

# LISTEN UP!

Britannica's  
**300 lists**  
that will blow  
your mind

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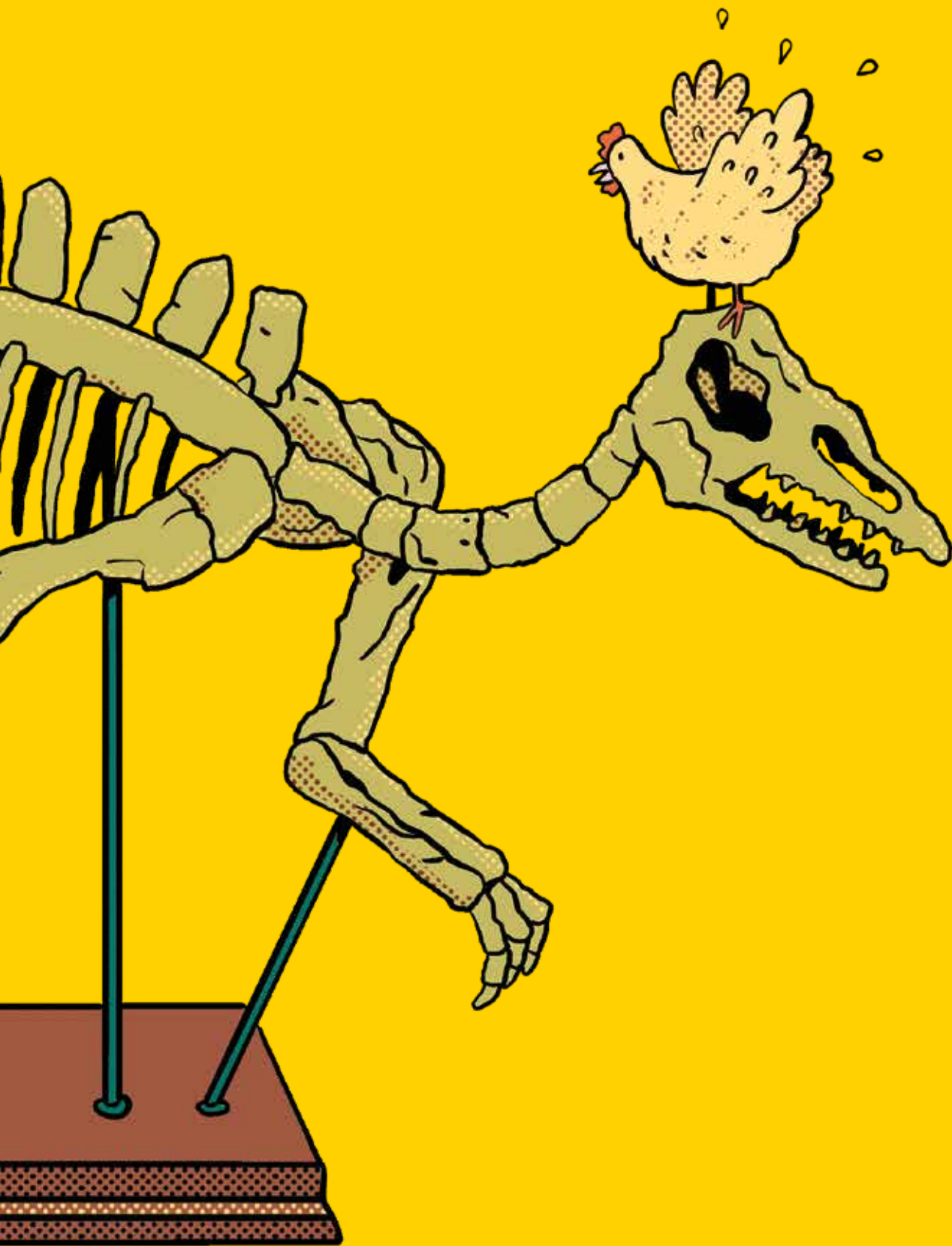


BRITANNICA  
BOOKS



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## Welcome to Listified!

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Five great things about reading this book

**1. You will find out about everything from amphibious bicycles to erupting volcanoes.** This book will take you on an adventure where you will swim with microscopic robots through the human bloodstream (page xx), chase giant millipedes across the jungle floor (page xx), ooh in wonder as prehistoric monsters swoop overhead (page xx) and aah in delight as exploding stars light up the night sky. It will open your mind to an amazing world of knowledge as vast, fascinating and bizarre as the universe itself. So if you need the toilet, now is the time to go.

