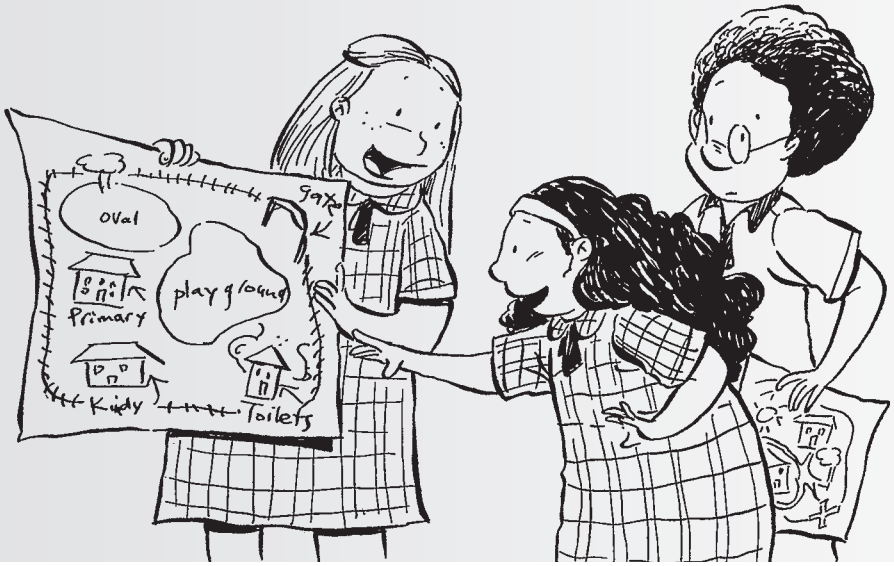
UNIT 10

Which Way from Here?

Can others follow my route?



WHAT HAPPENS?

In this unit, students draw a map representation of their school grounds and use it to describe a walking trail: a sequence of areas they might visit to give a new student a tour of the school.

Students will:

- Discuss and use both location and directional terminology. (Discover)
- Walk around the school navigating the route as they proceed. (Devise)
- Represent their school grounds on a map. (Develop)
- Link the places they might visit during a lunch break with a dotted line. (Develop)
- Use the map and directional words to communicate the pathway they chose. (Defend)

Students feel important creating their own directions to guide others around the school.

TEACHER NOTES:

Students often use positional and directional terminology, but not always in the right context. In this unit, students walk a few pathways around the school and, as a class, jointly construct directions as they proceed. These experiences help students through the process of individually constructing their own map and oral directions.

Materials

- Rosie's Walk by Pat Hutchins (or a similar text)
- A map of the school, showing buildings and play areas
- Various simple maps (to be used for interpretation)

Curriculum Links

- English – Procedural texts

Mathematical Focus

- Measurement and Geometry – Maps and directions

Resource Sheets

- Resource sheet 1: Location Match-Up
- Resource sheet 2: Additional Location Word Cards
- Resource sheet 3: Reflection Cube

Support Website

www.curriculumpress.edu.au/maths

All of the resource sheets are available on the support website to download as PDF files. Those that you might customise are also available as editable Word documents.

Other texts are just as appropriate here, provided they include directional terminology and a pathway that children can follow and explore.

Assessment Idea

Focused observation:

- Could students recall the places Rosie visited and include them in their farmyard picture?

Mathematical Focus

Geometry – directional terminology, creating simple maps.

Try some logic puzzles (such as line-ups using positional instructions: 'Susie is in front of Billy but behind Thien'). These activities can help students become more competent with directional terminology. Playing a game of 'What am I?' in the playground or the classroom will also assist students to understand the terminology (I am behind the tuckshop. I am located between the hall and the Year One classroom. I am next to the large gum tree).

Assessment Ideas

Focused observation:

- Were students able to articulate directional terminology?
- Did students make worthwhile contributions to the discussion?

DISCUSS AND INTRODUCE TERMINOLOGY

Read Rosie's Walk, by Pat Hutchins, to the class. Students study the illustrations and how each place Rosie visited is represented (duck pond, hen house, haystack). Compare these representations with how the walk would look if all of these locations were drawn on a simple 'mud map'. Ask students to draw a map of Rosie's farmyard and show her walking route on their drawing.

