



# Genetic Science Toolkit

## Teacher Information Booklet

### Contents

About Us .....	2
About Your Session – Genetic Science Toolkit .....	2
Booking Information .....	4
On the Day .....	5
Working With Children Check Confirmation .....	6
Evacuation Map: Ground Floor .....	7
Evacuation Map: Level 1 .....	8

# About Us

## About the Perkins

The Harry Perkins Institute of Medical Research, commonly known as The Perkins, is the largest medical research institute in WA working on diseases affecting adults in the community.

With over 250 researchers located in three hospital campuses, the Perkins is uniquely positioned to fast track the development of new discoveries and treatments. Researchers at the Perkins are driven to find new ways of diagnosing and treating diseases.

## About the Lotterywest BioDiscovery Centre

The Lotterywest BioDiscovery Centre connects students, teachers, and members of the community to the world of medical science and the research happening at the Perkins. Through school visits, community tours, and teacher professional learning opportunities, we are invested in raising awareness of the importance of medical research.

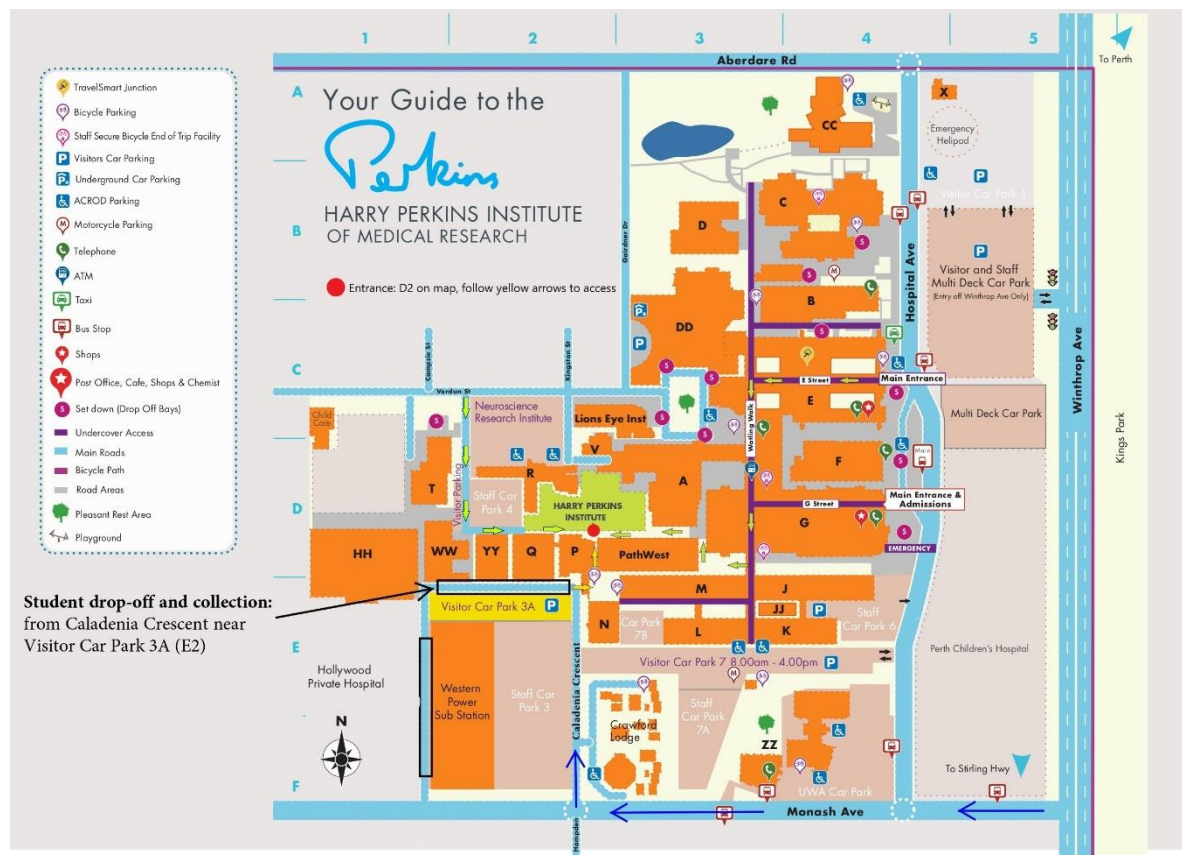
## Where to find us

We are located in **Nedlands** at 6 Verdun St, 6009. See the green building on the map below.