**2. You will explode with laughter.** As I wrote Listified!, there were so many funny and interesting things to tell you that sometimes I couldn't squeeze them all into a list. So to fill the book with even more jokes, facts and stories, I've added notes at the bottom of the page\*. Look out, too, for the little arrows like this >> pointing to other lists that will zoom you straight to a related topic in another part of the book.

**3. All the facts have been verified by Britannica.** So where does all the information in Listified! come from? Not my own brain, sadly. But if you turn to page 410, you will find a selection of the books and articles I used to create each chapter. A brilliant team of researchers who eat encyclopedias for breakfast\*\* then used even bigger books and websites to check that every fact is correct.

**4. You can read it in any order.** Get lost in Listified! for however long you've got. From 30 seconds to several hours - or even days! - at a time.

**5. You can test your family and friends** (and pretend that you already knew all the mind-blowing information in this book). Which, very shortly, you will!

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\*Like this one!

\*\*This is not strictly true. The favourite breakfast of Britannica's managing editor is scrambled eggs.

# Journey to the Centre of the Earth

Earth's four layers, from crust to core

**1. Crust** - up to 70 kilometres below the surface\*

Temperature: 200°C-1,160°C

Made of: Mostly silica, aluminium and oxygen

**2. Mantle** - up to 2,900 kilometres below the surface

Temperature: 1,000°C-3,700°C

Made of: Semi-solid iron, magnesium and silicon

**3. Outer core** - up to 5,180 kilometres below the surface

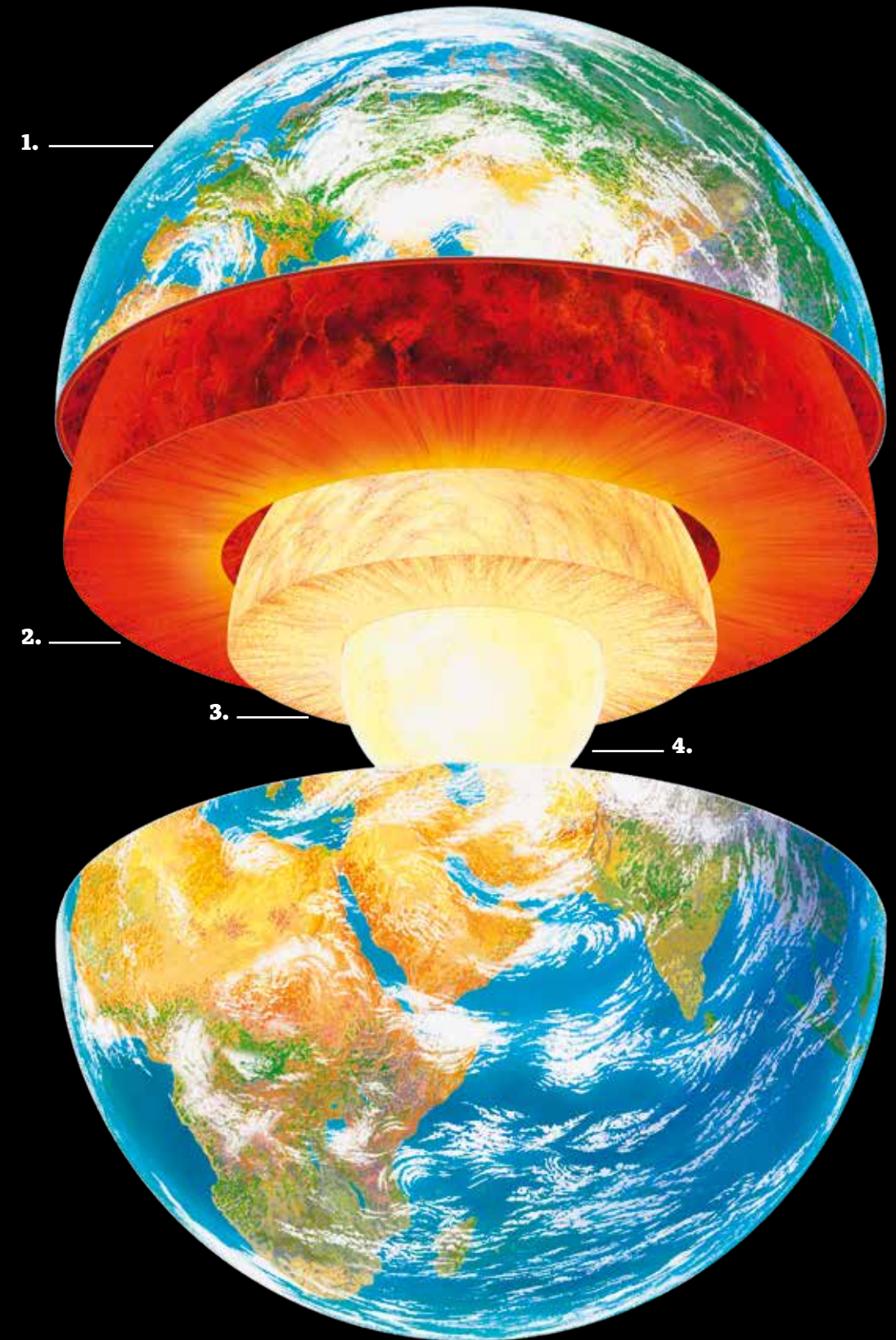
Temperature: 4,500°C-5,500°C\*\*

Made of: Liquid iron and nickel

**4. Inner core** - up to 6,400 kilometres below the surface

Temperature: 5,200°C

Made of: Solid iron and nickel



\*The crust makes up only 1 per cent of the planet's total volume. Its thickness varies a lot. Under the ocean, it can be as little as 5 kilometres thick. Beneath the continents, it can be up to 14 times thicker.

\*\*The very hottest part of the inside of the Earth is a region called the Bullen discontinuity, which lies at the boundary between the outer and inner cores.

