

Year 9/10 Technology Unit

Title: Did you know?

Learning area: Technology / Digital Technologies

This unit is available from <http://education.nzta.govt.nz/resources>

In this unit students will investigate, collate and create a digital media presentation focusing on road safety. This could be a movie, motion graphic, animation or presentation i.e. Prezi, Keynote, PowerPoint.

The presentation should use data to educate young people on road safety in New Zealand. In particular the presentation should present data in interesting ways and seek to change attitudes of a target group of young people towards the practices, behaviours and responsibilities that lead to safe road use. Safe travel is a shared community responsibility and it is important that young people are aware of the issues surrounding this.

The unit title is derived from a YouTube video called Shift Happens. This video is about globalisation and the information age. The video combines music and animation with interesting facts and figures to engage its viewers. It is a good example of a digital media presentation.



Shift Happens video: <http://youtu.be/6ILQrUrEWe8>

Timeframe: This unit should take about 30-40 hours. However this will depend on the software that students choose to produce their presentation and the complexity of their ideas.

NOTE: Be aware that this unit may involve the discussion of road crashes. It is likely there will be students in your class with first-hand experience of such issues, and discretion is advised. It is recommended that students are forewarned of the topic prior to the unit, and that students' individual circumstances are taken into account wherever possible.

Curriculum element	Focus in this unit
Curriculum strand	Technological practice level 4/5
Achievement objectives	Brief development Outcome development and evaluation
Key competencies	Thinking Using language, symbols and texts Managing self
Values	Innovation, inquiry and curiosity Community and participation
Key understanding	There are many things that young people do not know and many have preconceived ideas about driving / risks. It is important to understand there is a need to educate beginner drivers.
Driving question	Whose responsibility is road safety? What are the factors that affect how safe a journey is?
Subsidiary questions	What are the different “roles” we have in travel and road use? i.e. passenger, cyclist, driver How many forms of transport / travel are there? What systems are currently in place to reduce the risks to road users? What effect can my vehicle have on my / others’ safety? How does my experience on the road impact on other people? How do the choices I make affect the safety of myself / others? How can I help keep my peers and myself safe? How might educating road users have an impact on road safety?

Unit outline

Week	Activities
Weeks 1 - 2	Project introduction Stakeholder questionnaire / interview Brief writing Research
Week 3	Concept designs / sketches / storyboard
Week 4	Teaching of software skills
Weeks 5 - 7	Production of digital media outcome
Week 8	Peer review Finish off project Evaluation

Project introduction

Brainstorm

A brainstorm or guided class discussion are good ways to introduce this project. Some students may have a narrow view of road safety, i.e. they may perceive the topic to be purely about cars and drivers rather than a wider view of a safe road system. A brainstorm or class discussion is a good way to widen the students' viewpoint.

A good starting point is the question "What is a transport system?" The subsidiary questions above can also be used to stimulate thought and challenge existing conceptions.

After this initial session, you want the students to realise that road safety is a community-wide responsibility, the choices that they make can affect their own and other people's safety, and there are many types of road users (cyclists, pedestrians, passengers, drivers, horse riders).

Some good software is available for this type of activity, such as MindMeister, Popplet and Inspiration.

Information resources

Here are websites that have facts and figures on road safety. These sites are likely to have a lot of the content or data that students can use in their presentations.

The Cyclist Code has interesting information on the responsibilities of the cyclist:

<http://www.nzta.govt.nz/resources/roadcode/cyclist-code/>

Right Car has data on the safety of specific vehicles:

<http://www.rightcar.govt.nz/>

NZTA YouTube channel has videos including: road rules, advertising campaigns, student competitions:

<http://www.youtube.com/user/NZTransportAgency/>

The Safer Journeys website has really good information around measures being taken to reduce risk in roads, vehicles, speeds and road use:

<http://www.transport.govt.nz/saferjourneys/Pages/default.aspx>

The page below has road tolls per "casualty type" i.e. passenger / pedestrian / driver.

Although this is not very pleasant, it may help students think about the risks to people other than drivers.

