



© Daniel Torobekov via Pexels

# Tremendous turtles

## Sustainability Goals:



## Subject links:

Science, Geography, Maths  
Citizenship

Ages 7-11

## Curriculum links:

Biodiversity, Adaptations, Habitats, Food webs, Human impact, Oceans, Map skills, Data, Measurement, Percentages, Group work, Environmental responsibility

## Ocean Literacy Principles:

1. The Earth has one big ocean with many features
5. The ocean supports a great diversity of life and ecosystems
6. The ocean and humans are inextricably interconnected

## Learning Objectives:

- To learn about measurements and plot data on a graph
- To practise calculating percentages through a maths exercise based around turtle populations
- To use data to create migratory routes on a map
- To discover how humans have threatened a species and understand what endangered means

## Resources provided:

[Tremendous Turtles Fact File](#)  
[Species Fact Files](#)  
[Researching Sea Turtles Completed Researching Sea Turtles worksheet](#)

[Terrific Turtles video](#)  
[How many turtles are there?](#)  
[Tremendous Turtles Image Reel](#)  
[Tagging Turtles video](#)  
[Leatherback Journeys](#)

## Extra resources required:

Computers  
Tape measures

## Step 1

### Background

There are seven species of sea turtle inhabiting the ocean across the world. Though they share many common characteristics, each type of turtle is unique and has adapted specific strategies for survival. Variations occur in their reproductive behaviour, migratory routes, nesting habitats and feeding techniques. Many turtles face serious threats from human activity and are subsequently endangered or critically endangered. You can find more information in the [fact file](#).

## Step 2

### Set the Scene

#### 5 minutes - Terrific turtles in the UK

Watch the [terrific turtles](#) video. Ask students what creature they're looking at and where in the world they think this is. Children often mistake turtles for tortoises. Explain that, of the 7 species of turtles, 5 have been sighted in UK waters and the leatherback is a regular visitor.

## Step 3

### Activities

#### Activity 1: 20 minutes - Researching turtles

Print the [species fact file](#) for each turtle in A3 and place around the classroom. Students should complete the [researching sea turtles](#) worksheet by moving around the room to find the correct information.

Ensure students understand how to plot data on the graph. To ensure that not all the students go to the same poster at once, give each student a number from 1-7 and ask students to start at their number and work their way through questions in numerical order. Those who finish first could use a tape measure to compare size differences between species. Answers are provided in the [completed researching sea turtles](#) worksheet.

#### Activity 2: 15 minutes - Population percentages

Using the [how many turtles are there?](#) Worksheet, students should work out the (estimated) global total population of sea turtles, and then calculate what percentage of the population each turtle represents.

#### Activity 3: 10 minutes - Turtles in trouble

Introduce the idea that marine turtles are endangered, and ask students if they know what this word means. Loggerhead and Leatherback turtles are classified as vulnerable, Green turtles are classified as endangered, and Hawksbill and Kemp's Ridley turtles are classified as critically endangered. Discuss in pairs why sea turtles might be endangered. What possible threats might they face? Discuss thoughts as a class.

Display the [image reel](#) on your whiteboard and use notes in the [fact file](#) to discuss the five main threats: fishing, egg collection, pollution, climate change and coastal development.

#### Activity 4: 30 minutes - Tracking turtles

Describe how many turtles migrate between nesting seasons, possibly in search for food. Most females can amazingly return to the same beach to nest each year. Show the [tagging turtles video](#). Ask children what they think the people are doing to the turtles in the video. Explain that by tracking them, we can learn more about them and help to protect them. Visit [our website](#) to find out more about our turtle tracking project. Hand out a [leatherback journey map](#) to each student. This map shows data plots for two Leatherback turtles named Gloria and Lerato. As a class, identify the five oceans and seven continents on the map. Students should use the data to plot a migration route, using a different colour for each turtle. Reflect on this activity by relating migration to information learnt in Activities 1 and 3.

