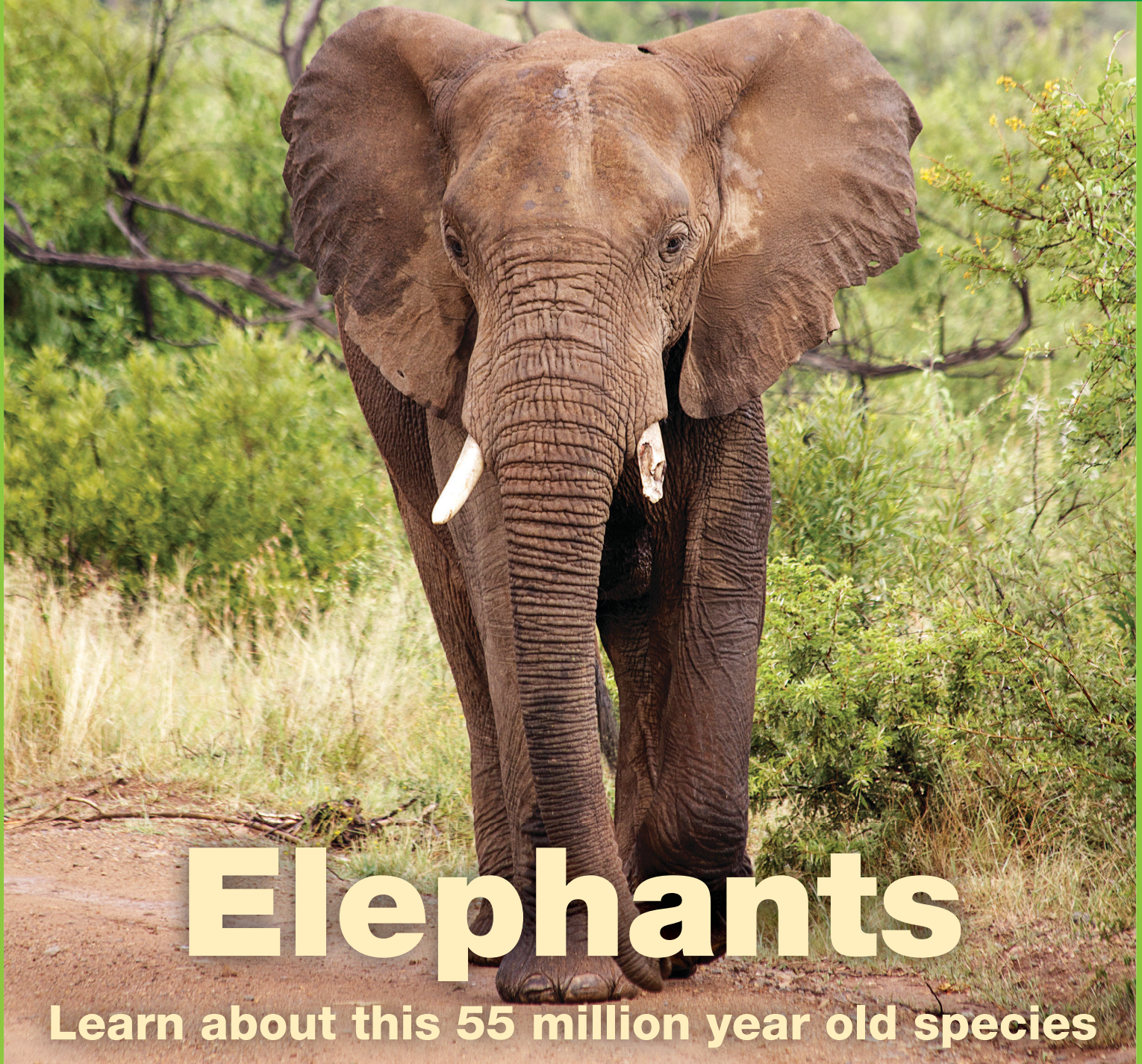




Jr. Animal Scientist

JUNE 2019



Elephants

Learn about this 55 million year old species

Elephants and people have a lot in common!

