

Lesson 4: Intersections and road skills

Bikes are for everyone!

Anyone can ride a bike. However, some students may require additional assistance in the form of modified equipment and differentiated teaching. Suggestions for activity differentiation are provided throughout the lesson plans. Some students may also benefit from learning support aids such as social stories and other resources. If you would like further information on options for equipment modifications, adaptive bicycles and assistive technology, and learning support aids to assist with the delivery of Bike Ed, please email bikeed@transport.vic.gov.au.



SUGGESTED STAGE

While this Unit is designed for Years 7 and 8 (age range 12-15 years), you may choose to use these lessons for a different age range, depending on the development, maturity and existing bike riding experience level of your students.



SUGGESTED DURATION

This is the fourth of nine lessons for Unit 4 – Riding independently.
Suggested lesson duration: 45 minutes.



LEARNING INTENTIONS

- For students to analyse and apply ways to safely navigate complex intersections (in a simulated school setting).



SUCCESS CRITERIA

- Use safe distance and use safe speed at intersections.
- Ride on left side of the road, giving way to the right and obeying road signs.
- Demonstrate safe waiting times in complex situations.



EQUIPMENT

Bicycles (at least one per two students), helmets (one per student), intersection diagram sheets, cones and/or ground markings, and stop and give way signs.





CURRICULUM LINKS

The Bike Ed program is designed to support all students by emphasizing the importance of safety and promoting independent travel skills. The Bike Ed program caters for all students and recognizes the need to teach safety and independent travel for all. Acknowledging the diverse needs of learners, we are committed to providing tailored assessment materials for students working at levels below the Foundation stage (A-D curriculum). For more information please email bikeed@transport.vic.gov.au.

CONTENT DESCRIPTORS (Geography)

VC2HG8S02 collect, organise and process information and data from primary and secondary sources, including fieldwork, and using geospatial technologies and digital tools as appropriate.

VC2HG8S03 represent and describe information and data using a range of formats, including maps constructed with geospatial technologies.

(HPE)

VC2HP8M01 refine and transfer movement skills in a variety of movement situations, including indoor, outdoor and aquatic settings.

VC2HP8M02 design and demonstrate how movement strategies can be manipulated to improve movement outcomes.

VC2HP8M03 demonstrate and explain how movement concepts related to effort, space, time, objects and people can be manipulated to improve movement outcomes.

VC2HP8M04 adapt and perform movement sequences in a variety of contexts, demonstrating how the movement elements of time, effort, space, people and objects can enhance performance.

ACHIEVEMENT STANDARD (EXTRACT) (Geography)

By the end of Level 8, students:

- collect, organise, process and represent information and data from primary and secondary sources using geospatial technologies.

(HPE)

By the end of Level 8, students:

- apply and transfer movement skills and movement concepts across a range of situations. They implement and evaluate the effectiveness of movement strategies on movement outcomes. They propose and evaluate strategies designed to promote personal health and wellbeing outcomes.



LEVEL 7 – 8 RUBRIC: BIKE ED

By the end of Level 6	Progressing towards Level 8	By the end of Level 8
Students can identify safety issues in their own and others' bikes, clothing, and equipment, and suggest practical solutions to improve safety.	Students can undertake some of the basics of bike maintenance: · change a flat tyre · check tyre pressure · adjust seat height to fit individual · clean and oil the chain · fix a punctured tube	Students can undertake all of the basics of bike maintenance: · change a flat tyre · check tyre pressure · adjust seat height to fit individual · clean and oil the chain · fix a punctured tube
Students demonstrate successful communication to other riders whilst riding outside of the school (head scan, head checks, hand signals, voice commands).	Students demonstrate successful communication to other riders whilst riding outside of the school (head scan, head checks, hand signals, voice commands) and are beginning to take the lead or serve as role models for others.	Students demonstrate and can lead successful communication to other riders whilst riding outside of the school (head scan, head checks, hand signals, voice commands).