### Bus parking

Bus parking is organized through QEII parking. Should you require to park your school bus for the day please contact: [Nicolette.Staal@health.wa.gov.au](mailto:Nicolette.Staal@health.wa.gov.au) and [Qeii.parking@health.wa.gov.au](mailto:Qeii.parking@health.wa.gov.au)

Or alternatively, call on: (08) 6457 7248



# About Your Session – Genetic Science Toolkit

## Genetics Research at the Perkins

The scientific history of genetics began with the works of Gregor Mendel in the mid-19th century. Since then, with advances in all fields of genetics, coupled with new technology, researchers have a deeper understanding and knowledge of the role of genetics in disease. With an increasing range of tools in their tool kits, scientists are on the cusp of new discoveries.

In 2020, the Nobel Prize in chemistry went to Jennifer Doudna, and Emmanuelle Charpentier. Their research took CRISPR, a defence mechanism used by single celled organisms, and developed it into a technique that allows scientists to edit genes, just like a writer edits a book.

The Cancer Epigenetics lab at the Perkins, led by Pilar Blancafort, is looking into how gene editing can be used in the development of new cancer treatments. Many cancers do not have targeted treatment options – methods that treat cancer cells with minimal effect on healthy cells. Without targeted treatment options, patients receive general treatments, such as chemotherapy and radiotherapy, that often come with side-effects such as nausea etc.

Researchers at the Perkins are using CRISPR to modify the DNA of cancerous cells to make them more susceptible to these general treatments. CRISPR is also being used to make cells less cancerous – hampering their ability to divide and spread rapidly.

For more information about the Cancer Epigenetics Lab, check out our website here:  
<https://perkins.org.au/research/labs/cancer-program/cancer-epigenetics-overview/>

## What this session covers

Discover how the latest genetic knowledge is helping us move closer to more effective, personalised treatments for disease. Your students' day at the Perkins is hosted by research scientists who will help your class discover how genetic tools are used to uncover clues to better understand disease. Students will learn about how CRISPR and bioinformatics work. They will discover how these tools are used to develop improved treatments and diagnostic tests for medical conditions. Students will also learn how to use technical tools such as a micropipette and mini-centrifuge to extract DNA from cells.

Curriculum links		
Australian Curriculum Year 10		
SU Statements:	SHE Statements:	SIS Statements
184: Transmission of heritable characteristics from one generation to the next involves DNA and genes	191: Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community  192: Advances in scientific understanding often rely on technological advances and are often linked to scientific discoveries  194: People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people's lives, including generating new career opportunities  230: Values and needs of contemporary society can influence the focus of scientific research	198: Formulate questions or hypotheses that can be investigated scientifically  204: Use knowledge of scientific concepts to draw conclusions that are consistent with evidence  205: Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data  206: Critically analyse the validity of information in primary and secondary sources, and evaluate the approaches used to solve problems  208: Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

# Booking Information

## Price

Visits are priced at \$50 per student for a group of 20 or more students. For a group of less than 20 students per day, a minimum fee of \$1000 applies. If this is an issue for you please contact us to discuss how we may be able to assist by linking you in with another school.

For bookings over multiple days, each day will be priced independently.

## Booking Fee

Once we receive your online booking form, you will be invoiced for our \$100 per session booking fee to confirm your place. This will be deducted from your final invoice.

## Numbers

At the time of making your booking, please provide an estimate of the number of students that will be attending. You will be emailed a reminder two weeks before your visit to confirm student numbers.

It is the responsibility of the organizing teacher to confirm final numbers at least one week prior to their booking. A decrease in the number of participants will not be accepted after this point and schools will be invoiced accordingly.

## Photo Consent Policy

The Harry Perkins Institute of Medical Research may use photos taken during the session for publicity purposes unless otherwise agreed upon. The onus is on the school to obtain permission for students to be photographed.

## Timing

Sessions run from 9:30 to 2:30. Alternative times must be arranged ahead of the session.

## Cancellation Policy

If a school cancels less than a month out, the \$100 booking fee is not refundable.

The Lotterywest BioDiscovery Centre at the Harry Perkins Institute for Medical Research requests one month's notice for the cancellation of a school's booking. If this notice is not given, the school will be charged at 50% of the original cost of the excursion or session. It is the responsibility of the organizing teacher to confirm final numbers one week prior to their booking.

## Shared Classes

If the total number of students in a shared class drops below 20, all schools attending that day will split the \$1000 minimum fee proportionally to the number students attending.

## Duty of Care

School staff are to remain with students at all times. External providers do not have the same special duty of care relationship with students and are not responsible for personally caring for students. Should there be any attendee with a medical condition, disability, mobility issue or special learning requirements, the school is required to attend with two adults who can accept responsibility for duty of care.

