GREEN
INNOVATION
AWARDS
2022

STEM & PROJECT BASED LEARNING
PRIMARY SCHOOL
STUDENT BOOKLET

Name/s: _____

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The Green Innovation Awards is a competition to make a *five-minute video* about your solution to an environmental problem. Students can work in groups or as a whole class to enter. Two awards of $300 each are presented: Primary School and High School.
This booklet outlines the process.

TERM 1

- REGISTER YOUR INTEREST **BEFORE APRIL 1ST**

TERM 2

- WORK ON YOUR PROJECT USING THE RESOURCES PROVIDED
- SUBMIT A VIDEO ENTRY BY THE END OF TERM **(JUNE 23RD)**
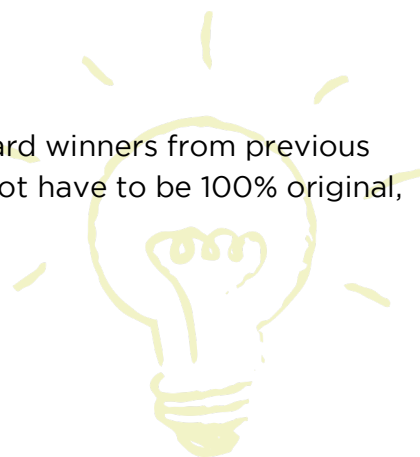
TERM 3

- IF YOUR CLASS GETS INTO THE FINALS, GO TO **SOUTHERN CROSS UNIVERSITY** TO PRESENT YOUR PROJECT TO A PANEL OF JUDGES

Areas that you can develop a solution for include:

- Agriculture
- Biofuels / renewable energy
- Green products / recycling
- Water management
- Waste management

To get an idea about past projects, check out the finalists and award winners from previous years at www.greeninnovationawards.com.au Your project does not have to be 100% original, just 100% your own work and creativity.

Step	Activities	Duration
IDENTIFY & DEFINE	As a class brainstorm everything you already know about the five areas of interest: • Agriculture • Biofuels / renewable energy • Green products & recycling • Water management • Waste management	One lesson
IDENTIFY & DEFINE	Use computers to research your choice of two of the topics above, identifying existing problems in these areas. Identify the environmental problem you are trying to solve. Who does this problem effect and how? Why is a solution needed?	Two lessons
BRAINSTORM/ IDEATE	Brainstorm possible innovative solutions to your problem. Come up with as many ideas as you can – all team members must contribute. Discuss all the ideas and decide on which solution your team will develop.	One lesson
DESIGN/PLAN	Research what has already been done to solve your problem. Plan out your solution – develop a timeline of activities, draw diagrams, perform research as needed to assist with your planning. Assign roles to group members. Make sure everyone has a meaningful role that they can achieve.	Two lessons
PROTOTYPE /MAKE	Develop a prototype of your solution. The form of your prototype will depend on your solution: • Electronic solutions (app, website etc) may have a wire frame as a prototype. • Physical solutions may have a simple model.	Changeable depending on the size /type and scope of project.
TEST	Test your prototype. This can be done in different ways: • For a model, test if it does what you want it to do. • Ask classmates for feedback about what works well and what needs to be improved. • Ask your teacher for feedback. • If you have a target audience, ask them for feedback.	Changeable depending on the size /type and scope of project.
IMPROVE	Based on the feedback from the previous step, make improvements to your solution. Work your solution up into a more complex/complete prototype.	Changeable depending on the size /type and scope of project.
COMMUNICATE & SHARE	Share your solution with your class. Enter your solution in the Green Innovation Awards.	One lesson

Background Research

As a class brainstorm everything you already know about the five areas of interest using the spaces below. Two examples have been provided.

Soil erosion

Agriculture uses
a lot of water

AGRICULTURE

Wind & solar electricity

Ethanol in petrol

BIOFUELS/
RENEWABLES

Rainwater tanks

Water pollution from household chemicals

WATER
MANAGEMENT

Avoid single-use items

*Too much
plastic packaging*

WASTE
MANAGEMENT

*We don't fix things,
we throw them away*

Compostable plastic bags

GREEN
PRODUCTS &
RECYCLING

Use computers to research your choice of two of the brainstormed ideas above, identifying existing problems in these areas.

TOPIC 1:

Existing Problems Include:

TOPIC 2:

Existing Problems Include:

Now that you have done some background research for two different areas, choose <u>one</u> area to focus on for your project and answer the following questions.

