



GIRAFFE

STUDY BOOKLET

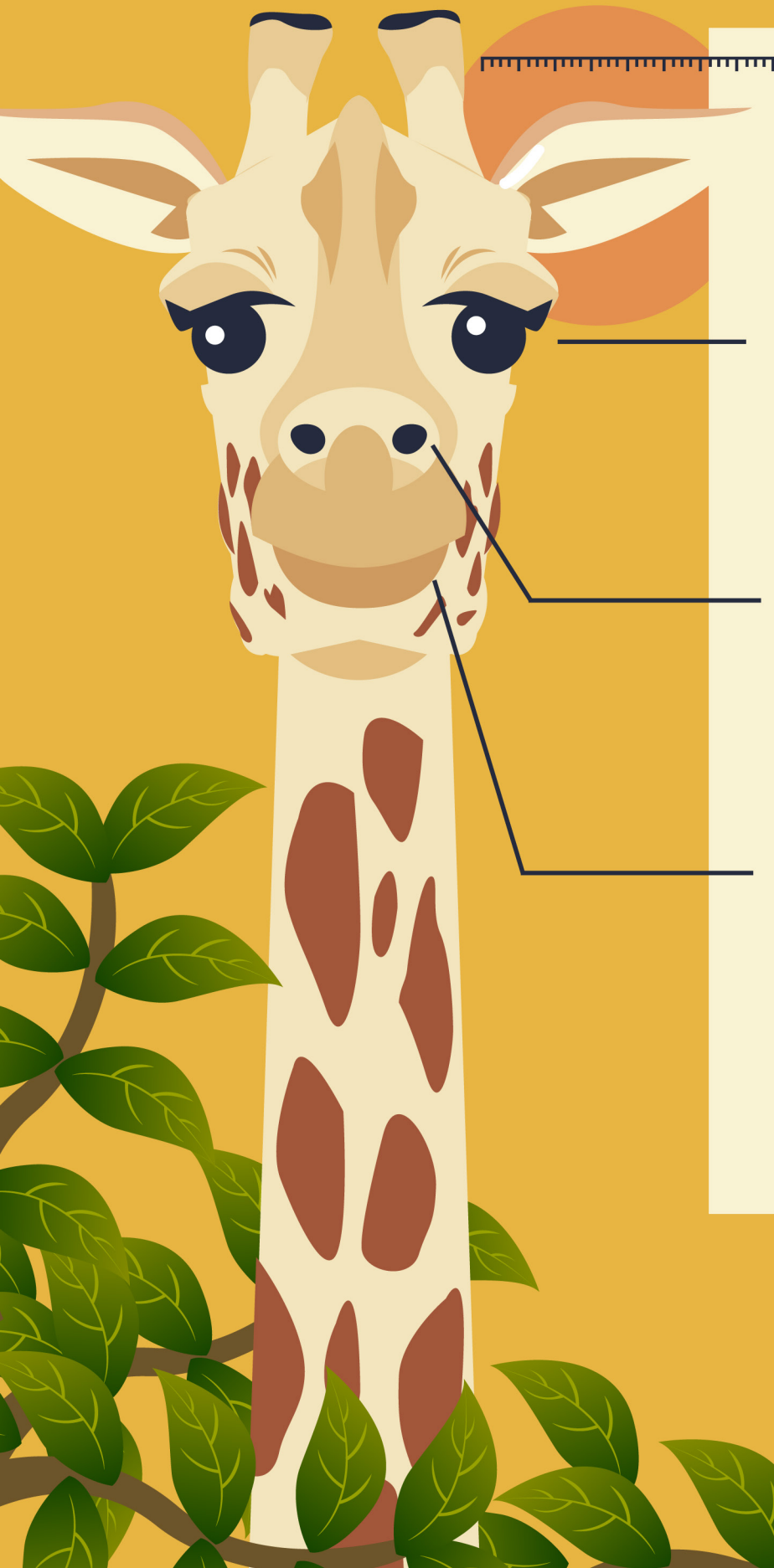
FAST FACTS

[amazing creation]

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GIRAFFE FACTS



EARS

Giraffe's ears can be up to 8 inches long! It was recently discovered that Giraffes actually communicate by humming to each other at night at very low frequencies.

EYES

Giraffes have very good eyesight! Because they are located on the sides of their head, their peripheral (sideways) vision is excellent.

NOSE

The Giraffe's sense of smell is very good. But because they are so tall, they don't use their sense of smell as extensively as other mammals, though.

MOUTH

The Giraffe's mouth is very unique. They have a very long tongue that they use like a hand to pull food into their mouths. Their upper lip protects them from thorns when grabbing the food.



SKIN

The Giraffe's skin is nothing short of a miracle. Each animal has a unique pattern, similar to human fingerprints.

But even more interestingly, they secrete chemicals from the skin that repels insects and disinfects their skin so fungi and bacteria cannot grow!



