

## Acknowledgements

### *Road Safe Series*

The New Zealand Police would like to thank all those involved in the development of *Changing Gear*, especially:

<b>Gill Alcorn</b>	<b>Naenae College</b>
<b>Stephen Beckett</b>	<b>Aotea College</b>
<b>Michael Cummins</b>	<b>Land Transport Safety Authority</b>
<b>Rhett Emery</b>	<b>New Zealand Qualifications Authority</b>
<b>Marilyn Espie</b>	<b>Hutt Valley High School</b>
<b>Russell Frampton</b>	<b>Tawa College</b>
<b>Rebecca Gilroy</b>	<b>Students Against Driving Drunk (SADD)</b>
<b>Helen Harris</b>	<b>Office of the Commissioner of Police</b>
<b>Glenn Hutcheson</b>	<b>Aotea College</b>
<b>Jason Hutchings</b>	<b>Gisborne Police</b>
<b>Gerry Leeper</b>	<b>Lower Hutt Police</b>
<b>Paul MacDougall</b>	<b>Wellington High School</b>
<b>Jo Millar</b>	<b>Hamilton Police</b>
<b>Bill Robertson</b>	<b>Road Safety Consultant</b>
<b>Michelle Rolston</b>	<b>Wellington High School</b>
<b>Owen Sanders</b>	<b>Office of the Commissioner of Police</b>
<b>Martin Vaughan</b>	<b>Wellington College</b>
<b>Peter Walwyn</b>	<b>Paraparaumu College</b>

Special thanks to the Land Transport Safety Authority, who contributed to the programme in a number of ways, and to Inspector Errol Brown for information. Technical assistance and support was supplied by Helen Harris, Co-ordinator School Road Safety Education, Youth Education Service, New Zealand Police.

Development co-ordinated by Gill Palmer, Curriculum Officer, Youth Education Service, New Zealand Police.



# Contents

	<i>page</i>
<b>Part A Introduction</b>	
The <b>Road Safe</b> Series	<b>4</b>
Aim of <b>Changing Gear</b>	<b>5</b>
General Objectives	<b>5</b>
Messages	<b>6</b>
Using the Programme	<b>6</b>
An Integrated Programme	<b>7</b>
The Role of the Police Education Officer	<b>7</b>
Parent/Caregiver Involvement	<b>8</b>
Youth Education Service Internet Site	<b>8</b>
<b>Part B Changing Gear: Technology</b>	
Road Safety Objectives	<b>9</b>
Links with the New Zealand Curriculum	<b>9</b>
Using this Resource	<b>9</b>
Unit – <b>Handling Hazards</b>	<b>10-15</b>
Copysheet 1 <b>Hazards Checklist</b>	<b>16</b>
Copysheet 2 <b>Hazards in the School Environs</b>	<b>17</b>
<b>Appendix</b>	
Essential Skills	<b>18-20</b>
<b>Part C Specifications for Road Markings and Signs</b>	<b>1C-52C</b>





### **The Road Safe Series**

**Changing Gear** is the junior secondary programme in the Police **Road Safe** Series.

This is a co-ordinated, integrated series of programmes beginning in the primary school and concluding in the senior secondary school. The intention is that young people learn road safety skills and knowledge at each level of their schooling and are given the opportunity to practise and reinforce these.

The programmes are:

<b>Stepping Out</b>	Years 0-3
<b>Riding By</b>	Years 4-6
<b>Out and About</b>	Year 7-8
<b>Changing Gear</b>	Year 9-10
<b>Safe Wheels</b>	Years 11-13



## ***Aim of Changing Gear***

Students will be empowered to participate safely as responsible road users, aware of their own place in traffic, as well as that of others.

### **General Objectives**

- Students have a basic understanding of road rules and laws as they affect them.
- Students are aware of their rights and responsibilities as road users.
- Students can explain what can happen when road rules are broken.
- Students can identify risks and the consequences of risky behaviour, and will respond to risks in safe ways.
- Students can illustrate safe responses to social pressures to be an unsafe road user.
- Students can identify road hazards and respond to them in sensible, safe ways.
- Students can identify their own personal skills and deficiencies as road users.
- Students can behave in rational ways on or near the road.
- Students can explain how social messages can affect road safety.
- Students can make sensible and safe decisions in a road safety context.
- Students know how speed affects safety, and understand the forces and energy involved in movement on the road.
- Students can list the attributes of a safe driver.
- Students can explain the process and requirements for getting a driver licence.