## Before the Dinosaurs

Five prehistoric creatures that look like dinosaurs but were actually alive before them

### 1. *Eryops*

**Lived:** 299–273 million years ago.

**Fossils found:** In what is now the Southwest of America and Germany.

**What:** A large carnivore that lived both on land and in water.

**Size:** 2 metres, which is as long as a seal.

**Profile:** *Eryops* was a fierce predator that had sharp teeth. These teeth would have made it impossible for *Eryops* to chew, so it trapped fish in its strong jaws, then threw back its head to swallow them in a big gulp. This is similar to the way that modern crocodiles and alligators eat.

### 2. *Dimetrodon*

**Lived:** 286–270 million years ago.

**Fossils found:** In what is now Europe and North America.

**What:** A carnivorous four-legged reptile with a sail-like fin on its back.

**Size:** 4.5 metres, which is twice as long as a horse.

**Profile:** Palaeontologists are unsure what *Dimetrodon*'s fin was used for. Two theories are that it served a purpose in heating and cooling the *Dimetrodon*, or it was a means of signalling to other animals – maybe even showing off to other *Dimetrodons*!

### 3. *Cotylorhynchus*

**Lived:** Around 275 million years ago.

**Fossils found:** In what is now North America.

**What:** A giant four-legged reptile that ate plants and had strong, paddle-like hands.

**Size:** More than 1 metre tall and 6 metres long, which is as long as the biggest crocodiles.

**Profile:** *Cotylorhynchus* looked a bit like a lizard that's been inflated with a bicycle pump. However, despite its huge body, *Cotylorhynchus* had a relatively small head – not much bigger than a human's.

### 4. *Estemmenosuchus*

**Lived:** Around 267 million years ago.

**Fossils found:** In what is now Russia.

**What:** A powerful, four-legged herbivorous reptile with a large skull and several sets of antler-like horns.

**Size:** 4 metres, which is as long as a hippo.

**Profile:** The name *Estemmenosuchus* means 'crowned crocodile', although in reality, it probably wasn't that scary and looked more like a large cow.

### 5. *Inostrancevia*

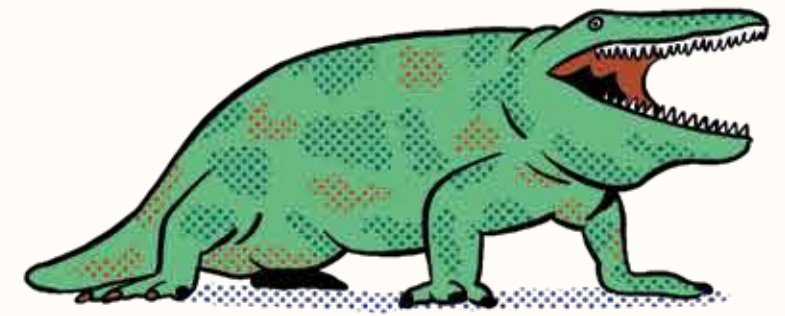
**Lived:** Around 265–250 million years ago.