Continued overleaf.



LESSON PLAN

Unit 4 Lesson 4: Intersections and road skills



LEVEL 7 – 8 RUBRIC: BIKE ED (Continued)

By the end of Level 6	Progressing towards Level 8	By the end of Level 8
Students obey all road safety rules whilst riding outside the school (Keep to the left side of the road, leave at least 1 metre space from the parked cars, give way to the right, obeys all traffic signals and signs).	Students obey all road safety rules whilst riding outside the school (Keep to the left side of the road, leave at least 1 metre space from the parked cars, give way to the right, obeys all traffic signals and signs) and are beginning to take the lead or serve as role models for others.	Students lead others in adherence to all road safety rules, instructions and norms whilst riding outside the school (Keep to the left side of the road, leave at least 1 metre space from the parked cars, give way to the right, obeys all traffic signals and signs).
Students obey all road safety instructions and norms whilst riding outside the school (follows all instructions from the teacher ride in single file and does not overtake unless instructed, maintains safe space between riders of two bike lengths).	Students obey all road safety instructions and norms whilst riding outside the school (follows all instructions from the teacher ride in single file and does not overtake unless instructed, maintains safe space between riders of two bike lengths) and serve as role models for others.	Students lead others in obeying all road safety instructions and norms whilst riding outside the school (follows all instructions from the teacher ride in single file and does not overtake unless instructed, maintains safe space between riders of two bike lengths).
Students can identify and mitigate hazards in a community setting with assistance. Students can plan a safe travel route using a range of technologies and information (with teacher oversight)	Students can plan a safe travel route using various geospatial technologies and information (with teacher oversight) based on current conditions, hazards and the environment.	Students can plan several safe travel routes alternatives using various geospatial technologies and information (with teacher oversight), choosing the best and safest route based on current conditions, hazards and the environment.

Tuning in activity. Local intersections and roads.

Approx. 5 minutes

Resource Requirements

Laptops/tablets, at least one per group.

Safety

N/A

Activities & Differentiation

Students think of a local intersection that they are familiar with, which they feel would be challenging on a bike, and locate it on Google Maps.

Each group shares their chosen intersection with the class and explains why they think it would be challenging to ride on a bike, and any strategies they might use to ride through the area safely.

Teaching Points

If students can't think of an intersection, or if there aren't many available in the area, consider other challenging areas to ride such as narrow roads, rail crossings, where a bike lane ends or commonly has cars parked in it, roads with pot-holes at the edges, shopping strips, etc.

Encourage students to also think about how car drivers navigate intersections and how it might be different on a bike.



LESSON PLAN

Unit 4 Lesson 4: Intersections and road skills



Safety Checks.

Approx. 5 minutes

Resource Requirements

Bicycles (at least one per two students), helmets (one per student), helmet fit guide, and ABCD check guide.

Safety

- If using a class set of helmets, ensure that the helmets have been cleaned for hygiene.
- Dropping the bike should only be from a very small height (approx. 5-10cm).
- Ensure bike seats are at the appropriate height for the student.

Activities & Differentiation

Helmet & clothing check

Reminder from the teacher how to correctly put on helmet and check that they are wearing correct clothes.

- Two finger check (above eyebrow, under chin strap and forming a 'V' at the ear) and tighten the dial.
- Clothing is brightly coloured, for good visibility.
- Long pants are close fitting at the base, so stop it catching in the chain.
- Shoes are sturdy, close toed and non-slip, for stopping and protection.
- Students will put on their own helmets.

** For suggestions regarding safety considerations and how to adapt the helmet and clothing safety check to accommodate students with specific religious or cultural clothing, please email bikeed@transport.vic.gov.au.*

ABCD bicycle check

Each student completes a check of their bicycle, as led by the teacher. Use ABCD check guide. The ABCD check is as follows:

- A. Is there air in the tyres? Squeeze the tyre walls.
- B. Do the brakes work? Squeeze each brake whilst lightly pushing the bike.
- C. Does the chain move smoothly? Inspect the chain and move the pedals.
- D. Is anything loose on the bike? Check with a very small drop (whilst still holding on to the bike).
- E. You may also choose to add "E" for handlebar Ends: check that the end caps at the ends of the handlebars are not missing or damaged, as the hollow pipe of the handlebar can cause injury in a fall.

