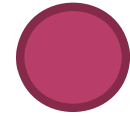




**LEAMINGTON  
SCHOOL  
2014**

**Enviro Class Room  
TUATARA PARK**

# STUART MCCREADY ★ FUTUREINTEC AMBASSADOR



Hyperlink  
PP  
STUART



Stuart is a Civil Engineer at Beca, Tauranga. He showed us:

- How to start our idea
- What we needed to do to make it work

**WE ARE GOING TO GO FOR :**

**TRANSPower NEIGHBOURHOOD ENGINEERS AWARD  
CREST AWARDS**



# CREATIVE RESEARCH IN EDUCATION IN SCIENCE AND TECHNOLOGY

Jessie McKenzie from CREST told us how we can also use the project to work for:

## TEAM CREST AWARD

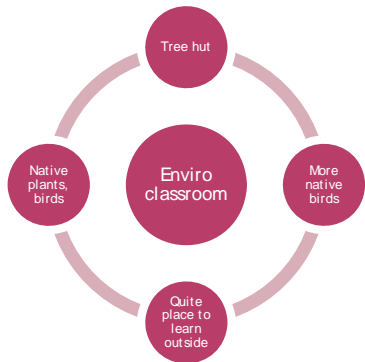
Just like Stuart we were told how hard we will have to work and to make sure we followed a scientific / technology process to achieve what we set out to do.



SKYPING  
Jessie in  
Wellington

# WHAT TO WE WANT TO DO !

## ⊙ Brainstorm ideas



## ⊙ Investigate possibilities



# PROJECT GROUPS

## LANDCOVER

Robyn



Stella



Deanna



Jordan



Ronan



Rowan



CJ



## SCULPTURE

Gill



Maria



Keaton



Brian



Katlynn



Amrit



Pippa



Ruby



Samantha



Jess



Manaia



## CONSTRUCTION

Stuart



Natalie



Rhys



Ben



Shea



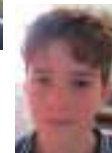
Montana



Keenan



Rowan



Ronan



# MAKE AN AIM



**We are aiming to design and build an enviro-outdoor classroom where we can learn about native birds, plants and animals. The area must attract and feed native birds, especially Tui, Fantail, Gray Warbler. Our area must be attractive and not too expensive and be sustainable.**

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## We searched for a great spot

- Sunny for plants to grow
- Water available
- Soil good for planting
- Accessible to senior, junior and middle school
- Unused area
- Has a few established natives



# RESEARCHING NATIVE BIRDS/PLANTS/INSECTS/ANIMALS

WE WANT TO HAVE IN OUR SCHOOL

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Deanna and her Birds



Ruby presents her  
research  
On native plants



We researched native  
insects, plants and  
endangered birds and  
animals

# LEARNING ABOUT OTHER RESTORATION PROJECTS IN OUR AREA



Robyn talks about the **wetlands restoration** at Ohaupo. The biodiversity of native birds, insects, plants and animal in a healthy sustainable environment of a working eco system

For our 100 year study on Land cover and local restoration projects, we used the information from Cambridge Tree Trust, Halo Project Hamilton, Ohaupo Wetlands restoration, Maungatautari visit and published book by Waikato times.



Don from **Cambridge Tree Trust** talks about the projects they have done in our area like the Leamington walkway. He explains about eco sourcing seeds, growing from seed, propagation by cuttings and division

# DESIGN SCULPTURE PLAN

## HOW

1. Collect materials we need
2. Make a base
3. Build up sculpture shape with bricks and fill
4. Apply final concrete plaster
5. Apply detail, texture and ceramics

## WHEN

We messed up here and had to remake our scaled model, →  
Redo the scaled base into 3D and start the foundation layer again

1. Wk6-marionetts/models
2. Wk7 refine mini sculptures
3. Wk 8-2D scaled up drawings
4. base scaled cardboard cut out, lay base.
5. Wk 9 plan and source materials
6. Wk 10-Maungatautari visit
7. Wk11-exploring materials
8. Wk 12- lay out foundation
9. Wk 13- 15 Build,Fill/wire
10. Holidays get to plaster stage
11. Will complete Tuatara over term 4 to be finished Dec

## WHO

1. Mrs McCreedy - teacher/consultant
2. John Tavis- art advisor
3. Mr Parkin - donator of materials
4. Tony- Mitre 10
5. Lobel construction ( concrete base)



# GENERATING IDEAS FOR SCULPTURE MAKING PROTOTYPES



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- Drawing our ideas
- Transfer 2D to 3D
- Explore materials
- Look at other artists
- Relate image to our aim



# SCALE UP DRAWING TUATARA

Skyping Stuart to ask about how to scale up drawing



scale drawings



Planning materials

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# FINAL DRAFT/MODEL SCULPTURE