Our chosen area of research is

_____

Three of the most interesting problems that our research uncovered are

    1. _____

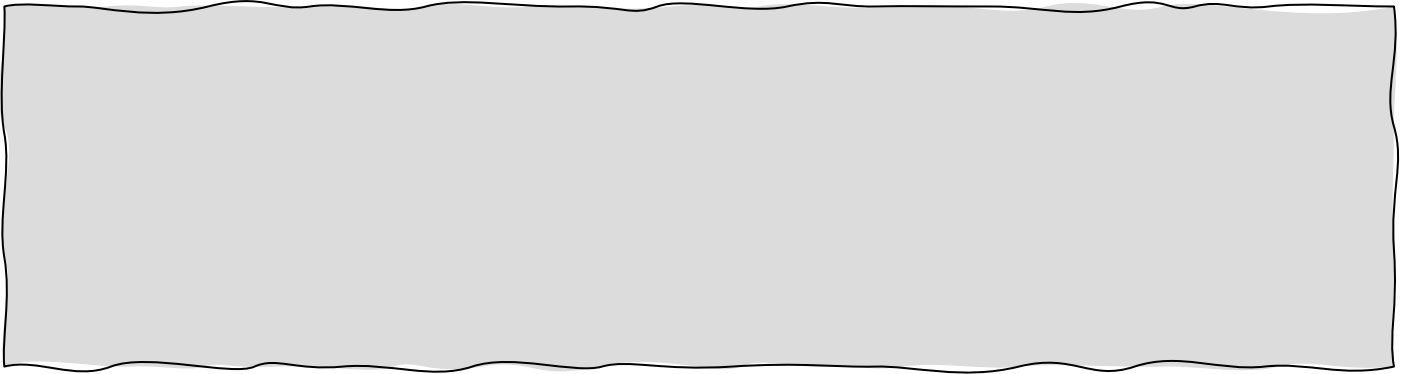   2. _____

    3. _____

For each of these three problems, brainstorm as many creative solutions as you can. Include ALL ideas. Use the spaces below.

POSSIBLE SOLUTIONS TO PROBLEM 1

POSSIBLE SOLUTIONS TO PROBLEM 2

POSSIBLE SOLUTIONS TO PROBLEM 3

As a group, identify which solution would be the best for a Green Innovation Award project. Write your problem & solution in the box as a statement:

Because groups will have many different ideas and processes, now you should complete your notes, research and planning in your own notebooks. Use the checklist below and tick off the tasks as you complete them. You do not always have to complete the tasks in the order shown. If at any time during the process, you change your mind about which topic, area or solution you wish to propose for the Innovation Awards, simply go back to your planning and brainstorming and choose another.

TASK	DONE
1. **Go to https://www.greeninnovationawards.com.au/ to register your interest before April 1st.**	
2. As part of the registration process, connect with a mentor.	
3. Go back to the computers to gather ideas and to **research** what has already been done to solve the problem you have identified.	
4. Decide on how you will present your ideas for the Innovation Awards.	
5. Make sure everyone in the group has meaningful **roles** to play / tasks to complete.	
6. Develop a **timeline** to show how much time you have and what tasks you need to complete.	
7. Develop a **prototype** of your solution. A prototype is a simplified or shorter version of the final product. The form of your prototype will depend on your solution; electronic solutions (app, website etc) may have a wire frame as a prototype, whereas physical solutions may have a simple model. The idea here is to **FAIL EARLY**, so you can correct any problems now.	
8. Show your **prototype** to classmates or students in another class. Collect written or **verbal feedback** from them.	
9. Show your prototype to your **mentor** and get **feedback.** This should happen early to mid-Term two.	
10. Use all the feedback to **refine** your project. **Keep working** on your project until you have created your final presentation.	
11. Email your entry as a 5 minute video (MPEG, MP4 or AVI) before the 24th of June (Week 10 Term 2) via Dropbox to info@greeninnovationawards.com.au	
12. Finalists will present their project to a panel of judges at the Southern Cross University in **Week 7 of Term 3.**	

STEM Design Thinking Process Marking Criteria

Phase	Criteria	Marks
IDENTIFY & DEFINE	Uses computers to research two topics. Identifies extensive and relevant existing problems in both areas.	5
BRAINSTORM /IDEATE	Identifies one area of research and three existing problems for further inquiry. Demonstrates that a variety of ideas & solutions to the three problems have been formulated and considered.	5
DESIGN/PLAN	Demonstrates that research has been undertaken in the following areas: • What is already known about the problem • Solutions that have been tried, along with their successes and failures • Demonstrates planning by the use of tools such as: Timelines, Flow charts, Diagrams, Team roles & Procedures	10
PROTOTYPE /MAKE	Develops at least one prototype such as: Physical models, Wireframes, Diagrams, Promotional materials.	10
	Demonstrates effective time management.	5
TEST	Demonstrates the prototype/s have been tested and evaluated by: • Collecting feedback from at least 3 people • Collecting data showing the testing of the prototype • Evidence of success and improvements needed	10
	Demonstrates equitable teamwork	5
IMPROVE	Demonstrates improvements made to the prototype/s by implementing improvements based on the feedback collected during the previous phase.	5
	Demonstrates resilience when solving problems.	5
COMMUNICATE & SHARE	Clearly communicates their solution by: • Identifying the problem they are solving • Describing the solution they investigated • Explaining how the solution solves the problem	5
	Demonstrates effective communication skills.	5
Final Mark		70
Mark as a percentage		

Student Self-Reflection

Look at the STEM Skills posters and fill out the table below.

Skill	When it was used	How it was used
Communication		
Teamwork		
Problem Solving		
Critical Thinking		
Creativity and Innovation		