BODY

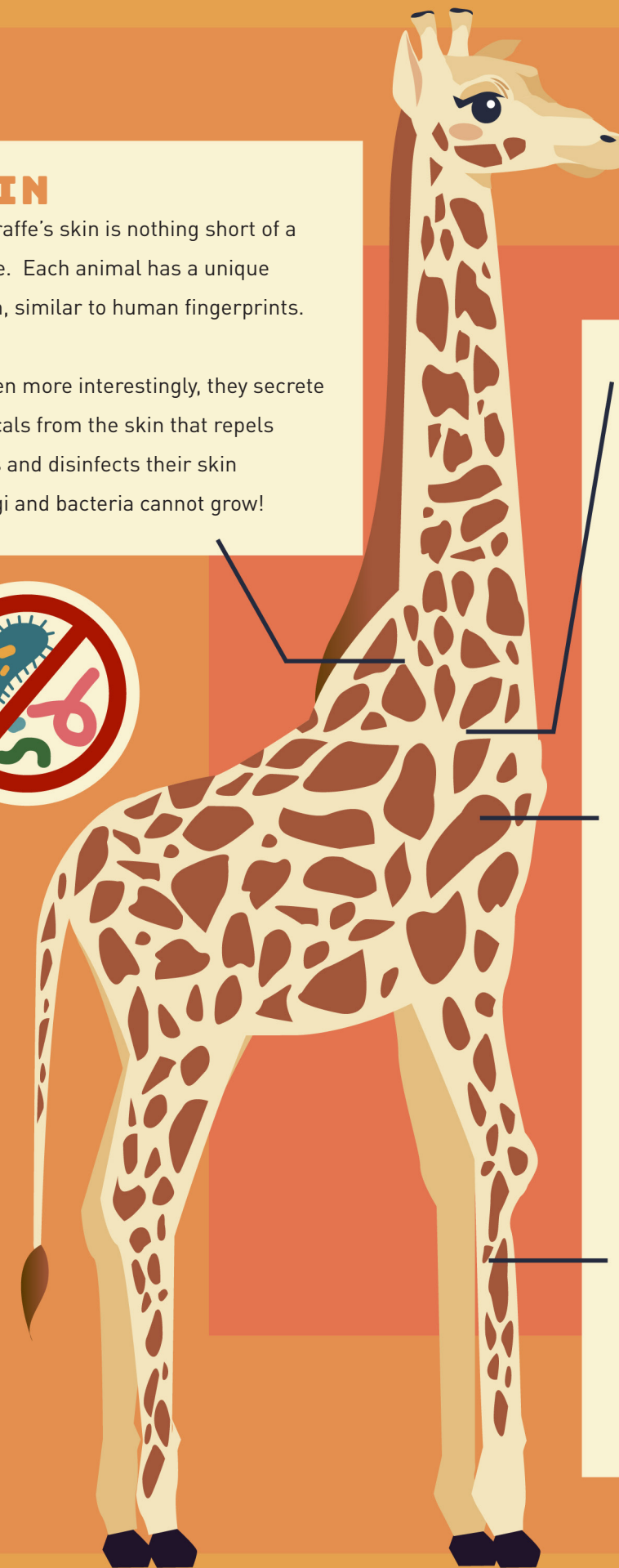
One downside to having skin that secretes chemicals is the smell it produces. Some of the older Giraffes are so saturated by these repellents that local people call them "Stink Bulls!" It has been reported that you can smell them from over 800 feet away.

STOMACH

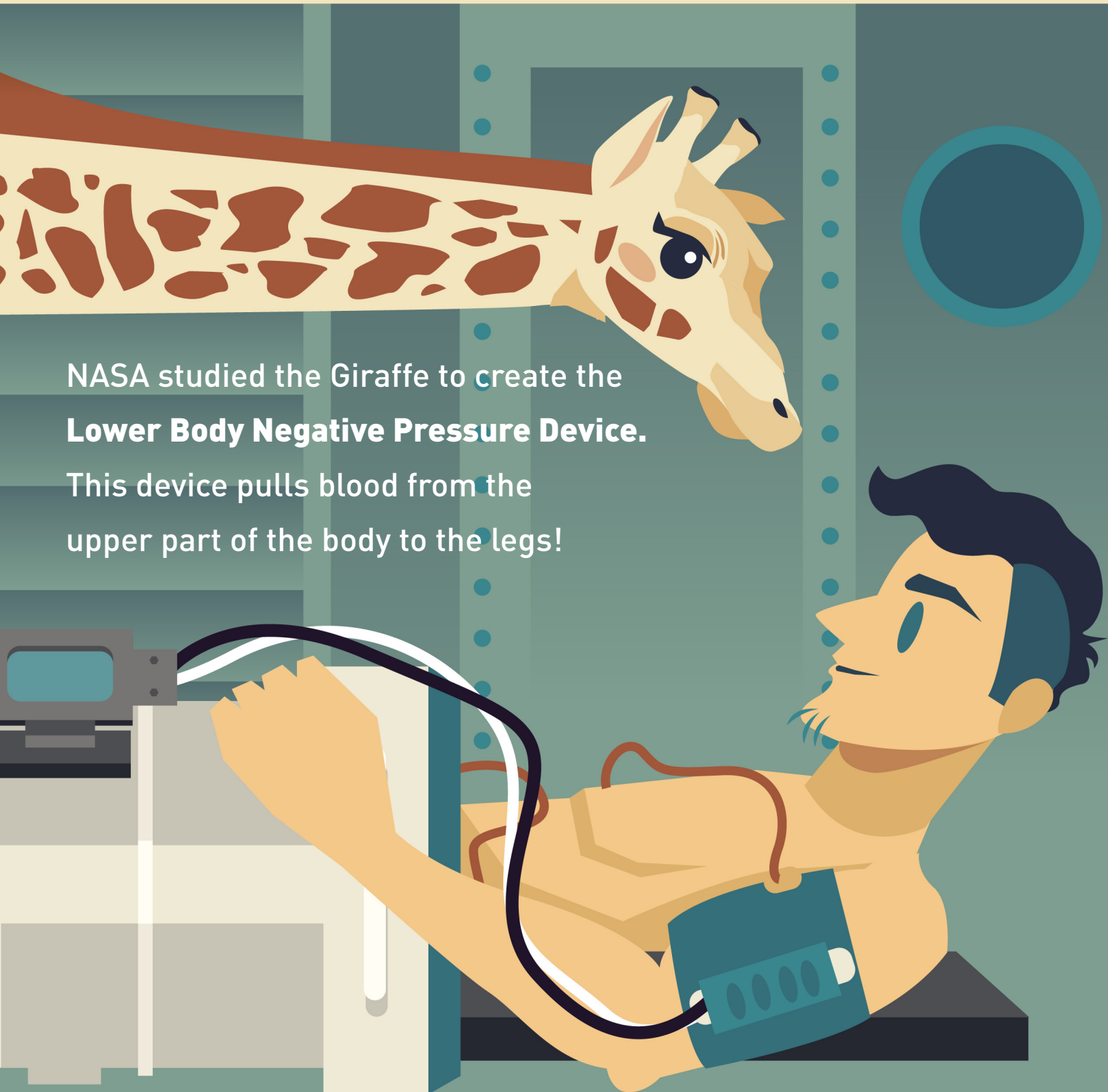
Giraffes have four-part stomachs like cows. The first stomach partially digests the food. From there, lumps of this material is brought back up to their mouths where they will chew on it to break it down further. They will then swallow the material to their third and eventually the fourth stomach to be fully digested!