## Messages

The following messages will become part of students' thinking as a result of working through activities in *Changing Gear*. It is not the intention that they be handed out to students as a list, although the list could be presented to the parents/caregivers during consultation.

- All my actions have consequences.
- I am responsible for my own road user behaviour and safety.
- I have a responsibility to help keep other road users safe.
- Safe road use requires rational behaviour.
- There are legal consequences when road rules are broken.
- There are strategies I can use to manage road risk.
- I can make safe decisions as a road user.
- Safe drivers are sensible drivers.
- A crash at high speed causes much more damage than a crash at a slow speed.
- As a road user I must obey road rules.
- Road rules and regulations are there for the safety of all road users.

## Using the Programme

### School Policy

Before beginning teaching any *Road Safe* programme, a school should check that it has a road safety policy, and decide whether the policy needs reviewing.

Suggested points to cover in the policy are:

- Legal requirements for wearing cycle helmets.
- Legal requirements for use of skateboards.
- Legal requirements for students on restricted and learner licences.
- How to handle the situation when students have unsafe cycles or cycle helmets.
- Parking and safety of students' vehicles at school.
- Drink/driving issues.
- Safety on school buses.
- Respecting traffic rules and laws.
- Parking of parents' and teachers' vehicles inside and outside the school grounds.
- School trips
- Road safety education - where, when, how
- Transporting students on outings

## An Integrated Programme

**Changing Gear** has been designed to be integrated into a number of Essential Learning Areas of the New Zealand Curriculum Framework. Activities have been developed for Social Studies, Health, Science, Maths, English and Technology. Each curriculum area has its own teaching guide and required resources.

Care has been taken to ensure that these activities link closely with Achievement Objectives and Essential Skills of the New Zealand Curriculum Framework.

The intention is that students will have school road safety education reinforced in a range of subjects, over a period of time. International research shows there is a need for ongoing reinforcement.

*“Road Safety Education (RSE) is best used as a real and relevant context within which much of the curriculum may be delivered. To be effective, and for progression to be achieved, RSE needs to be drip fed throughout the curriculum, with pupils receiving small but regular inputs which give purpose and meaning to their work.”* Transport Research Laboratory, Department of Transport, UK

Schools may leave the decision of when to introduce road safety activities up to the individual subject teachers or Heads of Department. Alternatively, a school may decide to run a school road safety week, with road safety material being taught right across the curriculum.

It is recommended that a school appoint a **school road safety co-ordinator**, who can liaise between departments and co-ordinate activities.

## The Role of the Police Education Officer

The police education officer has the important role of making the school aware of the **Road Safe** Series, and, in particular, **Changing Gear** and **Safe Wheels**, the two secondary programmes produced by the Police Youth Education Service. Roles of the police education officer include:

- Making a brief presentation about **Changing Gear** at a whole staff meeting.
- Arranging in-depth meetings with Heads of Department.
- Providing the teaching materials.
- Assisting with planning.
- Teaching in partnership as decided at the planning meeting.
- Taking part in evaluation.

Other police may be used as resource people, for example to discuss road and hazard markings.



## Parent/Caregiver Involvement

It should be of concern to every parent/caregiver that their young people are safe on the road as pedestrians, passengers, cyclists and drivers.

Both school and family have a role in teaching appropriate road safety skills, knowledge and attitudes.

The school should consult with parents/caregivers about the needs of students, and keep them informed about road safety programmes being run at school. Parents can then reinforce the road safety messages. Parents and teachers should also be aware of the importance of modelling safe road safety practices.

In *Changing Gear*, some opportunities have been provided for parents to be involved and informed. A letter should be sent home before road safety work begins.

This should cover such things as:

- An outline of the *Changing Gear* programme.
- Time frame for teaching.
- Proposed learning outcomes.
- Ways parents/caregivers can be involved.
- Issues that could be discussed at home.
- Importance of role modelling by parents/caregivers.
- Process for parents/caregivers to voice queries or concerns.

