

Day Trippers

You need: a calculator, a photocopy of the map copymaster, string

ACTIVITY ONE

Tiaki lives in Wanganui. He is having a holiday in Auckland with his cousin Adam. Their first trip is across to Devonport to go fishing.

They leave at 8.30 a.m. to walk to the bus. They use the parts of the timetables shown below to work out their transport. They have to catch the bus from Adam's place to the city and then the ferry to Devonport.

Make sure you're home by 5 o'clock.



Adam's home is a 4 minute walk from the bus stop. The bus trip to the city terminal takes a maximum of 25 minutes. The ferry terminal is a 2 minute walk from the bus terminal. The ferry trip takes about 20 minutes.

City Bus Departure Times

To City DEPARTS	From City DEPARTS
7.20 a.m.	3.00 p.m.
7.40 a.m.	3.30 p.m.
8.00 a.m.	4.00 p.m.
8.20 a.m.	4.15 p.m.
8.40 a.m.	4.30 p.m.
9.00 a.m.	4.45 p.m.
9.30 a.m.	5.00 p.m.
10.00 a.m.	5.20 p.m.
10.30 a.m.	5.40 p.m.
11.30 a.m.	6.00 p.m.
12.00 p.m.	

Ferry Timetable between the City and Devonport

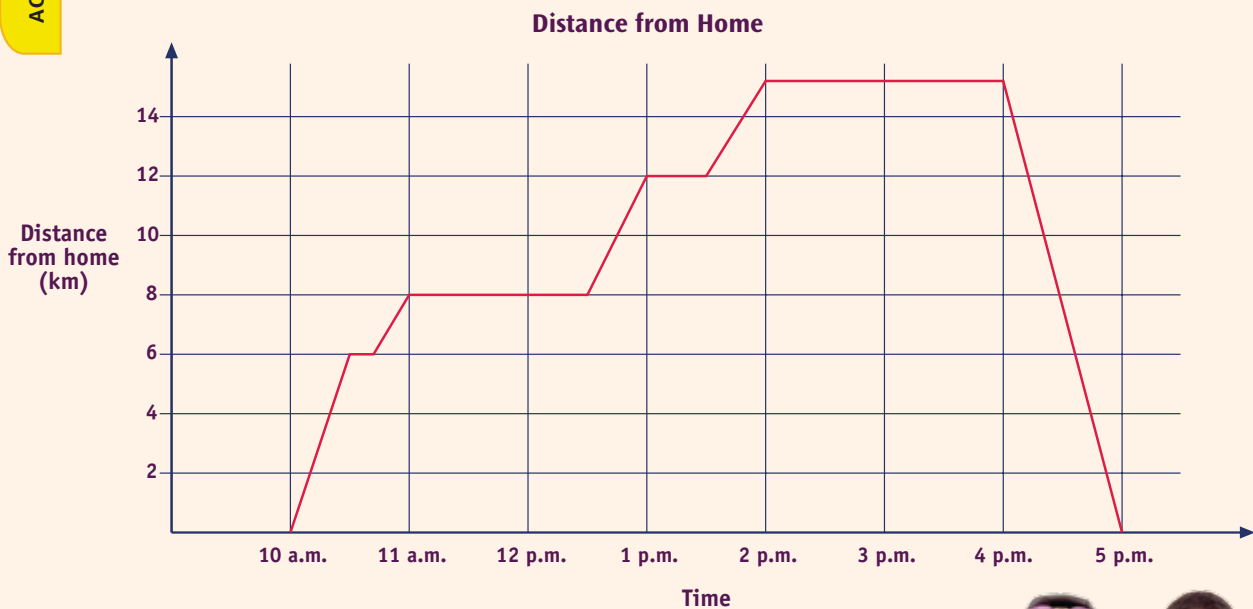
LEAVES CITY	LEAVES DEVONPORT
8.15 a.m.	8.30 a.m.
8.45 a.m.	9.00 a.m.
9.15 a.m.	9.30 a.m.
10.00 a.m.	10.15 a.m.
10.30 a.m.	10.45 a.m.
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2.00 p.m.	2.15 p.m.
2.30 p.m.	2.45 p.m.
3.00 p.m.	3.15 p.m.
3.30 p.m.	3.45 p.m.
4.00 p.m.	4.15 p.m.
4.30 p.m.	4.45 p.m.
5.00 p.m.	5.15 p.m.



1. What buses and ferries do they catch so that they get as much fishing time as possible and are home by 5.00 p.m.?
2. How long do they have in Devonport?
3. If they decide to be home by 4.30 p.m. to watch Adam's favourite programme, what ferry would they have to catch?

ACTIVITY TWO

For their second trip, they bike to the movies and then go swimming at the wave pool. The graph below shows their distances from home through the day.



1. When did they leave home?
2. The movie started at 11.00 a.m. How long did it last?
3. They were at the wave pool for 2 hours. When did they arrive, and when did they leave?
4. What do you think they did at:
 - a. 10.30 a.m.?
 - b. 1 p.m.?
5.
 - a. When were they cycling the fastest?
 - b. What speed were they averaging at that time?
6.
 - a. Draw a time and distance graph of a recent day trip you've been on. The distances and times can be approximate.
 - b. Ask a classmate some questions about your graph.



ACTIVITY THREE

Their third trip is to the theme park Rainbow's End. Adam's dad drops them there on his way to work and will pick them up on the way home.

The boys head for the roller coaster. The ride is 485 metres long and lasts for 78 seconds. (In the following questions, round your answers to two decimal places where necessary.)

1.
 - a. What is the average speed of the roller coaster in metres per second (m/s)?
 - b. How many kilometres per hour is this?
 - c. If the boys have 7 rides in a row, how many kilometres do they travel?

2. The Desperado roller coaster in Nevada is 1 770 metres long, and the ride takes 2 minutes 43 seconds. What is the average speed of the Desperado:
 - a. in metres per second?
 - b. in kilometres per hour?

Hint: find out how many metres per hour this is first.

ACTIVITY FOUR

For their fourth trip, Tiaki and Adam go by bus to Adam's aunt's place. She is a keen kayaker and has borrowed two extra kayaks so that they can explore the estuary and harbour together. She shows the boys the map on the next page.



1. The boys would like to kayak to Browns Island first. Use your photocopy of the enlarged map to work out how far it is, in a direct line, from Half Moon Bay Marina to Browns Island.



2. On your map, draw a course that the three kayakers could take. It must start at the Half Moon Bay Marina, be between 15 and 20 kilometres long, and end at a bay with road access.



ACTIVITY FIVE

Here are each boy's costs for each day trip, excluding food:

- | | |
|------------------------------|--|
| Fishing trip: | The bus cost \$2.20 each way, and the ferry cost \$4.00 return. |
| Movies and wave pool: | The movie cost \$7.00 and the pool cost \$3.50. |
| Rainbow's End: | The tickets cost \$25.00. |
| Kayaking: | The boys needed to catch two different buses to get to Adam's aunt's place. The fares were \$2.20 and \$1.80* for each bus trip. Adam's uncle took them home by car. |

* Amount changed, November 2007



1.
 - a. Apart from food, what was their combined cost for each trip?
 - b. What was the combined total cost of their four trips?
 - c. What percentage of their total cost was travel?
2. Draw a pie graph, using percentages, of their costs, showing travel, movies, pool, and Rainbow's End. Show the working you used to find the angles for each sector.