## On the Day

### What teachers need to do and bring

Due to the evolving COVID-19 situation, we have a number of safekeeping measures in place at the Perkins. **Please ensure that the organising teacher has returned a signed COVID-19 form PRIOR to the schools' visit.** On the day, please provide a class list for us to collect at the start of the session. The café is not open to school groups at present. All participants, including teachers, must bring their own lunches, drinks, and snacks.

### What your students need to bring

Students will need to bring their own food and drink. Pens and workbooks are provided.

### PC2 Rules

All teachers and students must abide by PC2 (Physical Containment level 2) rules to be able to enter the lab. This means:

- 🔹 Flat, fully enclosed shoes (sneakers or leather lace-up school shoes).
- 🔹 All hair and fringes tied back and off faces.

No phones, bags, food or drink (including water) are to be brought into the PC2 lab area

## Pre-Visit Checklist

- All organising teachers have completed and returned a COVID-19 Form PRIOR to the school attending
- A class list is prepared for our staff to collect
- All students and teachers have brought lunch, drinks and snacks
- All students and teachers are wearing appropriate footwear and have hair tied back
- No attendee is displaying cough, cold, or flu-like symptoms
- No attendee has been identified as a close contact or is awaiting the results of a COVID 19 test

# Working With Children Check Confirmation

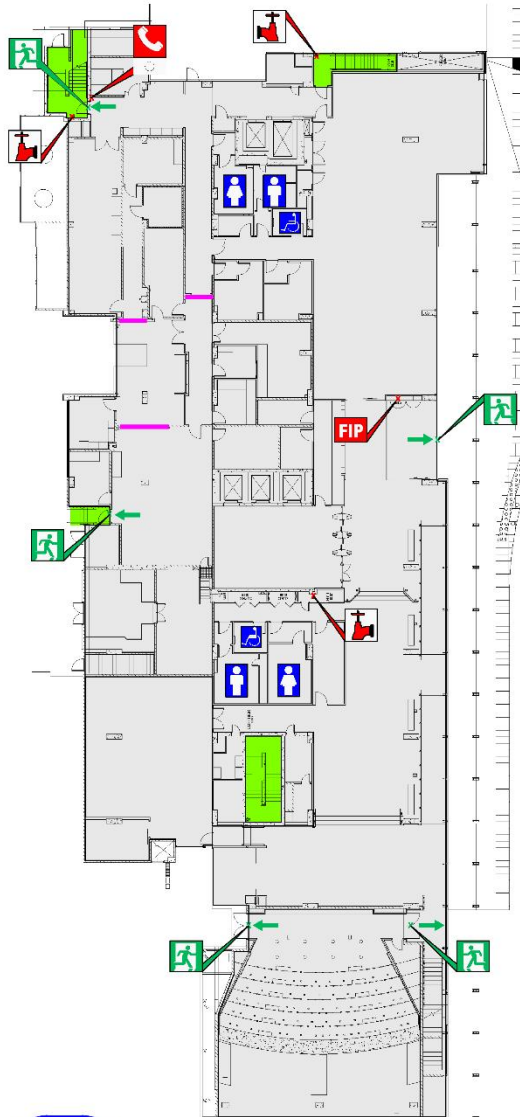
It is a condition of employment at the Lotterywest BioDiscovery Centre that all staff have a current Working With Children card



**Judi Lane**  
**Community Education Manager**  
Lotterywest BioDiscovery Centre  
Harry Perkins Institute of Medical Research

# Evacuation Map: Ground Floor

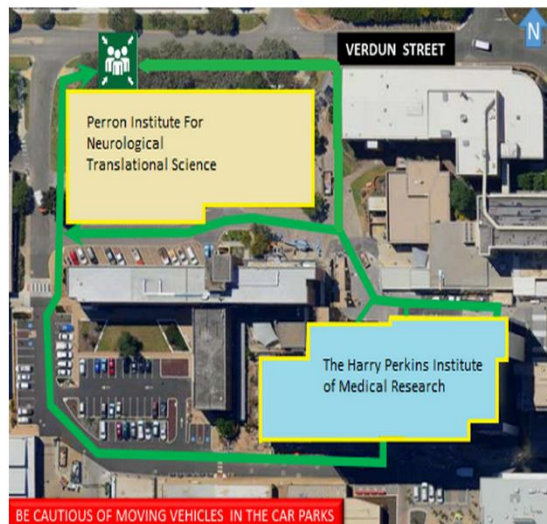
## EMERGENCY EVACUATION DIAGRAM QE II PERKINS INSTITUTE GROUND



- 1** When the **ALERT ALARM (Beep, Beep, Beep)** sounds, Stop what you are doing and prepare for evacuation. Listen for instructions. Follow directions from your warden.
- 2** When the **EVACUATE tone (Whoop, Whoop, Whoop) Sound**, under the instruction of the Wardens evacuate the building via the Emergency Exit. If no wardens are present, evacuate the building immediately via your nearest exit.
- 3** Do not panic. Move quietly and calmly to the primary **Assembly Area** on the **footpath in Verdun Street**.
- 4** Do not return to the building until given the "All Clear" by the Chief Warden or Emergency Services.