LEGS

Even though a Giraffe's legs look spindly, they are actually strong enough to support over 2,000 pounds!



PART 1



NASA studied the Giraffe to create the **Lower Body Negative Pressure Device.**

This device pulls blood from the upper part of the body to the legs!

QUICK QUIZ

- 1 What were the two words that our word "giraffe" supposedly came from?
- 2 What are the male giraffes called and how tall can they be?
- 3 What is one of the main reason giraffes are so tall?
- 4 How many neck bones does the giraffe have?
- 5 How does this number compare to the number of neck bones we have?

DIGGING DEEPER

- 1 **Review the Creation story in Genesis 1.** On what day did God create the Giraffe?
- 2 **Read Genesis 1:26-28, Genesis 2:19-20, and Psalm 8:3-8.** What were some of the first jobs God gave Adam after he was created? Why is it important that we study and learn about the animals in God's creation?

PREVIEW

Why do you think it is important for the giraffe to only have 7 neck bones?

ANSWERS



PART 1: ANSWER SHEET

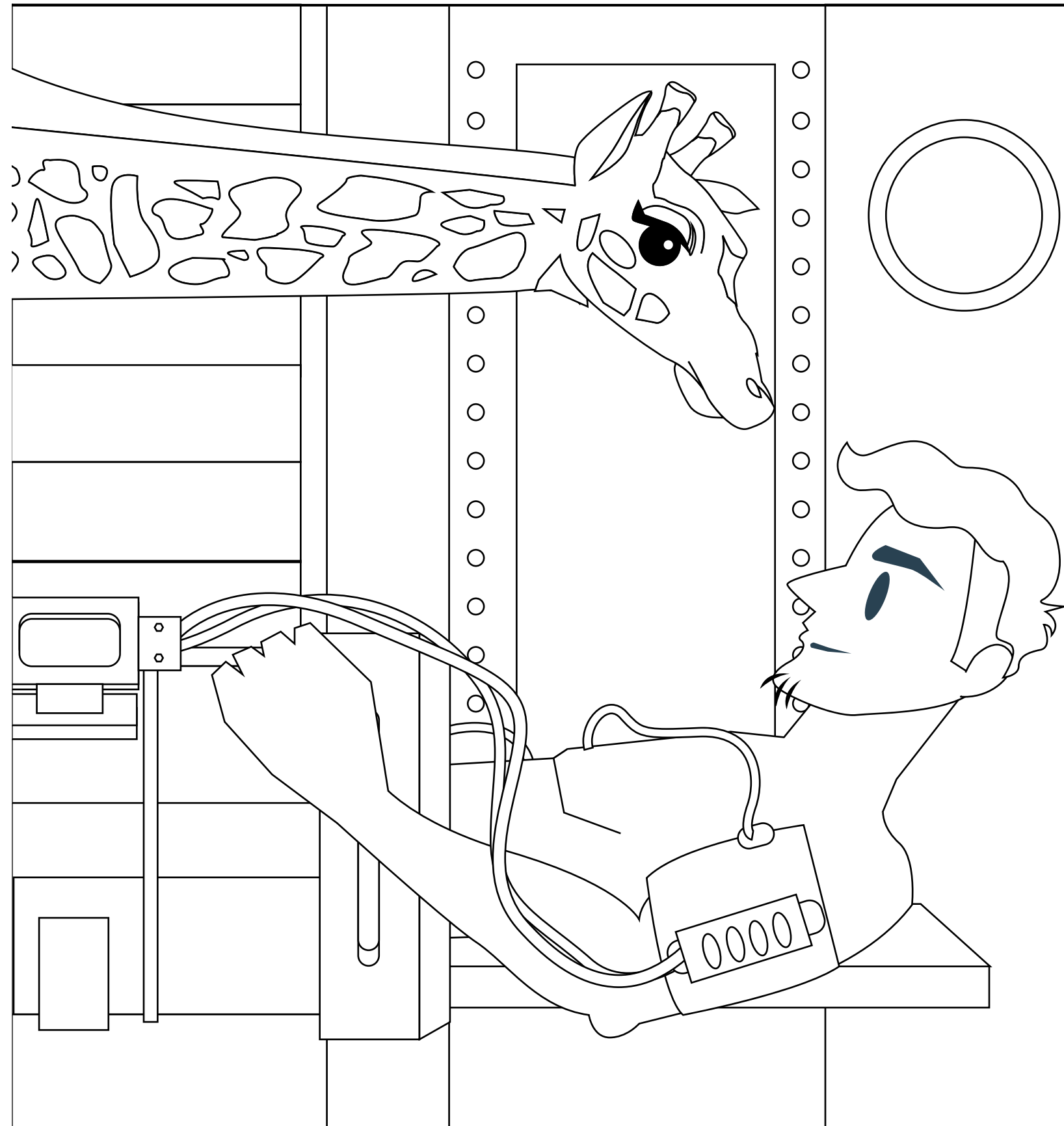
QUICK QUIZ

1. The word giraffe is supposed to have come from two Arabic words: 'zarafah' meaning "fast walker", and 'xiraph' meaning "tallest of them all!"
2. Bulls, and they can be up to 20 feet tall.
3. They have very long necks (up to 6 ft. long!)
4. Seven
5. We have the same number of neck bones as the giraffe, seven!

Digging Deeper:

1. The giraffe was created on day 6 with the "livestock and creeping things and beasts of the earth according to their kinds." (Genesis 1:24b)
2. Adam was told to 1. "be fruitful and multiply" 2. "subdue the earth" and 3. Name the animals. The word "dominion" and "subdue" found in Genesis 1:28 means we need to manage and obtain a "mastery" of the creatures as God intended them to be. This can not happen without knowledge about them which also will reveal God's design and glory.

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PART 2



Giraffes are Fast Walkers!

They walk at about 10 mph, but when they run, it's at speeds of up to 35 mph! They can kill a Lion with just one kick.

QUICK QUIZ

- 1 How many pounds of muscle does it take to make the 7-bone giraffe neck work?
- 2 Why would a neck with 14 bones not work in the giraffe?
- 3 Is giraffe necking a sign of love and fondness?
- 4 What would happen if the giraffe had only 3 neck bones?

DIGGING DEEPER

- 1 Charles Darwin's theory was that the giraffe adapted a longer neck from its earlier so-called relatives so it could reach higher leaves when there was a drought or food shortage. Scientist have discovered, however, that when this happens, giraffes simply travel further to find food and feed from low shrubs! How does this fact challenge the idea of evolutionary adaptations and point to a brilliant Designer?
- 2 Compare and contrast the design and purpose of the neck of a giraffe and bird. Why do you think a bird has almost twice as many bones in its neck?

PREVIEW

Why don't you think the giraffe gets tired from holding its neck up all day long?

ANSWERS



PART 2: ANSWER SHEET

QUICK QUIZ

1. 600 pounds of muscles!
2. The muscles would be too heavy and the giraffe would not be able to stand upright.
3. False! A giraffe necking is when they dangerously use their neck like a whip to whack each other with their heads.
4. During "necking" these bones would snap and they would die due to the "whipping" motion.