Discuss the book with students, highlighting the location and directional words used.

As a class, discuss and list other directional words students know.

USE LOCATION AND DIRECTIONAL TERMINOLOGY

To familiarise young students with the terminology of location and direction, play a game of Location Match-Up (Resource sheet 1).

Alternatively, in the school playground, challenge students to a game of Location/Direction Lucky Dip (use cards from Resource sheets 1 and 2). In this game, pairs of students select one location card from a box and, after moving as quickly as possible to a spot in the playground, articulate how they have used the card, eg: ON – 'I'm standing ON the fort'.

NAVIGATE A PATHWAY AROUND THE SCHOOL

Display the inquiry question: Can others follow my route?

Ask students where Rosie's route took place (in a farmyard). Brainstorm other places where they could follow a walking route (at school, in the park, at home).

Brainstorm with students all the places they could visit in the school grounds to show a new student around the school. Create a list.

Discuss what they would need to think about if they were to make a route for others to follow. Suggestions may include:

- Order of the route – it is not practical to go to the oval, up to the playground, back to oval, up to the toilet, back to the oval, and so forth.
- A way to represent the route for others to follow – such as on a map.
- A way to show the route on the map.
- How to describe the route orally for others to follow if they don't have a map.

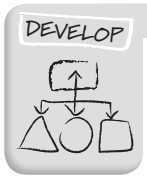
CREATE A PATHWAY

As a class, go outdoors and create a schoolyard walk to one of the destinations the class listed above (take copies of the school map for students with you). Have students use directional terminology as the walk progresses and record the walk on their copy of the school map, using linking arrows.

Repeat the process for a second walk (to the same location by a different route or to a different location) to provide students with an opportunity to view other walk possibilities.

TIP

Provide other examples of simple maps both for interpretation and discussion about how a route can be shown on a map. This will generate ideas about how to represent areas and detail on their own maps.



REPRESENT THE SCHOOL GROUNDS ON A MAP

Individually, students draw a map of the school by hand, showing all of the locations they would visit with a new student (places such as the oval or the playground), including key landmarks (the big gum tree, the benches). Encourage them to provide enough details for others to identify each location and important landmarks.

VISUALISE AND RECORD A ROUTE

Using their completed maps, have students individually visualise a route they might visit with a new student and mark it on their map. Offer suggestions if you see students getting stuck, or if there are many difficulties. Bring students together as a class to share their progress and ideas on how to overcome any hurdles they have encountered.

DESCRIBE THE ROUTE

Students describe their route using directional terminology. This could be written, in oral or in a pictorial format.

Mathematical Focus

Geometry – directional terminology, giving and following directions, interpreting simple maps

Repeating the class walk helps students to see that there are multiple pathways that they can follow in the school grounds.

Assessment Ideas

Focused observation:

- Were students able to provide accurate directions?
- Were students actively engaged in the walk, contributing both to map recording and to the oral directions?

Mathematical Focus

Geometry –directional terminology, creating simple maps, providing written directions.

Even though students are familiar with their school environment, they still find it extremely difficult to visualise locations and represent them on a map. Assisting students to orientate their maps makes the task easier for them (see In Action, on p 99).

Assessment Ideas

Task analysis:

School map, defined route and written or oral directions:

- Were the directions, map and defined route presented in a way other students could easily understand?

Mathematical Focus

Geometry – interpreting simple maps; following directions

Assessment Ideas

Peer assessment:
- Which students asked clarifying questions or offered constructive feedback?

Consultation:
- Did students respond to teacher or peer advice offered to improve their map, route and /or directions?

Students who are new to reflection activities often find it difficult to articulate their thoughts. Scaffold their reflection skills by modelling possible responses and encouraging them to elaborate on their answers.

Assessment Idea

Self assessment:
- Were students able to reflect meaningfully on their learning?

USING DIRECTIONAL AND LOCATION TERMINOLOGY

Have students share their routes in a variety of ways, encouraging peer feedback to improve their map and/or directions.

