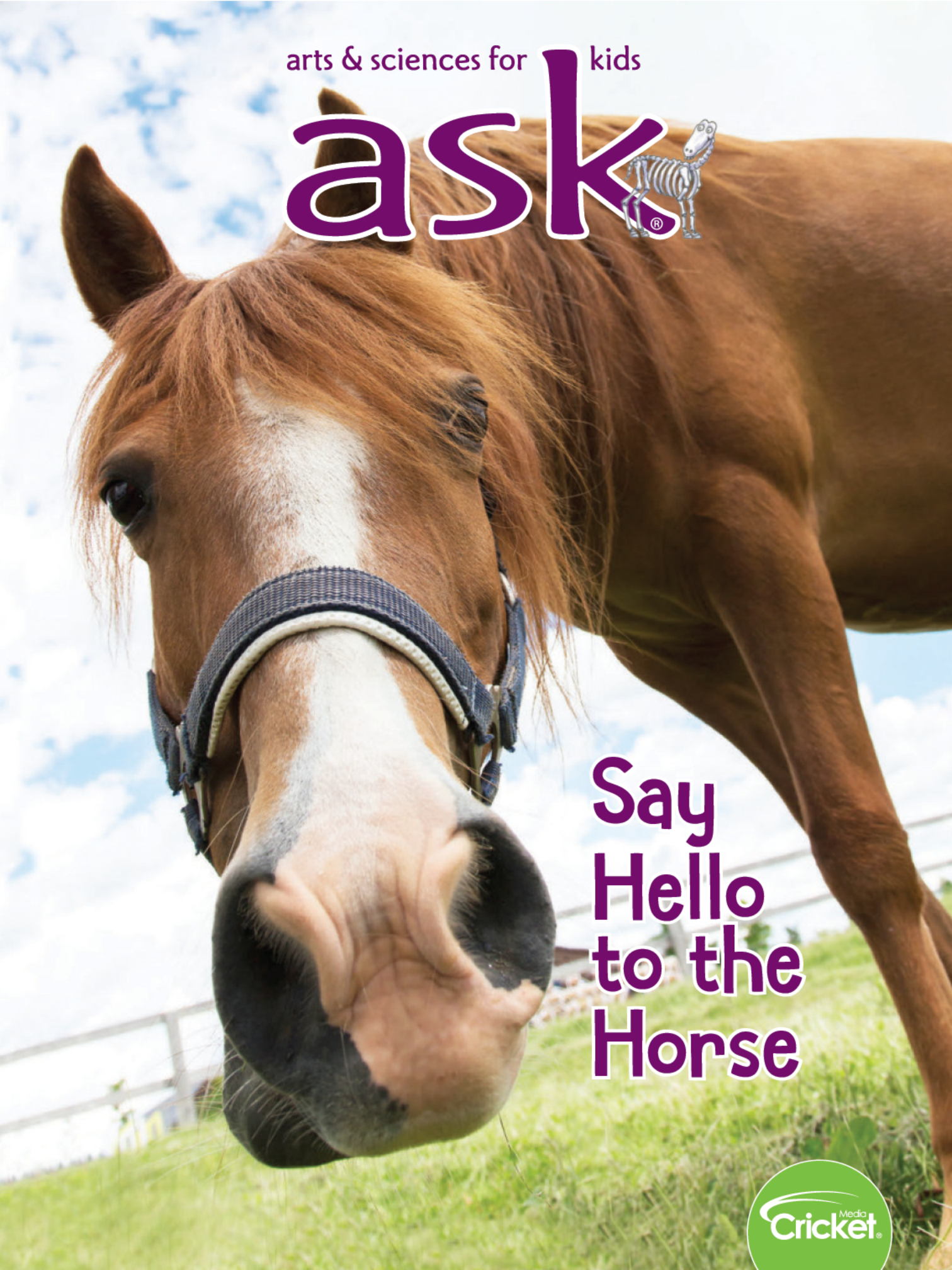

arts & sciences for kids
ask
Say Hello to the Horse
Cricket Media

arts & sciences for kids

# ask®

Volume 18, Number 4 April 2019



*ASK* magazine (ISSN 1535-4105) is published 9 times a year, monthly except for combined May/June, July/August, and November/December issues, by Cricket Media, 70 East Lake Street, Suite 800, Chicago, IL 60601. Additional Editorial Office located at 1751 Pinnacle Drive, Suite 600, McLean, VA 22102. Periodicals postage paid at McLean, VA, and at additional mailing offices. For address changes, back issues, subscriptions, customer service, or to renew, please visit shop.cricketmedia.com, email cricketmedia@cdsfulfillment.com, write to ASK, P.O. Box 6395, Harlan, IA 51593-1895, or call 1-800-821-0115. POSTMASTER: Please send address changes to ASK, P.O. Box 6395, Harlan, IA 51593-1895



Grateful acknowledgment is given to the following publishers and copyright owners for permission to reprint selections from their publications. All possible care has been taken to trace ownership and secure permission for each selection.
"Born to Run," art © 2003 by Leslie Evans; "How We Made Friends with Horses," text © 2003 by Meg Moss, art © 2003 by Jo Lynn Alcorn; "A Visit from the Farrier," text © 2015 by Meg Moss; "The Return of the Horse," art © 2013 by Adam Larkum.

**Photo acknowledgments:**
C: DashaR/Shutterstock.com; 2 (LC) NASA Ames/JPL-Caltech/T Pyle, (RC) NASA's Goddard Space Flight Center; 3 (RB) Image courtesy of the NOAA Office of Ocean Exploration and Research, Exploring Deep-sea Habitats off Puerto Rico and the U.S. Virgin Islands; 6-7 Katho Menden/Shutterstock.com; 8 (TC) EMMANUELLE ROBERT/Alamy Stock Photo; 9 (RC) Everett Collection Historical/Alamy Stock Photo; 16 (RT) wideonet/Shutterstock.com, 16-19 (bkg) Rashad Ashur/Shutterstock.com, 16 (RT), (LB), 17 (RT), (RC), (RB), 18 (LT), (RT), (LB), (RB), (RT), (LC), (RC), 19 (RT), (LB) photographs by Seth and Mark Mynhier; 22 (TC) Courtesy of Karen McComb; 23-25 (bkg) Chantal de Bruijne/Shutterstock.com; 23 (RC) Anton Shahrai/Shutterstock.com, (RT) Tuul and Bruno Morandi, (BC) EmmePi Travel/Alamy Stock Photo; 24 (LT) IanDagnall Computing/Alamy Stock Photo, (LB) Aurora Photos/Alamy Stock Photo; 25 (TC) Hakbong Kwon/Alamy Stock Photo, (RC) EMMANUELLE ROBERT/Alamy Stock Photo; 26 (LB) ildogesto/Shutterstock.com; 28 (bkg) DidemA/Shutterstock.com; 32 (TC) justdd/Shutterstock.com, (RT) Elle Arden Images/Shutterstock.com.

Printed in the United States of America
From time to time, *Ask* mails to subscribers advertisements for other *Ask* products, or makes its subscriber list available to other reputable companies for their offering of products and services. If you prefer not to receive such mail, write to us at *ASK*, P.O. Box 1895, Harlan, IA 51593-895.

1st Printing Quad/Graphics Midland, Michigan March 2019

Teacher guides available for all our magazines at cricketmedia.com/teacher-resources

Who loves to run?

page 23

## Departments



Are horses the first great explorers?

page 27



Suggested for ages 7 to 10.

# Features





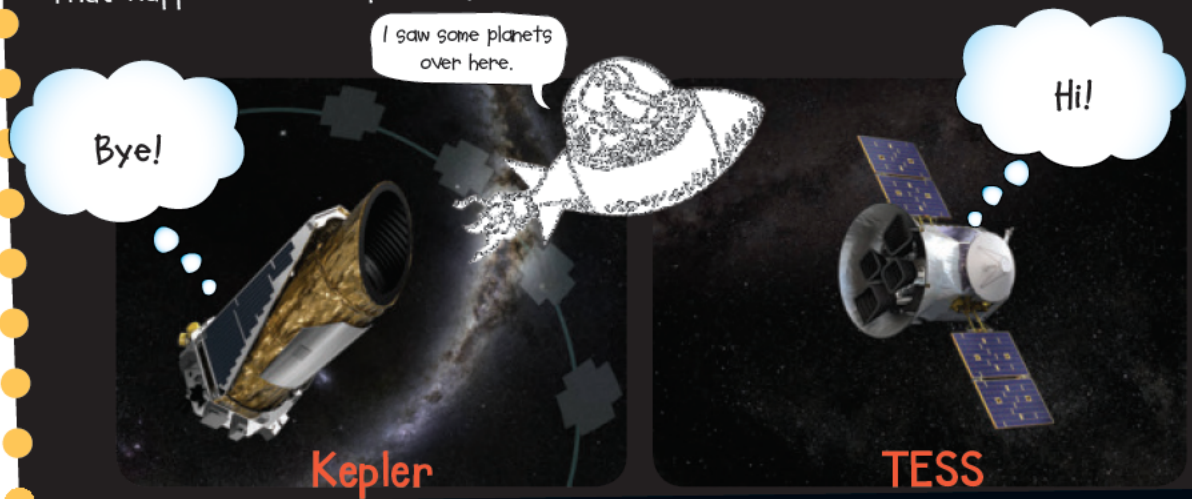
# News Nuggets

by Elizabeth Preston

## PLANET HUNTER 2

The Kepler telescope has spent ten years in space, looking for planets around other suns. But now it's time for it to retire.