We liked Brian's Tuatara and chose his idea to develop further



## Clarify Aim

We would like to design and build a giant sculpture of a Tuatara to go into the enviro-learning area. Our Tuatara will be built as much as possible using recycled materials and will represent our chosen endangered native species

# TUATARA 2D TO 3D

- Collect materials/ tools
- Explore materials with model
- Plans and photos for larger tuatara
- Get advice from skilled adults-brick layer  
-other artists
- Build tuatara
- Lay bricks
- Fill with building fill or polystyrene
- Layer with chicken wire
- Plaster cement surface
- Sculpture detail shapes
- Pattern outside plastering



# BUILDING OUR LARGE TUATARA



Collecting recycled stored bricks, from the nursery



Materials  
Cement  
Fill  
Nails.  
Pins  
Sand bags  
TOOLS  
Buckets  
Spades  
Trowel  
Plastic cover



Stuart checks our work



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# DESIGN PROBLEMS SCALES!



Taking off bricks, too wide and no markings on base



- Model 1 legs too high, need to be on surface
- Model 2 too wide( 3x4) for 2x4 base
- Model 3 made on a scaled base 2x4

# DESIGN PROBLEMS SCALES!



Scaled base from model



Used string to grid up base



Model with scaled pin height



Marking out grid and outline



Leaving 5cm either side for skin



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Grid with string to model scale.  
Layout bricks and mark outside



Mr Philips drills  
holes  
for steel stakes



Placing bricks to height  
of Pins less 5cm



John Tavis, Art advisor  
Helps us rethink our  
strategies



Chicken wire goes  
under bricks, over  
pins



Evans cements bricks  
in place and fill with  
bricks and crushed  
bricks and mortar





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# COMMUNICATIONS AND REPORTING



- Keeping up our planning
- Reports
- Discussing issues
- Looking at time line
- Planning celebration
- Covering our responsibility as a team member
- Scrap books
- Crest books



# CONSTRUCTION PLAN

HOW

- Ground lay out- edging/boxing
- Concrete base for sculpture entrance
- Seating

1. Costing
2. Collect materials/tools
3. Organize adult assistance/ time
4. Execute plan



WHEN

- Wk3-5 design, mark spray area
- Wk 5 design and plan
- Wk 6-8 box sculpture base
- WK 8-9 Edging
- WK 9-15 seating.
- Celebrate

WHO

- PARENTS  
Paul, Robb, Richard,  
Evans  
Lobell builders  
MITRE 10  
MR PHILPS

# GENERATING IDEAS FOR CONSTRUCTION



- good ideas from each work
- Combined ideas
- Clarified A
- Using our brainstorm
- Made our own designs to Scale
- Discussed good and not so good



EXPLORING

# FINAL DRAFT/AIM CONSTRUCTION

## Clarified specific AIM

We would like to design to scale and construct a suitable landscape for the enviro learning area. We will layout the ground area, build the base for the tuatara sculpture and build/ seating and construct the edging for planted area.



### Contact with Stuart.

- Clarifying possible speed bumps
- Thickness of sculpture pad.
- How to make it easier to
- visualize and work from the plan



# CONSTRUCTION: LAYING CONCRETE PAD



Measuring and placement



Stuart checks our handy work



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# CONSTRUCTING 'THE BASE'



marking



Digging out area



Levelling



boxing



Squaring up



pegging



Laying steel mesh for strength



Stuart clears away boxing



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# CONSTRUCTING 'THE EDGING'



Trenching



Pegging



Fetch and carry



Digging in



Laying the sand



Finished



We  
emailed  
Stuart our  
outcome

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# SOURCING MATERIALS BUILDING SEATING



Recycling wood



measuring



recording



Stuart checks our calculations

- Materials from Mitre 10
- Bolts
- Piles
- Side wood
- Polystyrene.
- Nails
- paint

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# DESIGN LAY OUT OF THE SEATING

Stuart teaches us maths: angles, area, measurement, symmetry



Our budding engineers

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# PREPARATION AND CONSTRUCTION



Washing down, scraping loose paint, sanding, cutting to size



Testing height and suitability



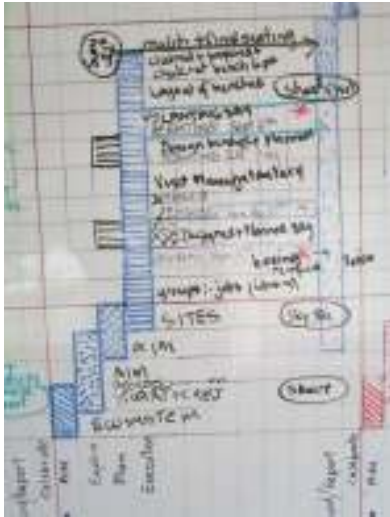
Measuring length, checking width.



