STEAM revisited

test modify design discover brainstorm idea share build engineering

FOCUS FOR 2018

* collaboration
    teachers / teams
     students
* integration of curriculum areas (must come
  from the the inquiry - project/ problem)
* an ongoing process (it cannot be finite from
  the beginning)
* throughout the school we are at all different
  stages of the journey / development. Need to
be
  supportive
* importance of student engagement
* BE INSPIRING / THINK OUTSIDE OF THE BOX!!!!
* be open minded/flexible

* coding/robotics review

IS IT A **PROJECT** OR IS IT **PROJECT-BASED LEARNING?**

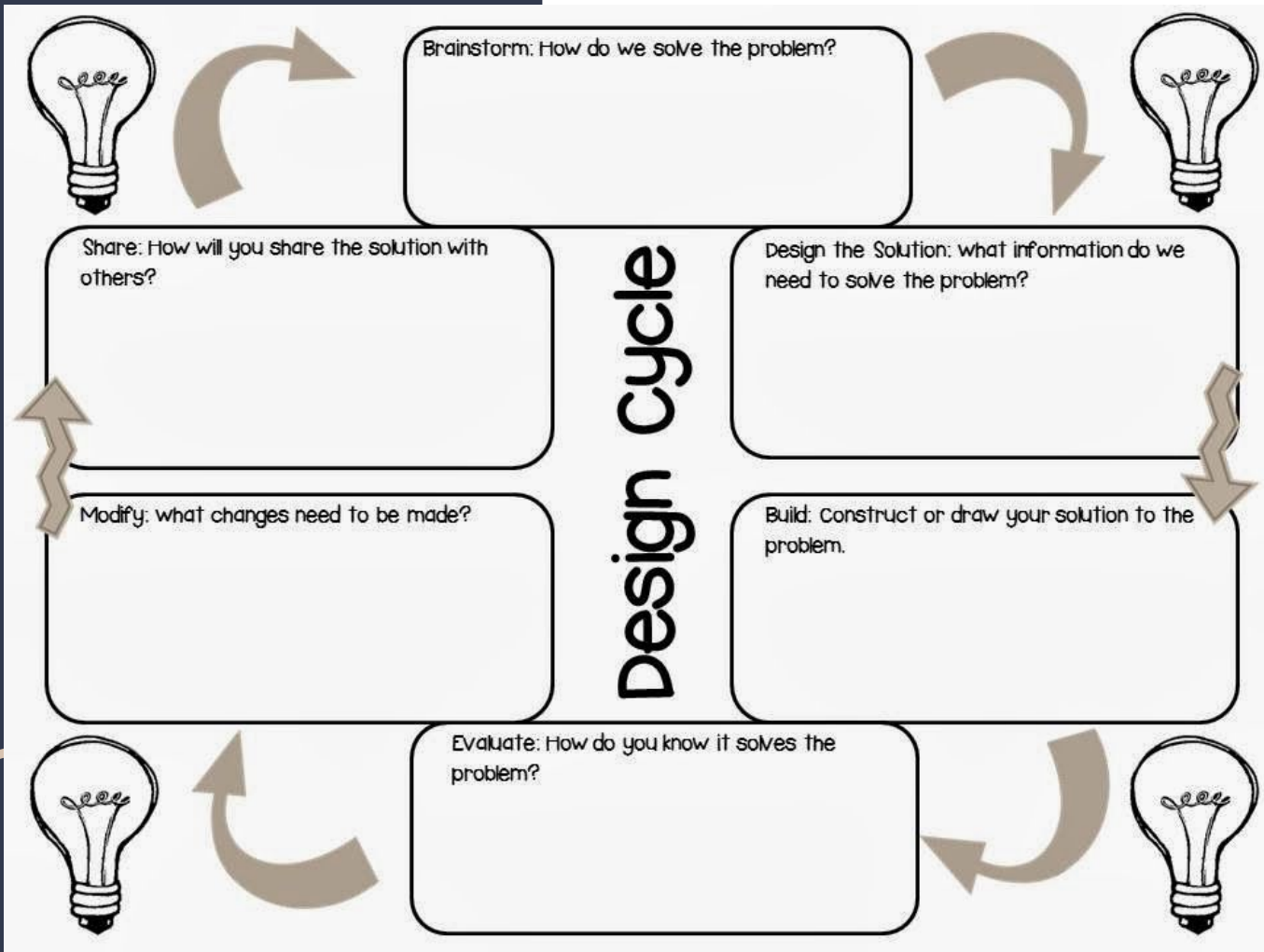| PROJECTS	PROJECT-BASED LEARNING
Can be done alone	Requires collaboration and teacher guidance
About the product	About the process
Teacher-directed	Student-directed
All projects have the same goal	Students make choices that determine the outcome
Products are submitted to the teacher	Products are presented to an authentic audience
Lack real-world relevance	Based in real-world experiences or problems
Occur after the "real" learning	Real learning occurs through the project

educationcloset

project

Kick Off — Lecture — Activity — Quiz — Lecture — Activity — Test — Project — Next Unit

PBL

Reflection · Mini Lesson · CONFERENCING · Feedback · Inquiry · Feedback · CONFERENCING · Reflection · Mini Lesson · CONFERENCING · Inquiry · Feedback · Reflection

Feedback · Exploration · Feedback · CONFERENCING · Mini Lesson · CONFERENCING · Exploration · Feedback · Mini Lesson · CONFERENCING

LAUNCH
Hook students on the project through a provocative question or relevant task.