Kepler launched in 2009. It circled the sun and took pictures of other stars. It snapped the same stars over and over. Then scientists compared the pictures to find stars that got a little dimmer on a regular schedule. That happens when a planet passes in front of its star—like a person walking around and around a lamp. Kepler's pictures have uncovered more than 2,600 planets. Scientists now think there are even more planets than stars. But the hard-working spacecraft finally ran out of fuel. Kepler will keep drifting around the sun, but its search for planets is over. In 2019 a new telescope called TESS launched to continue the search.



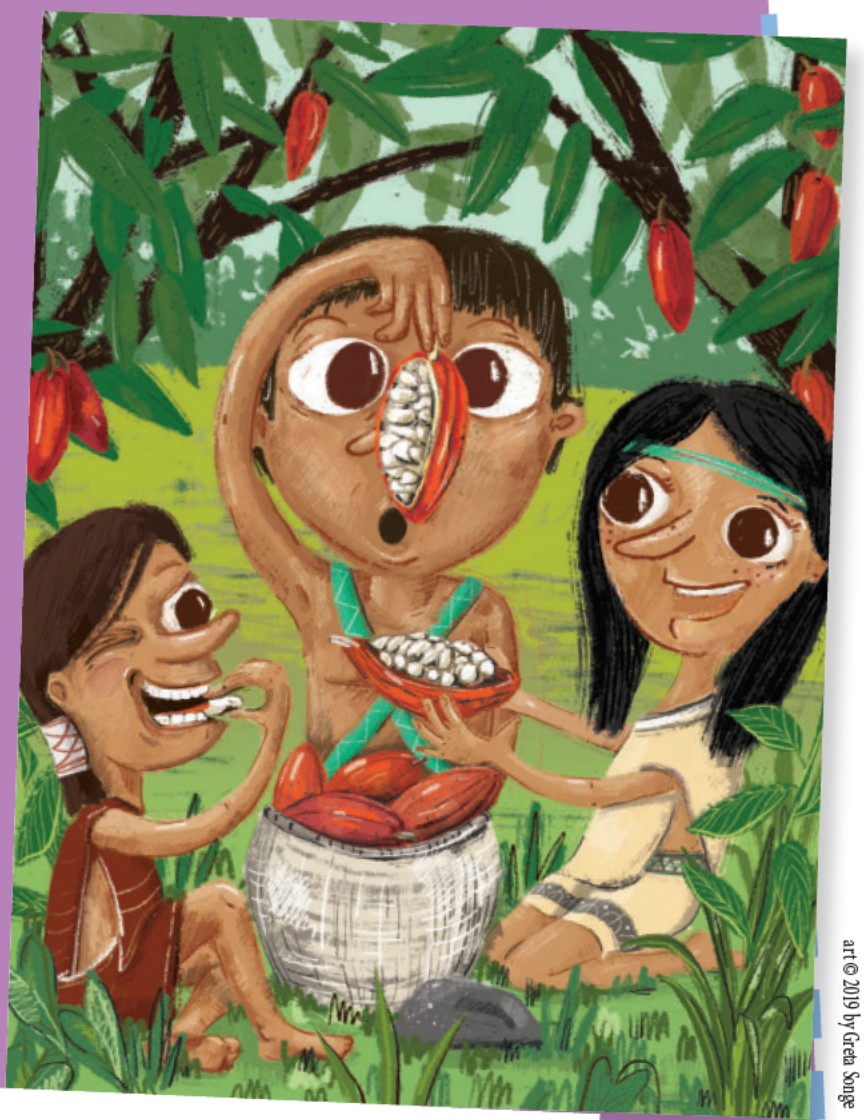

## WHO ARE YOU CALLING A MONSTER?

Australian researchers are using a new kind of underwater camera to study the ocean near Antarctica. The cameras have spotted some interesting creatures. One of them was this animal, nicknamed the "headless chicken monster." The "monster" is actually a kind of sea cucumber. They've been seen before in the Gulf of Mexico. But this is the first sighting in Antarctica.

Sea cucumbers are named for their shape, which is often cucumber-like.

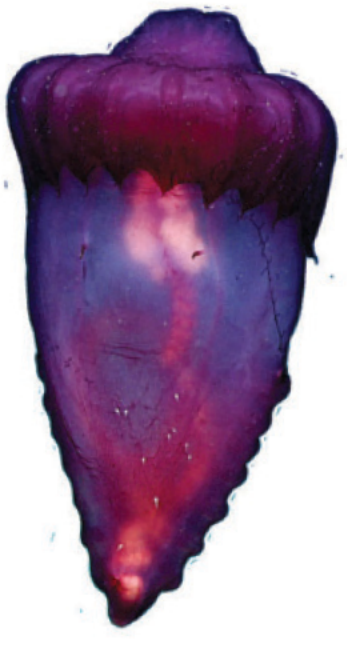
# AN ANCIENT TREAT

Like leftover Halloween candy under your bed, some very old chocolate has turned up in an unexpected place. Chocolate and cocoa are made from the pods of a tree called cacao. Historians have known for a long time that the ancient people of Central America were enjoying cocoa almost 4,000 years ago. But new evidence hints that cocoa was discovered even longer ago—and farther south. Researchers have found traces of cacao beans in ancient pottery from a site in the Amazon, in South America. The new clues mean chocolate-eating might be 5,300 years old. Compared to that, your dusty candy bar is perfectly fresh.





Many kinds of sea cucu
along the bottom of the
"headless chicken monst
above the seafloor. Wh
drops to the bottom to




NESTOR'S ROCK
by Jeffrey Ebbeler
I'm getting the hang of steering him.
I've carried people up this trail for ten years. I think I know where I'm going.
You're riding pretty well for your first time, Phil.
Horses are OK, but what if we were riding something cooler?
Like what?
Yeah, like what?
I love unicorns—they're so pretty!
What's so great about unicorns? It's a horse with a narwhal tooth.


I could explore the ocean on a hippocampus.
I'm a pretty good swimmer.
I would fly away on Pegasus.
Ok, that would be fun.
Well, I'm happy with my plain old horse.
Who are you calling old?
PAT
PAT
These kids are Ok, but what if we could be ridden by something cooler?
Like what?

# Born to Run

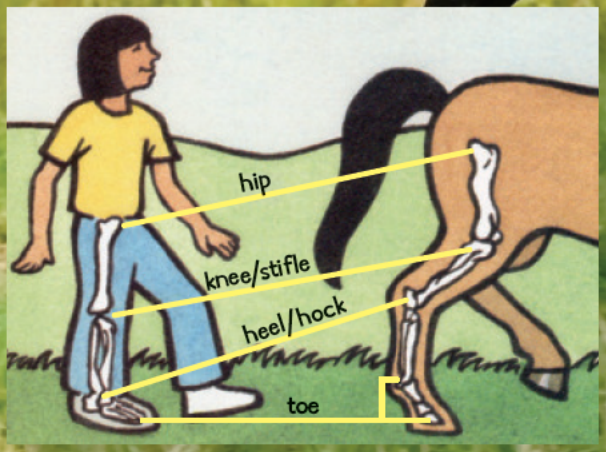
by Amy Tao
art by Leslie Evans

If a cheetah and a horse ran a 100-meter dash, who would win? Probably the cheetah—as the fastest land animal, it can run 70 miles (112 km) an hour. Even the fastest racehorses reach speeds of only about 45 mph.

But what if they raced a mile? That would be a different story. The cheetah would get tired and quit half way. But a horse could keep running for miles without tiring. It's built for both speed and endurance.

**Breathe Deep**
A horse's large lungs and heart pump oxygen-rich blood around its body. The oxygen provides energy for running fast over long distances.

**Standing Naps**
Can you sleep standing up? A horse can! Its legs can lock into a standing position when it naps. That way, it's always ready to run.


**Long-Distance Legs**
The horse's long legs let it cover lots of ground with each step. The leg bones are the same as in a human leg, but stretched out. The lower leg is strong but lightweight, so it can swing back and forth quickly. The horse's massive thigh and hip muscles provide power.

**Proud Neck**
A horse's long neck is not just beautiful. It helps the horse balance while it's running.

**Look Around**
A horse's eyes face sideways, so it can see all around. Its eyes are very sensitive to movement. This helps the horse react quickly to anything that might be a predator—even if it turns out to be just a shadow.


**Tough Toes**
A horse runs on tiptoes. Each leg ends in one long, strong toe covered with a hard hoof. The hoof is like a human toenail, but very thick. Nailing a metal shoe into the hoof doesn't hurt at all. The shoe protects the hoof from hard roads. The shoe is open so it doesn't block a springy part of the foot called the frog. This acts like a shock absorber when the hoof hits the ground.