## Step 4

### Extend

#### 30 minutes-1 hour - Campaign poster

Students could design a poster to educate people about sea turtles and why they need protecting. Students should consider the various threats discussed and each decide on a campaign theme for their poster. Their poster should aim to inform people about how they can help reduce the threat and help save turtles. Discuss how you could use the poster to inform people. Maybe you could add example

posters to a school newsletter, the school website or social media. You could even write to your local paper. Be sure to share with us at [education@mcsuk.org](mailto:education@mcsuk.org)!

## Step 5

### Reflect

#### 5 minutes

Can you name a turtle found in the UK? Why do turtles migrate? What does endangered mean? What are some of the threats to turtles?

## Step 6

### Follow up

To learn about another amazing ocean giant, take a look at our lesson, [Sharks aren't scary](#). To learn more about threats to the ocean, complete the lesson, [How do we use the sea?](#) And to learn how your school can help protect the ocean, check out our [How can you protect the ocean?](#) lesson.

# Tremendous Turtles Fact File

## Turtle facts



There are seven species of sea turtle in our ocean.



Sea turtles spend most of their lives at sea, but have lungs so they need to surface regularly to breathe.



The earliest sea turtle fossil is roughly 110 million years old.



Their oar-like flippers allow them to swim swiftly through the ocean, and they have beak-like jaws rather than teeth.



The technical name for their shell is carapace.



Most sea turtles are cold-blooded and thrive in warmer climates, but the leatherback can control its own body temperature, enabling it to visit colder temperate seas to feed on its favourite food: jellyfish.



Research on seagrass beds has shown that those beds that have been grazed on by green turtles are more productive.



Many sea turtles eat jellyfish, which may help to prevent jellyfish blooms.

## Lifecycle

Turtles lay their eggs in nests on beaches, which they dig out with their flippers. Females don't stay to incubate eggs or raise young, but they do return to the same beach each nesting season.

The temperature of the sand in the nest determines the sex of the turtle. Higher temperatures produce female turtles, and lower temperatures produce male turtles. Eggs hatch after about 2 months, when the turtles dig their way out of the sand and head to the sea. Unfortunately, many hatchlings are preyed upon by birds, fish and sharks.

Turtles are slow-growing and can live for a very long time. Some species take 20–30 years to reach maturity.

# Tremendous Turtles Fact File

## Seven species



© Alastair Rae

### Leatherback turtle

The largest turtle, usually around 2 metres long. They get their name from the black, leathery skin covering their carapace. They're the most common turtle species in the UK.

### Useful definitions:

**Carapace** – the hard upper shell of a turtle, tortoise, crustacean, or arachnid.

**Jellyfish bloom** – a substantial increase in a jellyfish population within a short space of time.



© MCS/Jonathan Kincaid

### Hawksbill turtle

**Hawksbill turtles** have been hunted for their beautiful shells, and are now critically endangered. Their narrow head and long, tapered beak like a bird of prey, give them their name.



© MCS/Tim Fanshawe

### Loggerhead turtle

**Loggerhead turtles** are named after their very large heads! They have powerful jaw muscles and a large beak for crushing prey like crabs.



© NOAA/David Burdick

### Green turtle

**Green turtles** were once hunted for turtle soup, and their name comes from a green fat which is the main ingredient in the soup. Adult green turtles feed on seagrass and algae.



© USFWS Endangered Species

### Kemp's Ridley turtle

**Kemp's Ridley turtles** are the rarest marine turtle. They were nearly extinct in the 1980s, but through conservation efforts, their numbers are increasing.



© Joost van Uffelen

### Olive Ridley turtle

**Olive Ridley turtles** have an olive green carapace. Thousands of females come to shore at the same time to nest simultaneously.



© EA Given

### Flatback turtle

**Flatback turtles**, as the name suggests, have a flattened carapace. They are only found in Australia and New Guinea.

# Tremendous Turtles Fact File

## Turtles in trouble

All 7 species of turtle are included on the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species and some populations are at risk of becoming extinct.