<http://www.nzta.govt.nz/resources/road-deaths/toll.html>

Road tolls by month and year:

<http://www.transport.govt.nz/research/Pages/Road-Toll.aspx>

The webpage below has specific data on young people:

<http://www.transport.govt.nz/research/Documents/Addendum-New-Zealand-high-risk-drivers-and-young-drivers.pdf>

The graph halfway down the page below compares NZ road tolls with other countries.
<http://www.transport.govt.nz/saferjourneys/newzealandsprogressinimprovingroadsafety/>

Shift Happens video

Introduce the unit to the class by showing them the Shift Happens video:

<http://youtu.be/6ILQrUrEWe8>

This will give them a rough idea of the sort of presentation that could be produced. Students may wish to work on this project individually or in groups of 2-4 students.

Stakeholder questionnaire / interview

The class or individual students need to choose a specific audience for their presentation. This could be:

- their own class
- students who are regularly passengers with other young people
- a group of students that walk or cycle to school
- a class of students who are learning to drive
- students who have just passed their driving test
- class of students in a different area in New Zealand
- an older sibling or friends

The class could collaborate with other driver education groups and projects within the school such SADD and life skills classes.

The students need to devise an interview or survey for their stakeholder group. The purpose of this interview is to:

- find out what stage the stakeholders are at in terms of their driving or driver education
- find out what the stakeholders perceive the main risks to be
- find out what road safety education they have received
- record how long the stakeholder spent using different transport options i.e. walking, cycling, driving, on the bus, being driven etc.
- find out what would make them more likely to learn from a presentation, in terms of content, presentation format, length, interesting facts etc.
- gather specific information on the stakeholder group i.e. age ranges, how long they have been driving, vehicle make and model etc.

[Key Competency – Thinking: collecting information to inform their thinking before they write their brief]

Brief writing

Students need to produce a brief for their project. This can be an individual or group brief. Teachers may opt to give out a brief and just focus on outcome development for assessment purposes.

If brief development is new to students, it is important to teach them what a brief is and why it is important.

Student briefs should include the following:

- Conceptual statement
- Target audience
- Constraints
- Specifications

More information on what a brief is and what it should contain can be found on the page below:

<http://www.techlink.org.nz/curriculum-support/papers/practice/brief-dev/page6.htm>

Research

Students should spend 1 or 2 lessons looking through the data in the web pages listed above or on other pages.

You may also choose to make the statistics and facts in resource 4 available to the students. Students could collaborate at this time by collecting shared ideas of imagery or video items on Pinterest. This site is set up to collaboratively add ideas around a topic - mainly pictures or videos and music. An example for road safety is below:

<http://pinterest.com/pin/194640015115352256/>

Teacher guidance is advised as there is a lot of data available. Teachers should familiarise themselves with the data first. As a rule of thumb, students will be more interested in data that relates to them, such as

- regional or age-based road crash data
- vehicle safety information for their particular vehicle
- road safety information on their form of transport i.e. cycling or being a passenger
- advertising campaigns that target their age group

Resource 4 in the appendix gives examples of the risks that young people face and the data to support this.

Concept designs / sketches / storyboard

Planning is helpful in any digital media project. It helps the students visualise what they are going to do and it helps you as the teacher to get a handle on the potential complexity (and best approach) of the project.

At the very least, students should have a clear idea of the number of screens / slides that the presentation will have and what content will go on each slide. The students should also identify any animation or transitions to be used. Identifying exactly what content (data, text, images, animation, audio, music) will be used and where it comes from is useful.

[Key Competency - Managing Self]

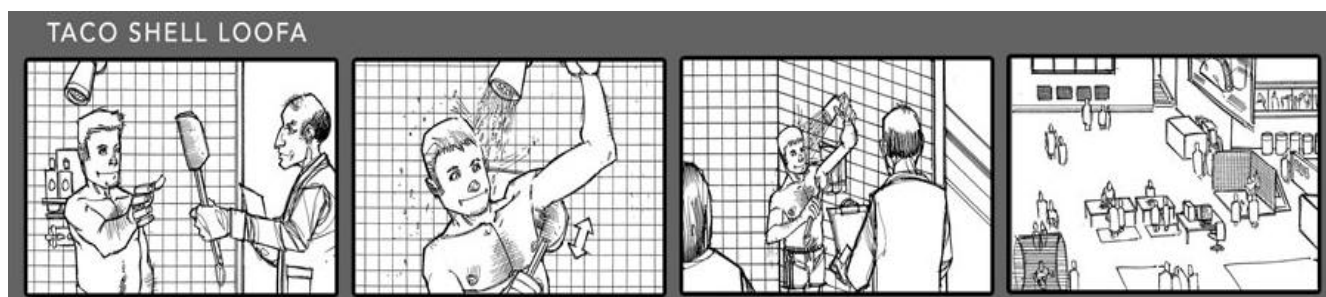
Students may use Popplet (www.popplet.com) to put all their ideas in one place. An advantage is that each Popplet can be saved as a pdf and added to a portfolio of work.