**Power Foot**
A horse's foot is very flexible. It flattens and stretches like a spring to propel the horse forward.

**Keeping Cool**
Like a person, a horse sweats to cool down. Dogs, cats, and other animals with fur cool themselves by panting. But if a big horse could only cool down that way, it would quickly overheat when running.

# Too Fast to See

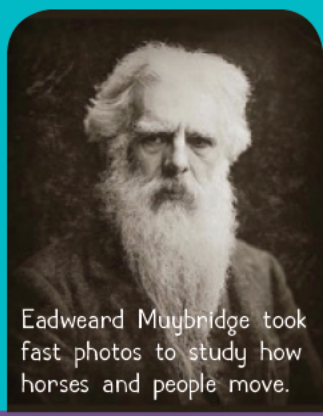
## Do horses ever really fly? How do you prove it?

by Amy Tao

Artists often drew running horses in this pose. But was it right?

For centuries, artists drew running horses as if they were flying through the air, legs stretched out and all four feet off the ground. But for a long time, no one knew if horses really ran like that. A horse simply runs too quickly. It was impossible to see clearly how its legs moved—until photographer Eadweard Muybridge took up the challenge.

In 1872, a wealthy horse trainer hired Muybridge to help him prove that a galloping horse sometimes has all



Eadweard Muybridge took fast photos to study how horses and people move.


Muybridge snapped fast photos of running horses to see how their bodies move. Each frame is a fraction of a second later in time.





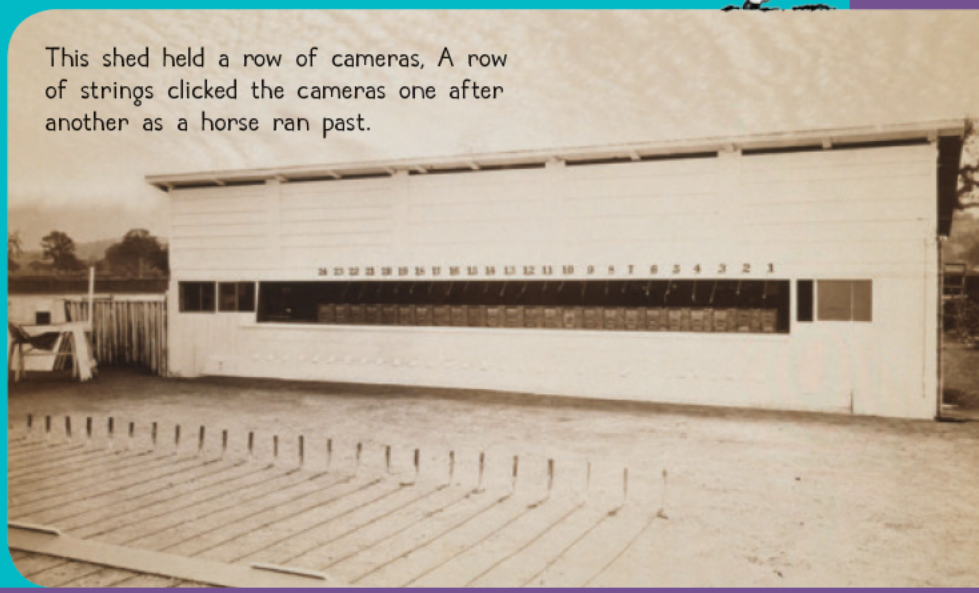



Proof! A running horse does get all four feet off the ground at once.

four feet off the ground at once. Most cameras of the time could not take pictures of moving objects. To capture an image, their shutters had to stay open for at least 15 seconds. If the subject moved in that time, the picture was blurry. On school picture day, you might have to hold a pose without moving for 10 minutes or more.

But Muybridge had built a much faster camera. It took a picture in only a fraction of a second. He thought it could even capture a running horse. Muybridge rigged a special racetrack with 12 threads stretched across it. The threads connected to 12 cameras set in a line. When a horse ran across a thread, a camera instantly took its picture.

With this strange setup, Muybridge took a series of photographs that clearly showed how a horse's legs moved as it trotted, walked, and galloped. He published the photos in 1878. His photos proved that a fast-moving horse really does fly in midair with all four feet off the ground at once—but bunched up, not stretched out like Superman.



This shed held a row of cameras. A row of strings clicked the cameras one after another as a horse ran past.




# How We Made Fri

by Meg Moss, art by Jo Lynn Alcorn

If you are a bike rider, you may remember your first long ride. On a bike, you could travel so much faster and farther than you ever could on foot. Off you went to your friend's house, to school, or to the park. What freedom!

The first humans to ride horses probably felt the same way.

## Wild Herds

Who was the first to throw a leg over the bare back of a horse? Scientists aren't sure. But they do know that horses once ran wild through the open grasslands of Europe, Asia, and the Americas.

Prehistoric people first viewed horses as a source of food. Long before humans learned to farm, they were hunters. For food, they searched for fruits and nuts, and stalked bison, mammoths—and horses.

Then, about 10,000 years ago, horses disappeared from the Americas. The herds of Europe and Asia also shrank. The exact reason isn't known, but it was probably the result of climate changes and over-hunting.

# ends with Horses

The only place where horses thrived was the grassy plain, or steppe, of Central Asia and Mongolia. There, for the first time, horses began to make friends with humans. This helped both horses and humans survive. The once-wild horse was domesticated—herded and cared for by people. Later, people would take horses to all the corners of the world.


## To Eat or to Ride?

Of the millions of species on Earth, only a few have been successfully domesticated, tamed to live with humans. Sheep, goats, and cattle were domesticated for their meat, milk, and hides. Were horses first herded for similar reasons?


Some archaeologists studying ancient sites in Central Asia have found evidence that horses were kept for food 6,000 years ago. Keeping horses helped people live through the harsh winters. Sheep and goats need to be fed in winter, but horses can feed themselves. They can dig through snow to find grass. Horses can also eat tough plants that other animals can't.

Horses could be used for meat—and also milked. Archaeologists have found traces of mare's milk on broken pieces of many ancient pots. If people milked horses, it's likely the horses were tame. After all, who would try to milk a wild horse?

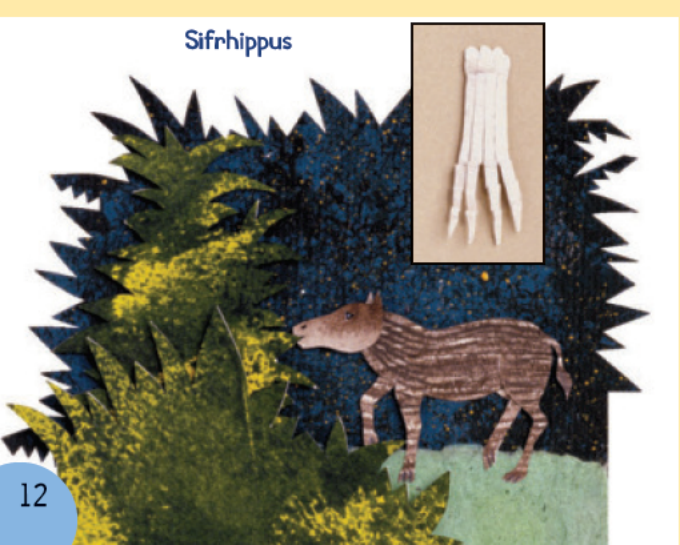
Ancient hunters probably learned about horse behavior by watching wild herds. Later, this helped them domesticate horses. Once horses were tame enough to milk, people likely started riding them too.

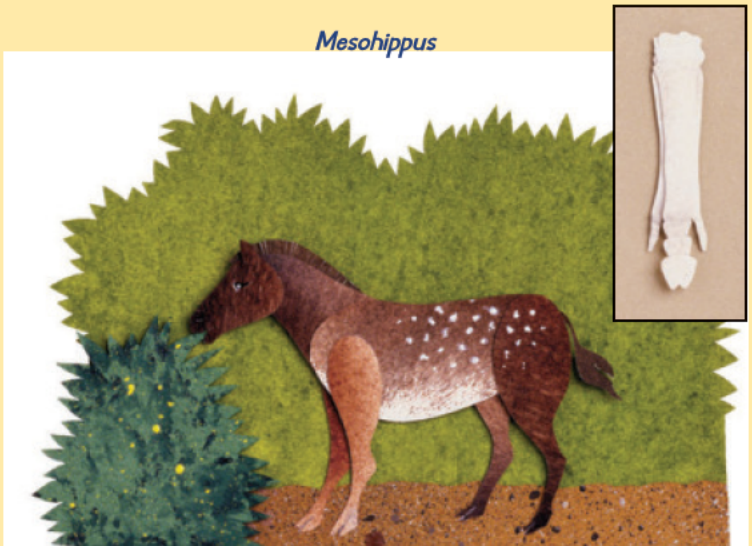
## Becoming the Horse

The horse as we know it has evolved over millions of years. Ancient horses were very different. But as their environment changed, their toes and teeth adapted. That helped them survive.

You might not recognize the fox-sized creature known as *Sifrhippus* as the horse's earliest ancestor. This small horse lived 55 million years ago. Its feet were like paws, with four toes on the front feet and three on the back. The toes were awkward for running, but good for stepping through the marshy forests. *Sifrhippus* was a browser—it nibbled berries and leaves with its tiny teeth.

