

How much CO₂?



Julie travels 3km to school by car and then walks home. If a car sends 0.4kg of CO₂ into the air for every kilometre travelled:

1. How much CO₂ does Julie's car send into the air each day?

$$\text{ } \times \text{ } = \text{ }$$

2. If there are 200 school days in a year, how much CO₂ do Julie's car trips to school send into the air each year?

$$\text{ } \times \text{ } = \text{ }$$

There are 29 other cars coming to Julie's school each morning making a total of 30 cars. If each car travels the same distance as Julie's:

3. How much CO₂ is sent into the air by cars travelling to Julie's school each day?

$$\text{ } \times \text{ } = \text{ }$$

Hint - use the answer from question 1 to help you

4. How much CO₂ is sent into the air by cars travelling to Julie's school each year?

$$\text{ } \times \text{ } = \text{ }$$

Hint - use the answer from question 2 to help you

If some students carpoled so that only half the 30 cars travelled to school each morning:

5. How much less CO₂ would be sent into the air each day?

$$\text{ } \div \text{ } = \text{ }$$

6. If all the students walked to school as well as home, how much CO₂ would it keep out of our air each year?

$$= \text{ }$$

7. If all the students drove home instead of walking, how much more CO₂ would be sent into the air.

$$\text{ } \times \text{ } = \text{ }$$

8. If 1kg of CO₂ fills 10 party balloons, how many balloons would the CO₂ from Julie's car trips to school fill in a year?

Hint: use the answer from question 2 to help you

$$\text{ } \times \text{ } = \text{ }$$

9. How many party balloons would the CO₂ from all the cars travelling to Julie's school fill in a year?

Hint: use the answer from question 4 to help you

$$\text{ } \times \text{ } = \text{ }$$

Teacher's Notes:

Curriculum Link:

Mathematics and Statistics: L3
Number strategies: use a range of additive and simple multiplicative strategies with whole numbers and decimals.

Learning Intentions:

Students will: realise that the more people travelling to school by car the more CO₂ is sent into the atmosphere.

Success Criteria:

Students can: use multiplication to show how much CO₂ is sent into the atmosphere from car journeys to school.

MORE: Use your own information about how far you travel to school to work out how much CO₂ your car is sending into the air each day/each year. What else could you calculate using your own figures? You can work out your distance to school using the Cycling and Walking Journey Planner at www.journeyplanner.org.nz.

Plan your journey to school

Use the Cycling & Walking Journey Planner to look at how long it will take you to walk to school. (Adapted from Travelwise & ECAN)

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Intructions

- Go to www.journeyplanner.org.nz.
- Enter your home address in the box marked 'A'. Choose the correct address from the drop-down menu.
- Enter your school address in the box marked 'B'. Choose the correct address from the drop-down menu.
- Click on the orange 'Get Directions' Box.
- Look at the left hand side of your screen to find out your directions, how far your journey is and how long it should take you to walk it.
- Scroll down to the bottom of the screen to find out how hilly your journey is, how much money your family will save by walking, how many calories you will use and the amount of carbon dioxide you will be saving.

Questions

1. How far is it from your house to school along the route you have chosen?
2. Do you walk to school? If you do, how long does it actually take you? If you don't, is there anything you could change so you were able to walk to school?
3. Is your chosen route safe? If it isn't, why not? What would make this route safer? Could you change your route to make it safer? Think about the best places to cross the road like pedestrian crossings. Try dragging and dropping your route to find a better way.

MORE:

- Walk the route to test how accurate the time estimate is. Look for hazards to avoid and safe places to cross the road. What other things do you see on your walk?
- Print out the map and add on these features
- Select the cycling link at the top left of the screen and try it again for cycling. Compare the time estimate with your walking results.

Teacher's Notes:

Curriculum Link:

Mathematics & Statistics L2

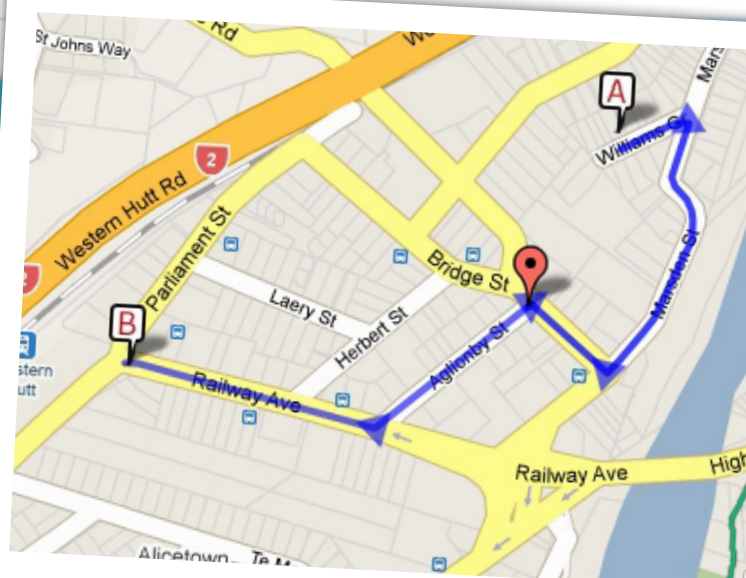
Position and Orientation: describe different views and pathways from locations on a map.