## Youth Education Service Internet Site

Further information for teachers is available on the YES internet site [www.police.govt.nz/yes](http://www.police.govt.nz/yes)

Teachers can also use this site or the following address to contact the YES office in the Office of the Commissioner of Police. Questions and comments are welcome. [yes@xtra.co.nz](mailto:yes@xtra.co.nz)



## Part B: *Changing Gear: Technology*

### Road Safety Objectives

- Students can identify road hazards and respond to them in sensible, safe ways.

### Links with the New Zealand Curriculum

#### Essential Learning Areas

*Changing Gear* will help teachers and students meet requirements of **Technology in the New Zealand Curriculum**. Detail of these links are given on page 11.

#### Essential Skills

(see Appendix page 18-20)

*Changing Gear* will enable students to further develop the following essential skills.

Communication 1,2,

Numeracy 3,5,6

Information 1,2,3,4,

Problem-solving 1,2,3,4,5,6,7,8,9,10

Self-management and Competitive 2,3,4

Social and Co-operative 1,2,3,7,

Physical 2,5

Work and Study 1,2

### Using this Resource

- The unit is designed as a self-contained unit of work, that could be incorporated into an existing school technology programme.
- Though the underlying message is one of safe road use, the intention is to deliver this message as secondary to the immediate learning of the class. Thus the class will cover a technology unit but there is a road safety emphasis which makes the technology more relevant.



# Unit: *Handling Hazards*

## Focusing Question

*What can be done to help road users negotiate road hazards safely?*

## Explanation

**In this unit of work students identify road hazards in their local area and observe what is being done to warn road users about these, or to protect road users from them. They check the effectiveness of these strategies. They identify road users who are most likely to be affected.**

**They then brainstorm ideas for overcoming or lessening the impact of the specified hazard – that is possible solutions -and test out the feasibility of these. The preferred solution is taken through to final design, which is then evaluated.**

In the unit the traditional graphic design process has been presented in the format of the new technology curriculum.

That is:

**Investigation**



**Ideas**



**Concepts**



**Development**



**Final Design**



**Evaluation**

## Levels

This unit is designed for students working at Levels 3-5.

## Links with the Curriculum

This unit fits within *Technology and the New Zealand Curriculum*.

### Strands

#### **Strand A: Technological Knowledge and Understanding 2a and b**

- describing their observations of road hazards
- understanding the use and operation of road signage and markings
- using correct technological terminology for road signage and markings

#### **Strand B: Technological Capability 5, 6**

- identifying needs of road users
- finding solutions to identified road hazards in a specific location
- presenting a final design of solution using formal techniques
- evaluating solutions

#### **Strand C: Technology and Society 8**

- understanding the impact their solution to a road hazard will have on different road users.

### Technological Area

#### **Information and Communication technology**

- presenting information graphically

#### **Materials technology**

- investigation and use of appropriate materials and specifications to find solutions to road hazards

### Context

- Community- traffic hazards
- Personal – as a road user
- School – road use near the school



## Learning Outcomes

At the end of this unit students will be able to:

- Identify and assess technologies used in warning of, and protection against, road hazards in the local area.
- Identify needs of road users in the local area.
- Design and evaluate solutions for a road hazard in the local area.

## Resources

Copysheet 1 **Hazards Checklist** page 16

Copysheet 2 **Hazards in the School Environs** page 17

**Specifications for Road Markings and Signs** – a sample of specifications for road hazard warnings. From **Manual of Traffic Signs and Markings Part 1 1994 and Part 2 1998:** *Transit New Zealand and Land Transport Safety Authority*

## Teaching

### 1 Investigation

***Identify road hazard/s for chosen road user in specified area, and attempts being made to overcome these hazards.***

- Explain to students that they are going to be thinking about road hazards and how these affect road users. Hand out Copysheet 1. Brainstorm with the class all the different road users. These should be recorded in the left hand column of Copysheet 1. The list should include categories such as:

Pedestrians–teenagers, younger children, parents with prams, pre-schoolers, older people...