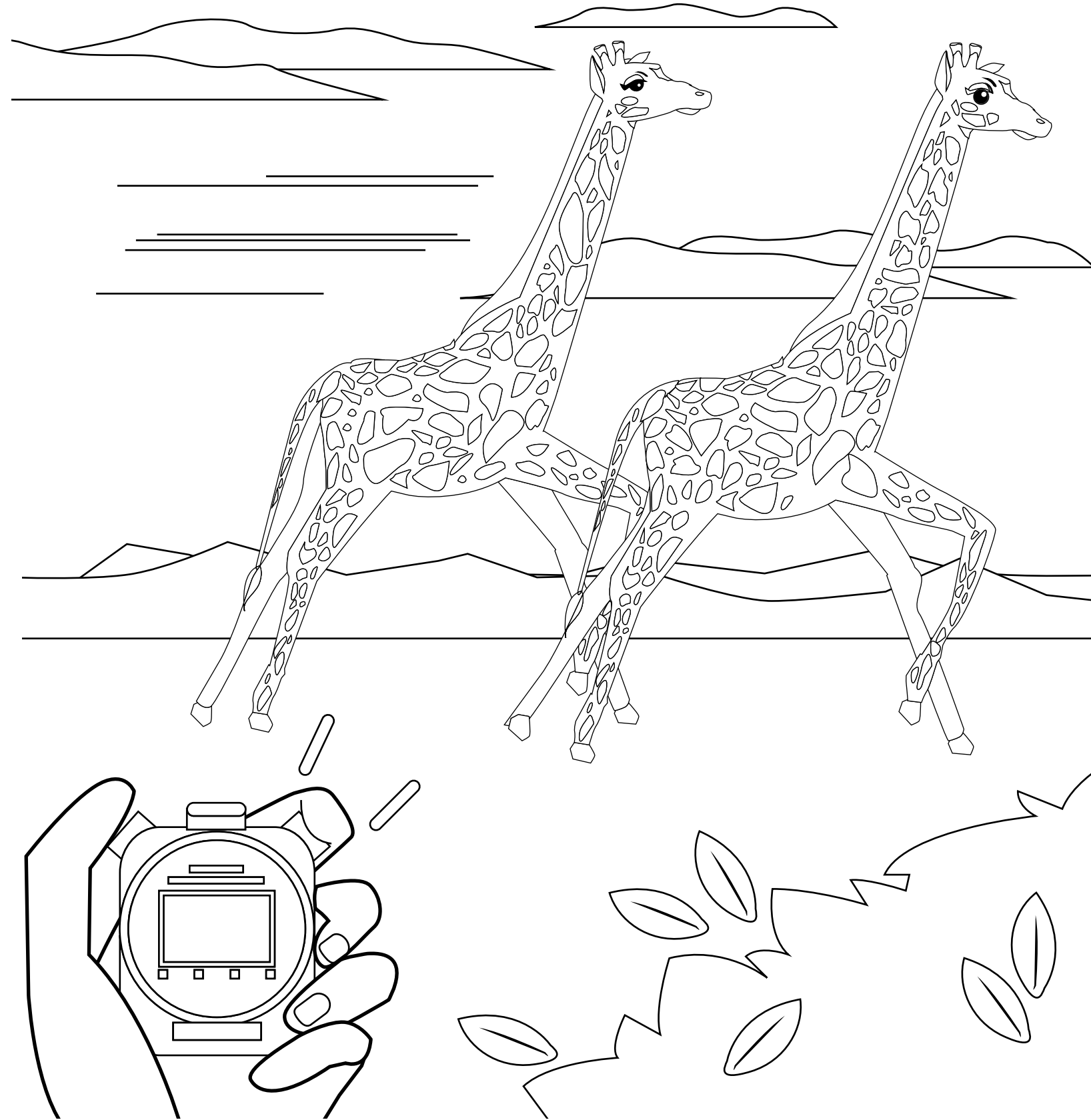
DIGGING DEEPER

1. Evolutionists believe that animals slowly evolve with new adaptations that help them to survive in their environment. The giraffe neck makes no sense according to this idea. If anything, the giraffe ancestors with shorter necks would reasonably be the ones to survive harsh conditions because they could get to the shrubs first. The design and striking beauty of the giraffe's neck points to the Creator who made it to demonstrate His glory and gave the giraffe the necessary design to survive with it.
2. Birds have many more bones in their neck to allow them a larger range of motion for body maintenance (feather grooming) and eyesight. A giraffe would not be able to lift the muscle required to have that many bones, and does not need to be that flexible.

Reinforce:

1. How many neck bones does a giraffe have? **Seven**
2. How much do the muscles in their necks weigh? **600 pounds**

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PART 3



Giraffes are Tough!

They are so strong that even Lions won't attack them unless they absolutely have to.

QUICK QUIZ

- 1 How long do giraffes sleep in a day?
- 2 Why don't giraffe's get tired from holding their necks up?
- 3 When are the giraffe's muscles actually used?
- 4 What actually holds the giraffe's neck up?

DIGGING DEEPER

- 1 ****Research**** Look up the differences and similarities between a muscle and a tendon. Explain how this prevents the Giraffe from being tired from holding its neck up all day.
- 2 Read Colossians 1:16, John 1:3, and Revelations 4:11. What do these verses say about why the giraffe is the way that it is?

PREVIEW

Why do you think it should be dangerous for giraffe's to bend down and get a drink? v

ANSWERS

PART 3: ANSWER SHEET

QUICK QUIZ

1. Approximately 20 minutes a day.
2. The neck of the giraffe is not held up by muscles.
3. Muscles are used in the giraffe's neck to pull the head down.
4. A tendon holds the giraffe's neck up