You may wish to stipulate parameters around presentation length, amount of animation, or number of slides. Or you may judge complexity on a project by project basis.

Order of teaching

You may want the students to be really well informed about the software options available to them and the capabilities of the software before doing the concept design phase. Conversely you may not wish your students to be influenced by particular features that are popular in some software, such as shape tweens in Flash or specific transition types in PowerPoint. So these two stages can be taught in either order.

Resources



*The picture above is from Wikipedia.org, licensed under Creative Commons.

Wikipedia has information on storyboarding. Click here for more information on storyboarding: <http://en.wikipedia.org/wiki/Storyboard>. Wikipedia has a storyboarding template that you may wish to use with the students. Click here to view / download this template: http://upload.wikimedia.org/wikipedia/commons/f/f4/Storybord_template_002.jpg

Google Images (<http://www.google.com/imghp>) is a great place to find example image files of concept sketches, wireframe mockups and storyboards.

Teaching software skills

There is a variety of software packages that can produce a multimedia presentation. The most recent Shift Happens video (<http://youtu.be/6ILQrUrEWe8>) has quite a bit of animation in it. If you want to steer your students down a simpler path then you could show them the earlier version of the video which is much more like a “standard” presentation. The older version can be viewed here: <http://youtu.be/ljbl-363A2Q>

Software package	Pros	Cons
Adobe Flash	Probably the most flexible option for this type of project.	Expensive to purchase. A bit of a learning curve
Photo Story	Very easy to use	Windows only Simple feature set Designed for photo slideshows rather than animation
PowerPoint	Easy to use Built in transitions / shapes / animations	Not designed to make complicated animations
Keynote	Similar to Powerpoint pros It has some nicer transitions	Mac only Not designed to make complicated animations
Prezi	Cloud based Easy to share with stakeholders You can make more interesting presentations	You need a good internet connection to use this software

Production of digital media outcome

During this phase of the project the class builds their presentation. The teacher should make sure students don't stray too far from their planning i.e. storyboards / mockups. It is good to let students review each other's progress during this phase. This helps the students compare their own progress with the rest of the class. If time allows it would be good to get some ongoing input from the intended audience / stakeholders throughout the project.

[Key Competency - using language, symbols and text]

Peer review

Peer review is a valuable exercise for students. It is good to do this before the final deadline for the project. This will give students the opportunity to make any changes identified in the review. Please use the peer review matrix in the resources section to focus the students on constructive feedback.

Finish off project

Students make the changes suggested by their peer review partner and make their own final checks. The finished presentations should be viewed by the intended target audience. Some feedback from them is gathered.

Evaluation

The students write a formal evaluation. The evaluation should show how the presentation meets the needs and specifications identified in the brief.

Learning intentions

This unit is aligned to the Technology achievement objectives (at levels 4 and 5) of brief development, and outcome development and evaluation, both from the Technological Practice strand. Note, brief development is the same at level 4 and 5.

The sample learning intentions, activities and assessment schedule in this unit are structured around the SOLO Taxonomy (Structure of the Observed Learning Outcomes), a simple but powerful model of learning. SOLO describes learning outcomes as prestructural, unistructural, multistructural, relational or extended abstract. For more formation:

