

# Car Shopping!

## Mathematics and Statistics, Level 4

### The Learning Context:

The class has already conducted investigations using the statistical enquiry cycle in a range of meaningful contexts. In this unit the students will have the chance to “spend” \$6000 of the teacher’s money on a car for themselves and they will present their learning using a range of data displays.

The students have to research different types of cars and their prices. They also have to investigate various insurance options, registration prices, and costs for used car safety tests. Students may also look into purchasing extra items for their vehicle such as mag wheels, stereo systems, seat covers, etc. Students will look at all possible car options and establish personal criteria to make their decision. Sacrifices may need to be made.

Students will make a presentation to share with the class showing what they found out and which vehicle they have decided to buy. The presentation must include a budget which shows where the money will be spent. It should also incorporate the use of photos, graphs and tables.

Approximately 8 lessons

### Achievement Objectives:

#### **MATHEMATICS AND STATISTICS CURRICULUM (Level 4)**

#### **Statistics: Statistical Investigation:**

Plan and conduct investigations using the statistical enquiry cycle by:

- Determining appropriate variables and data collection methods
- Gathering, sorting, and displaying data to detect variations.
- Communicating findings, using appropriate displays.

#### **Number Strategies and Knowledge:**

Use multiplicative strategies when operating with whole numbers

Find fractions, decimals, and percentages of amounts expressed as whole numbers, simple fractions, and decimals.

### Enterprising Attributes:

- Generating, identifying, and assessing opportunities
- Identifying, recruiting, and managing resources
- Planning and organising
- Collecting, organizing, and analyzing information
- Communicating and receiving ideas and information

Teachers to observe and collect evidence of these enterprising attributes in action.

### Mathematics and Statistics Learning Outcomes:

Students will be able to:

1. Identify costs associated with purchasing a car.
2. Research, analyze and evaluate different car prices, insurance options, and on road costs.
3. Present information regarding these car choices and discuss the decision they made.
4. Operate within a budget.
5. Evaluate the success of the task.

### Resource Requirements:

- Decision Making Grid
- Expenditure Budget
- Internet – various websites
- Newspapers
- Car sale magazines
- Insurance companies
- Car yards
- Telephone

# Teaching and Learning Sequence

*NB: Teachers are encouraged to gauge the prior knowledge of their students before implementing each unit so that they can provide personalised and meaningful learning opportunities. The teaching and learning sequence provided in each unit is to be viewed as a guide only. Teachers will need to adapt this sequence to meet the needs of their students, school and community.*

*The future focus issue of enterprise and sustainability can be explored during this unit. Students will need to be innovative and enterprising when they work within a fixed budget to purchase their car and its accessories. It is a reality that we have limited money to spend, however the challenge is to gain the best value from that limited amount. Students will learn that they have a range of choices, but different ones bring different benefits; choosing the best one for them is about being enterprising. Students will also learn that what is a good decision for one person is not a good decision for another person. Earning income and saving and spending it helps sustain our community.*

*The numbered activities listed below are learning steps rather than lessons. Teachers may choose to combine two or three learning steps into one lesson. Alternatively, they may spread one learning step out over several lessons. This will be largely dependent on students' prior knowledge and their subsequent learning needs.*

<p><b>Getting started:</b></p> <p>The teacher tells the class that they have had a “huge” pay rise and that they are going to give each student \$6000 to buy themselves a car.</p>	<p style="text-align: center;"><b>LINKS TO BES</b> <b>Best Evidence Synthesis</b></p> <p><b>5. Quality teachers link learning to real life experiences.</b></p>
<p><b>Teaching Sequence: Exploring</b></p> <ol style="list-style-type: none"> <li>1. The class splits into groups to discuss what sort of car they would buy with the money. Share back with the class.</li> <li>2. Brainstorm all the expenses associated with buying a car. – Start with the essential expenses (insurance, registration, warrant, tyres, repairs, petrol) and then add luxury items –(sound system, mags wheels, personalized number plate, muffler, spoilers, paint jobs, etc). (Learning Outcome 1)</li> <li>3. Students work in groups to come up with an estimate of the cost of some of these things based on prior knowledge. (All the essentials and then a few luxury items). Discuss their estimates. (LO 1)</li> <li>4. Teacher gives students the full details of the task: Students have \$6000 to buy a car. The car must be purchased from a registered car dealer. Students have to decide on their top three cars and use a Decision Making Grid to decide on the best car. They also have to investigate and buy 12 months insurance. 3 different insurance options or quotes will need to be presented showing the differences between them. Students will have to investigate and share the car’s “Used Car Safety Ratings”. They will need to purchase 12 months vehicle registration. They also need to leave 10% of the car’s purchase price for fuel and 5% of the car’s purchase price for repairs and maintenance. Other extras may be purchased but students must stay within budget. Discuss with the students the importance of being sensible and professional if inquiring about quotes and prices of cars in person. <b>Innovation, inquiry and curiosity</b></li> </ol>	<p><b>10. Quality teachers give students clear information about learning outcomes.</b></p>