Attitude check

Try your best, have fun, respect others.

Teaching Points

We must always wear a helmet when on a bike because it protects our head and our very important brain.

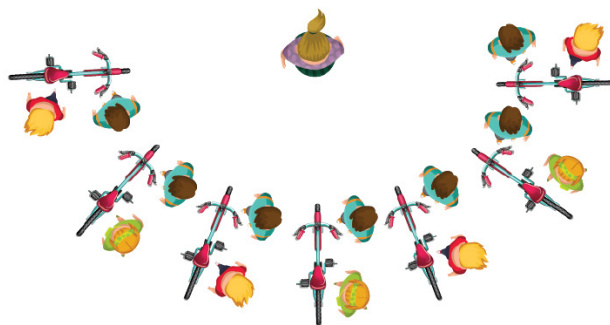
Just as important, is for the helmet to be fitted correctly, otherwise it won't work properly.

If we aren't dressed properly then we can't be seen easily, so someone might run into us.

We must check the bike before we ride. If the bike has a problem, then it might be unsafe to ride on.

Key Questions

- Why do we wear a helmet?
- What are the best ways to make sure that cars and other riders can see you?
- Why do we do a bike check before we ride?



Activity 1. Intersection Theory.

Approx. 10 minutes

Resource Requirements

Intersection guide diagrams.

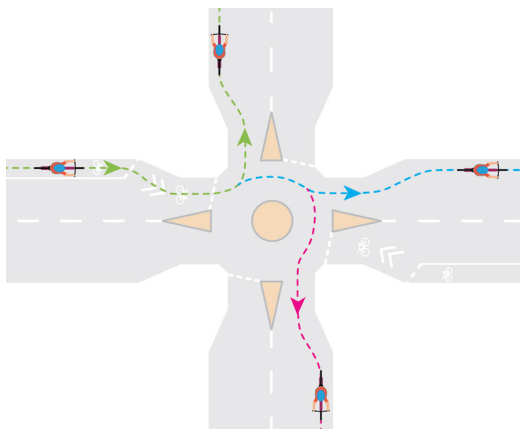
1. Roundabout
2. Cross intersection

Activities & Differentiation

Hand out sheets with diagrams, or project screen with diagrams, or draw on whiteboard, or print on a large sheet and use toy cars/bikes/figurines to demonstrate. Explain to students that these are pre-learning for on-the-bike activities in the next session.

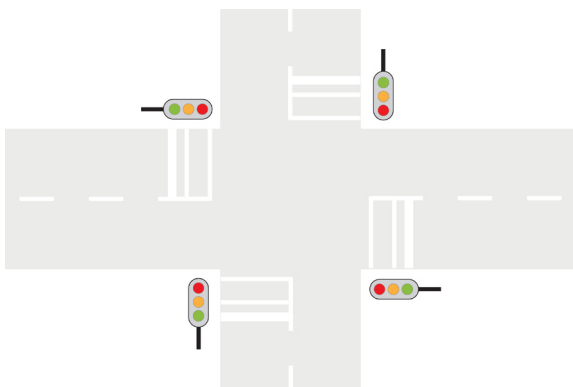
1. Roundabouts

Start with blank roundabout, and draw path of each rider (turning left, going straight, turning right), discussing process of each.



2. Right Turns at Intersections

Use Cross Intersection diagram and explain process for hook turns.



Teaching Points

** In all intersection cases, also encourage students to consider dismounting their bike and crossing as a pedestrian (stop, look, listen, think). This is the safest way to navigate intersections and can be done in almost all situations.*

1. Roundabouts

Discuss the best way for a bike rider to navigate a roundabout.