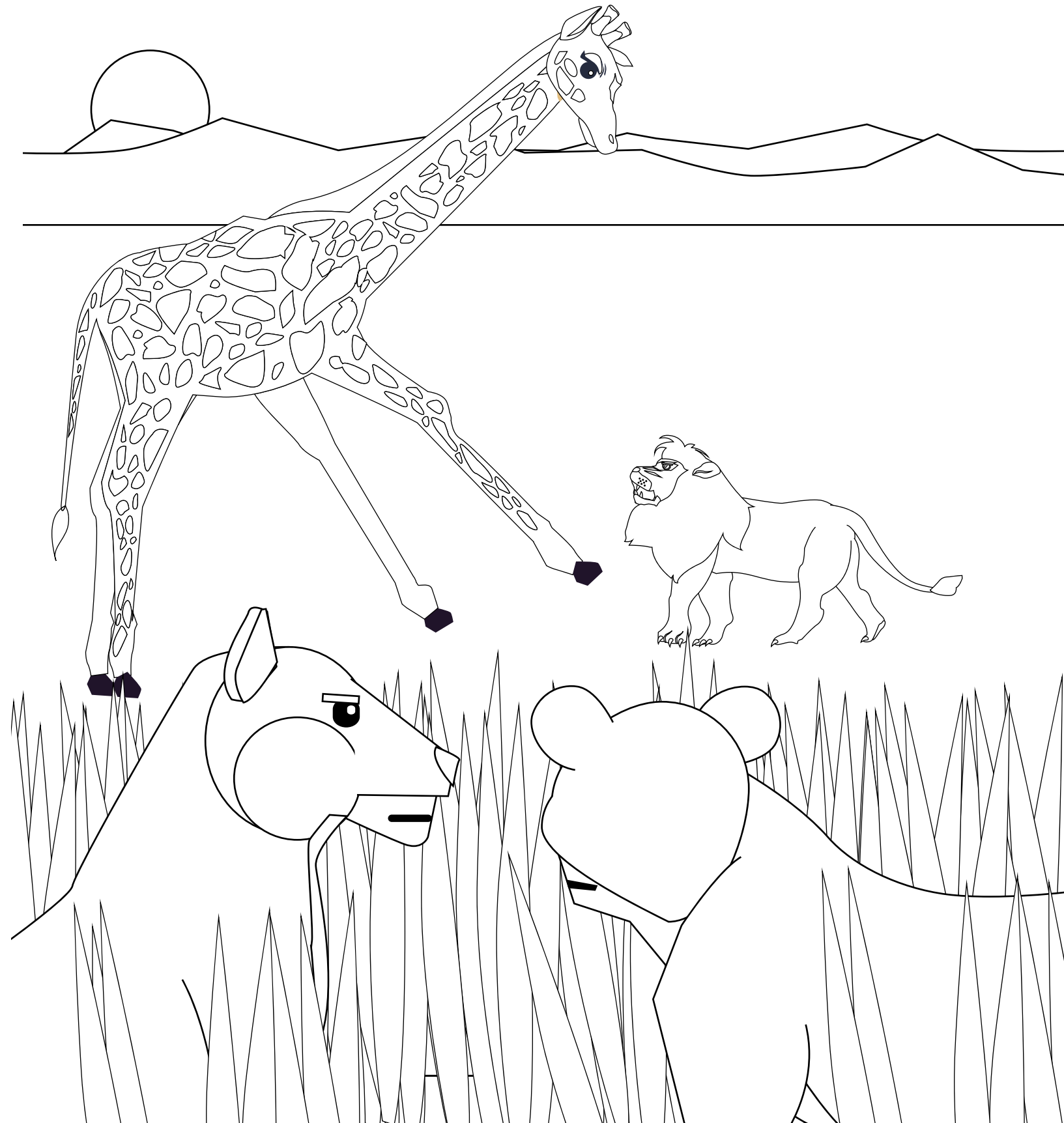
DIGGING DEEPER

1. A muscle is a band of tissue in the human or animal body that has the ability to contract, or move parts of the body while a tendon is strong, flexible connective tissue that attaches a muscle to a bone. A muscle requires energy to contract, which would be needed to hold up the head of a giraffe. A tendon, or ligament, on the other hand, is merely connecting the muscle to the bone and acts as a rubber band holding up the head of the giraffe!
2. God is the Creator of all things! He designed the giraffe and every creature exactly how he intended it live and work in its environment. Everything we see was created with a purpose in mind, not the mere result of random chance evolution.

Reinforce:

1. How much do the giraffe neck muscles weigh? **600 pounds**
2. Why is having 7 neck bones so important? **More would require more weight and fewer would make the neck less flexible which would make the animal more susceptible to neck injuries.**

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PART 4



The Giraffe uses its tongue the same way that Elephants use their trunks. They even clean their ears with it!

QUICK QUIZ

- 1 What should happen when the giraffe bends down to get a drink of water? Why should this happen?
- 2 What is the name of the mass of blood vessels found at the base of the giraffe's brain?
- 3 What is the job of this mass of blood vessels?
- 4 What special feature does the giraffe's arteries have?

ANSWERS

DIGGING DEEPER

