Saving Humpty

SAFE LANDINGS FOR SOFT BODIES

Is it possible to create a design idea that is simple, cheap, effective and that save lives? "Saving Humpty" will provide an opportunity to do design in the context of the important future challenge of safer transport, roads and road behaviour. What's the most ingenious way you can find of preventing Humpty-Dumpty from self-harm? This unit will begin by thinking about the prevention of head injury, and extend discussion to more sustainable and far-reaching changes to public safety.

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BENCHMARKS
Naplan, National Curriculum

CURRICULUM
Science, History, HPE, SOSE, The Arts

CROSS CURRICULUM PRIORITIES
Sustainability

TEACHING LEVEL
7-10

EXPECTED DURATION

40 MIN

The activities suggested in this tool kit should take about 60 mins each, however they can be broken into singular activities, or extended into a longer unit of study.

EXERCISES

1. Save Humpty!
2. Read the Instructions!
3. Harder Bodies or Softer Roads?

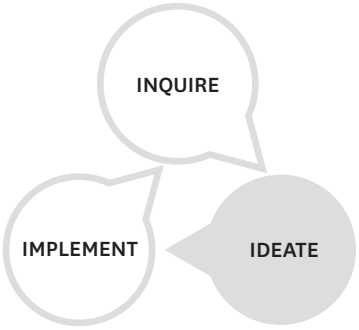
RESOURCES FOR COMPLETION

- 1 Dozen eggs
- Collection of 'recycled salvaged' materials for prototyping.
- Datashow to display resource images/maps etc.
- Computer/internet access; access to Adobe CS
- Paper, pencils, marker pens, scissors, glue-sticks, cutters, magazines for collage, etc.
- Post-its, sticky dots, pasteboard, papers, foam-core
- 1 x A2 card/foamcore for team concept panels

RESOURCES FOR DOCUMENTATION

- Folio to collect mind maps, notes, post-its, and other documentation produced in brainstorming sessions.
- Digital camera/scanner to document and respond to design challenges
- Adobe Photoshop or other photo editing software
- Blogging and other web-based responses.

DESIGN AND CAPABILITIES



Capabilities for creating successful learners, confident and creative individuals, and active and informed citizens.

	1	2	3	4	5	6	7	8	9	10
Intercultural Understanding										
Ethical Behaviour										
Personal & Social Capability										
Critical & Creative Thinking										
ICT Capability										
Numeracy										
Literacy										

Visit Design Minds for more info on design phases.

Visit the Australian Curriculum website for more info on general capabilities.

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Save Humpty!

60 minutes x 3

Inquire

METHOD

This exercise is suitable for a class of approx. 25 students, grouped into teams of 4-5 students.

ACTIVITY

Background: Number of injuries and deaths in Australia from head injuries and other road trauma. Compare road safety data from global sources. Potential global problems: lack of cheap, effective personal protection devices in third world countries; road behaviour, system faults. (Suggested 1 x 60 minute class)

Humpty Challenge: *teams design an egg protection device that survives a measured fall.*

Each team is assigned an egg and begins work to develop a protection device that will protect their egg from a 4-metre drop. Teams personalise and decorate their egg (Greg the Egg) – it's all about **empathy**. (20 minutes)

Using the palette of recycled materials supplied, teams brainstorm potential shock absorption or other protective mechanisms. (20 mins)

Students then have 20 mins to fabricate their improvised protection device. Completed devices are then tested in a suitable site. Teams perform the test and record results. (calculate proportion of casualties and survivors; likely causes of success and failure).

Debrief: whole group discussion. Teams record results and debrief on the efficiency of their solutions esp. transferability of successful design ideas to helmet design and other personal protection devices. (suggested 1 x 60 minute class)

REFLECTION

Student brainstorming ideas, maps and other documents are filed, photographed/scanned and used as evidence for more considered responses.

Prompts for reflection:

- Should we focus our attention on making the protective casing harder, or ensuring it crumples to absorb energy?
- Should we worry about the protection of the egg, slowing the rate of fall or cushioning the impact zone (Humpty air bags)?
- Are the design principles of "Humpty" transferable to the design of human protective wear?
- How are the challenges different?