### LEGEND

	Fire Indicator Panel
	W.I.P.
	Fire Hydrant
	Emergency Alarm Button
	Emergency exit
	Assembly Area
	Fire isolation roller doors



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VALID DATE: NOVEMBER 2022

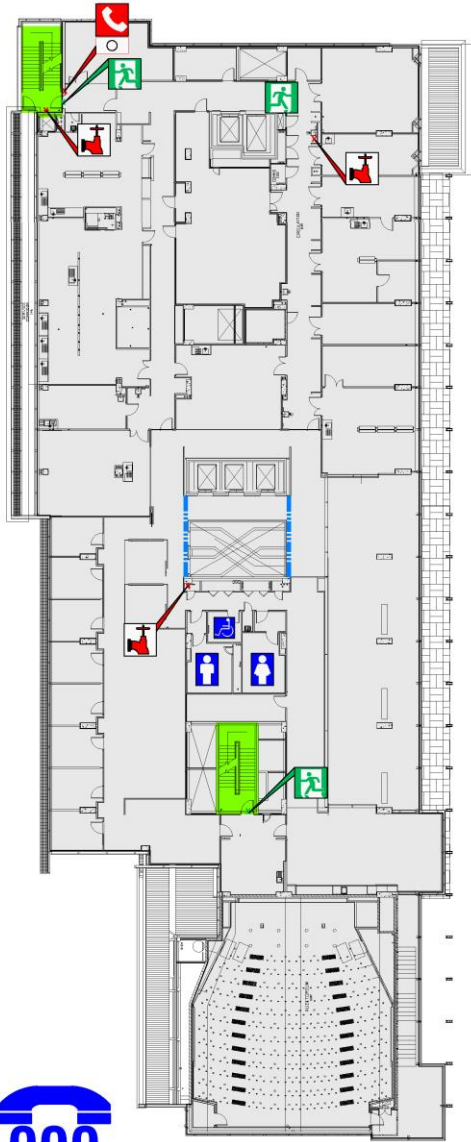
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**IN THE EVENT OF A FIRE RING 000 TO ENSURE FIRE SERVICE RESPONSE**

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# Evacuation Map: Level 1

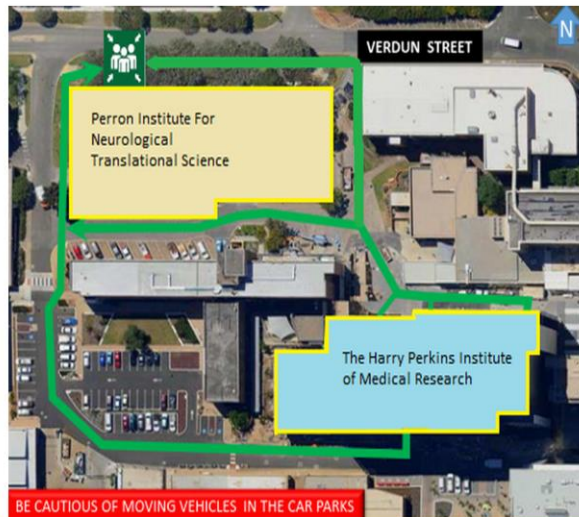
## EMERGENCY EVACUATION DIAGRAM QE II PERKINS INSTITUTE LEVEL 1



- 1** When the **ALERT ALARM (Beep, Beep, Beep)** sounds, Stop what you are doing and prepare for evacuation. Listen for instructions. Follow directions from your warden.
- 2** When the **EVACUATE tone (Whoop, Whoop, Whoop) Sound**, under the instruction of the Wardens evacuate the building via the Emergency Exit. If no wardens are present, evacuate the building immediately via your nearest exit.
- 3** Do not panic. Move quietly and calmly to the primary **Assembly Area** on the **footpath in Verdun Street**.
- 4** Do not return to the building until given the "All Clear" by the Chief Warden or Emergency Services.

### LEGEND

	W.I.P
	Fire Hydrant
	Emergency Alarm Button
	Emergency exit
	Assembly Area
	Fire Curtin



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**IN THE EVENT OF A FIRE RING 000 TO ENSURE FIRE SERVICE RESPONSE**

BE CAUTIOUS OF MOVING VEHICLES IN THE CAR PARKS