Cyclists

Skateboarders

Drivers

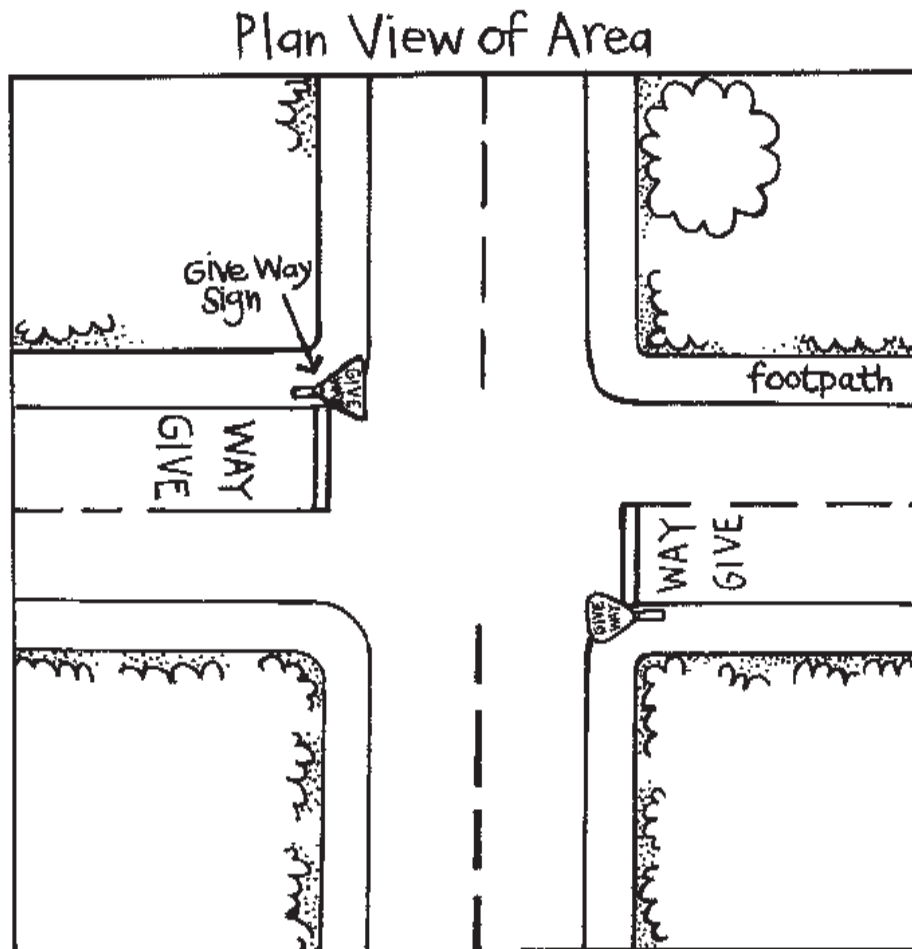
Scooter riders

- Brainstorm with the class possible permanent or temporary road hazards, such as road works, gravel on the road, poorly marked roundabout, potholes, lack of pedestrian crossing. Record these in the right hand column of Copysheet 1. Put a 'P' beside those that are permanent and a 'T' beside those that are temporary. Talk about how a hazard may be different for different people, depending on such things as age, size, disability and physical fitness.

Ask them to consider how each hazard on their list would affect each road user. They should draw lines between each road user and the hazards that would be particularly hazardous to them.

- Put students into working groups. Give each group Copysheet 2. Explain that they are now going to identify traffic hazards in the area around the school. Remind them of basic road safety behaviour. Take them out to walk around the immediate environs of the school. Each group should:

- Identify hazards in the local area. Record these on Copysheet 2.
- For each identified hazard, note down attempts that have been made to overcome the hazard, such as warning signs or road markings. Indicate how effective these solutions are.
- Choose one location with a hazard or hazards that they think have not been satisfactorily handled and on which they would like to concentrate their study. Decide which road user will be most affected by this. Photograph, or draw a sketch in plan view of the chosen area, showing existing signage and road markings. An example is given below.



- Back in class, the group tidies up their sketch work. Lead a discussion about the effectiveness of road signage and markings that they saw. Some of the following could be discussed:
  - changes in signage due to changes in society (eg skateboard use)
  - types of paint and colour used on road markings
  - types of plastic used for cones, caution tape
  - type and size of markings
  - suitability of markings and signage for different road users, such as the very young or elderly.