*Mesohippus*, or "middle horse," developed about 35 million years ago. It was still a browser, like *Sifrhippus*, but it was larger—the size of a sheep. It had just three toes, a big middle toe and two smaller toes to the side. Each toe had a hoof. These feet let the horses run across soft (but no longer swampy) ground.



## The First Ride

No one knows who took the first horseback ride, or where. Perhaps an ancient herder, or a fearless kid, hopped on the back of a particularly friendly horse. It must have been a wild ride as the startled horse bolted off, carrying the unfamiliar weight of a person. Without saddle or reins, the rider probably held on for dear life.

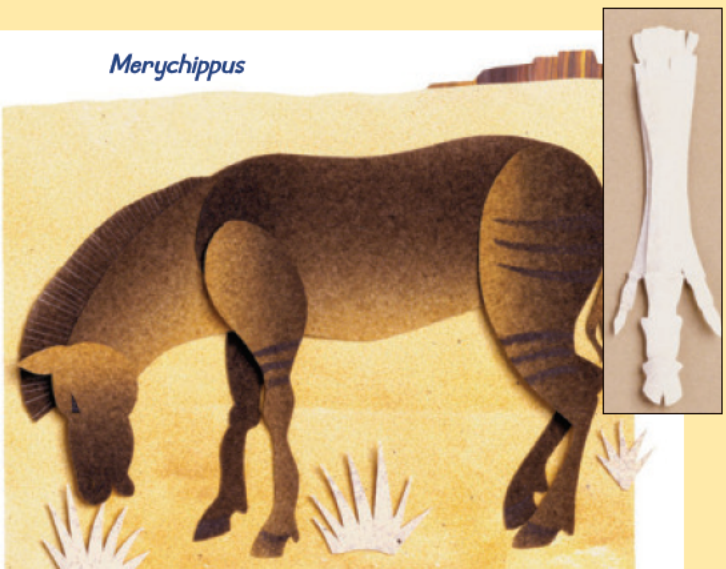
Horse herders soon had a new challenge. Once you're up on a horse, how do you tell it where to go?

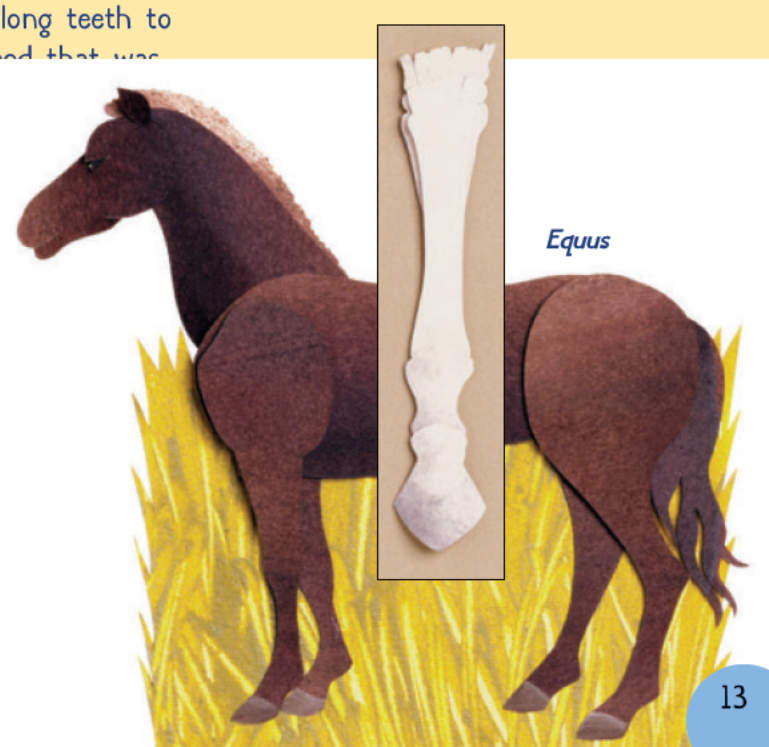
Recently, archaeologists found a clue: a few pieces of antler with holes in them. They look like cheek-pieces used to hold a bit in a horse's mouth. Ancient horse teeth found nearby show signs of wear that could only have been made by a bit. This leads scientists to believe that 6,000 years ago, people were not only riding horses, but using bits and reins to steer them.


Over the next 18 million years, the earth's climate slowly changed. The lush forests became dry, grassy plains. And the horse changed, too. *Merychippus* had long, strong teeth to grind and chew tough grasses. Its legs were also long, each ending in a single hoofed toe. That helped it gallop fast across the plain to outrun predators.

*Equus*, the modern horse, developed about 3 million years ago. It was tall and fast. Its single hoof let it spring forward for speed. And it had extremely long teeth to survive on a food that was everywhere—g

Humans have bred modern horses into many varieties. Each horse breed has its own color, size, and speed. But all horses, from small Shetland ponies to huge Percherons, are the same species—*Equus ferus*.




## Horse Friends

How did people tame wild horses? The horses themselves probably helped. Horses are social animals. They like to live in herds. Every horse in a herd knows its rank, and knows who's boss.

Horses communicate with one another using body language. They show friendship by grooming each other, nibbling and scratching with their teeth. To show who's in charge, a horse will reach out and lower its head as if to bite, or raise a leg as if to kick. It will flatten its

ears—protecting its body—to signal it's ready to fight.

It's likely that humans who hunted horses all day noticed these signals and learned to imitate them. At first, this may have let them get close to a herd. Then they may have learned how to use gestures to convince the horses that the humans were leaders of the herd.

Gradually, tamed horses became more popular as working animals than as dinner. People put horses to work carrying packs and pulling chariots, wagons, and plows. Horses carried people long distances in search of better lands and hunting grounds. And on horseback, people could visit and trade with far-away places.

Horses were also used for waging war. Imagine hundreds of fierce mounted raiders swooping down on your village, horses snorting and hooves clattering! Once a town had met an enemy on horses, they often built town walls.

And horses may be responsible for another modern invention—pants! Many ancient people wore simple robes with bare legs. But bare-legged riding is uncomfortable. So about 4,000 years ago, some clever rider stitched two tubes of cloth together, and started a new fashion trend.


Until the railroad was invented in the 1800s, horses remained the fastest transportation on land. So important were these speedy steeds that the first trains were called "iron horses." It was only in the 20th century that horse power was gradually replaced by cars. Humans still love horses, but as friends, not for getting around.

# A Visit from the Farrier


Today's customer is Mikey, a nice young horse who lives on a farm in Indiana. He needs some new shoes.

When Mikey the horse needs new shoes, he doesn't go to the shoe store. His owner, Alyssa, calls Natasha. Natasha is a farrier. Her job is taking care of horses' hooves.

Natasha measures how long Mikey's hooves have grown. Too long? Time for a trim!

Natasha brings all her tools with her to Alyssa's farm. The first thing she does is check how long Mikey's hooves are. Horse hooves grow, just like fingernails. In fact, they are made of the same stuff as fingernails. It's called keratin.

Wild horses walk and run about 30 miles a day, and that wears their hooves down naturally. But horses who live on farms, like Mikey, don't run around as much. So Natasha has to trim his hooves to keep them healthy.

Trimming doesn't hurt, just as it doesn't hurt when you trim your fingernails. But hooves that grow too long could make it hard and painful for Mikey to walk.

First Natasha uses a hoof pick to clean out the dirt that builds up around the frog. This frog isn't a little green animal that says *ribbit*. It's a triangle-shaped pad on the underside of the hoof. It cushions the hoof. But if there's too much dirt around it, a horse can't stand or walk properly.


Natasha uses a metal hoof pick and a stiff wire brush to clean around the horse's hooves.

Natasha clips the hoof and then files it smooth.

horses.

Next Natasha grabs her nippers. They ıe same job as nail clippers. asha uses them to clip off the ra growth around the wall of ikey's hoof.

It's hard to make all the clips even, so Natasha must file the rough edges smooth. She has to hold Mikey's leg to file the bottom of the hoof wall. But she rests the foot on a hoof stand while she files the sides of his hoof.

Now it's time for the shoes. Horseshoes are C-shaped pieces of met You can't tie them on

A horse nail file.


Small nails hold the horseshoe in place. These go into the hard hoof. They don't hurt the horse.