- Discuss the key dangers of a roundabout: the narrow concrete areas where it is not safe to be overtaken by a vehicle.
- Scan, signal, scan to merge into the traffic lane (called “taking the lane”) on approach.
- Signal first before entering the roundabout, then keep two hands on the handlebar. Repeat the signal only if it is necessary to convey intentions to another road user.
- Who gives way? Give way to anyone coming from your right, or anyone already on the roundabout circle.
- Stay in the centre of the lane all the way through the roundabout, until you have passed the narrow “squeeze points”.
- Signal if turning left or right, but not if going straight ahead.

2. Right Turns at Intersections:

There are three different ways that bike riders can make a right turn on the road.

1. Turn right from the road.

Here the bike rider signals for a right turn, does a head-check, and slowly moves to the right side of the road when it is safe to do so. Stopping at the right of the road at the intersection, the bike rider makes the right turn when there is a safe gap. This should be done when there is only one lane of traffic, there is low traffic volume, and the rider is confident they can make the move safely.

2. Make a hook turn.

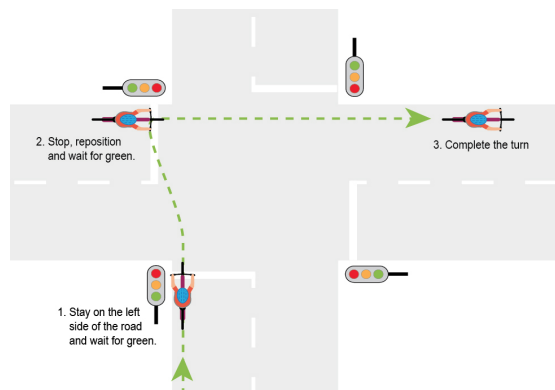
Here the bike rider can pull over to the left of the road and stop. They will then turn the bike right to face the direction they will be turning and wait until there is no traffic, so that they can cycle directly across the road. This is safer, as there is no merging

LESSON PLAN

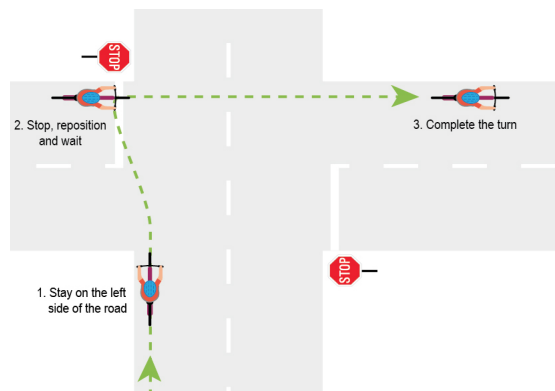
Unit 4 Lesson 4: Intersections and road skills



Hook Turn with Traffic Lights:



Hook Turn without Traffic Lights:



Progressions:

- Split into 4 groups, with two groups assigned to each intersection type.
- Each group draws their chosen pathway(s) through the intersection and then presents it to the class, with reasoning.

required and the bike rider is in a position to see the whole intersection whilst stationary. This is a safer option if traffic volumes are high, especially at larger, cross-intersections.

3. Dismount and cross as a pedestrian (see above).

Key Questions

- When would you make each different type of right turn?
 - It depends on the road, how much traffic there is, how difficult the turn is, road conditions (is visibility high/low, bad weather?) and how confident the rider is.
- What is the order of the right turn methods, from safest to least safe?
 - Dismount and walk, hook turn, right turn from the road.

Activity 2: On road safety.

Approx. 10 minutes

Resource Requirements

N/A

Safety

- Students are to always maintain a safe distance from the road.



Activities & Differentiation

Depending what road scenarios are available within the environment surrounding the school, and staffing levels, you may choose to do the practical activity or use group discussions and worksheets or use a combination of both.

