waste audit rather than a playground audit
3. COOLmob be funded to develop and deliver a waste program which works with the Principal, teachers, business manager, maintenance staff and all students to conduct a detailed whole of school waste audit and waste reduction plan. This would run over a longer time period, to incorporate periodic monitoring and a roll out of waste reduction measures. This would include providing a template for schools to track waste goals from the action plans developed and a post program lesson the following term to monitor tracking. COOLmob could be funded to provide a prize to the school who manage to achieve their landfill waste by the greatest percentage. This would include developing guidelines for the competition and agreeing on a suitable school prize
4. COOLmob be funded to develop and deliver a waste to art competition across all primary schools in greater Darwin. Similar programs in Australia have reported high engagement levels and are successful in combining a fun activity with essential waste education. This program would challenge and inspire students to repurpose school and home waste into art, followed by a city-wide display and competition
5. COOLmob be funded to develop and deliver a food waste education and audit program for homes in Greater Darwin

### Attachments

Primary School program outline and lesson plans

Middle School program outline and lesson plans

Excursion worksheet

COOLmob Decrease Your Waste at Home Booklet