**Fossils found:** In what is now Russia.

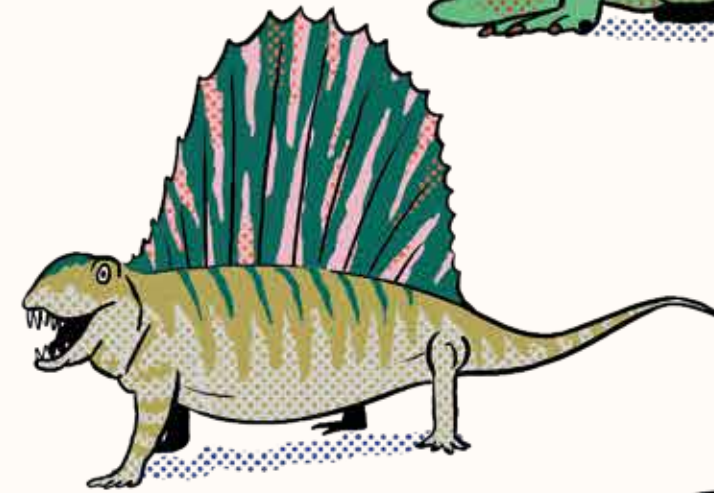
**What:** A carnivorous four-legged reptile with two long sabre-like teeth.

**Size:** 3.5 metres long, which is roughly the size of a modern alligator, although *Inostrancevia* was almost twice as heavy.

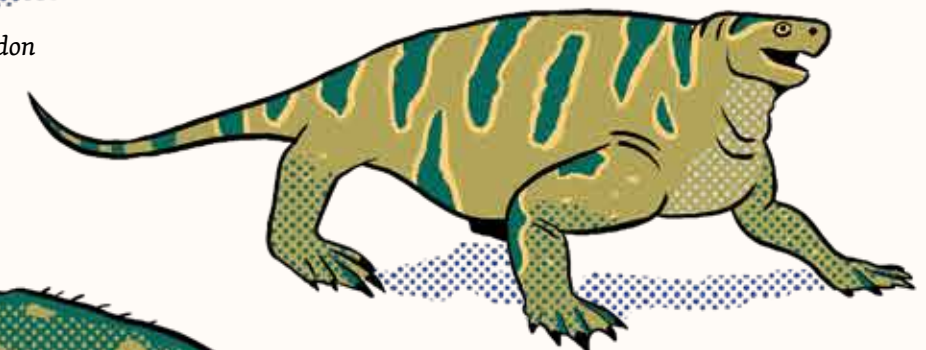
**Profile:** *Inostrancevia* was a fearsome predator. Its sharp canine teeth, which it used to bite and tear into prey, could grow up to 15 centimetres long.



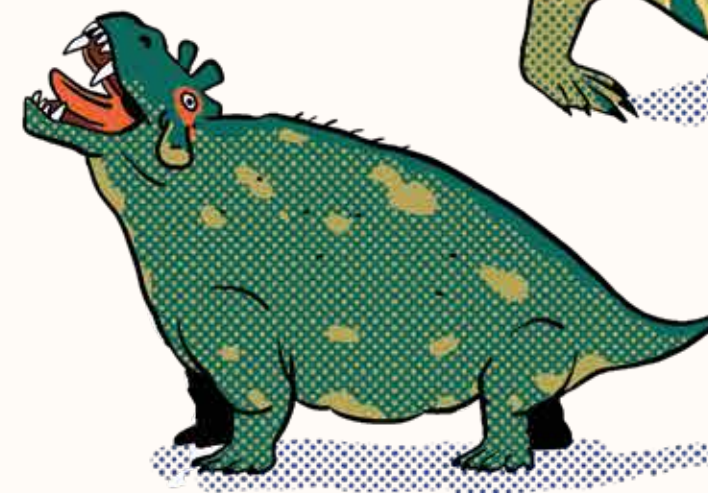
*Eryops*



*Dimetrodon*



*Cotylorhynchus*



*Estemmenosuchus*



*Inostrancevia*

## Between Meals

Ten animals that can go the longest without food

1. **Tardigrade** - 30 years
2. **Olm\*** - 10 years
3. **Crocodile** - 3 years
4. **Swell shark** - 1 year 3 months
5. **Galapagos tortoise** - 1 year
6. **Scorpion** - 1 year
7. **Ball python** - 6 months
8. **Humpback whale** - 6 months
9. **Black bear** - 3 months
10. **Emperor penguin** - 3 months



Tardigrades are microscopic creatures that are famed for their skill in surviving extreme conditions, such as deep ocean pressure and even the vacuum of space.

\*Olms are a species of blind salamander that live in total darkness in caves for as long as 100 years. They can go without food for so long because they use up very little energy. In one study, scientists observed an olm that didn't move at all for seven years.

## Two of a Kind

Twenty species of animal that pair for life

1. Albatrosses
2. Anglerfish\*
3. Barn owls
4. Black vultures
5. Beavers
6. Condors
7. Coyotes
8. Gibbons
9. Golden eagles
10. Ospreys
11. Penguins
12. Prairie voles
13. Sandhill cranes
14. *Schistosoma mansoni* worms\*\*
15. Seahorses
16. Shingleback skink lizards
17. Swans
18. Termites\*\*\*
19. Turtle doves
20. Wolves

\*After some species of anglerfish mate, the males become permanently attached to the females and the happy couple stays physically connected for the rest of their lives.