## Entanglement in fishing gear

All species of turtle are susceptible to accidental capture in fishing gear, a phenomenon known as bycatch. They could be entangled in nets during fishing or discarded net, for example. Longline fishing methods are particularly impactful, and in the year 2000 alone over 200,000 loggerhead turtles were caught as longline bycatch. (1)



Green turtle entangled in fishing net © Mohamed Abdurraheem via Shutterstock

## Use of turtle eggs, meat and shells

Marine turtles are still legally harvested for their meat in four of the five UK Overseas Territories in the Caribbean. Extensive turtle egg collection is thought to have been a significant factor in the decline of several marine turtle populations around the world. We've been working with communities in the Caribbean to ensure there's a maximum size limit on any turtles fished for meat. The aim is to protect turtles over a certain shell length so that they're able to mature and reproduce, which will support population maintenance.

In many parts of the world, hawksbill turtles are targeted for the scales on their shells, which are used to make 'tortoiseshell' decorations and jewellery.



Turtle hatchlings © Jolo Diaz via Pexels

1. Lewison et al 2004

# Tremendous Turtles Fact File

## Turtles in trouble

### Habitat disturbance

Turtle nesting beaches are under pressure from development, especially from the tourism industry. Light pollution also disorientates emerging hatchlings, making them head inland to artificial light sources rather than out to sea. Boat traffic can also damage seagrass beds and coral reefs, which are important turtle feeding habitats.



Beach tourism  
© Michaela via Unsplash

### Pollution

Chemical pollution like oil spills and sewage can directly affect marine turtles if they're exposed to high levels. It can also lead to contamination of their feeding habitats and nesting beaches. Turtles are also killed by entanglement in, and ingestion of, marine litter, like discarded fishing gear, plastic bags and balloons.



Oil washing up on the beach  
© Doug Helton/NOAA via Flickr

### Climate change

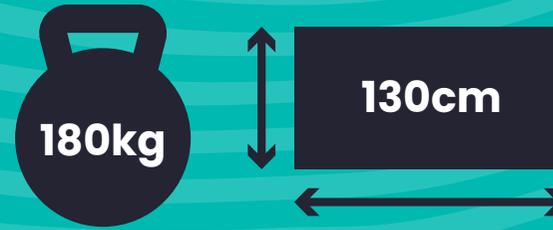
Turtle nesting beaches could be inundated with water due to sea level rise if they're prevented from moving inland as a result of coastal development. Foraging habitats like tropical coral reefs and seagrass beds are likely to be affected by rising sea temperatures, rising sea levels, ocean acidification and the effects of increased storms and rainfall. Rising temperatures will also affect the sex ratios of turtles. Higher nest temperatures produce female turtles and lower temperatures produce male turtles. Due to warming temperatures, some beaches are now producing 99% female hatchlings. (2)



Researcher studying bleached corals ©  
Andreas Dietzel via Flickr

# Flatback Turtle

The flatback turtle is different in that its shell (carapace) is almost completely flat. Unlike other species of marine turtle, the hatchlings (babies) do not swim straight out into the open ocean, but stay close to shore.



## Where do they live?



They live in the waters of **Australia** and the **Gulf of Papua in New Guinea**. They only nest in **Australia**, mostly in **Queensland**.

## Endangered?



Flatbacks are well protected in Australia. There is not enough known about them to decide if they are endangered or not.



Flatback Turtle



Flatback Turtle



Flatback Hatchling

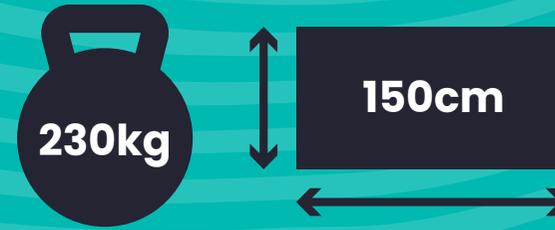


## What's on the menu?

Very little is known about the flatback's diet. It is thought to eat molluscs, jellyfish and other soft-bodied animals.

# Green Turtle

The green turtle was once hunted to make turtle soup. Young green turtles have a patterned brown coloured shell (carapace). Adults usually have a greenish-grey carapace patterned with black markings.



## Where do they live?

Green turtles are found in **all seas in cool and warm areas**. They like shallow water. Important groups live in **Costa Rica, Ascension Island, West Africa, Malaysia and Australia**. There is a small very endangered population in the Mediterranean. Young green turtles sometimes stray into UK seas.

## Endangered?



Green turtles are **endangered**. They used to be found in large numbers but were hunted commercially for their meat.