Mini Lesson · Inquiry · Mini Lesson · CONFERENCING

CONFERENCING · Iteration · Reflection · Iteration · Reflection · CONFERENCING

Feedback · CONFERENCING · Feedback · Feedback

CELEBRATE
Provide students the opportunity to celebrate their work with their peers and audience.

#HackingPBL   @rosscoops31 | @murphysmusings5   hackingpbl.com

Design Cycle

Brainstorm: How do we solve the problem?

Share: How will you share the solution with others?

Design the Solution: what information do we need to solve the problem?

Modify: what changes need to be made?

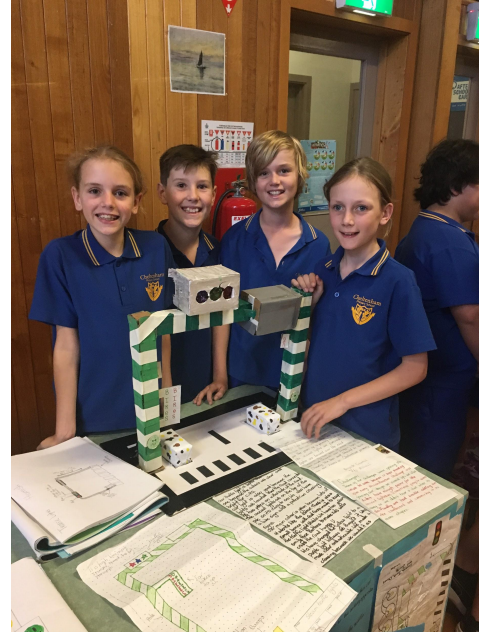**Build:** Construct or draw your solution to the problem.

Evaluate: How do you know it solves the problem?

STEAM in the middle school compare/contrast

- Differences in our planners
- Differences in our teaching
- Differences in the student engagement levels
- Differences in assessment
- Differences in overall outcomes

Planners

http://www.abc.net.au/btn/story/s4422489.htm

Before steam go through endangered,, red list at risk animals etc

STEAM PROJECT - design a habitat where 3 ENDANGERED animals from different genus can co exist without being fenced (at least 1 carnivore - students pick their animals this week
STEAM Project - Intro
STEAM - Student reflection

(VCSSU056)
- Students describe situations where science understanding can influence their own and others' actions.

3
Mon 1 May

Bike Ed - Gr4 Tues-Fri

Rule 9: 1-1-1 Marking Practise Conjunctions adverbs

Naplan practice tests- gr3

Animal Comparisons
What is the same, what is different?
- what do they look like
- where do they live

Steam - start plan and design
start weekly journal on classroom slides template

BTN video - Species list
http://www.abc.net.au/btn/story/s4131949.htm

4
Mon 8 May

NAPLAN
Tues-Wed-Thurs

Rule 11: Silent final e- dropping to add 'ing' Quotation Marks

Revision Narrative

NAPLAN

Year 4s do the same top reports(persuasive narrative)**

Animal Comparisons continued.
- nocturnal/diurnal
- young
- diet
- Reproduction
STEAM - plan and design, reflect

https://www.youtube.com/watch?v=rIXJCDIzIEU
Great animal videos

5
Mon 15 May

On Demand Testing

Incursion Tues 16/5 Roo Keepers

Rule 12: i before e Code Practise Commas

Poetry
Poetry - Endangered animal po
Introduce features of poems
Similes and metaphor poen
-senses map describing what it feel
be an animal.
-personification poem using their sens
Write it with verses two lines rhyming, c
taste, smell, touch, hear.

- How animals adapt to their habitats.
- Camouflage, Fur, Scales,
- Defence mechanisms.

Steam - begin making habitat

Poetry
Cinquin poem about losing habitat or endangered animal. or shape poem ab endangered animal.
Funny poem- limerick

Draft of traffic light - drawing - research the structure and features that they wish to include with justifications as to why it's better (preferably scientific evidence)
- Each student in the group designs a traffic light, then they bring together and pick the best aspects of each design and then come up with a group design

Tech - iStopMotion of how to put together an electrical circuit after writing a procedure on how to do it

Circuit bloke

Week 4

30th October

Review and evaluate with another group - critique
Teacher to take anecdotal notes listen to the vocab used and knowledge in STEAM

Redraw draft with labels and circuits and written explanations
List of materials before starting

Maths - Angles - within design

Tech - iStopMotion of how to put together an electrical circuit after writing a procedure on how to do it

Week 5

6th November

Pupil free day - 6th
Swimming - 8th, 9th, 10th

START constructions of traffic lights

Maths - angles
Kids to take pictures of themelevs in weird positions and note the angles (SKITCH APP), also classroom hunt which angles are which and then identify any angles in their Traffic light draft!

Peter sullivan angles - Rosie?