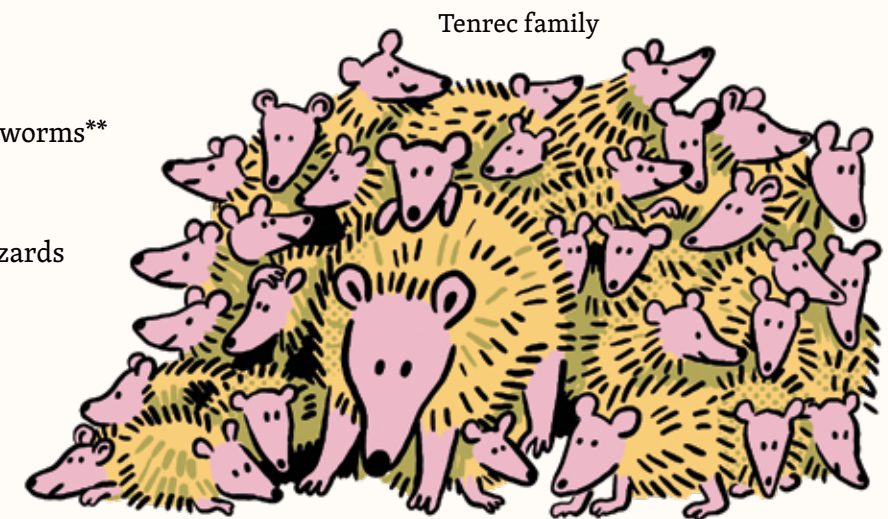
\*\**Schistosoma mansoni* are microscopic parasitic flatworms that live inside human beings and can cause diseases such as snail fever. This doesn't make them sound very romantic but they do form close bonds with their mates. Ahhhh.

\*\*\*Unlike ants and bees, where multiple males pair with the queen, a termite queen and a single termite king stay together as a couple to produce the whole termite colony.

## Extended Families

Ten animals that give birth to a large number of offspring in one go

1. **Ocean sunfish** - 300 million eggs
2. **African driver ant** - 4 million eggs\*
3. **Atlantic sturgeon** - 2.5 million eggs
4. **Seahorses** - 2,000 babies\*\*
5. **Puff adder** - 156 babies
6. **Tailless tenrec** - 32 babies\*\*\*
7. **Naked mole rat** - 28 babies
8. **Virginia opossum** - 25 babies
9. **Grey partridge** - 22 eggs
10. **Rabbits** - 14 babies



\*Each month.

\*\*Very unusually in the animal kingdom, it's the male seahorses that become pregnant and give birth.

\*\*\*The tailless tenrec is a small hedgehog-like mammal that lives in Madagascar. If you haven't seen one before, it might be because it can hibernate for up to 75 per cent of the year.



## Do Me a Favour

### Five examples of animal mutualism

Mutualism is a term used to describe a partnership between two organisms, in which both species benefit.

#### 1. Clownfish and sea anemones

Clownfish are often found swimming among the tentacles of sea anemones, which sting nearly all other fish. Thanks to a special mucus (slimy coating) on their skin, the clownfish aren't harmed. In return for a safe place to live, the clownfish chase away the anemone's main predator, the butterflyfish.

