Setting

Don't Miss the Boat! is set in the city of Mosul, in the country of Iraq, in the region of the Middle East. Encourage students to locate Iraq on a world map, if you have one.

Mosul is the second largest city in Iraq. The largest is the capital city, Baghdad. The river Tigris runs through the middle of Mosul, and the book is set on the West Bank of the river where the Old City is located. The Old City is a UNESCO World Heritage site because of its historical buildings. The large, domed building (**cover**, **pages 2**, **13**, and **16**) is the Mosul Grand Mosque. The brown, rectangular buildings (**pages 2-3**, **7**, **8-9**, **11**, **12-13**, **14-15**, **16**) reflect the older style of clay buildings still present in the Old City. Like most buildings in Iraq, they have flat roofs that can be used as an additional living space on hot summer nights. The Ferris wheel on **page 8** is inspired by the two fairgrounds near the Old City – an older one on an island in the river, and one on the bank opposite the Old City which is still popular today.

Mosul is a very ancient city. It used to be the capital city of the Assyrian Empire, and was called Nineveh. Nineveh is referenced in the Judeo-Christian Scriptures, notably as the setting of the book of the prophet Jonah. Today, there are many historical Islamic mosques as well as Christian churches and monasteries throughout Mosul.

Iraq has also played an important role in the history of mathematics. While the characters in this story write a tally in the mud by the river, in ancient times clay tablets were used to record important information. The first known clay tablet used for mathematical calculations was discovered in Mesopotamia (present-day Iraq). It is a Babylonian tablet, dated around 1800 BC, called the Plimpton 322. It is thought to be the world's oldest and most accurate trigonometric table (which students will not encounter until secondary school!). It may have been used to construct buildings and map out areas of land.

The animals' clothing is inspired by traditional clothing often seen in Northern parts of Iraq. While it differs by region, traditional Iraqi men's clothing usually includes a *dishdasha*, a long robe worn for comfort in hot weather. Some men also wear baggy pants called *shalwar* and a long-sleeved shirt and a vest. Men often wear turbans or headscarves, and these can vary by region. Men's clothing usually has subdued colours, but cultural identity can be seen in the fabric and designs. In the city, men dress in modern, western attire, while most women dress in modest clothing and cover their hair with a headscarf, called *hijab*. Traditional clothing can be seen in the cities during cultural celebrations and festivals, and *dishdasha* is often worn in the mosque for prayers.

The Iraqi flag can be seen on **pages 9 and 11**.

Characters

The main animals in the story are modelled on species of dormouse, hedgehog, and toad found in Iraq. Depending on where you are in the world, your students may have seen other species of dormouse, hedgehog, and toad before, or perhaps the closest they will have seen is a mouse or frog. 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 (length, width), feet (shape, number of toes), etc.

Desert hedgehog (Karim Haddad, CC BY 4.0)

Asian garden dormouse (Photograph by Mike Peel (www.mikepeel.net), CC BY-SA 4.0)

Green toad (Скампецкий, CC BY 3.0)

Many other animals found in Iraq can also be seen throughout the story (most clearly seen on **pages 2-3, 7, 12-13, 16**). Lizards, foxes, and antelopes usually live in deserts. Toads, frogs, and tortoises usually live near the river, where there would also be many fish and water birds. Buffalo and bulls are usually found in in rural areas, particularly the southern marshlands. The Golden Eagle, which features in **pages 14-15**, is Iraq's national animal and is represented on the Iraqi Coat of Arms.

Story

For your reference, the title *Don't Miss the Boat!* is a word play on the idiom "miss the boat", which means to miss out an opportunity by being too slow to act. In the context of the story, we don't want to "miss" any boats when we are counting them. Tallies and pictographs can help us make sure of this.

Boats are used by many cultures for transporting people and things, fishing, and recreation. A sample of this can be seen on **page 16**. Your students may or may not have seen these types of boats before, or may use the same words to refer to boats that look quite different from the ones in the story. This is okay, but make sure your students understand what we have chosen to call the boats in *this* book using **pages 2-3**. In particular, you may need to help students spot the differences between the row boats and canoes. In this book:

- row boats are bigger, have 2 oars, and are pointed at just one end
- canoes are lighter, have 1 oar per person and are pointed at both ends.