Option 1: Practical activity

In small groups, take students to the road adjacent and visible from the school.

- The road should ideally be relatively lightly trafficked with some parked cars

If an intersection is available, this is a great additional talking point, to revise the Intersection Theory activity. Use teaching points listed to lead discussions.

Option 2: Discussion & worksheets

Provide printed screenshots (or display on screen) of a local Google maps street view with cars parked, a driveway entering onto a roadway, and a road with a bike lane that ends or has a car parked in it.

In groups of 2-3, students are to discuss the points below and draw on the image where they would ride and note the hazards they need to avoid.

Teaching Points

Car door hazards

'Dooring' is a major hazard for bike riders on the road. This is where occupants open the door of a parked car into the path of bike riders. This is extremely dangerous and good cycling behaviour is needed to manage it.

- Explain the road safety context for managing 'dooring'.
- Car dooring can be managed by ensuring that you ride at least 1 metre away from the side of any parked car.

Safely entering the road

A large proportion of crashes involving children are from bike riders carelessly entering the road from the footpath or a driveway. This is because bike riders can be difficult to see for cars (especially if there are parked cars in the vicinity) and bike riders may enter the road without sufficiently checking for road traffic.

Explain the road safety context for learning how to enter the road correctly on a bike.

The correct way to ride out is:

1. Walk your bike to the edge of the roadway.
2. Scan right, and when clear, place your bike onto the roadway pointing in the direction of travel.
3. Mount the bike and move starting pedal into power position.
4. Scan behind (over the right shoulder) before riding off in a straight line.

Merging into a traffic lane

Sometimes a bike lane ends, or has an obstruction such as a sign or a parked car, and riders need to merge into the traffic lane.

Explain the road safety context for learning how to merge safely from a bike lane into a traffic lane.

The correct way is:

1. Observe the hazard ahead
2. Scan behind to check for traffic coming
3. If it is clear, signal right to show intention to merge
4. Scan behind again before merging
5. Move to the right to position 1 metre out from the parked car or obstacle
6. Once past the obstruction, if the bike lane is clear, signal left and return to the bike lane

Key Questions:

What are the dangers when riding past parked cars?
What do we need to be aware of, and how can we



avoid them?

- Danger of being 'doored'
- Observe parked cars to look for a driver inside
- Ride 1 metre out from parked cars

How do we safely enter the roadway? What hazards do we need to be aware of?

- Stop before entering the roadway and scan both ways to ensure it is safe to enter
- Ride on the left side of the road, being careful not to ride out too far

When might we need to merge from the bike lane into the traffic lane? What is the process?

- When there is an obstruction or parked car blocking the lane
- Scan, signal, scan again, then merge to pass the obstruction. Return to the bike lane if and when it is clear.

Activity 3. Move on over.

Approx. 10 minutes

Resource Requirements

Cones. Chalk can be used to create line markings, and draw directional arrows on the ground. This setup works extremely well using the side-lines of a tennis court as the "bike lanes".

Activities & Differentiation

This activity will involve students riding in a simulated bike lane that ends (due to a parked car) and must then merge into the "traffic lane" and ride 1 metre out from the edge of the lane.

- Remind students about the skill of scanning behind (head-checks), and signalling. Introduce the concept of indicating to show that you are changing lanes. Explain when you would have to do this.
- You may wish to first have the students walk (with or without) their bikes through the course slowly. Explain the scan, signal, scan process and when each step should occur.