Female elephants are called cows and males are called bulls. You might think elephants have a lot in common with cattle but elephants actually have a digestive tract that is more similar to humans. Elephants are considered **non-ruminant** or **monogastric**, this means they have 1 stomach compartment. Cattle are considered ruminants because they have stomach chambers.

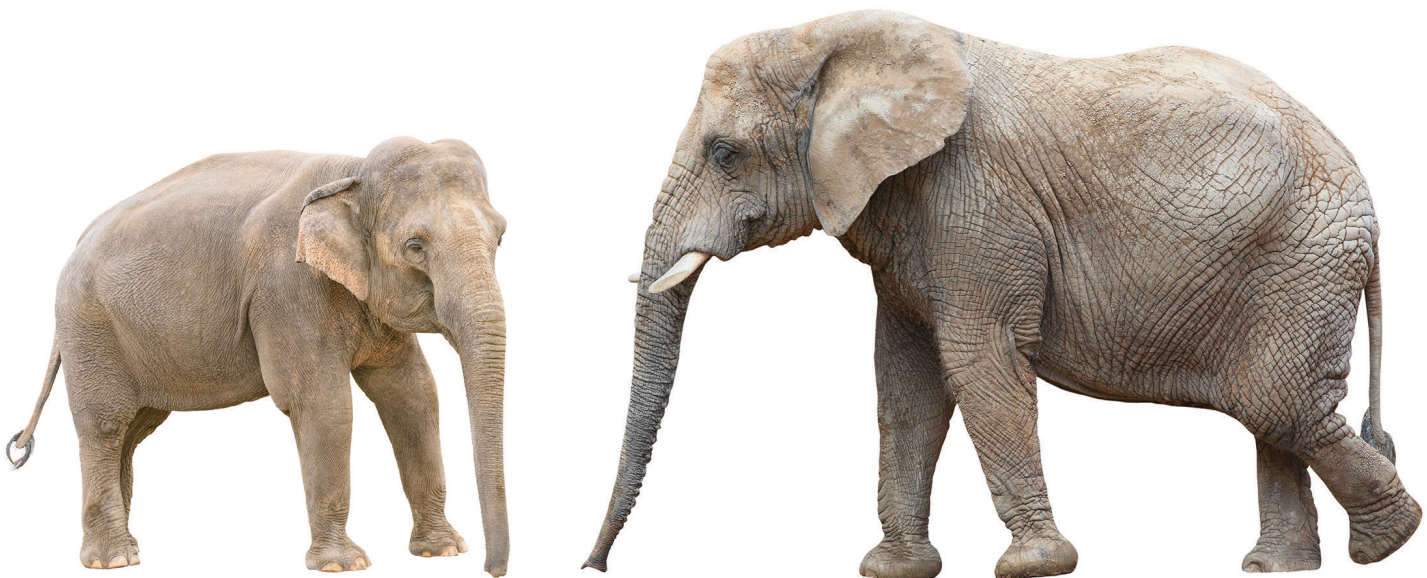
Elephants are gassy!

Did you know that elephants are **herbivores**? This means they only eat plants. Elephant diets consists of forages like grasses or leaves that can be found in the wild. However, in zoos, elephants are fed special diets made just for them so all of their nutrient needs are met. It's like they have their own food pyramid!

Elephants and horses also have a lot in common. Both elephants and horses are called **hind-gut fermenters**. This describes the process of fermentation that takes place in the cecum. The **cecum** is a pouch in the large intestine. Many types of good bacteria live in this pouch and help break down food. Fermentation in the cecum gives the elephant energy. A byproduct of fermentation is methane gas.

Can you spot the differences?