Learning Intentions:

Students will: understand that different routes can be used to move from one point to another.

Success Criteria:

Students can: use the Cycling & Walking Journey Planner to construct a map of the safest route to school.



Travel Action Plan

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Part One: Barriers

1. Think about things that might stop you or someone else walking and cycling to school. List the barriers in column 1.
2. Think about things you and your class could do to overcome each barrier. For each barrier in column one, suggest a solution in column 2.

1. Barriers	2. Solutions

Part Two: Action Planning

By yourself, or in a group, come up with an action plan using your ideas from Q.2 above. On separate poster paper answer the questions below to create an action plan.

1. What is the issue/problem?
2. What is your vision for change?
3. What is going to happen to make these things change?
4. Who needs to be involved?
5. What information do we need? How are we going to get it?
6. What things do we need? How are we going to get them?
7. What are the next steps for the plan. Who will do them?
8. Present your plan back to class

MORE - If you want to take this activity further see Environment Canterbury's 'Move It' resource at: www.gw.govt.nz/move-it

Teacher's Notes:

Curriculum Link:

Social Sciences: L2
Understand how people make choices to meet their needs and wants.

Learning Intentions:

Students will: understand there are a number of barriers to active travel which can be overcome.

Success Criteria:

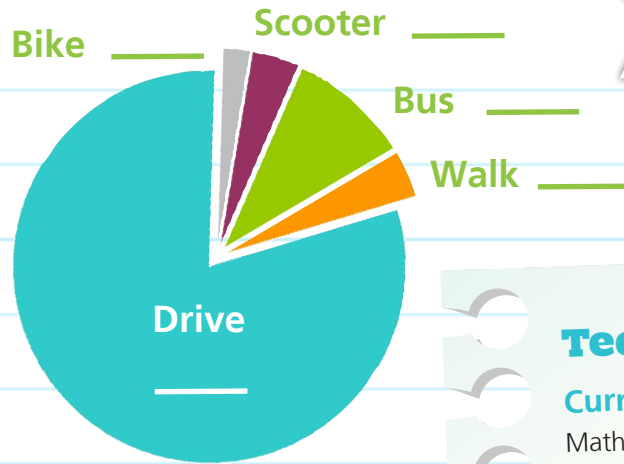
Students can: develop an action plan to overcome barriers to active travel.

Getting to Walkalot School



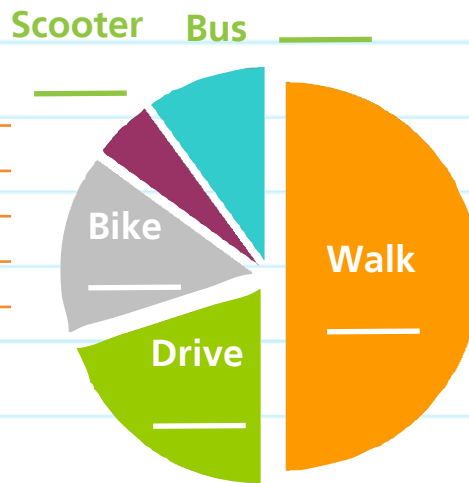
2005

Mode of Transport	Number of students	%
Walk	8	4
Drive	160	
Bike	4	
Scooter	8	
Bus	20	



2011

Mode of Transport	Number of students	%
Walk	100	50
Drive	40	
Bike	30	
Scooter	10	
Bus	20	



Teacher's Notes:

Curriculum Link:

Mathematics and Statistics: L3
Number knowledge: know fractions and percentages in everyday use.

Learning Intentions:

Students will: understand how they can use percentages and pie graphs to show how student's travel to school.

Success Criteria:

Students can: calculate percentages of students travelling to school using different modes of travel.

Questions

Use the numbers provided to:

1. Work out the percentage of students who use each mode of transport and write each percentage in the blank spaces in the tables.
2. Write each percentage onto the correct segment of the pie graphs.
3. What are the total percentages (%) of students travelling by active modes of transport each year?

2005

2011

4. In which modes of transport have the biggest changes occurred?

5. What would look, sound and smell different in 2011 compared to 2005?

6. What might the school have done to make these changes happen?

MORE:

How do these statistics compare to your school? Find out how your class travel to school. How could your school make changes to more active modes of transport?