Green Turtle



Green Turtle



Green Turtle Hatchling

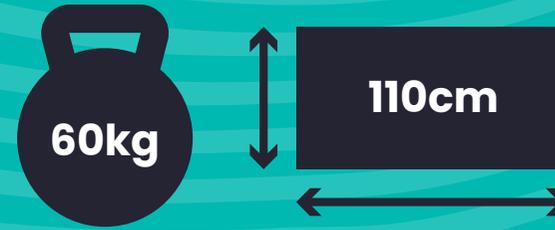


## What's on the menu?

Young green turtles eat small sea creatures like prawns and jellyfish, as well as floating insects, seagrass and algae. Adults mainly eat marine algae and seagrass.

# Hawksbill Turtle

Hawksbill turtles have been hunted for years for their beautiful shells which are used to make jewellery and other ornaments. This is now illegal but continues in some parts of the world.



## Where do they live?



They live around tropical coral reefs and lagoons in the **Atlantic, Pacific and Indian Oceans**. Hawksbills nest throughout the tropics with important groups in **Australia, the Seychelles, the Caribbean and Mexico**. There has only been **one** definite sighting of a hawksbill in **UK and Irish waters**.

## Endangered?



Hawksbill turtles are **critically endangered**. This is because of trade in their shells, as well as the dangers faced by all sea turtles.



Hawksbill Turtle



Hawksbill Turtle

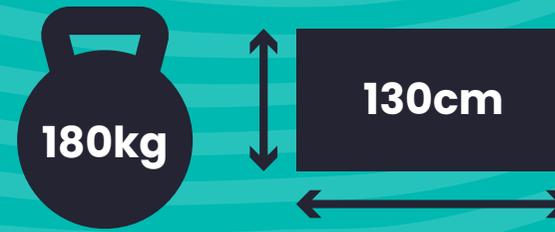


## What's on the menu?

Hawksbill turtles eat sponges and soft-bodied invertebrates (creatures without a backbone)

# Kemp's Ridley Turtle

The Kemp's ridley turtle is the rarest of all the sea turtles. They were close to extinction in the 1980s but are showing signs of recovery now. The shell (carapace) of adults is olive green and they have a wide beak like a parrot.



## Where do they live?



They are mainly found in the **Gulf of Mexico**. Young range from tropical (warm) to temperate (cool) areas of the **north-west Atlantic**. They **sometimes stray into UK waters**. The only major breeding site is a stretch of beach in **Mexico**.

## Endangered?



**Critically endangered.** Their numbers have been affected by accidental drowning in fishing nets, as well as by people taking their eggs and hunting them for food.



Kemp's ridley turtle



Kemp's ridley turtle



Kemp's ridley hatchling

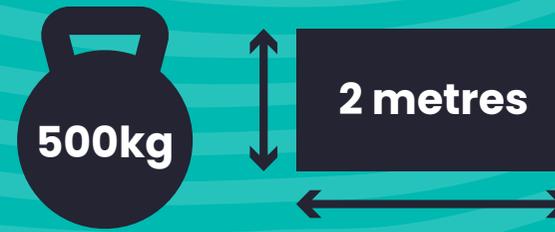


## What's on the menu?

Crabs, clams, mussels, prawns and other small animals from the sea bed.

# Leatherback Turtle

The leatherback is the largest sea turtle. It gets its name from the black, leathery skin that covers its shell (carapace).



## Where do they live?



They are found in **all oceans**. They have been seen in the sea north of **Norway** and south of **New Zealand**! Important groups (rookeries) are found on the coast of **the Caribbean, North and South America** and **West and South Africa**. In summer, leatherbacks visit **UK seas** to feed on jellyfish.

## Endangered?



Leatherback turtles are **critically endangered**. In some places, they are killed for their meat and their eggs are taken. At sea they easily become caught up in fishing gear.



