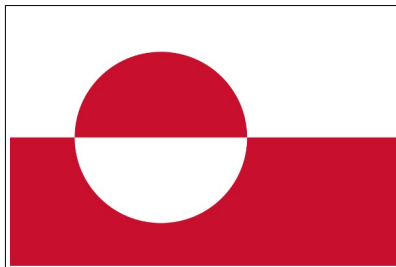


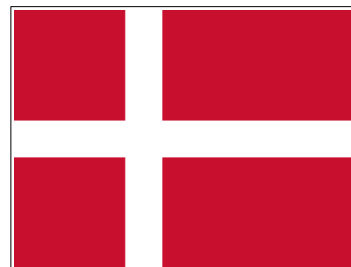
Setting

Polar Pairs is set in Greenland, an autonomous territory in the Kingdom of Denmark. Greenland and Denmark are in the region of Scandinavia (northern Europe), although Greenland is geographically closer to North America than to mainland Europe. Encourage students to locate Greenland, Denmark, the Arctic Circle, and the North Pole on a world map, if you have one.

The flags of Greenland and Denmark are visible on the kettle and the wall on **page 5**.



Flag of Greenland



Flag of Denmark

Igloos are temporary housing structures built out of bricks of compacted snow. The bricks are wedged tightly together, so the roof does not collapse. Students might notice that igloos are based on a dome or *hemisphere*. Our igloo house is larger and more complicated than traditional dwellings. The lounge room and kitchen contain features of traditional wooden houses in Greenland, including wooden furniture, animal furs, and preserved foods. Snow igloos are traditionally used only by the Inuit peoples of Greenland and Canada.

The animals' clothing is a simplified design based on a variety of Arctic people groups. You might like to use the internet to show your students images of the traditional clothing of Greenland, Norway, Russia, Canada, or other Arctic regions. What similarities and differences can they notice? Wooden snow shoes and walking poles, used by various Arctic peoples, are visible on **page 16**.

Characters

The characters in the story are polar bears and penguins. It is important to teach your students that penguins live in Antarctica (in the south) and polar bears live in the Arctic Circle (in the north), so they could never actually meet each other! Use a world map to show your students where these places are.

Depending on where you are in the world, students may have seen other bear and penguin species before. Our penguins do not perfectly match the features of any of the 18 known species of penguins in the world! What makes the animals in the story different from those they have seen before? Consider the size of the animal, colour, markings, ears (size, shape), tail (size, shape, position, thickness), legs or wings (length, width, shape), feet (size, number of toes), beak (size, shape, colour), etc.



Polar bear



Emperor penguin and chick



Adélie penguins

Story

Polar Pairs is a word play on “polar bears”, highlighting the importance of the concept of pairs of numbers in the book. This is a good opportunity to talk to students about rhyme. “Bears” and “pairs” have the same vowel *sound*, but are spelt with different vowels.

Hospitality is a common and important practice in many cultures, but it looks different in different places. Encourage students to notice details by asking questions such as:

- What do the polar bears do to prepare the house for guests on **pages 2 and 3**?
(Tidy the lounge-room, put a table cloth on the dining table)
- Compare **page 3** with **pages 6 and 7**. What has been put on the chairs and the table?
(Rugs on the chairs, place-mats on the table)
- What food can you see throughout the story?
(Fish and vegetables hanging to dry, cake, jars of preserved food, etc.)
- What food is served for dinner? (Raw fish and soup. See **pages 1 and 14**)
- How do the polar bears greet the penguins at the door on **page 16**?
(They are smiling. One is gesturing with its arm to enter the house)
- How do you think the penguin children are feeling about meeting the polar bears?
(The one on the left is waving, so it might be feeling confident and curious. The one on the right is hiding its face, so it might be feeling shy)

Students may have experience of setting the table at home, and/or of having guests over for a meal. You can ask students questions about their experiences such as:

- When do you have guests over to share a meal?
(e.g., family dinner, birthdays, holidays and festivals)
- What food do you serve?
- What crockery (plates, bowls, cups, etc.) and cutlery (forks, knives, spoons, chopsticks, etc.) do you use?

There are many other details in the house that you can discuss with your students. For example, the pictures and photos of different countries on the **front cover** and **pages 2, 9, 12**.

- Can your students identify any of the locations?
(**Cover**: Eiffel Tower, France; Gondolas in Venice, Italy. **Page 2**: Eiffel Tower, France; pyramid, Egypt. **Page 9**: Great Wall of China; Sydney Opera House, Australia. **Page 12**: Eiffel Tower, France).
- Could a polar bear travel to those locations in real life?
(Only if humans transported the polar bears to a zoo in that location!)

It is unlikely that your students will yet be able to read the calendar on **page 2**. You can re-visit this reader after teaching the Time unit and then ask students to read the circled date (Saturday, the 21st June), and answer questions such as:

- What day of the week does this month start on? (Sunday)
- How many days are in this month? (30)

Mathematical concepts and language

This story focuses on developing students’ ability to generate the numbers in a sum with a given answer. We exhaust all the possibilities of pairs which add to four: $0 + 4$, $1 + 3$, $2 + 2$, in either order. Help students to reach this conclusion for themselves by asking, “can you think of any other pairs which add to four?”.

At the end of the book, we invite students to think of the pairs of numbers which add to six: $0 + 6$, $1 + 5$, $2 + 4$, $3 + 3$, in either order. There are enough plates and bowls on **pages 4 and 8** for you to make one or more sums which total 6, but these will not exhaust the possibilities. There are only 4 cups on the shelves on **page 12**, but you can ask students to look through the book to find 2 more cups for the penguin children somewhere else (see **page 5**).

Adding zero is meaningful in this context, because we have the *choice* to add 0, 1, 2, 3, or 4 of each coloured object. Zero is the additive identity. When we add zero to any number, the result is just the number: $a + 0 = 0 + a = a$.

Remind students that the *order* in which we add numbers does not change the result. This commutative property of addition is reinforced throughout the book by stating each sum twice, in each possible order of terms. In the case of doubles, there is only one possible order.

This might be the first time students see the words “pair” and “double”. Encourage them to repeat the words aloud after you and learn their spelling.

Doubling is often covered as part of multiplication, but most children will first experience it as adding a number to itself, for example in a board game that requires two dice to be rolled. If necessary, use dice to help your students visualise the sums.

There are many opportunities throughout the book to practise counting: 4 boots on **page 2**, 5 fish on **page 3**, 4 knives on **page 8**, etc.

For students requiring extension

Students may be extended by revisiting **pages 4 and 8**. Working systematically by finding patterns, ask them to list *all* possible combinations with sum 4 of:

- *blue and yellow plates (page 4).*

There are 3 blue and 4 yellow plates in the cupboard, so the possible combinations with sum 4 are:

$0 \text{ blue} + 4 \text{ yellow}$
 $1 \text{ blue} + 3 \text{ yellow}$
 $2 \text{ blue} + 2 \text{ yellow}$
 $3 \text{ blue} + 1 \text{ yellow}.$

There are not enough blue plates to have $4 \text{ blue} + 0 \text{ yellow}$.

- *green and brown bowls (page 8).*

There are 4 green and 2 brown bowls under the bench, so the possible combinations with sum 4 are:

$4 \text{ green} + 0 \text{ brown}$
 $3 \text{ green} + 1 \text{ brown}$
 $2 \text{ green} + 2 \text{ brown}.$

There are not enough brown bowls to have $1 \text{ green} + 3 \text{ brown}$, or $0 \text{ green} + 4 \text{ brown}$.