Finished

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# RECORDING AND COMMUNICATION



Keeping up to date with recording, timelines planning, and contacts



# LAND COVER PLAN

## P L A N N I N G

### HOW

- Locate and source plants we need
- Lay mulch
- Plant out our plan
- Costing
- Collect materials/tools
- Organize adult assistance/ time
- Execute plan
- News letter/ face book appeal

- Wk 6 source plants materials
- Wk7-10
- propagate/divide
- Wk 12 planting out
- Wk 15 Mulch
- Wk 16 test and celebrate

### WHEN

### WHO

- Don Willouby Cambridge Tree Trust
- Cambridge Native plant nursery, Harriet
- Our own school nursery and grounds
- Leamington school families



# THE BEST PLANTS FOR OUR SITE

## IDEAS COMBINED



Ronan's Mum helps us

### Choosing best plants:

- Size-heights and spacing
- Seasonal- fruiting, flowering for birds
- Colour
- Wind resistance
- soil, temperature suitability



# GENERATING IDEAS PLANTS/BIRDS

Sharing our own designs.



Role play 1 plant: 1 square meter How many plants?



Robyn suggests Bird survey for measurement long term :



## Garden Bird Survey 2014

Dear Garden Bird Survey participant.

Thank you for taking part in previous surveys. I hope you are able to participate in this year's survey too.

### Survey date & time:

1 hour exactly, sometime between 28 June and 6 July.

### What to do:

For each species you detect, please record the largest number you observe at one time in 1 hour of observation. Do not record the total number you see at different times during the hour because the same birds may come and go several times. Counting the largest number of each species you detect at one time will ensure that individual birds are counted only once.

### How to return your results:

- Enter your data [directly onto the web](#), which reduces processing time & speeds up analysis, or
- Fill in a [printed recording form](#) & post it to the address shown

### Online resources:

- [Full instructions](#)
- [Bird identification guides](#)
- Online recording form (available from Saturday)
- [Printable survey forms](#)

Thank you for participating. Happy bird watching.

Kind regards,

Eric Spurr

Garden Bird Survey organiser

<http://gardenbirdsurvey.landcareresearch.co.nz/>

PS. [Results of previous year's surveys](#) are also available online

# FINAL DRAFT AND SPECIFIC AIM

## LAND COVER

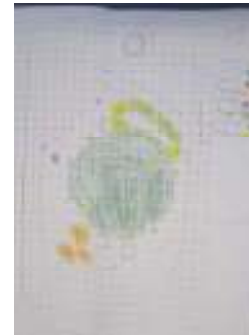
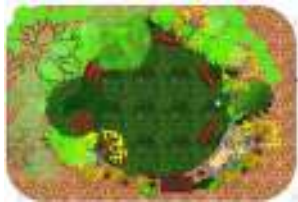
Specific Aim:  
We are designing and planting out native plants in a chosen area for Enviro learning in our school, that will attract more birds, especially Tuis and provide food, shelter and a landing spot in the corridor from Maungatautari to the Lake Karapiro.



# INVESTIGATING AND GENERATING DESIGN IDEAS FROM THE NET



Our designs, smart draw and scaled drawing

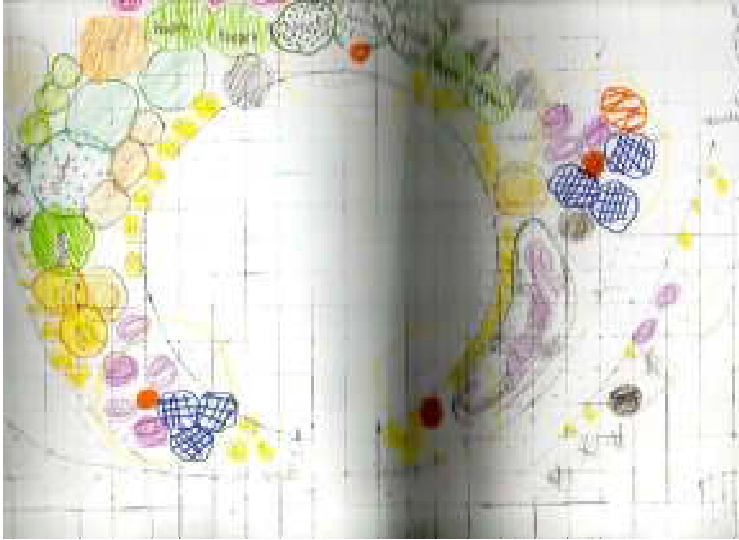


Stuart emailed us,  
suggesting we might like  
to use Smartdraw as a  
tool



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# PLANTS: FINAL DESIGN/SOURCING



**We finally produced a scaled plan of what we wanted**

- Contour high to low from south to north
- Thick cover south for wind break
- Smaller around sculpture
- Screening out toilet blocks
- Colour flowers: yellow, blues, whites, reds
- Food for Tui all year around
- Plants with berries and flowers
- Variation in foliage