Leatherback Turtle



Leatherback Turtle



Leatherback Hatchling

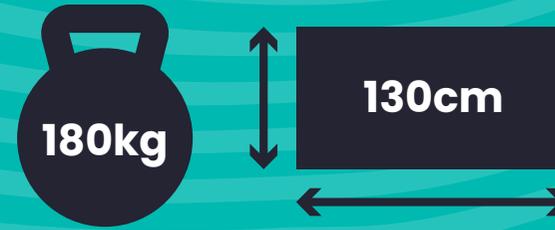


## What's on the menu?

Leatherbacks eat jellyfish and other small, floating sea creatures. They often mistake marine litter, like plastic bags and balloons, for jellyfish and eat them. This makes them ill and will kill them.

# Loggerhead Turtle

Loggerhead turtles are known for travelling great distances between nesting and feeding sites. Loggerheads themselves can become a habitat. They carry more sea creatures, like barnacles, on their shells than any other sea turtle.



## Where do they live?



Loggerheads can be found in temperate (cool) and subtropical (warmer) seas. They nest at a few sights in the Mediterranean, and along the coasts of **Oman**, **South Africa**, **Australia** and **southeast USA**. Young loggerheads sometimes stray into UK waters.

## Endangered?



**Endangered.** They are harmed by development at their nesting beaches, fishing gear and plastic litter.



Loggerhead Turtle



Loggerhead Turtle



Loggerhead Hatchling

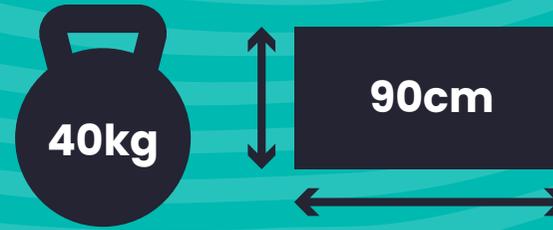


## What's on the menu?

Crabs, mussels, clams, jellyfish and swimming crabs. Loggerheads are known for mistaking plastic litter for food which kills them.

# Olive Ridley Turtle

The olive ridley's name comes from its olive green shell (carapace). The name ridley may have come from the word 'riddler' or 'riddle' because they were thought to be a mix of other turtle species.



## Where do they live?



They live in the **tropical (warm)** oceans of the world. The females nest alone or in large groups called 'arribadas'. This means arrival in Spanish. Arribadas take place on a few beaches in **Central America**, with the largest happening twice a year on the coast of **Orissa**, northeast India.

## Endangered?



They are thought to be vulnerable. This means they are at risk of becoming endangered.



Olive Ridley Turtle



Olive Ridley Turtle



Olive Ridley Hatchling



## What's on the menu?

Olive ridley turtles eat swimming crabs, jellyfish, fish and other small animals.

# Researching sea turtles

Name:

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1. Why does the Leatherback turtle visit (migrate to) the UK?

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2. Which turtle is the heaviest and how much does it weigh?

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3. Why have Hawksbill turtles been hunted?

---

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4. What do adult Green turtles eat?

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5. What colour is an Olive ridley's carapace?

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6. Why do Loggerhead turtles travel (migrate)?

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7. What is the rarest turtle?

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8. Why are Kemp's ridley turtles critically endangered?

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9. Where are Flatback turtles found?

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Complete the graph below to create a bar chart of the sizes of different sea turtles.

**Sizes of sea turtles**



# Researching sea turtles

Name:

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---

1. Why does the Leatherback turtle visit (migrate to) the UK?

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To feed on jellyfish

---

2. Which turtle is the heaviest and how much does it weigh?

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Leatherback, 500kg

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3. Why have Hawksbill turtles been hunted?

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For their shells to make jewellery and ornaments from

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4. What do adult Green turtles eat?

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Marine algae and seagrass

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5. What colour is an Olive Ridley's carapace?

---

Olive green

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6. Why do Loggerhead turtles travel (migrate)?

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Travel between nesting site and feeding site

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7. What is the rarest turtle?