http://www.johnbiggs.com.au/solo_taxonomy.html

Brief development mapped against SOLO Taxonomy

<p style="text-align: center;">Unistructural</p> <p><i>Define the purpose</i></p> <ul style="list-style-type: none">State that they are making a presentation for educating on road safety.	<p style="text-align: center;">Relational</p> <p><i>Explain the nature of an intended outcome in relation to the need or opportunity.</i></p> <ul style="list-style-type: none">reasoning into why there is need to produce a presentation about road safety and why they need to educate young people about the topic
<p style="text-align: center;">Multistructural</p> <p><i>Describe the key attributes identified in stakeholder feedback</i></p> <ul style="list-style-type: none">possibly talk about the need for the presentation to have particular facts relating to road safetypossibly talk about the need for specific colours or fonts	<p style="text-align: center;">Extended abstract</p> <p><i>Justify the nature of the intended outcomes in relation to the need or opportunity and the stakeholder feedback.</i></p> <ul style="list-style-type: none">Talking about why they have decided to produce the presentation about road safety in the way they have, linking it back to their stakeholder comments and how they think it will change attitudes about road safety.

Outcome development and evaluation mapped against SOLO Taxonomy

<p style="text-align: center;">Unistructural</p> <p>Need support to develop ideas within the concept [This would mean the student was operating below Level 4 of the curriculum for this AO]</p>	<p style="text-align: center;">Relational</p> <p><i>1. Analyse their own and others' outcomes to inform the development of ideas and feasible outcomes.</i></p> <ul style="list-style-type: none"> ● Peer review of the product in the middle of production. ● Review of final product ● Peer review of final product <p><i>2. Ongoing functional modelling, taking into account key stakeholder feedback and trailing in the physical and social environments.</i></p> <ul style="list-style-type: none"> ● States changes in product based on feedback <p><i>3. Use information gained to select and develop the outcome that best addresses the specifications.</i></p> <ul style="list-style-type: none"> ● Links the data collected to the ideas laid out in the brief <p><i>4. Evaluate the final outcome's fitness for purpose against the brief.</i></p> <ul style="list-style-type: none"> ● Produces an evaluation which shows how their final product meets their initial ideas e.g how it has educated Y11 on statistics around teen death on the road in NZ.
<p style="text-align: center;">Multistructural</p> <p><i>1. Investigate a context to develop ideas for feasible outcomes.</i></p> <ul style="list-style-type: none"> ● Evidence of research into road safety issues, statistics or safe practices in NZ 	<p style="text-align: center;">Extended abstract</p> <p><i>1. Use information gained to select, justify and develop a final outcome.</i></p> <ul style="list-style-type: none"> ● Evidence student decided which information collected to use and not use. ● Statements of justification as to why the student thought certain elements were important to the presentation. <p><i>2. Justify the evaluation using feedback from stakeholders.</i></p> <ul style="list-style-type: none"> ● Statements as to why the evaluation is valid using feedback to support their arguments.

Assessment

Self-assessment using SOLO Taxonomy

This rubric is an example for brief development at Level 4 and 5 of the curriculum and would be a student operating in the Multistructural or Relational areas of the SOLO taxonomy.

	I can write a brief where I identify the key attributes of my product. These have come from my stakeholder feedback and I can use them to inform my development and evaluation of the outcome.
	I can write a brief where I justify my intended outcome in relation to the need or want.

Example rubric for outcome development and evaluation: relational, multistructural and unistructural levels.

	I can evaluate the outcome, by checking its fitness for purpose in terms of how well it answered the original need.
	I can develop an idea by developing concepts, taking into account ongoing stakeholder feedback.
	I can develop an idea by investigating the context to get feasible outcomes.

Self-assessment using the key competencies

Thinking, using language, symbols and texts, managing self, relating to others, participating and contributing.

Example rubric

	I can combine symbols and text effectively and evaluate how successful they will be to encourage the audience to engage in information about driving statistics
	I can combine symbols and text effectively to encourage the audience to engage in information about driving statistics
	I can combine some symbols and text to encourage the audience to engage in information about driving statistics
	I can use symbols and text to encourage the audience to engage in information about driving statistics
	I need help to use symbols and text to encourage the audience to engage in information about driving statistics.

Appendix

Resource 1 - Sample Brief

Initial brief: Did you know?

Conceptual Statement

I am going to create an animation with the theme of “Did You Know” about driving facts in NZ. My **target audience** is two Year 12 classes at Wellington High School. These students are between 15 and 17 years old and most of them are in the process of learning to drive or have just started driving. The purpose of the animation is to make the target audience aware of the risks of driving and the relevant crash statistics. A secondary aim is to make this animation change their attitude or behaviour towards driving.