# MAUNGATAUTARI VISIT

## EXPLORING



Maungatautari exploring:  
•Birds- Takahe, Saddleback, Fantail, Stitch birds  
Kaka, Kereru and many more  
We saw Weta, spiders, fungi  
We climbed up the tower into the canopy  
We visited the Tuatara complex and the wetlands area  
We learned about pests and the pest proof fence

# SOURCING PLANTS

Propagation from school grounds



Cambridge tree trust gave us plants



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# PLANTING OUR DESIGN



Spreading out and laying out our plan



Families and year 6 select and plant their family “roots”



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# PLANTING DAY



Dipping each plant in water



Digging the hole



Rose has been in our school for 40 years. She helps a student plant her tree



Ella and her mum press the soil around the roots



Mr McCurdy our Chair person of the BOT and Mr Philps our grounds man were amazing. They worked all day



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# MULCHING DAY



**Mr McCurdy sourced us mulch  
Families arrived for a Sunday working Bee  
We dug and toiled and spread the mulch to keep the plants moist over summer  
It looks fabulous**



**Ruby and her dad doing some serious shifting of mulch**



**Many hands make light work**

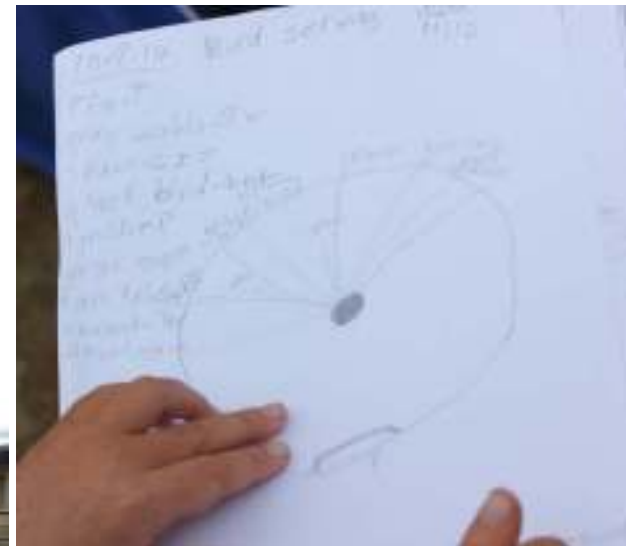
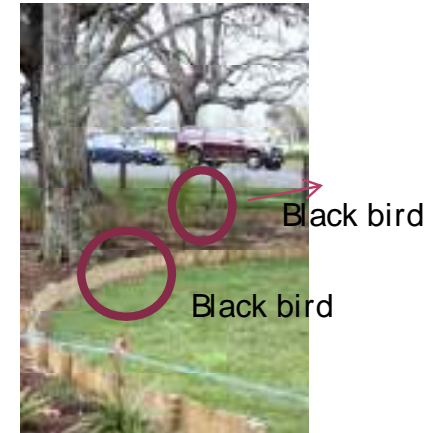
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Stuart helped us design a way to measure our success

# LANDSCAPE TESTING AIM

## WHAT BIRD?



We designed a test that future year groups can also do and chart the success of our project. We mostly heard non native birds so we will see if this changes in a few years when the vegetation grows up

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# WHAT WE WOULD LIKE TO DO NEXT!

- ◉ Build a tree canopy platform
- ◉ Irrigation system
- ◉ Teacher platform
- ◉ Path entrance
- ◉ Make bird baths
- ◉ Night solar lights
- ◉ Hinuera stone carvings by kids
- ◉ Propagation from our plants for nursery
- ◉ Reclining benches eventually
- ◉ Water feature
- ◉ Outdoor data/ screen base
- ◉ Most of all have our enviro-school sessions out here

# CELEBRATION



Hand in day for Transpower  
Neighbourhood Engineers  
Award

Our opening .....and  
presentation of awards





# THANK YOU

- ◉ **Stuart McCready** from BECA, our IPENZ Engineering mentor from Futureintech
- ◉ **Jessie McKenzie** CREST
- ◉ **Morris Leamington** caretaker
- ◉ **Evans**, friend and helper to the school
- ◉ **Don and David** from Cambridge Tree Trust
- ◉ **Tony** from Mitre 10 for very generous support in materials
- ◉ **Lobell Builders** for concrete
- ◉ **Robyn Irvine** Enviro plant advisor
- ◉ **Craig McCurdy** BOT Chairperson
- ◉ **John Taris** artist
- ◉ **Harriet** from Cambridge Tree Nursery
- ◉ **All the parents and families** that contributed to working Bee days
- ◉ **Parents, Katheryn, Emma and Paul** who joined our class
- ◉ **LIONS** of Cambridge