#### 2. Rhinoceroses and oxpecker birds

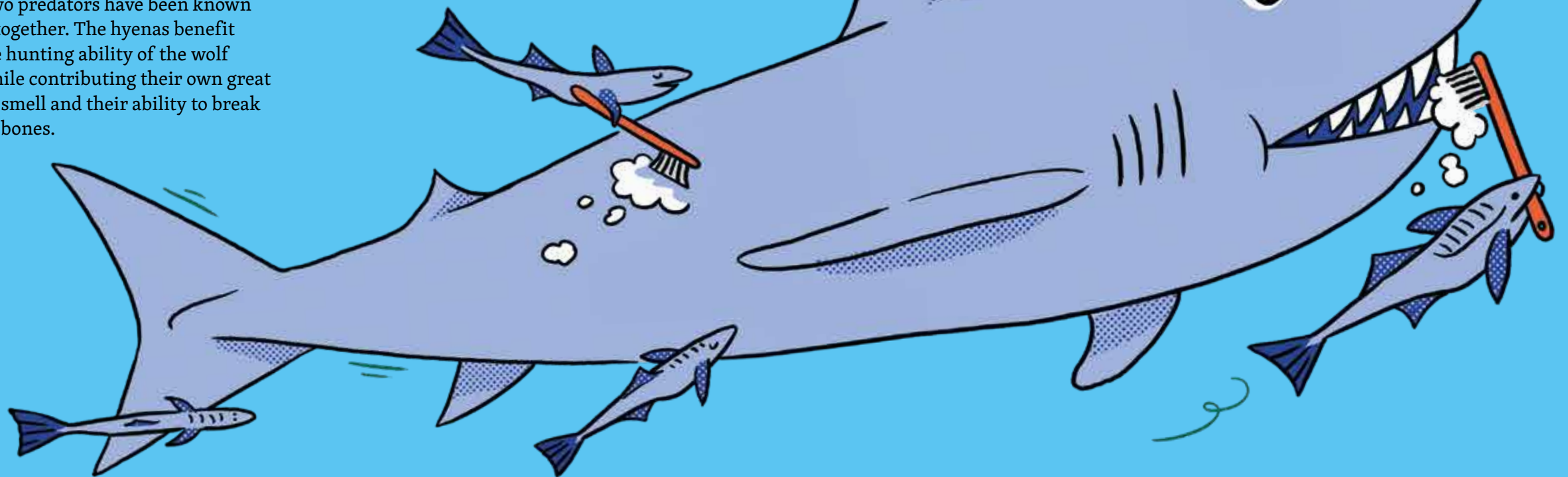
Rhinoceroses allow these little birds to sit on their backs and eat ticks, flies and other insects that live on their skin. The rhinos benefit by having annoying parasites removed, while the oxpeckers get a free lunch.

#### 3. Grey wolves and striped hyenas

These two predators have been known to hunt together. The hyenas benefit from the hunting ability of the wolf pack, while contributing their own great sense of smell and their ability to break up large bones.

**4. Ants and aphids** Some species of ant eat a substance called honeydew that is made by tiny insects called aphids. The aphids make honeydew from plant sap. In order to protect their honeydew supply, the ants will keep the aphids safe from predators. The ants also herd the aphids to new plants to find fresh sap. Some ants have even been known to 'milk' honeydew from the aphids by stroking them with their antennae.»

**5. Remoras and sharks** Remoras are small fish that attach themselves to sharks and other large marine animals. The remoras keep the sharks' skin free of parasites and are even allowed to swim around the sharks' teeth to remove bits of food that might otherwise become breeding grounds for harmful bacteria. In return, the remoras enjoy free meals while also hitching a ride.



»To find out about other jobs that ants do see page 186.



## This Is Your Life!

An average human spends ...

**24 years** sleeping

**15 years** sitting down

**14 years** working

**7 years** using a smartphone

**4 years** walking

**4 years** eating

**18 months** going to the toilet

**9 months** getting dressed

**6 months** exercising

**6 months** in the shower

**3 months** brushing their teeth

## Human Factory

Over your lifetime, your body will make about ...

**4,000,000,000,000\*** red blood cells

**40,000 litres** of urine

**26,500 litres** of saliva

**11,400 kilograms** of poo\*\*

**10,500 litres** of sweat

**20 kilograms** of skin

**12 metres** of hair

\*This is four quadrillion.

\*\*That is roughly the weight of two Asian elephants!

## Let It Grow

How long different parts of your body can grow in a year

**Hair on your head** - 15.6 centimetres

There are, on average, between 100,000 and 150,000 hairs growing on your head.

**Body** - 12 centimetres

The body grows at different rates depending on how old you are. On average, boys grow fastest aged 14, and girls grow fastest aged 12.

**Fingernails** - 4.2 centimetres\*

The speed each fingernail grows is related to the length of the finger, so the nail on your index finger grows faster than the nail on your little finger.

**Toenails** - 1.9 centimetres

Scientists think that fingernails grow faster than toenails because they receive a better supply of blood, oxygen and nutrients.

\*The longest human fingernail ever recorded was the left thumbnail of Shridhar Chillal from India, which was almost 2 metres long.

## What Are the Chances?

The odds of fifteen improbable things ever happening to you\*

1. Winning the lottery<sup>»</sup> – around 1 in 300 million<sup>\*\*</sup>
2. Being killed by a falling coconut – 1 in 50 million
3. Being made a saint – 1 in 20 million
4. Becoming a parent to identical quadruplets<sup>\*\*\*</sup> – 1 in 15 million
5. Becoming a billionaire – 1 in 2.6 million
6. Winning a gold medal at the Olympics – 1 in 662,000
7. Going to hospital with a pogo-stick-related injury – 1 in 115,000
8. Finding a pearl in an oyster – 1 in 12,000
9. Being injured by a toilet – 1 in 10,000
10. Finding a lucky four-leaf clover – 1 in 5,076
11. Tossing a coin ten times in a row and it landing head-side up every time – 1 in 1,024
12. Being born with 11 fingers or toes – 1 in 1,000
13. Cracking open an egg and finding two yolks inside – 1 in 1,000
14. Being born with one kidney – 1 in 750
15. Being left-handed – 1 in 10

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\*This list contains estimated general probabilities. In most cases, the specific probability of these things happening to you will also depend on other factors, such as where you live. For instance, if you live in a country where the plant clover doesn't grow, it is very, very unlikely that you will be able to find a four-leaf clover!