DOCUMENTATION

Team outcomes and strategies can be published in an online gallery in a learning place blog or ed-studio.

Read the Instructions!

60 minutes

Inquire

METHOD

This exercise is suitable for a class of approx. 25 students, grouped into teams of 4-5 students.

ACTIVITY

Students review all the team strategies for the egg drop, (PMI Charts) and attempt to find consensus on the most efficient, sustainable and successful strategies and solutions. The list is recorded on a whiteboard, and teams are asked to select their 5 highest priority ideas. (15 mins)

Students are then challenged to convert their shortlist into a 5-step instructional graphic incorporating images/symbols, icons, text etc. to communicate how to perform the "humpty" design challenge with the best chance of success to another class group of the same age. (15 mins)

Selecting from magazines, found text, and other graphic elements, students are to compile a simple 5-step communication to instruct others. (20 mins)

Teams exchange mini-presentations of their instructional graphic. (10 mins)

REFLECTION

Prompts for refelction:

- Student brainstorming ideas, maps and other documents are filed, photographed/scanned and used as evidence for more considered responses.
- What is the best format for information graphic? storyboard, dot-points?
- The audience is your peer group; what format and style will they be most receptive to?

DOCUMENTATION

Team outcomes and strategies can be published in an online gallery in a learning place blog or ed-studio.

Harder bodies or softer roads?

60 minutes x 4

Inquire

METHOD

This exercise is suitable for a whole class class of approx. 25 students, grouped into teams of 4-5 students.

ACTIVITY

In this phase of "Saving Humpty", the challenge is to move beyond purely technological solutions and to question whether some personal solutions (heavier, more expensive and more highly protected vehicles etc.) are transferring the problem to other members of the community – pedestrians, bikers. Students also need to consider the sustainability of potential solutions. The students launch into a wider investigation of the safety challenge: designing for safer environments. They need to widen horizons to be inclusive; consider the local and global dimensions of the problem, the challenges of protective wear, safer roads and safer environments, before electing to focus on potential solutions.

This phase of the program can be resourced by fact sheets, access to web resources and internet searches. Students are encouraged to compile a file of supporting documentation.

Brainstorm. (60 minutes) Teams brainstorm future safety: transport, mobility, access etc: the open challenge is to design a safer future environment. Potential challenges:

- Wearable protection
- Incentives to change/adapt unsafe behaviour
- Sustainable/low tech safety (third world solutions)
- Traffic calming
- Win/win opportunities; limit car access, promote higher exercise rates and fight obesity
- Reclaiming streets and laneways for people. (e.g. World Parking Day campaign)

Teams work to identify potential users and their needs. Identify future safety priorities. Write down as many ideas as possible.

Mind Map. (20 minutes) Select the key ideas from the brainstorm session. Make a mind map that connects the most important team brainstorm points.
Brief. (40 minutes) Develop a team brief. From the ideas so far, narrow the focus and agree on a team challenge: Summarize the brief; Share and listen to feedback. Re-think. Design a final team solution.
Prototype. (60 minutes) Make a prototype that communicates your team design.
Design the team "pitch".
Team pitch. (60 minutes) All members are assigned roles in the team presentation. Teams have a five-minute window to present their "saving humpty" solution to design mentors
Communicate. Communicate design ideas clearly and graphically

REFLECTION

Student brainstorming ideas, maps and other documents are filed, photographed/scanned and used as evidence for more considered responses.

Prompts for relfection:

- Does making you safe make someone else unsafe? Does a first world solution become a 3rd world problem?
- What behaviours need to be changed, and how can design influence change?
- You are designing for real people!
- Are more of them going to be safer because of your design? If so, you are a design winner...

DOCUMENTATION

Team outcomes and strategies can be published in an online gallery in **The Learning Place** blog or **ed-studio**. Team solutions can also be presented in a pecha-kucha format, with key findings recorded.

Harder bodies or softer roads?

CONT.