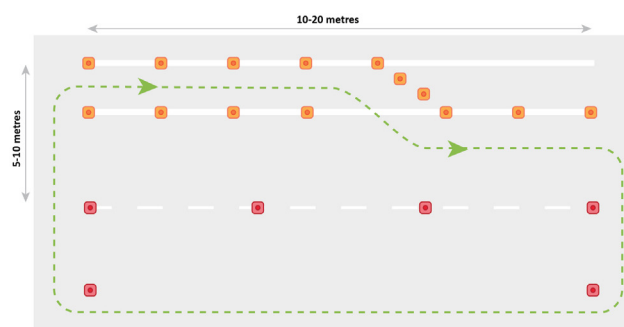
Modifications

- You may wish to have this activity occurring on only one side of a rectangle (not both as in the second progression diagram), and a different (less complex) activity such as slalom, along the opposite edge of

Safety

- Must be completed at low speed.
- Students must maintain at least two bike lengths distance to other bike riders.

Activity Setup



Teaching Points

Negotiating your movements with other bike riders and road users on paths is very important. Most important for students is to have a safe attitude, where each bike rider will act in the safest, most predictable way possible to avoid collisions.



LESSON PLAN

Unit 4 Lesson 4: Intersections and road skills



the rectangle; so that the teacher can closely observe for safe merging and provide feedback.

- If students are not confident taking a hand off to signal, they can use their voice to say “merging” instead.
- If students are not confident to scan behind without swerving out of the lane, they can practice just looking sideways to start with, and build up to checking behind.
- Students who are not yet able to balance and pedal can still participate in this activity using a balance bike (refer to additional resources).

Progressions

- As students become competent at the task, some students will be instructed to take the traffic lane from the start (diagram overleaf; following the blue line and arrows), and they then become traffic that the bike lane traffic must give way to / merge into.
- Initially, the traffic lane riders should ride slowly enough to allow a gap for the merging rider to merge in front of them. As skills progress, traffic lane riders can choose to speed up so that the bike lane cannot merge in front of them and must slow or stop to give way; or may choose to slow down to make merging possible; simulating real-life situations in traffic.
- For this progression, the confident riders should begin the green path (bike lane) only when they are ready, with less confident riders taking the blue path (traffic lane) until they are confident to take the bike lane.
- As students get more familiar with this activity, they could choose which lane they take (bike lane or traffic lane) by signalling their intentions.
- A teacher or non-riding student can stand in the area where the “parked car” is in the bike lane and have their arm out as if it is an opened door, reminding students that they need to be one metre out to avoid getting “doored”. The student or teacher in the parked car could hold a pool noodle out as the “door” instead of holding their arm out. Note: this should be a distance indicator only, and should not be allowed to make contact with the student on the bike.

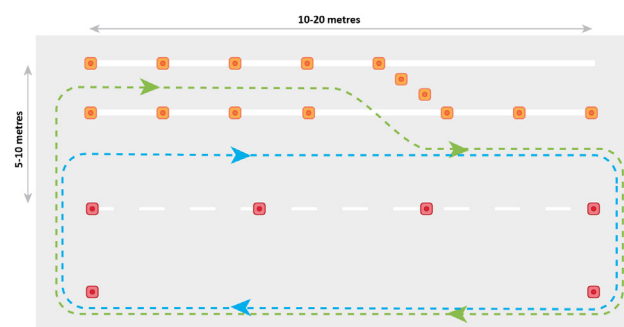
Key Questions

How do you avoid collisions when merging into a traffic lane?

- Safe attitude.
- Low speed.
- Understanding the road rules for merging.
- Scan, signal, scan.
- Communication (signalling).
- Being prepared to slow and stop if there is not space to merge.

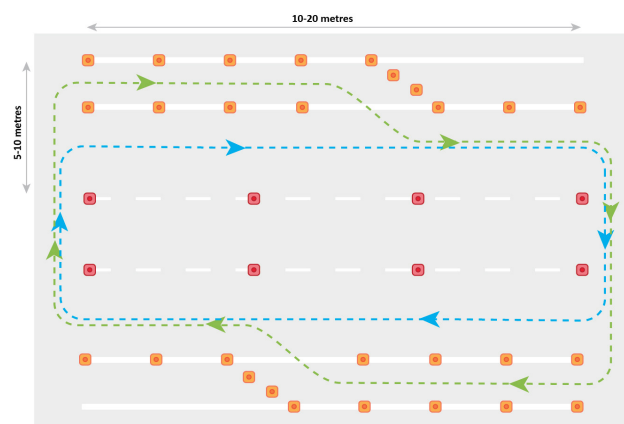
Progression Activity Setup

Adding a “traffic lane” of riders.