- Each group collates all the information they have gathered about hazards, the attempts to overcome these, and the effect on road users, and summarises this in point form.

## Homework

Each student carries out an observation of the roads close to their home, making note of hazards and attempts to overcome these. They should record their findings to report back to their working group.

## 2 Write a Design Brief

***Explore a range of possible solutions to an identified road hazard and select and develop one of these.***

### Ideas

Identify the location, road user and hazard to be investigated. (See copysheet 2)

Brainstorm solutions to the identified hazard, for the chosen road user. Use words and graphics. Investigate current solutions to similar problems, considering materials being used and how they were processed, for example paint, material strips, barriers, signs.

### Concepts

The group produces sketches of a range of concepts, showing a variety of graphic skills and annotations. Methods used could be 3D and colour. These should be linked to:

Typeface

Colour

Materials

Visibility

Size

Durability

Sturdiness

Ease of interpretation

Impact

Use at day and night

Portability

### Evaluate the Concepts

Identify good and bad points for each concept. This could be done by:

- personal assessment
- checking out with road users
- checking with expert such as police education officer or roading engineer

## Development

Each group selects a solution, refines it, considering form, shape, assembly details, design elements. Any alterations should be justified in light of the brief and points identified in the investigation.

### 3 Final Design

***Create a signage, road marking or other solution to resolve a permanent or temporary road hazard in a specific location for a specified road user.***

The group comes up with the final design, using formal techniques. This should include:

- A justification of the final solution in response to the brief and investigation.
- An explanation of any variation from the original brief.
- Identification of materials to be used (eg paint specifications).
- A sketch of the environment where the solution will be situated.
- A 3D view of the solution on its own

Or

- A photograph of the area with the solution scanned and imposed on it.

### 4 Final Evaluation

***Evaluate final solution against design brief.***

Evaluate:

- The design against the design brief
- The performance of the group

The final design could be checked and commented on by someone in authority, such as the principal or Board of Trustees (if it is a road hazard within the school's jurisdiction) or council member, police education officer, or roading engineer.

## Assessment

The teacher should assess the students against the achievement objectives, to determine at which Level (3-5) they are operating.





# Hazards in the School Environs

## Instructions

- 1** Record all the temporary and permanent traffic hazards you have observed in the area around your school. Record these in the left hand column.
- 2** Beside each hazard make notes and/or sketches about attempts to overcome this hazard, such as warning signs or road markings.
- 3** Choose one location that you would like to study further. Record this at the bottom of the page.
- 4** Describe the hazard/hazards for your chosen area and list those in the box at the bottom of the page.
- 5** Decide which road user you think would be most affected by the hazard/hazards. Record at the bottom of the page.

<b>Temporary and Permanent Traffic Hazards</b>	<b>Attempts to Overcome these Hazards</b>	<b>Comments</b>
<p><b>Location Selected for Study:</b></p> <p><b>Hazard/Hazards at Location:</b></p> <p><b>Chosen Road User:</b></p>		

# Appendix

## The Essential Skills

### Communication Skills

#### Students will:

- 1 communicate competently and confidently by listening, speaking, reading, and writing, and by using other forms of communication where appropriate;
- 2 convey and receive information, instruction, ideas and feelings appropriately and effectively using a range of different cultural, language and social contexts;
- 3 develop skills of discrimination and critical analysis in relation to media, and to aural and visual messages from other sources;
- 4 argue a case clearly and logically, and convincingly;
- 5 become competent in using new information and communication technologies, including augmented communication for people with disabilities.

### Numeracy Skills

#### Students will:

- 1 calculate accurately;
- 2 estimate proficiently and with confidence;
- 3 use calculators and a range of measuring instruments confidently and competently;
- 4 recognise, understand, analyse, and respond to information which is presented in mathematical ways, for example, in graphs, tables, charts, or percentages;
- 5 organise information to support logic and reasoning;
- 6 recognise and use numerical patterns and relationships.

