

Planning a Thrill-Filled Day at Escape Park

(80 min)

The activity is designed to demonstrate the application of modelling with data through a simulation of a real-life situation. Modelling is used in many ways in our lives, such as analysing and forecasting weather patterns, water and electricity consumption, various budgets, and determining tides and currents. Students have been exposed to modelling during the Lava Activity in 2017. The activity also draws on students' exposure to posing questions and conducting surveys (Life in Hobart Activity and Fancy Feet Part 1 Activity in 2016), allowing them to question the validity of claims in the media.

This activity comprises two parts, the first part being brief:

Part 1

Students respond to claims made in a media article for the "Escape Thrill Park". The claims made are questionable. Students will question these claims by identifying issues pertaining to the nature of the population and sample surveyed, the issues/questions asked, and nature of the data collected.

Part 2

In the second and main part of the activity, students will use tables of data and a simple map to develop a group schedule of rides for 4 friends within a given time period. Constraints such as opening and closing times, lunch/snack breaks, and photo sessions will need to be considered along with the data. The data include a table showing times of the day and the queue times for different rides, a table displaying each child's 5 favourite rides (in order from most to least favourite), and a simple map displaying the positions of the various rides.

- The schedule students develop is to serve as a mathematical model that could be used by others in determining how to schedule a visit to the thrill park.
- The students will reflect on their models in light of the initial claims in the media article.

**THE AUSTRALIAN CURRICULUM
CONTENT DESCRIPTORS YEAR 6 2018**

MATHEMATICS CURRICULUM

Number and Algebra

Number and place value

Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)

Measurement and Geometry

Using units of measurement

Interpret and use timetables (ACMMG139)

Statistics and Probability

Data representation and interpretation

Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables (ACMSP147)

Interpret secondary data presented in digital media and elsewhere (ACMSP148)

MATERIALS LIST

- Escape Park Media Article
- Student Workbooks
- Blank A4 paper
- Friends' Favourite Ride List
- Escape Park Map
- Escape Queue Timetable

PART 1: MEDIA ARTICLE

Restrict time to 15 min

1. Introduce today's activity by informing students you are going to read a media article about a new theme park. Display and read the Escape Thrill Park media article "Families are fuming!" for students.

Families are fuming!

Escape Thrill Park, the newest theme park on the Gold Coast, is facing harsh criticism from some families who state they are forced to buy a return ticket for another day if they wish to go on all 14 thrill rides during their visit. They say long queues and distances between rides make it impossible to enjoy all the rides in the one day.

Julie Langdon and her family argued, "We were only able to go on some of the rides. My son was devastated that he didn't go on his favourite 'Ball of Fire' ride. I think they plan it so you have to come back for a second day and pay more money." Julie's claims were supported by another patron, Sam Elliott, who said, "The queues are so long, there's no way you can get to go on all your favourite rides."

When Escape Thrill Park Management was asked about these complaints, Kim Gilchrist Marketing Manager, advised "Oh, we have solved this problem of delays for the really popular rides. There will be no more long queues for these rides now that we have our revolutionary *Quick Ticket System*. Long queues that used to plague the rollercoasters will be a thing of the past... gone for good! With a Quick Ticket, guests are able to avoid long queues by making reservations at each of the really popular rides. We guarantee that nobody will have to wait if they use our fabulous new *Quick Ticket System*."

2. Ask students to consider the media article and whether it can be believed or not. Ask students what the Escape Thrill Park Manager and the journalist need to consider when making such statements. Suggested class discussion topics below:

- From what population/sample size did they get their data?
- Did they both survey patrons?
- What questions did they ask?
- Can the park guarantee no more queues?
- Did they ask how patrons plan their day at the park?
- Can they be sure that all patrons will use the new system?
- Did they allow for break times?