Kemp's Ridley

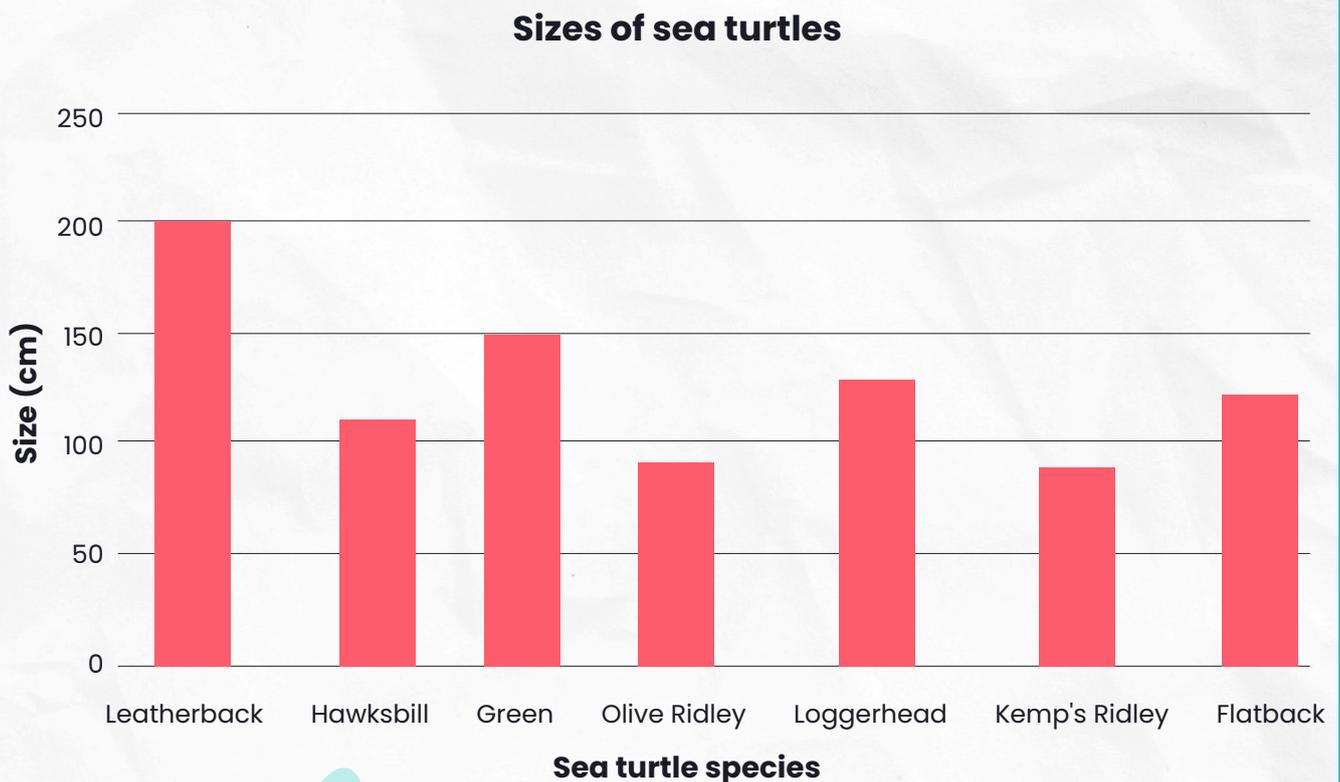
8. Why are Kemp Ridley turtles critically endangered?

Accidental drowning in fishing nets, people hunting their eggs and hunting them for food.

9. Where are Flatback turtles found?

Australia and New Guinea

Complete the graph below to create a bar chart of the sizes of different sea turtles.



# How many turtles are there?

Name: \_\_\_\_\_

\_\_\_\_\_

Sea Turtle Species	Population size	Calculations	Percentage of Population
Loggerhead	314,000		
Green	1,002,000		
Leatherback	426,000		
Hawksbill	57,000		
Kemp's ridley	21,000		
Olive ridley	4,618,000		
Flatback	23,000		
	<b>Global total =</b>		

Source: Estimates taken from State of the world sea turtle report 2020

# Leatherback Journeys

Name: \_\_\_\_\_

Use the 4 figure grid references to plot the journeys of Gloria and Lerato.  
Use pencil, cross them off as you work and check with a partner before you use felt pen!

## Gloria

- 09 11
- 10 11
- 11 12
- 11 13
- 12 13
- 12 14
- 13 14

## Lerato

- 18 07
- 18 06
- 18 05
- 17 05
- 16 05
- 15 05
- 14 05
- 14 06
- 15 07