African elephants have large, broad ears that appear to be the shape of Africa and their head is more rounded at the top. Asian elephants have smaller, rounded ears and a twin-domed head, which means there is a significant ridge running up the center of their heads. Asian elephants also have one more toenail than African elephants, totaling five nails per foot. While not all elephants will grow tusks, both male and female Asian elephants can. Only male African elephants can grow tusks.



Asian elephant (young female)

African elephant (male)

How do elephants bathe? With their trunks on!

Elephants can use their trunks for a variety of everyday tasks. Contrary to popular belief, elephants' trunks are not straws! To drink, an elephant sucks water into its trunk and then places its trunk into its mouth and releases the water. Trunks also aid the elephant in feeding and bathing. The famous trumpet call of the elephant is also produced using the trunk. There are tons of other uses too such as lifting and touching. It's a very versatile tool for the elephant. Both Asian and African elephants have a trunk that is 6 to 7 feet long, which is taller than the average human! Asian elephants have one "finger" for grasping on the end of their trunk, while African elephants have two "fingers" on the end of their trunk.

Fun Fact: The elephant's trunk contains over 40,000 muscles, divided into as many as 150,000 individual units! In comparison, the entire human body only has 639 muscles, isn't that crazy!



Teeth aren't just for chewing

Elephants have two massive teeth that grow out from under their upper lip. These unique teeth are called tusks and are the equivalent of our two front teeth! Tusks are made up of a material called dentin. The inside of tusks are actually hollow and house many blood vessels and nerves that run almost the entire length of the tusk. The main function of these special teeth is for defense against predators or to fight off other elephants. One special feature of tusks is that they never stop growing. Even if an elephant were to break off a tusk, it can still grow as long as there wasn't any damage done to the root in the process.

Fun Fact: The roots of a tusk extends approximately 3 feet into an elephant's skull. Now that's a tooth!

Elephants make the tooth fairy go bankrupt!

Just like you and me, elephants lose their baby teeth and get new ones. This just happens 6 times for them! An elephant's age can be estimated by looking at their molars and tusks to see how many they have lost, how worn down their current teeth are, and the size of their tusks. Older elephants may struggle to eat once their teeth start to wear down or fall out. In the wild, older elephants may congregate around water sources to eat softer leaves and stems that are easier to digest without fully chewing. In captivity, like in zoos, nutritionists may change the elephant's diet by substituting dry pellets for a softer pellet and adding liquid ingredients such as beet pulp.

Fun Fact: An Asian elephant molar can weigh 6 pounds and an African elephant molar can weigh 8 pounds. This is the weight of almost two bricks!

Better than dogs

There are approximately 2,000 genes responsible for an elephants' sense of smell! Compare this to the 1,000 genes that help a dog smell! This means that both Asian and African elephants can smell better than a dog! A good sense of smell is important for elephants because it allows them to smell predators, food, and water from far away. That's right, elephants have such a good sense of smell that they can smell water!

Fun Fact: An elephant can smell food and water from almost 11 miles away. Since outer space is only 12 miles away, elephants can almost smell space. That's out of this world!



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Baby elephants' diet

All elephants are mammals, which means that they produce milk! Just like human babies, baby elephants, or calves, rely on their mom to provide food in the form of milk for the first few months of life. During this time, calves may drink up to 3 gallons a day! At approximately 4 months old, they may begin to eat some solid food like grasses or leaves. However, both African and Asian calves' diets consist primarily of milk from their mothers for the first two years of life, and they may continue to drink their mom's milk for up to 10 years.