### Information Skills

#### Students will:

- 1 identify, locate, gather, store, retrieve and process information from a range of sources;
- 2 organise, analyse, synthesize, evaluate and use information;
- 3 present information clearly, logically, concisely, and accurately;
- 4 identify, describe, and interpret different points of view, and distinguish fact from opinion;
- 5 use a range of information-retrieval and information-processing technologies confidently and competently.

## **Problem-solving Skills**

### **Students will:**

- 1** think critically, creatively, reflectively and logically;
- 2** exercise imagination, initiative, and flexibility;
- 3** identify, describe, and redefine a problem;
- 4** analyse problems from a variety of different perspectives;
- 5** make connections and establish relationships;
- 6** inquire and research, and explore, generate and develop ideas;
- 7** try out innovative and original ideas;
- 8** design and make;
- 9** test ideas and solutions, and make decisions on the basis of experiences and supporting evidence;
- 10** evaluate processes and solutions.

## **Self-management and Competitive Skills**

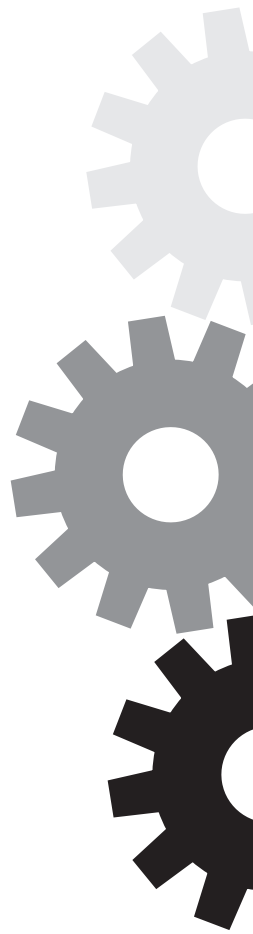
### **Students will:**


- 1** set, evaluate, and achieve realistic personal goals;
- 2** manage time effectively;
- 3** show initiative, commitment, perseverance, courage, and enterprise;
- 4** adapt to new ideas, technologies, and situations;
- 5** develop constructive approaches to challenge and change, stress and conflict, competition, and success and failure;
- 6** develop the skills of self-appraisal and self-advocacy;
- 7** achieve self-discipline and take responsibility for their own actions and decisions;
- 8** develop self-esteem and personal integrity;
- 9** take increasing responsibility for their own health and safety, including the development of skills for protecting the body from harm and abuse;
- 10** develop a range of practical life skills, such as parenting, budgeting, consumer, transport, and household maintenance skills.

## **Social and Co-operative Skills**

### **Students will:**

- 1** develop good relationships with others, and work in co-operative ways to achieve common goals;
- 2** take responsibility as a member of a group for jointly decided actions and decisions;



- 
- 3 participate appropriately in a range of social and cultural settings;
  - 4 learn to recognise, analyse, and respond appropriately to discriminatory practices and behaviours.
  - 5 acknowledge individual difference and demonstrate respect for the rights of all people;
  - 6 demonstrate consideration for others through qualities such as integrity, reliability, trustworthiness, caring or compassion (aroha), fairness, diligence, tolerance, (rangimarie), and hospitality or generosity (manaakitanga);
  - 7 develop a sense of responsibility for the well-being of others and for the environment;
  - 8 participate effectively as responsible citizens in a democratic society;
  - 9 develop the ability to negotiate and reach consensus.

### **Physical Skills**

#### **Students will:**

- 1 develop personal fitness and health through regular exercise, good hygiene, and healthy diet;
- 2 develop locomotor, non-locomotor, and manipulative skills;
- 3 develop first aid skills;
- 4 develop specialised skills related to sporting, recreational, and cultural activities;
- 5 learn to use tools and materials efficiently and safely;
- 6 develop relaxation skills.

### **Work and Study Skills**

#### **Students will:**

- 1 work effectively, both independently and in groups;
- 2 build on their own learning experiences, cultural backgrounds, and preferred learning styles;
- 3 develop sound working habits;
- 4 take increasing responsibility for their own learning and work;
- 5 develop the desire and skills to continue learning throughout life;
- 6 make career choices on the basis of realistic information and self-appraisal.

*Taken from **The New Zealand Curriculum Framework** Ministry of Education 1993.*