Constraints

- Time: 3-4 hours a week for seven weeks.
- Resources: computers at school, netbooks at home, software available (Flash)
- Skills: my group skills to produce a quality product
- Creativity and imagination: my ability to think for myself in relation to what I am making and for whom.
- Technology practice: my ability to plan and develop my ideas in relation to the requirements of the brief.

Specifications

The final animation must be suitable for the target audience.

I have questioned this group about what they would respond best to in my animation. There needs to be some or all of the following in the animation:

- amusing
- not too long
- have something that grabs attention
- have information that is relevant to them or their age group
- be colourful

To ensure I show my skills (to the teacher) the animation must have:

- some motion / shape tweens
- use symbols - graphic/button/movie clip (not all necessary)
- use layers

Resource 2 - Sample peer review

Peer review

Note to teachers: consider making time for students to review each other's work. This will involve them looking at the initial brief, look through their peer's work and decide if the final product answers the brief or make suggestions for areas that need more work.

The matrix would be filled in by the peer reviewer based on the brief they are given - this is an example based on the sample brief in resource 1.

Brief:	
<i>Does it use the theme "Did you know"?</i>	<i>Joe has added a title about Did you know and has added a number of facts that the viewer might not have known before</i>
<i>Is it aimed at the target audience?</i>	<i>It is aimed at teenagers because the facts are about young drivers and the presentation is short / grabs attention using design/colour/sound ... the target audience asked for some of these things</i>
<i>Has it focused on a driving fact or issue that is relevant?</i>	<i>Joe has focused on the issue of speed and young people soyes, as this is a major driving safety issue.</i>
Specification:	
<ul style="list-style-type: none"> • <i>amusing</i> • <i>not too long</i> • <i>have something that grabs attention</i> • <i>be colourful</i> • <i>use tweens</i> • <i>use symbols like graphic/button/movie clip (not all necessary)</i> • <i>use layers</i> 	<i>Joe has made an animation that is about 30 secs long, but is more serious than amusing. It does grab the attention because of the big bang bit where the whole screen goes orange and yellow and the sound of a crash happens. He may have used too many colours in parts of the animation. I think he has used motion tween and objects. I like the button to start, but also the secret button that takes you to extra information. He used layers to make backgrounds. I really like this animation and think that teenagers would take notice and stop driving so fast.</i>

Resource 3 - Sample interview questions

What effect can you have on the safety of your peers (and yourself)?

What percentage of your travel is as a driver, passenger, cyclist etc.?

Whose responsibility is road safety?

Where can you find out your responsibilities as a cyclist?

What systems are already in place to minimise road use risk?

How do you know if your vehicle is safe?

What driver education have you had so far?

What road safety education have you already received?

How much actual driving have you done so far?

What are the main risks for you as a young driver?

Do you think you are more at risk from having an accident than an older person?

What type of information / presentation would make you more likely to take notice of the driving risks to yourself?

How old are you?

What vehicle do you drive now (make / model / year)?

What vehicle will you drive when you pass your test (make / model / year)?

What day and time of day do you drive the most?

What are your common driving routes?

Resource 4 - Facts about young road users

- Drivers aged 15-19 are 6-7 times more likely to crash than 45-49 year old drivers.
- Drivers on a restricted licence are four times more likely to have a crash than learner drivers.
- The two-second rule is relevant to cyclists as well as drivers.
- Cyclists should keep a metre clear of parked cars to avoid the “door zone”.
- If you are walking and within 20 metres of a pedestrian crossing or traffic lights, you have to use these to cross.
- The period of greatest risk for young drivers is the first 6-12 months of driving solo.
- It takes 2.5 seconds to switch from talking to reacting to a hazard while driving.
- The crash risk for teens who sleep less than 8 hours a night is 30 per cent higher than those who sleep more than 8 hours.
- Young drivers are disproportionately involved in crashes at night (particularly Friday and Saturday nights).
- Young drivers are defined as being between the ages of 15-24 year old.
- Factors in car crashes are: inexperience, age, gender, high speed, losing control, driving at night, driving with friends when young, alcohol, drugs, not wearing seatbelts.