Look at the chart below and compare the average heart beat per minute with the average blood pressure in the following creatures. What do these numbers show about the differences in the designs of each creature?

CREATURE	AVERAGE HEART RATE (beats per minute)	AVERAGE BLOOD PRESSURE SYSTOLIC PHASE (mm Hg)
Cat	150	129
Cow	65	157
Giraffe	65	300
Elephant	30	178

PREVIEW

What color do you think a giraffe's tongue is?



PART 4: ANSWER SHEET

QUICK QUIZ

1. Blood should rush to their head or flow back from the artery leading to their heart causing them to have a stroke. Because gravity would cause the blood to flow towards the ground.
2. The "Wonder Net" or rete mirabile!
3. To catch the blood and diffuse it to the brain at the right rate so they don't have a stroke and die.
4. They have one-way valves in their arteries which keep the blood from flowing into the brain too rapidly.

DIGGING DEEPER

Talk about the different sizes of these animals. The larger animals that have further to pump the blood have larger hearts in order to distribute more blood throughout the body with each heart beat.

Reinforce:

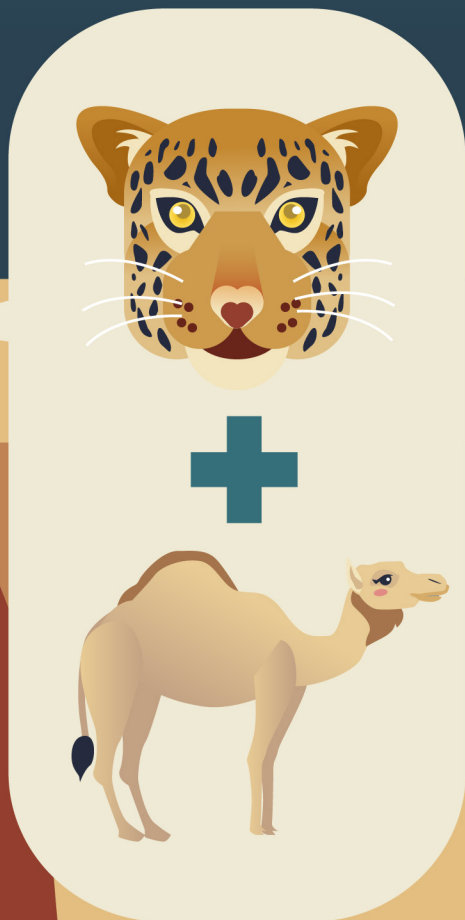
1. How does the giraffe hold their head up all day without getting tired?
Their neck is held up by a tendon, and not muscles.
2. How long do giraffe's sleep in a day? **Approximately 20 minutes.**

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PART 5

Julius Caesar was given a Giraffe as a present. He called it a “**Cameleopard**” because he thought it looked like a mixture of those two animals.