Angles video 1
Angles video 2

Week 6

13th November

Swimming

Construction cont.

Maths - Location - compass directions - map out traffic lights on a map of cheltenham?

Remind the students to have a procedural in mind over the steps of construction as at the end of the building, they may be filming or taking pictures during this time - to go with their procedural steps. Maybe a voice over.

STEAM   YEARS 3 & 4   TERM 4 2017

PROBLEM:
How to build a circuit that will make a light/buzzer work?

Provide a scenario that needs:

- A ceiling fan in a bedroom
- A new lighthouse for Port Phillip Bay
- A new quiz game   choose one that best suits your
  team and group of
- A set of traffic lights for CPS   students
- A small torch for a young student

SUCCESS CRITERIA
* does the circuit work? (globe lights up, buzzer goes off)
* can the student explain how a circuit works?
* can the student explain how the construction works?
* speaking and listening skills?

THINGS TO CONSIDER:
* reflective journals / self assessment
* rubric
* peer assessment

* speaking and listening outcomes
* mathematical outcomes (3D shapes, measurement, tables and data????????, fractions - the model's height,
  length etc cannot be a whole number)
* critical thinking outcomes
* writing outcomes (information report, explanation, procedure writing?????)

QUESTIONS TO BE CONSIDERED:

GENERAL:
* what is electricity?
* why do we need it?
* how is it created?
* what is energy?
* what is transfer /transformation of energy?
* what are the components of an electrical circuit?
* possible safety issues?

SPECIFIC:

Teaching

Stage 2: Create

Now you choose 3 animals that are going to co-exist in your enclosure.

Next you need to draw and design your enclosure. You need to think about that each animal has a suitable area to live and will be able to live with the other two animals safely.
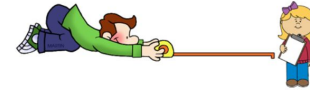
STEAM project - Pedestrian Light System

Your task is to improve the function of the existing traffic lights outside the school. These are the steps you will take:

1. **RESEARCH** - Research
   - Different types of traffic light systems all over the world
   - Reason for the differences in designs.

2. **COLLECT DATA** - Measure and Record:
   - Traffic flow, time for changing lights,
   - Colours,
   - Distances and heights of lights, car stopping lines etc.

3. **DRAFT DESIGN** –
   - Form groups of 3
   - Draw initial design of the traffic light system on your own with information shown concisely.
   - Meet with your group and combine all the best aspects of each person's design to make one, great design.
   - Be neat but it is only a draft.
   - Focus on traffic light electrical circuit to make it work.
   - High achievers aim for traffic light circuitry to coordinate with the pedestrian lights.

4. **REVIEW ANOTHER GROUP'S DESIGN** - Review and evaluate another group's design. Positively communicate both pluses and minuses as well as 'interesting' points.

Student engagement
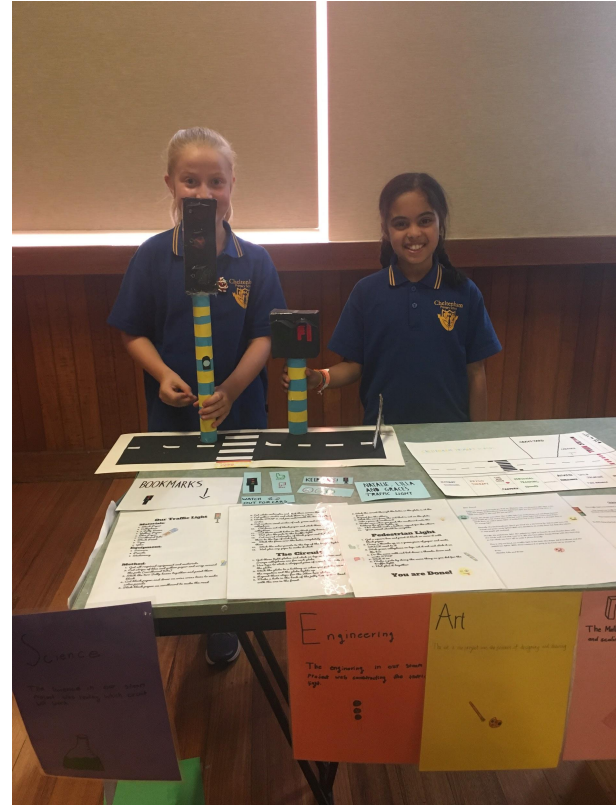
Student Reflection

Week 4, Session 2 – Imagine

Begin to plan what your enclosure will look like.

What vegetation will you need to include?

Where will your animals sleep?

Where will they find water?

Draw out a basic plan of your enclosure. This will not be your final copy! Add a photo of it here.

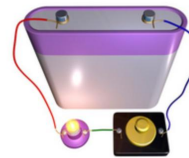# Teacher Assessment

POST-TEST Electricity and Circuits

Name *

Your answer

What is electricity?

○ Flow of wind

○ Flow of air

○ Flow of water

○ Flow of energy

Which of these is a unit of electrical energy?

○ Volt

○ Tonne

○ Kilogram

○ Metre

A circuit is a path which energy flows through