<sup>»</sup>To find out about someone who was not lucky enough to win the lottery (when the rest of his village did!), see page 359.

<sup>\*\*</sup>This depends on the number of tickets sold in the lottery.

<sup>\*\*\*</sup>Quadruplets are four children who are all born to the same mother at the same time.



## Eureka!

Ten inventions that changed the world and how they did it

- 1. Wheel** Making it easier to move objects and people – before 3500 BCE.
- 2. Compass** Helping humans find their way – around 110 BCE.
- 3. Gunpowder** Changing the nature of war – around 850.
- 4. Printing press** Mass-producing books, newspapers and posters, which spread knowledge – around 1439.
- 5. Steam engine** Powering the first industrial machines on farms and in factories. They were later used to power trains – 1765.
- 6. Telegraph** Making long-distance communication possible\* – 1837.
- 7. Internal combustion engine** Powering cars and other vehicles – 1876.
- 8. Electric light** Illuminating homes, roads and cities, allowing people to work at night and making places safer – 1879.
- 9. Computer** Performing calculations beyond the power of any human – 1937.
- 10. World Wide Web** Connecting humanity to a world of information, and each other – 1989.

\*The telegraph allowed users to communicate over long distances by transmitting a series of electrical signals through a wire, which a machine then wrote onto a piece of paper. Its American inventor – Samuel Morse – also developed the system of dots and dashes used for these messages: Morse code.