<p>5. Discuss the presentation expectations. The students will need to communicate the results of their investigations. This may include photos of the car they have decided to purchase, details of the different insurance options and a summary of where they spent their money. Graphs, tables and charts will be used to communicate, compare and show information. Possible presentation ideas: poster, PowerPoint presentation on the computer, booklet, speech with handouts, model etc.</p> <p>6. As a class create a set of 'success criteria' to measure their investigation against. Suggested criteria could include: 3 insurance prices are gathered, calculations are accurate, etc. In setting this criteria consider the details of the task, the learning intentions and Enterprising Attributes. <b>Excellence</b></p> <p>7. Students search for suitable cars on the Internet, in newspapers, in car magazines, etc. Some students might visit the car yards in the weekend with their parents. Websites for cars for sale:  <a href="http://www.autotrader.co.nz">www.autotrader.co.nz</a>  <a href="http://www.autobase.co.nz">www.autobase.co.nz</a>  <a href="http://www.turners.co.nz">www.turners.co.nz</a>  <a href="http://www.goauto.co.nz">www.goauto.co.nz</a> (Learning Outcomes 2 and 4)  <b>Generating, identifying and assessing opportunities</b></p> <p>8. Students use a Decision Making Grid to help them decide on a car using choices and criteria. Suggested criteria could include: car is not too expensive to run, car is attractive to me, the price of the car is suitable, etc. (LOs 2 and 4) <b>Collecting, organising and analysing information</b></p> <p>9. Discuss the following topics in class with the students to help them with their research.</p> <p>10. Vehicle Licensing and Registration,  <a href="http://www.ltsa.govt.nz/vehicle-ownership">www.ltsa.govt.nz/vehicle-ownership</a></p> <p>11. Insurance  <a href="http://www.aa.co.nz">www.aa.co.nz</a>  <a href="http://www.state.co.nz/insurance">www.state.co.nz/insurance</a></p> <p>12. Used Car Safety Ratings.  <a href="http://www.ltsa.govt.nz">www.ltsa.govt.nz</a> (LOs 2 and 4)</p> <p>13. Teach the students how to use an expenditure budget. Students calculate fuel and maintenance costs using this template. Students also record their spending on optional extras. Students compare individual costs by using decimals, fractions and percentages of the total. (LOs 2 and 4) <b>Identifying, recruiting and managing resources, Planning and organising</b></p> <p><b>Sharing</b></p> <p>14. Students share their presentations with the class. Students may invite along parents, caregivers, the Principal, and students from other classrooms. (Learning Outcome 3) <b>Communicating and receiving ideas and information</b></p> <p>15. Students use the "Success Criteria" developed at step 6 to evaluate individual success. Share results as a class. (Learning Outcome 5) <b>Excellence</b></p> <p>16. Discuss reflective questions below: (LO 5)</p>	<p><b>7: Quality teachers integrate ICT across the curriculum.</b></p> <p><b>6. Quality teachers plan a range of activities that engage students, enabling them to complete the learning process, so what is learned is remembered.</b></p> <p><b>9. Quality teachers promote critical thinking (through self evaluation).</b></p>
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**Reflective Questions:**

Exploring new knowledge and skills

- What did you learn from doing this activity?
- What would make it easier next time?
- How well did you research the options?
- Would you do anything differently next time?
- What advice would you give to a teenager looking at buying a car?

Exploring what it is to be innovative and enterprising

- What step/s were you doing when you used each of the Enterprising Attributes? Break each attribute into its separate words and refine your answers.
- How could you improve on using the Enterprising Attribute/s for next time?
- Can you transfer this learning to your other topics?

Exploring further future focus issues

- Why is it we can't have all our wants?
- How does being innovative and enterprising help resolve this problem?
- What would happen if the Government legislated that cars are now banned? How would this impact on the sustainability of our community?

**Possible Assessment Activities (Teacher):**

Teacher assesses each student's presentation, looking specifically at their budget records and their ability to communicate information through the use of graphs, tables and charts.