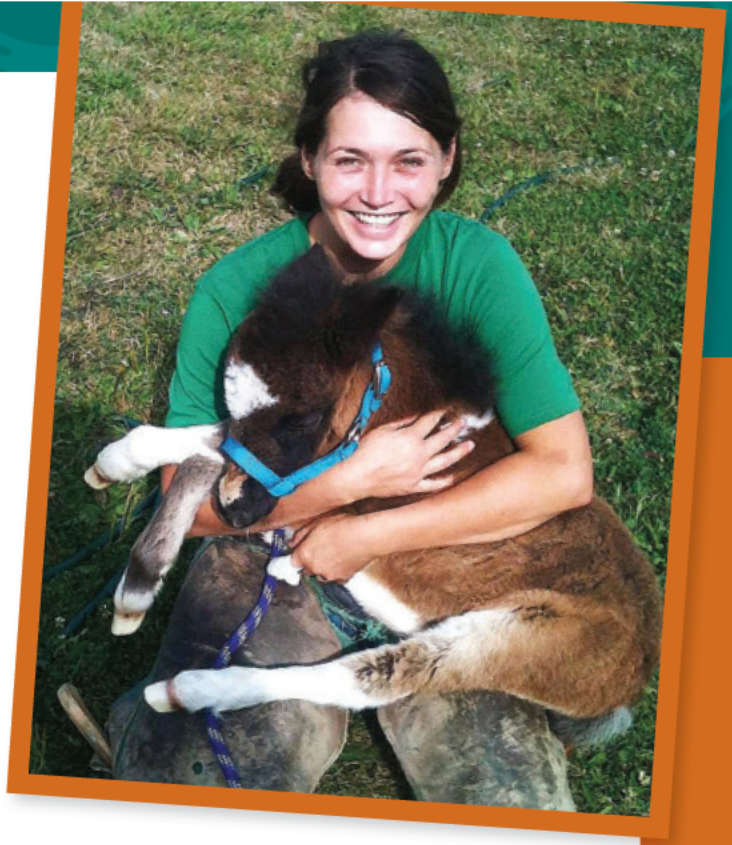
She selects a shoe the right size to fit each hoof. Sometimes she has to bend or shape the metal to get a good fit.

like sneakers. Natasha hammers little nails through the horseshoe into the hoof wall. Don't worry, it doesn't hurt!

Mikey gets ridden a lot, so he needs shoes to protect his feet. Other horses wear special shoes to help correct problems with their hooves. Some horseshoes have cleats, little spikes to give working horses extra grip on snow or slippery ground. But most horses go barefoot, especially if they have strong, healthy hooves.

The other horses on the farm don't need new shoes or a trim today, but Natasha stops by every two months or so to check on them. Here she is filing Sarah's big hoof.

Some horses don't wear shoes. But they still need to have their hooves trimmed.



And here she is cuddling little Star after her first trim. Baby horses don't wear shoes, but their tiny hooves need trimming when they are a few months old.

Natasha loves her job and her horse buddies. And they love her!


# How to Speak Horse

art by Cheryl Kirk Nol

Horses are very intelligent animals. They pay close attention to what other horses are doing and how they're feeling. This helps the herd get along. Horses show how they're feeling with body language. Humans can learn to read these cues too.

## Ears

A horse's ears can tell you what it's listening to, and how hard.

*Pricked up*
Interested, listening

*"Airplane ears"*
Relaxed, thinking

*Alert, held back*
Tense or worried

*Pinned back*
Scared or angry

## Tail

Horses swish their tails to shoo flies. But fast swishing can mean the horse is annoyed.

*Contented*

*Excited*

*Startled*

*Swishing insects or annoyed*

*Afraid*

## Eyes

Horses' eyes are very expressive. A "hard" eye is the horse version of glaring. A horse will sometimes glare at another horse (or a person) to say "cut it out!"

*Soft and round*
Relaxed, happy

*White showing*
Scared

## Mouth

Horse faces can show doubt, surprise, and anger, just like human faces. A tense horse will clench its jaws and hold its head back a bit.

A horse will sometimes chew and lick its lips when it's calming down after a mild stress, like learning something new.

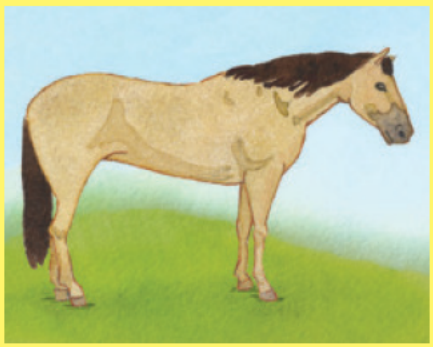
When a horse curls its lip and sniffs deeply, it's called a "flehmen." Horses do this when they smell something new or interesting.

Sometimes young horses will clack their teeth. This means "I'm only little! Be nice!"

## Body Language

You can also read a horse's mood from the way it holds its whole body.

*Relaxed and happy*
Head level, body relaxed, ears to side, tail still or swishing gently



*Unfriendly*
Body tense, ears back, eyes hard, tail swishing quickly or held out behind, rear legs wide, ready to run

*Fidgety, annoyed, bored*
Head tossing, ears swiveling, stamping, tail swishing

*Mad, ready for a fight*
Head thrust out, snaking back and forth, ears back, eyes white, teeth bared, legs spread, lifting feet ready to kick

*Alert, curious*
Head up, ears pricked forward, tail a bit up, nostrils wide

## Sounds

**Sigh** — I'm relaxing. Or bored.

**Squeal** — Back off, I'll fight!

**Snort** — I'm excited, irritated, or have some fluff in my nose.

**High-pitched neigh** — Danger! Everyone be alert!

**Nicker** — Hello! or Hurry up.

**Whinny** — Hey, I'm over here.

Horses can recognize people from their photos, and remember whether they were smiling or frowning.


## Horses Can Also Read Us

Horses are great at reading the body language of other horses—and of people. They can tell whether a person is confident, shy, or afraid just from how they stand.

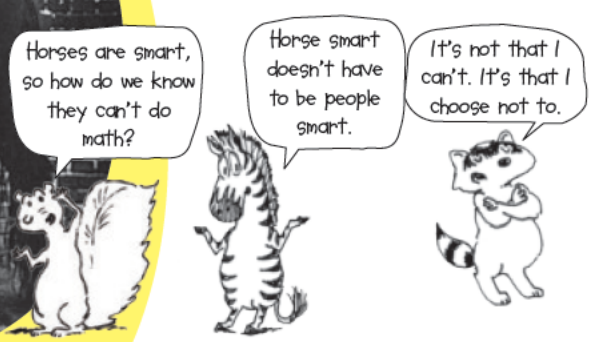
Recently, scientists tested how well horses can read human faces. They showed horses photos of smiling and frowning people. After a few hours, the people in the photos met the horses with a blank expression. The horses were more friendly to the people who had been smiling in the photos.

One famous horse, known as "Clever Hans," was so good at reading people that his trainer thought he could count. The trainer taught Hans to tap his hoof to give the answers to math questions. Amazingly, Hans was almost always right!

But if Hans wore a blindfold, his skill disappeared. He also got questions wrong if the person asking didn't know the answer. So what was going on? Without meaning to, the people asking the questions were tensing up or blinking when the horse got to the "correct" number. Hans learned to stop tapping when he saw these tiny give-aways. The humans didn't realize they were doing it. But the horse did.

So, always assume a horse knows just what you're feeling!

The horse Clever Hans could not really do multiplication but he was a genius at reading human faces.



# A Day at the Races

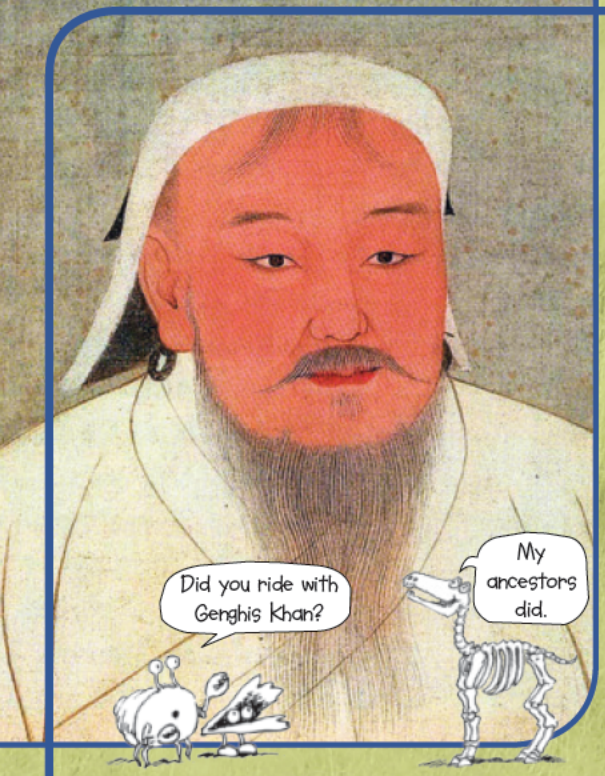
By Tracy Vonder Brink

Picture yourself on a strong, sturdy horse, ready to race. Other kids on horses crowd around. A rope stretched across the starting line drops, and you're off! Hooves pound like thunder, and a dust cloud rises. You race for miles over short Mongolian grass. If you and your horse are the first to cross the finish line, you'll earn the title of *tumny ekh*, or "leader of ten thousand." You will have won Mongolia's Naadam Festival.

The Mongolian people have a bond with horses that goes back thousands of years. Mongolia is a country between Russia and China. It's twice as big as Texas. Much of Mongolia is grassland with few trees, called the steppe.

Horses arrived in Mongolia long ago, crossing over on a land bridge from North America.

Mongolian horses are small and strong.


Genghis Khan was a Mongolian leader who conquered much of Asia around the year 1200.

People learned to use horses for travel, hunting, and herding. In the 1200s, fierce warriors on horses helped a ruler named Genghis Khan found an empire. It's believed that Genghis Khan started the Naadam Festival.