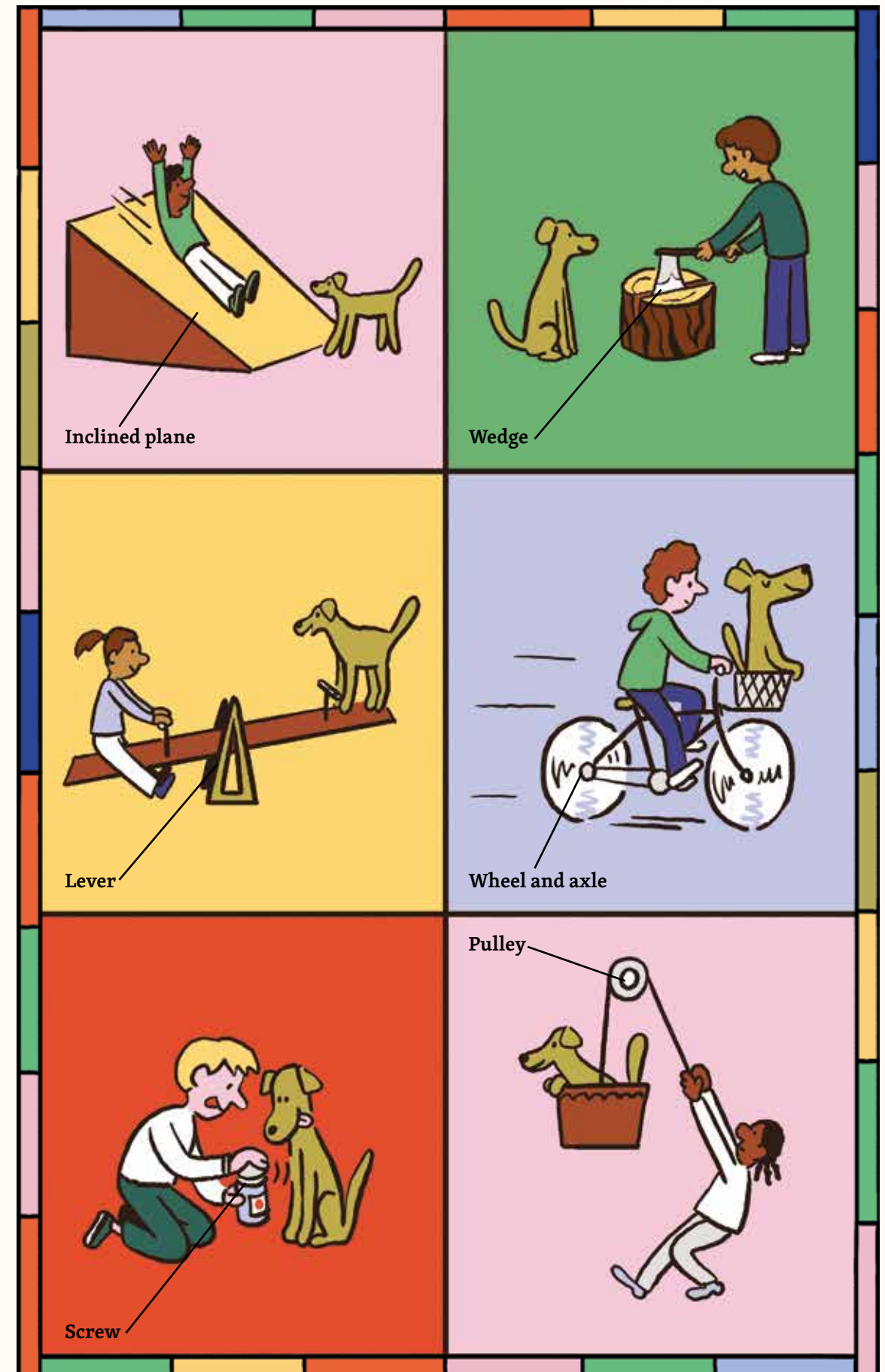
## Easy Does It

Six simple machines

A machine doesn't have to be big, complicated or have lots of moving parts. In fact, any object that is used to apply a force or control movement to perform a task can be called a machine. Here are six of the simplest that you can spot being used around you every day:

- 1. Inclined planes** are used for ramps and slides.
- 2. Wedges** are used for knives, axes and scissors.\*
- 3. Levers** are used for see-saws and wheelbarrows.
- 4. Wheels and axles** are used for cars and bicycles.
- 5. Screws** are used for light bulbs, jar lids, corkscrews and taps.
- 6. Pulleys** are used for window blinds, garage doors and flagpoles.

\*Many people think that the 15th-century Italian inventor (and all-round genius) Leonardo da Vinci invented scissors. In fact, they were in use centuries before Leonardo was born. The ancient Romans definitely used them, and some historians think the very first scissors were invented in the Middle East between 3,000 and 4,000 years ago.



## Whizz-Kids

### Thirteen remarkable feats achieved by children

- 1.** Aged 4, Budhia Singh from India ran a marathon (2006).
- 2.** Aged 7, Saugat Bista from Nepal directed a feature-length movie – *Love You Baba* – that was released in cinemas (2014).
- 3.** Aged 8, Wolfgang Amadeus Mozart from Austria composed an orchestral symphony (1764).
- 4.** Aged 11, Brian Zimmerman was elected mayor of the town of Crabb in Texas in the United States (1983).\*
- 5.** Aged 12, Stevie Wonder from Michigan in the United States sang a No. 1 hit single, called ‘Fingertips (Part 2)’ (1963).\*\*
- 6.** Aged 12, Vicki Van Meter from Pennsylvania in the United States flew an aeroplane across the Atlantic Ocean (1993).
- 7.** Aged 12, Sergey Karjakin from Ukraine became a chess grandmaster (2002).
- 8.** Aged 13, Jordan Romero from California in the United States climbed Mount Everest (2010).

**9.** Aged 14, Nadia Comăneci from Romania won three Olympic gold medals for gymnastics (1976).\*\*\*

**10.** Aged 15, Kelvin Doe, a self-taught young engineer from Sierra Leone, built and launched his own community radio station (2011).

**11.** Aged 16, Blaise Pascal from France invented his own theory of geometry, called Pascal’s theorem (1639).

**12.** Aged 16, Martina Hingis from Switzerland won the Australian Open, one of tennis’s four major world titles (1995).

**13.** Aged 16, Laura Dekker from the Netherlands sailed around the world on her own (2011).

\*Zimmerman’s successful campaign message to the voters was: ‘The mayor isn’t there to sit and worry about keeping his job. He’s there to do what’s best for the people.’

\*\*When he was born, Wonder was named Stevland Hardaway Judkins. He started recording and performing music professionally from the age of 11, as ‘Little Stevie Wonder’. He grew up to be one of the world’s most popular musicians.

\*\*\*Competing in the 1976 Olympic Games in Montreal, Comăneci was also the first gymnast in Olympic history to be awarded a perfect 10. Her faultless performance in an event called the uneven bars was so unexpected that the electronic scoreboards in the stadium weren’t able to show her score. The highest score they had been designed to display was 9.99, so Comăneci’s perfect 10 appeared on the scoreboard as 1.00. She won gold medals in the uneven bars, the balance beam and for the best all-round performance.

Stevie Wonder aged about 11.





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