The daily diet of wild and zoo elephants

An elephant's diet is based on many different aspects such as the type of elephant, its gender, and its age. A wild Asian elephant is a mixed feeder and prefers grasses. A wild African elephant prefers leaves. For wild elephants, the types of feed they consume depends heavily on what is available. For example, the elephant may eat high amounts of grasses during a rainy season, but during the dry season they may have to consume more leaves and twigs. Wild elephants may need to travel long distances to find feed. They generally graze on and off throughout the day in order to eat enough. Since elephants in captivity do not find feed for themselves, their diet is different than a wild elephant. An Asian elephant in captivity will be fed in cycles throughout the day in order to mimic their natural feeding schedule. Can you guess what an Asian elephant's main source of feed is in a zoo? Here's a hint...cattle, horses, goats, and sheep also eat it. It's hay! Elephants in captivity have a more regulated diet than in the wild, as zoo nutritionists try to incorporate all the needed nutrients. An adult female Asian elephant in captivity at the Smithsonian Zoo receives a variety of feeds that include hay, fruits and vegetables, chow, and other supplements.



Fun Facts:

- In one day, an elephant in a zoo will consume up to 135 pounds of food. That's about 27 times the amount of food that you eat per day!
- Asian elephants are much smaller than African elephants.
- Asian elephants have longer digestive tracts than African elephants.

Hold your horses!

Colic, which is commonly seen in horses, can also happen to elephants. Colic is defined as any kind of pain in the abdomen, but it can range from uncomfortable gas buildup to feces stuck in the intestine that won't move. There are many types of colic which can happen to elephants. For example, a quick change in diet can cause a stomach ache. Another common example of colic is sand impaction. Elephants are known to ingest sand or clay. This is their way of ensuring that their mineral requirements are met. This can cause a big issue for elephants over time as sand builds up in the intestines, causing sand impaction, meaning that nothing can pass through. This causes them to be uncomfortable, drink less water, and leads to dehydration and more problems down the road.

The stomach and intestines

Surprisingly, the main function of an elephant's stomach is storage, not digestion. The size of the stomach in both African and Asian elephants is similar. It holds about 30-70 liters, which is about 15-35 big bottles of pop! An African elephant's intestines are about 19 meters long, which is almost as long as TWO school buses! African elephants have shorter intestines than Asian elephants due to their diets, and that Asian elephants have intestines that are about 30 meters long.

Where to find elephants in the wild

Elephants live in a variety of climates, ranging from deserts to cool forests. They live in 37 countries across the globe that host a variety of habitats. African elephants can be found in many different types of habitats including savannahs, deserts, and marshes. They are found in Western and Southern African countries, such as Tanzania, Kenya, Zambia, Zimbabwe, Botswana, and Congo. Asian elephants generally stick to forest regions. They are primarily found in the countries of India, Nepal, Bhutan, Myanmar, Laos, Vietnam, Thailand, and Sumatra.



The Scoop on Poop

- An elephant poops twelve to fifteen times a day.
- In a single day, elephants poop 220 to 250 pounds of waste. In comparison, the average male human produces 360 pounds of poop per year. So, an elephant produces over half of what humans produce in an entire year, in just one single day!
- In a year an elephant will make 85,000 pounds of poop. We can compare this to the maximum weight a semi-truck can hold, which is 80,000 pounds. An elephant poops more than that in a year. That's a lot of poop!

Unique uses of elephant poop

- Elephant poop can be made into paper.
- Elephant poop can be used as fertilizer to grow crops.
- When the poop is burned, the smoke created kills mosquitoes without harming the environment.
- Elephant poop contains a lot of water, so, in an emergency water can be squeezed out to keep you hydrated.



Photo: iStock / ToscaWhi



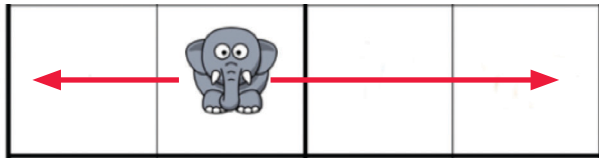
- The most expensive coffee in the world is created from elephant poop. Elephants are fed the coffee beans, which they cannot completely digest. That means that the elephant will poop out the coffee beans and have them be nearly the same as when they were eaten! So why do it? The elephant's digestive enzymes break down the protein and sugars in the coffee beans during the fermentation process, making the taste less bitter. Some fancy hotels and restaurants sell this coffee, and it usually goes for about \$50 per cup!