Khan wanted his fighters to be strong, fast, and able to fight from the saddle. Legends say that he chose his warriors by having competitions of wrestling, archery, and horse racing. Later, these contests became part of a public festival, called Naadam. That was over 800 years ago. The festival is still held today.

The Naadam Festival takes place all over Mongolia in mid-July. Many towns hold their own races. The largest gathering, National Naadam, is held in the capital city of Ulaanbaatar. As many as 180,000 horses race there. There are also wrestling and archery contests, but horses are the stars.

A horse can go faster with a lighter rider, so almost all the riders are kids between the ages of 5 and 13. Riders and horses begin training two or three months before the festival. Training begins with the horses running a little over half of a mile, or 1 km. They gradually run for longer and longer until it's time for Naadam.

There are six categories of races, based on the horses' ages. Two-year-old horses run the shortest distance, 6 to 7.5 miles (10–12 km). Seven-year-old horses race for an amazing 15.5 to 16 miles (25–16 km)! In comparison, the longest horse race in America is only a mile and a half. The races are long and straight to test the horses' strength and stamina.

Horses are a central part of life in Mongolia. Most kids learn to ride very young. It helps that Mongolian horses are quite small.

And they're off!


Riders sing songs to praise and encourage their horses as they head to the starting line. Many of the kids ride bareback, without a saddle. Once the race starts, trainers often drive cars alongside the racers, shouting instructions and cheering them on. Race fans gather at the finish line many miles away. They can't wait to see which horse will win.

The winning horse in each age group is given a medal. Its rider earns the title of "leader of ten thousand," the name Genghis Khan gave to his commanders. There are prizes for the winning trainers, too. But Mongolians believe it's important to encourage the horses, so the youngest losing horse is also given a prize.

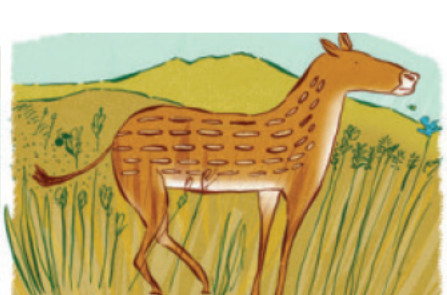
After the prizes are awarded, race fans rush forward to touch the sweat and dirt on the winning horses. They are sure it will bring them good luck in the next year.


Since the horses do the running, it's only fair that they get to wear the medals. This horse has won a lot of races!

# The Return of the Horse

art by Adam Larkum

**Once upon a time, early horses roamed the Americas. Then they left on a journey that took them around the world—and back again.**



**1** Long ago—55 million years, to be exact—a tiny horse called *Hyracotherium* grazed happily on shrubs in the woods of North America. It didn't look much like a horse, really. It was about the size of a dog and looked more like a three-toed deer.

Gradually, the land began to change. Less rain fell. Forests changed to grassland. The family of little *Hyracotherium* grew into many different species. Some got bigger and began to eat grass. They spread out all over North and South America, living on the broad grasslands and mountains and in the forests and deserts.

**2** One day, around five million years ago, some early horses living in what is now Alaska wandered a bit


You are used to seeing the earth from its side, but to follow the horse's story, imagine you are looking at the earth from above the North Pole.

farther west than usual. Back then, a strip of solid land connected Alaska and Siberia. They walked straight across it and on into Asia.

3 Other bands followed, including the ancestors of the modern horse. This family, called *Equus*, liked Asia just fine. There was lots of tasty grass and plenty of room to run. Some stayed in Asia, while others wandered farther west, into the Middle East, Europe, and all the way to Africa, where their descendants became zebras and donkeys.

Meanwhile, back in America, life became hard for horses. By about 10,000 years ago, no horses of any kind were left in North or South America.

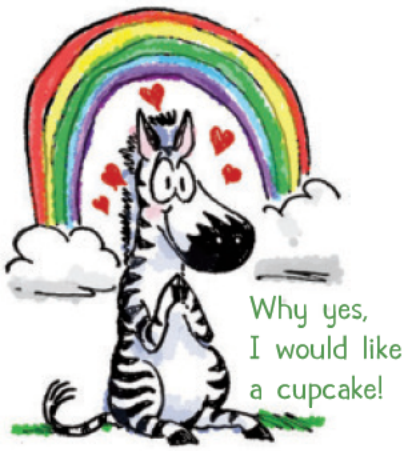

4 But on the other side of the world, horses thrived. They met up with some strange, two-legged creatures who seemed to like riding on their backs.

In 1492, Spanish explorers set sail to find a western route to India and ran into America instead. On their second trip, they brought along some horses. These creatures astonished the Native Americans, who had never seen such an animal before.

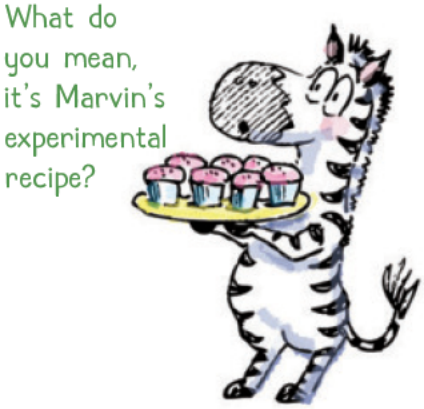
But the horses felt right at home in the New World. And no wonder! They *were* home—returning to the grassy plains where their ancestors started out so long ago.

# How to Speak Zebra

art by Thor Wickstrom

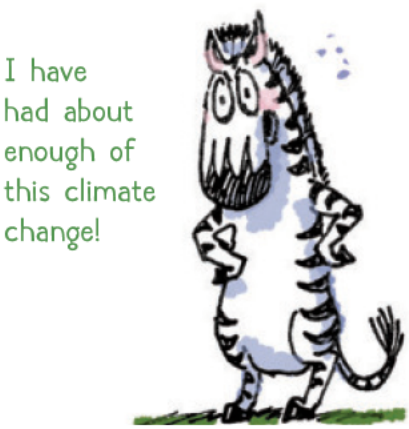















# Ask Ask

WITH SAGE AND BRIAR

TEXT BY ellen R. BRAAF
ART BY MARNIE GALLOWAY

Hey, Sage! Camryn F. in Niger, Africa, wants to know, why do horses sleep standing up?

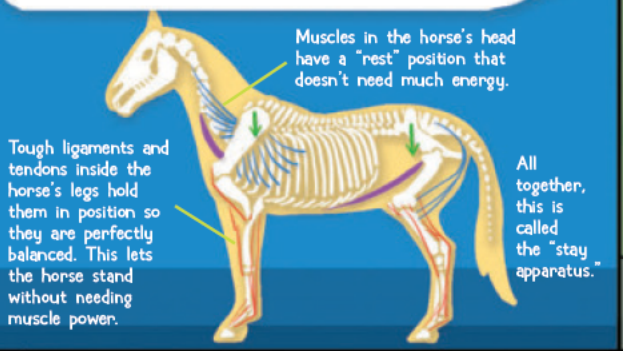
In the wild, it's dangerous for horses to sleep lying down. Getting back on their feet takes time. Every second counts when cougars, wolves, coyotes, or bears are prowling.

ZZZ...

So during the day we take little naps standing up.

Why don't they fall over?

Horses have leg joints that lock. Two kinds of tough cords inside the leg—tendons and ligaments—hold them in place. That way, horses can relax their leg muscles without taking a tumble. But all horses need to lie down to sleep for a little while every day.




Why do they need to lie down?

Horses can't sleep very soundly when standing. But like other animals, they need to completely relax their brains and bodies once a day. They need to sleep deeply enough to dream. And to get deep sleep, they must lie down.

Mainly we get our lying-down sleep at night.

"Mane"-ly? Hee! Hee! Hee!

We don't need a lot of deep sleep.

Only about 30 minutes a day. And it doesn't have to be all at once.

But what about predators that hunt at night?

We take turns sleeping.

One horse stays awake to warn us.

So, what do they dream about?

That remains a mystery.

## ASK US ANYTHING!

WRITE TO US AT:
ASK
70 EAST LAKE STREET
SUITE 800
CHICAGO, IL 60601

OR HAVE YOUR PARENT EMAIL
ASK@CRICKETMEDIA.COM

# CONTEST and LETTERS

*Send your letters to Ask Mail, 70 East Lake St., Suite 800, Chicago, IL 60601, or have your parent/guardian email us at ask@cricketmedia.com.*

In our November/December issue we asked you to imagine a mini you in a miniature world. Thanks to all you talented tiny artists for sharing your acorns with us!

Caden F.,
age 8, New York


**My Miniature World**
Aliya K.,
age 8, California

Georgia M.,
age 8, Texas


**Little Inch's Dream Acorn**
Aishani K.,
age 9, California

Dear Marvin,
What pranks do you like? My favorite is

Eric C., by email

*Dear Eric,*
*I just invented a fantastic new prank! It reprograms people's keyboards so that when they type in words, it comes out as emojis! What do you think, would that be hilarious?*
*Prankmaster*
*Marvin*

Dear Ask,
How hot is the sun? And how cold is Uranus? Please put this in a space magazine with other space facts.
Cady M.,
California

*Dear Cady,*
*The sun is quite hot. Its core can reach 27 million degrees F*

Griffin W., age 10, Utah

Hayden A., by email

**If I Were 1/2 Inch Tall:** I would fly on a dragonfly, live for a week on 3 grapes, have a pet ladybug, live in a pothole, and use a bird feather as a bed.