3. Lead students to Part 2 of the activity by informing them that they are to imagine they are patrons planning a day at the Escape Thrill Park. They will get the opportunity now to plan a day for an upcoming competition winner and her friends at the park. This will also give students valuable data to assist with their critique of the media article.

PART 2: PLAN OUR WINNER'S DAY

Estimated time: 65 min

1. Inform students that Bettina Johnson, from Brisbane, is the winner of Escape's Big Thrill Day Park 2018 Competition. The winner gets to take a total of 20 people to the thrill park for the day with all expenses paid.

As this is a promotional event for the park, there are a few conditions Bettina and her friends need to adhere to:

- Escape would like Bettina and her guests to have lunch in the VIP Dining Room from 12.00 – 1.00pm
- Bettina and her guests must return for 30 minutes at 3.30pm for publicity photos

Bettina and her friends have the rest of the day to enjoy the park's rides. The park opens at 8.30am and closes at 5.15pm sharp.

2. Advise students that Bettina's parents have said she can take 15 other children with her and they have decided to take two other parents to help supervise. That makes 16 children (including Bettina) and 4 adults. The children will need to stay with an adult at all times.

Bettina's Mum gave all the children a brochure that described the rides. Bettina and her friends have listed their five favourite rides in a table which will be provided to each group. A park map will also be provided.

3. As mentioned in the media article, Escape's Quick Ticket System is in operation. A Quick Ticket is easy to get and can save a guest up to an hour per ride! At the most popular rides there is a Quick Ticket Machine that prints a "jump the queue" ticket. By hitting a button, a Quick Ticket is printed with the time the guest can return and jump the queue. The time starts 30 minutes from the time the ticket is printed and expires 1 hour after that time. For example, if a patron collects a Quick Ticket at

2pm, they can return to go on the ride from 2.30-3.30pm. The ticket will expire at 3.30pm.

When guests return to the ride at their “jump the queue” hour, they enter the Quick Ticket Line and go to the front of the queue. Guests who didn’t “reserve a seat” by obtaining a Quick Ticket or whose Quick Ticket has expired can still ride but need to queue in the regular ticket line.

Escape have collected a lot of data on their queue times and have produced a Queue Timetable to assist you to plan Bettina’s day.

4. Hand out the following items to each group:

- Student Workbook
- Friends’ Favourite Rides table
- Escape Park Map
- Escape Queue Timetable

Inform students they can make notes on all of these documents should they wish. Ask students to record their name and group number on all documents.

5. Inform students they will have 30 minutes to plan Bettina’s day. Escape Park Management would like to use their planning methods for future patrons so they can also successfully schedule their day to the park. Advise students that there is no one desired/correct schedule, rather a variety of schedules are possible.

6. Refer students to pg 2 of Student Workbook and read the task requirements.

Remind students of the few conditions Bettina and her friends need to adhere to, and advise the park opening and closing times.



Your task

Escape Park Management would like to use your planning methods for future patrons so they can also successfully schedule their day to the park.

Your group must:

- Split the children into equal groups of 4 based on their ride preferences; record who is in which group on page 3.
- Using the Queue Timetable, Friends' Favourite Ride table, and Park Map, make up a schedule of rides for Bettina's group **only**; record your schedule on page 4.
- Indicate when Quick Tickets (QT) are being used and record when it was collected.

- Escape would like Bettina and her guests to have lunch in the VIP Dining Room from 12.00 – 1.00pm.
- Bettina and her guests must return for 30 minutes at 3.30pm for publicity photos.



The park opens at



and closes at



sharp.

7. Refer students to pages 3 and 4 of Student Workbook and ensure students are aware of what needs to be recorded. Additional paper can be provided if required. Students may begin.

Group Listing

Split the children into 4 equal groups.

Record the names of each group's members

Group 1	Group 2	Group 3	Group 4

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8. After 30 minutes, ask students to cease their planning.

9. Advise students they will have a further 20 minutes to prepare a letter for Escape. Refer students to pg 5 of Student Workbook and read the letter requirements.