Photo: iStock / kwanchachaiudom

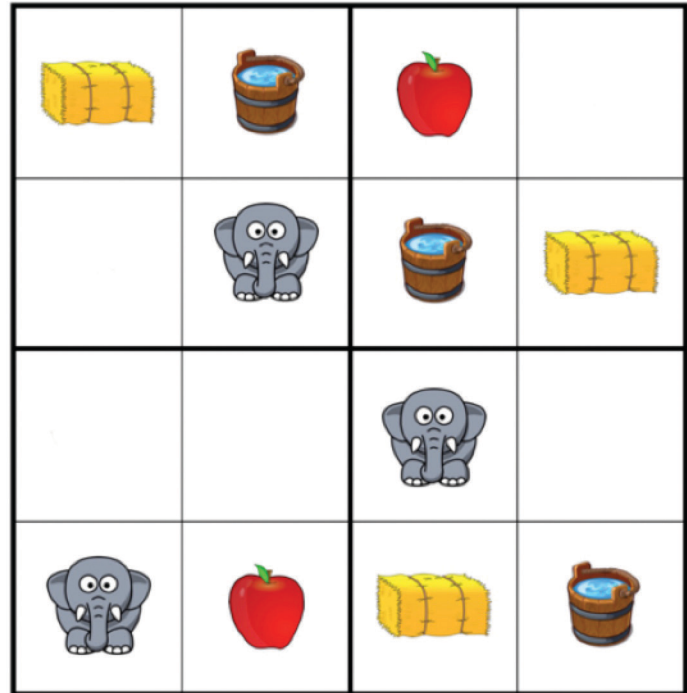
Elephant Sudoku

How to play: There can only be one of each picture down a column or across a row

For example: Since there is already an elephant in this row, there cannot be another one



Fill in each remaining empty box with the correct picture



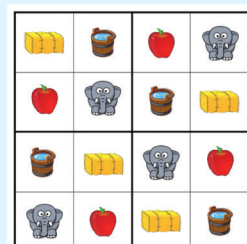
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Find these words:

- AFRICAN
- ASIAN
- ELEPHANT
- HAY
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- NON-RUMINANT
- STOMACH
- TRUNK
- WATER

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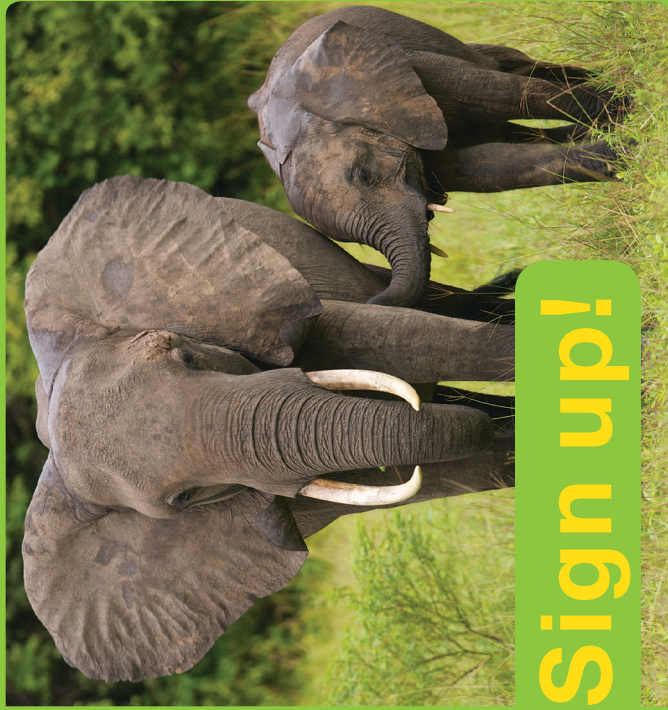


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