Row boats

Canoes

Coracle

Students are less likely to be familiar with coracles. There are different kinds of coracles in different parts of the world, though they are all usually small and rounded. In Iraq, the traditional coracle is called a *quffa* ("guffa"). It is made out of reeds, palm fronds, and rope. It has flat bottom which makes it very hard to capsize, so it is a good, safe boat to transport people and things in!

Ask your students if they have ever been in one of the types of boats that appear in the story.

Mathematical language and concepts

It is important to help students understand from early on *what* data is and *why* we work with data. Most simply, we collect "data" or "information" because we want to learn about the world around us. We often do this by counting things. In this story, the friends simply want to count the boats on the river. We do not specify why. This might be a game, or they might want to know more about the different types boats and what people use them for, or it might just be the natural curiosity children have about the world!

The story does show *why* using a tally might be useful for counting and sorting. Because the boats are mixed up, if we counted the types of boats *one at a time*, we would need to work through the data *four times*. Using a tally allows us to work through the data *once*, but count all of the different types at the same time. We write a list of the different types, and then look through the objects we are counting, working from left to right and top to bottom. For each boat we come across, we draw a tally mark next to the appropriate boat type. You can demonstrate this for your students on the board, or get them to work individually and then compare their answers. Take your pick of the illustrations on **page 5**, or **7**, whichever you find easiest to work through systematically. Reinforce how we record the first 4 vertical tally marks, and then the 5^{th} mark is drawn diagonally through them. Your students must practise their observational skills in order to count the boats, and recognise each type. **Page 7** has the completed tally alongside a clear view of the boats. This may may be helpful, but be mindful that some students may jump straight to the tally to find the answer, without going through the process for themselves.

Once the tally is complete, help your students read the tally marks and convert them into numbers by asking "how many coracles can we see?", "how many rowboats can we see?", and so on. Tallies and pictographs (also called "pictograms") use one-to-one correspondence to represent the numbers counted: there is one tally mark or picture for each boat counted. However, the goal is for students to count the groups of 5 without needing to count every mark individually.

On **page 7**, the total number of boats can be found by either counting them directly *or* using the sum $5 + 3 + 2 + 8 = 18$. We encourage the latter because it allows students to practise addition, and is more efficient. However, a sum of four numbers is a challenge at this level. The tally can help, as we can quickly make a sum of 10 from the 2 groups of 5. We can then add the smaller numbers on one at a time: $5 + 5 = 10$, then $10 + 3 = 13$, $13 + 3 = 16$, $16 + 2 = 18$.

The other observations we make from the data on **page 7** rely on *comparing* the tally marks for each type of boat in order to find the greatest number and the least number. Technically, we are comparing the *frequencies* of the types of boats, but we do not use this word yet. Comparing the values of numbers will be introduced more formally in later years. For now, it is enough for students to have a basic understanding of "most" and "least" from daily life, and the tally marks provide us with a visual aid for understanding this. You can explain each observation simply like this: "We know we see canoes the most, because 'canoes' has the most tally marks. We know we see ferries the least because 'ferries' has the least tally marks".

For students requiring extension
These students can be asked additional questions about the data, either from the tally on **page 6** or the pictograph on **page 12**. Appropriate questions could include:

- The friends can see ____ more coracles than ferries.
  (count up from 3 to 5, or use subtraction: 5 coracles – 2 ferries = 3 more coracles)

- The friends can see ____ more canoes than rowboats.
  (count up from 3 to 8, or use subtraction: 8 canoes – 3 rowboats = 5 more canoes)

- 3 more rowboats come to this part of the river. The friends can now see ___ rowboats.
  (3 + 3 = 6 rowboats)

- 5 more ferries come to this part of the river. The friends can now see ___ ferries
  (2 + 5 = 7 ferries)

Ask these students to construct a tally and a pictograph for the new set of data (6 rowboats and 7 ferries). You can then ask them further questions about the data:

- Which boat do we now see most? (canoes, as before)

- Which boat do we now see least? (coracles)