Helen T., Michigan

**Me on a Pizza**
Tamsin B., age 9, Indiana

Zuzu, age 9, California


Theo P., age 9, Maryland


Zane F., age 8, Tennessee

*(15 million degrees C). At the surface, it's hot enough to vaporize iron. Uranus, on the other hand, is rather chilly. The temperature there is about −325° F (−200° C). So bring warm undies.*

*I live for space facts!*
*Bot*

Dear *Ask*,
Can humans catch diseases that cats get? Also, can you make an issue about video games?

Regards,
Leia P., age 7, Illinois

*Dear Leia,*
*Mostly, humans can't catch cat colds (say that 10 times fast!). But cats can pass along parasites—tiny creatures like fleas and plasmodia that live on the cat's body. And cats get cat versions of human diseases, though they don't catch them from us. Video games is a great idea! We'll get started just as soon as I clear this next level....*

*Wishing you purrfect health,*
*Whatson*

April Contest

# *Imaginary* Horses

Ancient myths and legends are full of fantastical horses: centaurs, unicorns, Pegasus with wings, even horses with fish tails (hippocampi) or eagle claws (hippogriffs). For this month's contest, invent your own fantastical mythical horse creature, and draw us a picture. We'll rustle up a rodeo of the rarest in an upcoming issue of *Ask*.

Contest Rules:

1. Your contest entry must be your very own work. Ideas and words should not be copied.
2. Be sure to include your name, age, and address on your entry.
3. Only one entry per person, please.
4. If you want your work returned, enclose a self-addressed, stamped envelope.
5. Your entry must be signed or emailed by a parent or legal guardian, saying it's your own work and that no one helped you, and that *Ask* has permission to publish it in print and online.
6. For information on the Children's Online Privacy Protection Act, see the Privacy Policy page at cricketmedia.com.
7. Email scanned artwork to ask@cricketmedia.com, or mail to: *Ask*, 70 East Lake St., Suite 800, Chicago, IL 60601. Entries must be postmarked or emailed by April 30, 2019.
8. We will publish the winning entries in an upcoming issue of *Ask*.

Whatson's

# JOKE PAGE


art by
Thor Wickstrom

Knock Knock.

Who's there?

Avery!

Avery who?

Avery time I come over we go through this!

**What kind of horse can jump higher than a house?**

All of them—houses can't jump!

Which side of a bird has the most feathers?

The outside!

**What's as big as a horse, but weighs nothing?**

A horse's shadow!

What pet makes the loudest noise?

A trum-pet!

**What looks like half a horse?**

The other half!

Why don't you ever see hippos hiding in trees?

Because we're so good at it!

**What's round on both ends and high in the middle?**

Ohio!

What does it mean if you find a horseshoe?

Somewhere, there's a barefoot horse.

**Why is Cinderella no good at soccer?**

Because she always runs away from the ball!

What cheese is made backwards?

Edam!

**When does a horse go to sleep?**

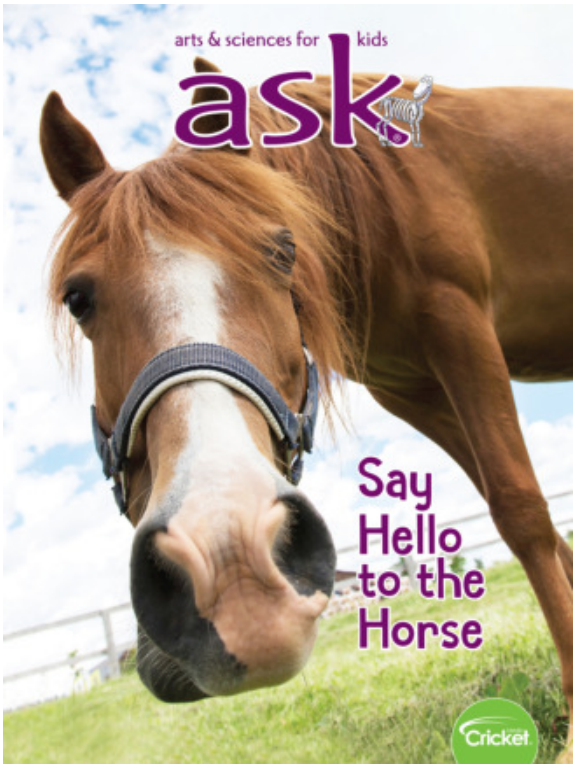
Whinny wants to.


Marvin and Friends
I wonder what it would be like to live in a palace like that?
That's no palace, Zia. That's a stable. You would have to be a tame horse to live there.
I wonder what it's like being a tame horse?
Well, in the old days, horses did most of the work around the farm.
But nowadays most horses are ridden just for fun.
Ridden? What do you mean, ridden?
You'd have to wear a saddle.
And carry a person around...
YEE HAW!
While running and jumping fences.
TALLY HO!
But some people just like to ride on trails.
That's good, because they're certainly not going to ride on me!

# Ask® Teacher Guide: April 2019

## Say Hello to the Horse

**Saddle up and take young readers on a ride through a trough of information about horses. This issue of *Ask* provides students with a bounty of equine vocabulary by including articles that study the physique, body language, and the people who care for these magnificent animals.**




## CONVERSATION QUESTION

**Why are horses such spectacular animals?**

## TEACHING OBJECTIVES

- **Students will learn how horses are physically designed to be strong runners.**
- **Students will learn how a farrier cares for a horse's hooves.**
- **Students will learn how a horse's body language is deciphered.**
- **Students will identify the structure and function of a horse's physical features.**
- **Students will demonstrate the ability to properly sequence a studied process.**
- **Students will collect evidence from a science-based text.**
- **Students will use examples from the articles to further study the parts of speech.**
- **Students will create presentations highlighting the role of horses throughout history.**
- **Students will create a mathematical code for answering equations.**

In addition to supplemental materials focused on core STEM skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

## SELECTIONS

- **Born to Run**
Expository Nonfiction, ~550L
- **A Visit from the Farrier**
Expository Nonfiction, ~650L
- **How to Speak Horse**
Expository Nonfiction, ~650L

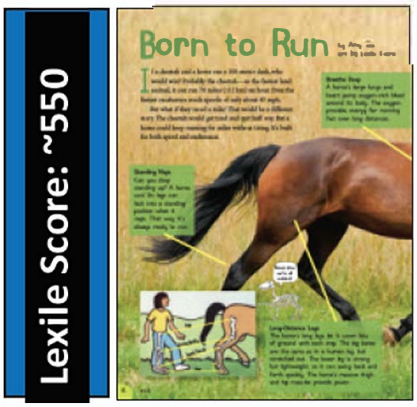
The complimentary Teacher's Guide is brought to you courtesy of Cricket Media® and Flipster® Digital Magazines.

# Ask® Teacher Guide: April 2019

## Born to Run

**pp. 6–7, Expository Nonfiction**

Students will be captivated by the beautiful photograph and the article's simple text, which explores the speed and endurance of one of nature's most amazing long-distance runners, the horse.




## RESOURCES

- Run Like the Wind

## OBJECTIVES

- Students will learn how horses are physically designed to be strong runners.
- Students will identify the structure and function of a horse's physical features.
- Students will use examples from this article to further study the parts of speech (adjective/noun).

## KEY VOCABULARY

- ***balance*** **(p. 7)** to keep something steady so it will not fall
- ***endurance*** **(p. 6)** the ability to sustain a prolonged stressful activity
- ***energy*** **(p. 6)** the strength and power required for sustained physical or mental activity
- ***power*** **(p. 6)** to move or travel with great speed or force

## ENGAGE

**Conversation Question:** Why are horses such spectacular animals?

Create interest in this topic by reading aloud descriptive passages from *Black Beauty* or the *Black Stallion*. Select paragraphs that describe the horse's strong body, its beauty, and its speed. Guide students to notice the language used and the images created for the reader.

## INTRODUCE VOCABULARY

List the key words on the board and have groups of children share their ideas about the meanings. Inform the class that they will encounter these words in their reading and challenge them to predict the theme. Then post the definitions and display the title, "Born to Run." Distribute the article, read aloud, and revisit predictions.

## READ & DISCUSS

Reinforce comprehension of the concepts in the article by using the following prompts to direct discussion.

- Why would a horse be able to outrace a cheetah?
- How do large lungs help horses to run fast over long distances?
- How do horses keep cool while running?
- What is the purpose of the horse's hard hoof?

## CONCEPT/SKILL FOCUS: Structure and Function

**INSTRUCT:** Elicit from students that the main idea of the article was to provide a detailed description of how a horse's body is built for running. Present the graphic organizer, *Run Like the Wind*, and tell students that they will be using information from the article to record the special function of each body part listed. They will be essentially recording why horses are "Born to Run."

**ASSESS:** Circulate and have mini-conversations with students as they work on their graphic organizer. Remind students to include specific details. Collect and review their work to further assess understanding.