Students may:

- Present their routes orally to the class, displaying their map and reading their directions.
- Work in pairs, with one student reading their own directions aloud while the other student follows the map.
- Take the class on the actual route and provide the directions as they proceed.

Allow time for students to revise their maps using the feedback provided.

REFLECT ON LEARNING

Provide a reflection cube (or use the one on Resource sheet 3) with the following faces:

- I found it difficult to…
- I was proud of myself when…
- My map was easy for others to follow because…
- A new word I learnt was… and it means…
- I enjoyed…
- A map would be useful if I wanted to…

Select individual students to roll the cube and share reflections on their learning.

TIP

Teachers may prefer to transfer these reflection starters onto reflection strips rather than a using the cube. (See p 12 for a set of reflection strips.)

TO EXTEND:

- Have students estimate the length of time the new student's tour would take.

TO SIMPLIFY:

- Have students present their work orally to the class without including the written instructions.
- Provide students with the map and have them mark in the route before presenting it in oral or written form, or both.

ALTERNATIVE INQUIRIES:

- Plan a day at a theme park or upcoming school excursion using a published map and including a timetable, if desired. Try to include as many attractions or points of interest as possible. Be prepared to be the guide for the day.

WHICH WAY FROM HERE? *INACTION!*

DEVELOPING UNDERSTANDINGS IN PRACTICE

While undertaking this unit with a class, students had several opportunities to develop their understandings about location, direction and movement.

Location and direction

Students' misconceptions about the difference between location and direction became apparent as they played the location/direction lucky dip game. The 'hands-on' nature of the activity provided teaching moments in context and clarification for individual students before they embarked on their routes.

Maps and plans

As students began to consider pathways, the need to record the route became apparent. This led to a class discussion that a map or plan would be the best way to provide information about the school environment.

During the discussion, students wondered about the difference between a map and a plan, and jointly decided that maps are used for outside (map of the school) and plans are used for inside buildings (plan of the classroom), but that both are 2D representations of a real place.

Looking at Google satellite maps of the local area helped students establish that maps are drawn looking down on places (using a bird's eye view). One student volunteered that house plans are also drawn from a bird's eye view, which the class verified using an internet search for house plans.

Spatial sense

Taking students outside as a class to actually create and plot the class route on a given map made students aware of the need to orientate both themselves and the map for each direction they provided.

Walking the route made students see the importance of providing not just a direction ('Turn right') but an approximate or informal distance as well ('Turn right at the top of the steps and walk through the eating area').

Orientating the map to their surroundings

Even though students were familiar with their school environment, they still found it extremely difficult to visualise locations and represent them on a map.

Students found the task more manageable after being taken outside to orientate buildings and landmarks from several locations. A first orientation point was set, not far from the fence line. Students were asked to identify buildings and landmarks in front of them, behind them, to the right of them and to the left of them. Four more orientation points were chosen, each south of the first point, walking further into the school grounds. At each orientation point, students repeated the exercise, identifying buildings and landmarks in front of them, behind them, to the right of them and to the left of them. Some prompting was required to ensure students identified all buildings and landmarks within the school boundaries in the given direction, not just the one they could see directly in front of them.

In the classroom, before students drew their own maps, they were encouraged to rotate the page to orientate the school boundaries according to their seating

position and mark the boundaries (eg Smith Road is on the left, the Child Care Centre is in front and Taper Road is behind me). Once these boundaries were in place, most students were able to produce a functional map to display their route.

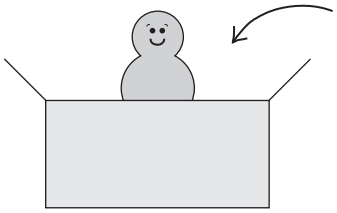
Communicating

The most effective methods for students to share their maps, routes and directions were through activities that required them to work in pairs. By working in pairs, each student could be actively engaged either in interpreting the route or presenting it, providing more opportunities for individual involvement, constructive feedback and clarifying questions.