Alternate Setup

Using both sides of a circuit so students get two opportunities to practice.



LESSON PLAN

Unit 4 Lesson 4: Intersections and road skills



Activity 4. Unsigned Intersections.

Approx. 10 minutes

Resource Requirements

Cones, and stop and giveaway signs.
Chalk can be used to create line markings, draw way signs, and draw directional arrows on the ground.
Signs may be printed and laminated, with beanbags used to stop them blowing away.

Activities & Differentiation

This is the same course setup as the previous Cross Intersections activity, but without signs in the middle.

- This activity will involve students riding their bicycles through an unsigned intersection.
- Explain that, at roundabouts or intersections without signs, we give way to the rider (or vehicle) on our right. Demonstrate this with volunteers.
- Have the students walk their bikes through the course slowly, showing them how to give way as they do so.
- The riders will follow a similar route as the Cross Intersections course, where they can ride around the outside until comfortable coming into the intersection, and then may ride across the intersection after stopping to give way.
- Firstly, have students only follow the green path – with no cross traffic. Once they are comfortable, add in the blue path, which creates cross traffic.
- The teacher should be at the intersection, observing and providing feedback to students as they negotiate the intersection.

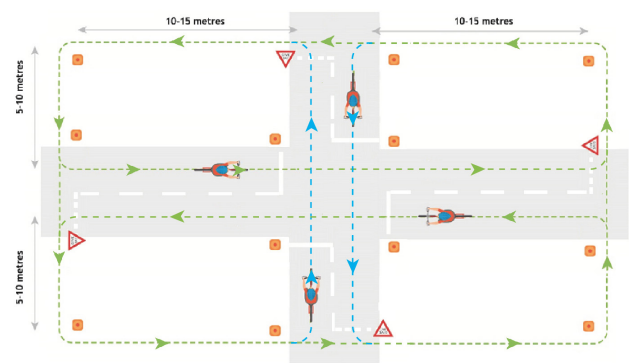
Modifications

- You may add non-riders with 'stop signs' (like a school crossing supervisor) at points around the outside of the circuit.
- May wish to limit the number of bike riders using the intersection at first to allow easier gaps to be picked.
- Students who are not yet able to balance and pedal can still participate in this activity using a balance bike (refer to additional resources).
- Less confident or nervous riders can choose to continue riding around the outside of the course (anti-clockwise only), until they feel ready to enter the intersection. They will still learn by observing how other students navigate through the intersection.

Safety

- Must be completed at low speed.
- Students must maintain at least two bike lengths distance to other bike riders.

Activity Setup



Teaching Points

Students making decisions at the intersection.

- Provide opportunities for students to make decisions and pick safe gaps in traffic when they are ready.

Key Questions

Who goes first?

- If there are no signs, you must give way to the rider coming from your right.

Progressions

- As students become more confident, as an extension activity they may be allowed to choose to turn left at the intersection to begin with, and then add in the option of turning right, or may still go straight ahead. Students will need to indicate their intentions in this instance.



Reflection & closure.

Approx. 5 minutes

Activities & Differentiation

What did you learn from watching traffic?

What are some of the major road safety issues we learned how to manage today?

- Making a right turn at intersections,
- Roundabouts,
- Unsigned intersections,
- Car dooring,
- Entering a road,
- Merging from a bike lane into traffic lane.

How do we manage each of those?

Thumbs up/down/sideways: How confident do you feel about navigating roundabouts and turning right at intersections?

Key Questions

What do we do at an unsigned intersection?

- Give way to the bike rider or car on your right.

Are there any bike safety issues that you still unsure how to deal with?