## EXTEND

**Language Arts** Redistribute the completed graphic organizers and direct students to notice that all of the structures listed on the chart contain an adjective (describing word) and a noun (person, place, or thing). Discuss how adjectives help us form specific images of the nouns. Have students use this issue of *Muse* to keep an ongoing list of nouns from the article, and the adjectives that describe them.

Structure/Function

# Run Like the Wind

*Refer to the article, "Born to Run," to study how the physical structures of a horse allow it to function as one of nature's most spectacular long-distance runners.*

| Structure | Function |
|---|---|
| Large Lungs | |
| Long Neck | |
| Massive Muscles | |
| Sensitive Eyes | |
| Powerful Feet | |
| Tough Toes | |

**Drawing Challenge:** On the back of this paper, draw a horse and label the body parts listed above.

# Ask® Teacher Guide: April 2019

## A Visit from the Farrier

**pp. 16–19, Expository Nonfiction**

Gallop through this informative text that introduces young readers to the job of a farrier. Students will learn about the tools and techniques that help these equine professionals complete their work.


## RESOURCES

- Happy Hooves

## OBJECTIVES

- Students will learn how a farrier cares for a horse's hooves.
- Students will demonstrate the ability to properly sequence a studied process.
- Students will create presentations highlighting the role of horses throughout history.

## KEY VOCABULARY

- ***cleats*** **(p. 19)** little spikes on horseshoes to give working horses extra grip on snow or slippery ground
- ***farrier*** **(p. 16)** a craftsman who trims and shoes a horse's hooves
- ***frog*** **(p. 17)** a triangle-shaped pad on the underside of a horse's hoof
- ***keratin*** **(p. 17)** a fibrous protein forming the main structure of hair, feathers, claws, or hooves

## ENGAGE

**Conversation Question: Why are horses such spectacular animals?**

Begin a class discussion by posing the following question: "How do we care for the animals in our life?" Additionally, discuss the professionals who help keep our pets in good health. Introduce the title of the article, "A Visit from the Farrier," and give the students clues (one at a time) that will lead them to determine the job of a farrier.

## INTRODUCE VOCABULARY

Post the vocabulary words where they are visible to the class. Instruct students to do a word hunt through the article to locate these words. Have them underline the sentences in which they appear. Challenge students to use context clues to determine meanings. Discuss actual meanings and add definitions to the terms posted on the board.

## READ & DISCUSS

Reinforce information presented in this article by using the following prompts to direct discussion.

- What tools does a farrier need?
- Why is it important to trim a horse's hooves?
- How does a farrier smooth the walls of the hooves after clipping?
- Why do some horses need shoes while others go barefoot?

## CONCEPT/SKILL FOCUS: Sequence and Process

**INSTRUCT:** Review with the students that this article was written to inform the reader about the job of a farrier. The article included an explanation of the necessary tools, as well as provided the sequence of steps needed to appropriately care for the hooves of a horse. Distribute the graphic organizer *Happy Hooves*, and tell students that they will be using details from the text to complete the process-and-sequence worksheet. Direct students to reread the article with a partner and to search for relevant information before they begin working on their chart.

**ASSESS:** Have students read aloud their completed work. Evaluate orally for accuracy and allow time for corrections. Divide the class into five groups and have each group make a poster that illustrates one of the steps of the sequence. When all are completed, arrange them so that they tell about the job of a farrier through pictures. Have the students share the posters with younger students and explain the process orally.

## EXTEND

**Social Studies** Horses have been an integral part of US history. Have students research this relationship between human and horse and present their findings to the class. A short written project, with graphics, should accompany their presentation.

**Process/Sequence**

# Happy Hooves

*Describe the farrier's process of caring for a horse's hooves by rewriting the statements below in the proper order on the lines provided.*

- The bottom of the hoof wall is filed.
- Horses are petted and cuddled after completion of the farrier's process.
- A hoof pick is used to clean out the dirt that builds up around the hoof pad. (frog)
- Nails are used to hammer the horseshoe into the hoof wall.
- Nippers are used to clip off extra hoof growth.

1._____

_____

2._____

_____

3._____

_____

4._____

_____

5._____

_____

# Ask® Teacher Guide: April 2019

## How to Speak to a Horse

**pp. 20–22, Expository Nonfiction**

Neigh! Students will learn how horses read the expressions of other horses in their herd, in addition to being able to read human faces. Subtle cues and a variety of sounds aid in the interactions between animals and man.

Lexile Score: ~650


## RESOURCES

- Horsing Around

## OBJECTIVES

- Students will learn how a horse's body language is deciphered.
- Students will collect evidence from a science-based text.
- Students will create a mathematical code for answering equations.

## KEY VOCABULARY

- ***clenched*** **(p. 20)** pressed tightly together (jaw/teeth) expressing anger
- ***nicker*** **(p. 21)** a horse's soft, low, breathy whinny
- ***swishing*** **(p. 20)** moving with a rushing sound

## ENGAGE

**Conversation Question:** Why are horses such spectacular animals?

Create a game of charades by distributing cards containing words that describe specific basic emotions. (Ex: happiness, anger, nervousness, sadness) Encourage volunteers to act out these emotions for their peers to guess. Actions and sounds are allowed . . . but no words! This activity will launch you into the article and inspire children to learn more about the body language of humans and animals.

## INTRODUCE VOCABULARY

Display the words and definitions on the board and discuss all of the key terms. Instruct students to create a sentence for each of the words. Have the class highlight the words as they appear in the text and then compare these sentences to their own. Do the sentences infer clear meanings? Why or why not?

## READ & DISCUSS

Pose the following questions to the students to facilitate meaningful discussion following the reading of the article.

- How can humans learn to read a horse's body language?
- What are some of the different messages that horses can convey with their sounds?
- Explain how scientists tested a horse's ability to read human emotion.
- How was "Clever Hans" able to give correct math answers?

## CONCEPT/SKILL FOCUS: Collecting Evidence

**INSTRUCT:** This article presents the reader with an abundance of detailed information regarding the body language of horses. Tell students that they are going to be *Horsing Around* and collecting evidence that will help them determine which trait is being exhibited by a certain action. They will need to consult the article to gather accurate information. Allow students to work with a partner if assistance is needed.

**ASSESS:** The objective of this lesson is to help students practice the skill of collecting evidence from a science-based text. Create dialogue as the students are working on their charts, and then collect organizers to evaluate individual understanding.

## EXTEND

**Mathematics** With the class, reread page 22, which explains how "Clever Hans" answered math questions. Although it was discovered that the horse was reading human facial cues, have the children create a code in which an animal could indeed answer equations. Encourage the class to work in small groups and use their imaginations. Depending on the animal's physical abilities, they could create codes using paw taps, wags, a trunk wave, etc.

# Horsing Around

*Collect evidence from the text to decide which trait the horse is exhibiting by the action described in the sentence. Write the word that best completes the sentence on the line.*

| | | | |
|---|---|---|---|
| **afraid** | **curious** | **mad** | **stressed** |
| **relaxed** | **annoyed** | **interested** | **alerting** |

1. Pricked up ears means that a horse is _____.
2. Showing the whites of the eyes means that a horse is _____.
3. A horse may chew and lick its lips when it's calming down after being

   _____ .
4. Head up, ears pricked forward, tail up, and nostrils wide tell us that the horse is

   _____.
5. Fast swishing of the tail can mean that the horse is _____.
6. A high-pitched neigh can mean that the horse is _____ everyone to danger.
7. Head thrust out, snaking back and forth with teeth bared can mean that the horse is

   _____.
8. "Airplane ears" can mean that the horse is _____.

# Thank you for your interest in Flipster | EBSCO's digital magazine newsstand!

**Thank you for downloading your free copy of *Ask* magazine and accompanying *Ask Teacher Guide*. Cricket magazines help to keep students engaged and make the perfect addition to any curriculum. Each Teacher Guide complements the magazine content by linking the articles to the essentials of close reading, vocabulary, deep questions and cross-curricular connections.**

**If your library hasn't tried *Flipster* yet, then it's the perfect time to request a free trial and gain on-the-go access to more than 1,500 popular digital magazines, coloring books, curriculum guides and graphic novels. Click here to request a trial or call 800-653-2726.**

**- Julie Twomey**
***Flipster* Product Marketing Manager**

*Flipster* is an easy-to-use digital magazine newsstand for academic, school, corporate and public libraries. Libraries of all sizes and types prefer *Flipster* for many reasons, including:

- Best selling magazines from top publishers
- Convenient, 24/7 access via the *Flipster* app
- Hassle-free user login and authentication
- Flexible subscription options with no minimum order

## Request a Free Trial

The best way to see if something is a good fit for your organization is to take it for a test run.

Request a Free Trial »

Or contact EBSCO at information@ebsco.com or call 800-653-2726.

## Follow EBSCO on Twitter!

Follow @EBSCO on Twitter! Type **#Flipster** in the twitter search box for a roundup of *Flipster*-related tips, tools and top titles!

## Related EBSCO Products

Enhance your collection of digital resources by including:

EBSCO eBooks & Audiobooks »

Journals & e-Packages »

Core Collections™ »

Create your own newsletters, bookmarks, and flyers with:

LibraryAware™ »

Build, manage and host your library website using:

Stacks »