Lined pages have been included in the Student Workbook for students to write their letter.

Wrap Up

Remind students of the earlier discussion about the media statement where issues were raised such as did the Escape Thrill Park Manager and the journalist consider the following when making their statements:

- Population/sample size?
- Patrons surveyed?
- What questions were asked?
- Can the park guarantee no more queues?
- How did patrons plan their day?
- Do all patrons use the new system?
- Were arrival/departure and break times taken into account?

Now that students have collected more data, they can offer further insight into whether the media article provided a balanced, accurate point of view.

Friends' Favourite Rides

5 Favourite Rides in order from most to least favourite					
Bettina	Blackout	Monster	Spiral	Lightning	Cannonball
Josh	Monster	Lunatic	Spiral	Terror Falls	Drop Zone
Connor	Dead Fred	Lunatic	Twisted	Monster	Sic Slider
Sam	Blackout	Navigator	Monster	Spiral	Minicoaster
Lucy	Cannonball	Ball of Fire	Twisted	Dead Fred	Lightning
Kate	Spiral	Blackout	Minicoaster	Monster	Dead Fred
Matthew	Ball of Fire	Cannonball	Blackout	Twisted	Lightning
Dan	Lunatic	Drop Zone	Minicoaster	Spiral	Terror Falls
Larissa	Terror Falls	Navigator	Sic Slider	Dead Fred	Lunatic
Alecia	Spiral	Cannonball	Ball of Fire	Lightning	Twisted
Fiona	Dead Fred	Lunatic	Sic Slider	Blackout	Navigator
James	Monster	Drop Zone	Lunatic	Spiral	Terror Falls
Christopher	Blackout	Spiral	Navigator	Terror Falls	Monster
Jordan	Lightning	Cannonball	Blackout	Ball of Fire	Twisted
Chelsea	Sic Slider	Dead Fred	Ball of Fire	Lunatic	Navigator
Hannah	Twisted	Ball of Fire	Drop Zone	Lunatic	Spiral

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Escape Park Queue Time Table

The table below shows you how long it takes to wait in the queue at each different ride at Escape. For each time of day, it shows you how long you have to wait in the Quick Ticket Line and how long you have to wait in a Regular Ticket Line. A Quick Ticket is printed with the time the guest can return and jump the regular queue, the time starts 30 minutes from the time the ticket is printed and expires 1 hour after that time.

Key:
 Q = Quick Ticket Line time in minutes
 R = Regular Ticket Line time in minutes
 Note: A shaded box indicates no Quick Ticket is available.

Time of day																
	9 – 10		10 – 11		11 – 12		12 – 1		1 – 2		2 – 3		3 – 4		4 – 5	
Ride	Q	R	Q	R	Q	R	Q	R	Q	R	Q	R	Q	R	Q	R
Ball of Fire		5		12		12		8		10		10		12		15
Cannonball		15	0	25	0	25	0	22	0	27	1	30	1	30	1	35
Blackout		15	1	45	3	57	3	60	5	65	5	65	5	70	5	65
Drop Zone		10	0	15	0	20	0	15	0	25	0	25	1	28	1	30
Dead Fred		5		7		10		5		10		10		12		10
Lightning		15	0	27	3	35	0	20	4	46	6	50	6	50	6	50
Lunatic		15	0	23	2	35	0	17	0	27	2	35	2	35	1	30
Minicoaster		5		10		15		5		12		15		20		20
Monster		25	2	40	3	55	3	55	5	60	5	60	5	70	5	70
Navigator		5		10		20		5		30		30		26		23
Sic Slider		20	0	25	1	30	1	30	2	35	2	40	2	40	3	45
Spiral		20	0	35	2	45	5	50	5	55	5	60	5	60	5	60
Terror Falls		10	0	20	0	20	0	22	0	26	0	30	0	30	2	33
Twisted		5		15		15		12		20		15		15		23

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