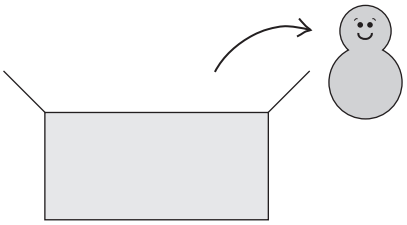
Location Match-Up Game

- Preparation: Copy and laminate one set of cards for each group.
- Rules: In groups of 2–3 students, mix up the cards and place them face down on the desk. In turns, students turn over two cards, keeping them if they are opposites (eg IN–OUT). If they are not opposites, turn them face down again. Continue until there are no more cards.

IN



OUT



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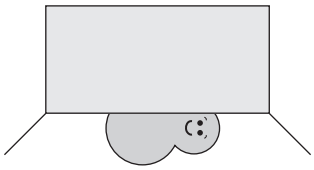
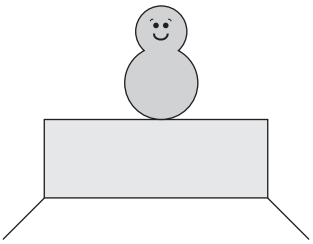
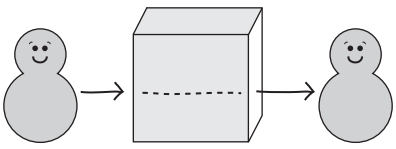


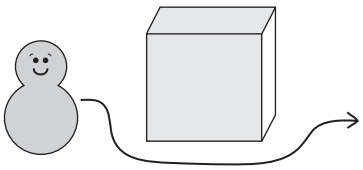
OVER



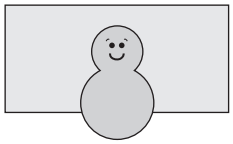
THROUGH



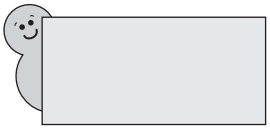
AROUND



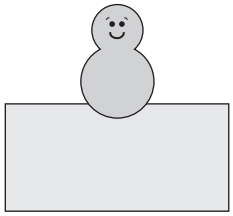
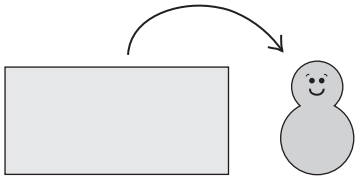
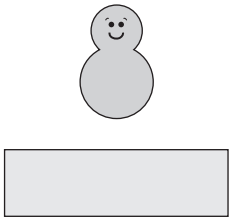
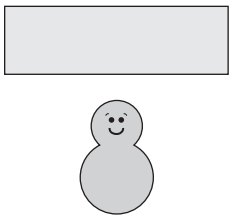
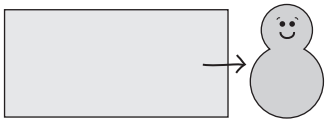
IN FRONT



BEHIND

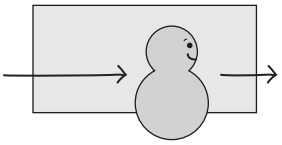


Location Match-Up Game (Continued)

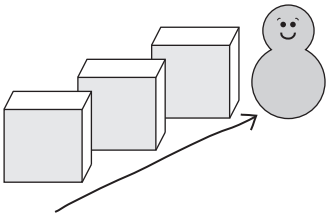
ON 	OFF 
ABOVE 	BELOW 
LEFT 	RIGHT 

Additional Location Word Cards

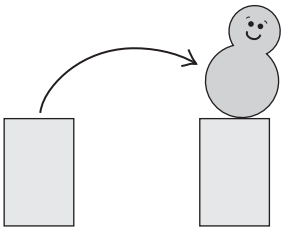
PAST



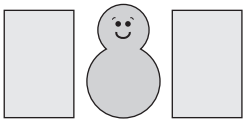
ALONG



ACROSS



BETWEEN



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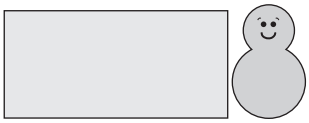

Reflection Cube