QUICK QUIZ

- 1 How long can the tongue of a giraffe be?
- 2 How can the giraffe eat from the Acacia tree, which has very strong thorns?
- 3 What else does the giraffe tongue produce which helps
- 4 What color is the giraffe's tongue?
- 5 Why do people believe the giraffe's tongue is this way?

ANSWERS

DIGGING DEEPER

****Experiment** “Create” giraffe saliva!**

Materials: Cornstarch, Water, Large bowl Directions:

1. Put 10 tablespoons of cornstarch in a large bowl
2. Add 3 tablespoons of water
3. Mix the ingredients with your hands

Feel the “giraffe spit” and see how it could help protect the giraffe.

Discuss how the design of the giraffe's tongue allows it to survive and what would happen to the giraffe if it had different characteristics.



PART 5: ANSWER SHEET

QUICK QUIZ

1. Anywhere from 18-20 inches.
2. Their tongue is very tough.
3. It has a very thick saliva.
4. The tongue is two-toned. The front of the tongue is very dark and it gets lighter towards the back.
5. Some believe that the coloring protects the giraffe's tongue from getting sunburned.

DIGGING DEEPER

If a giraffe did not have the toughness of a tongue, it could easily get cut or hurt while eating. This would not allow the giraffe to eat and they would get sick and/or die. They also would struggle without the thick saliva. If a so-called "early" giraffe had not yet "adapted" these characteristics, it most likely would not survive. God created the giraffe with these features with a full understanding of their importance.

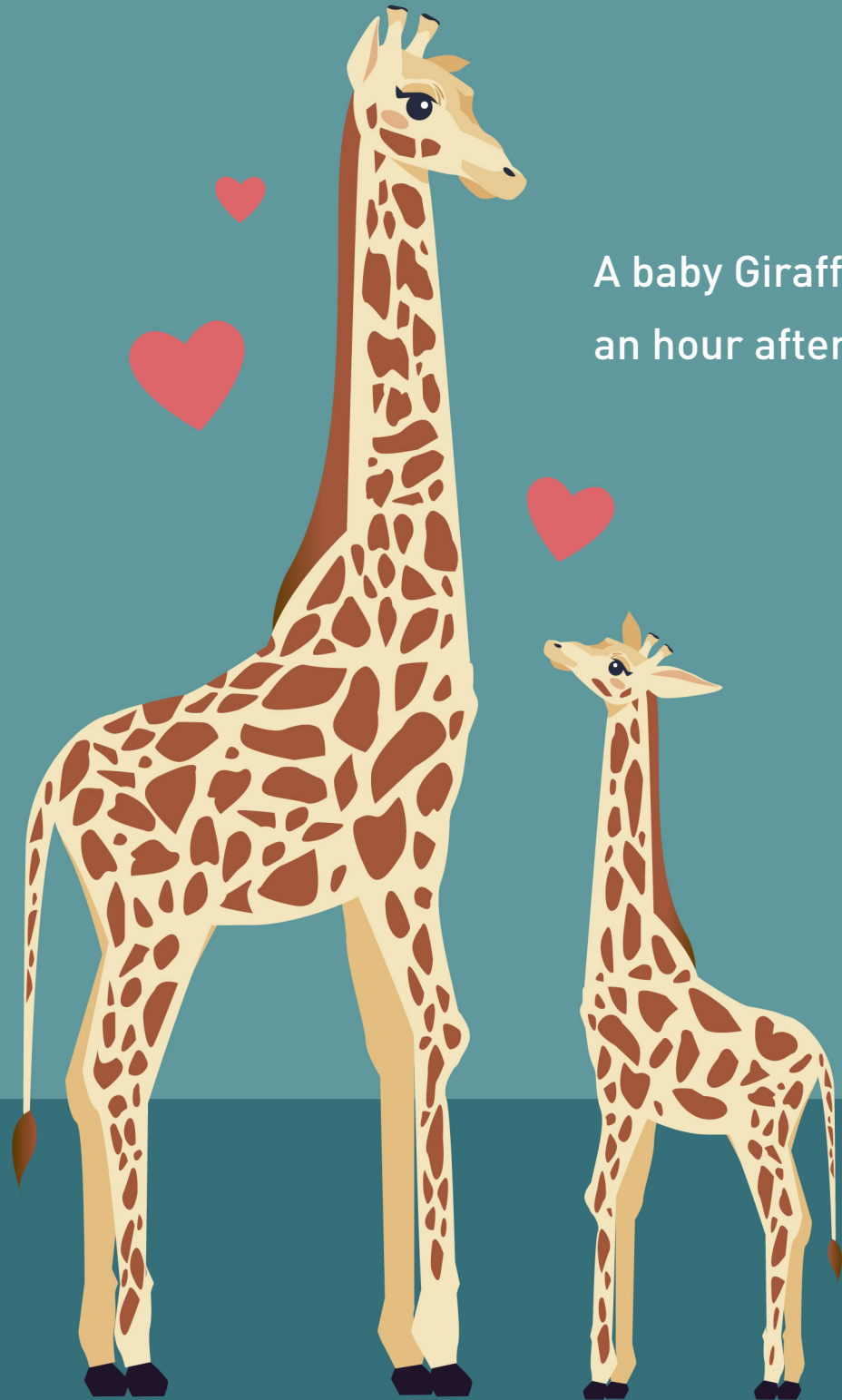
Reinforce:

1. What is the name of the tiny mass of blood vessels at the base of the giraffe's brain?
The Wonder Net or "rete mirabile".
2. What is its purpose? **To catch the blood and diffuse it to the brain at the right rate so they don't have a stroke and die.**

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PART 6



A baby Giraffe can stand up about an hour after being born.

QUICK QUIZ

- 1 How large is a giraffe lung when compared to a human's lung?
- 2 How is the giraffe lung like a "Pocket Hose"?
- 3 What did the evolutionary scientist admit in his video?

DIGGING DEEPER

- 1 Why do you think the giraffe lung is so much larger than a human lung?
- 2 What animal is supposed to be an evolutionary ancestor to the giraffe?

PREVIEW

****Pulling it together!**** Have your student/child list as many of the design features that were covered in this series. Talk with them about which worldview these design features are consistent with. Naturalistic processes or Creation?

ANSWERS



PART 6: ANSWER SHEET

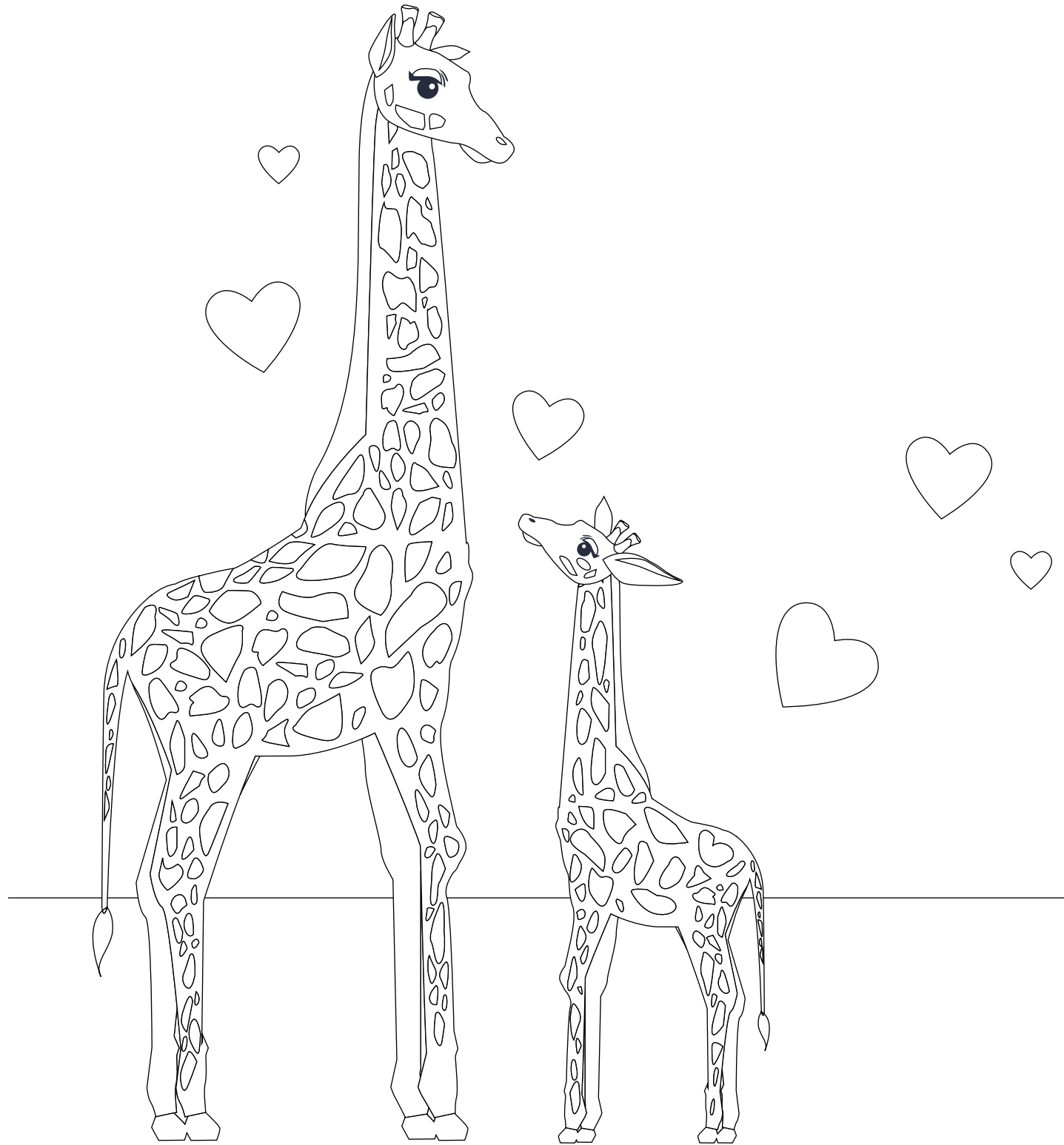
QUICK QUIZ

1. A giraffe's lung is eight times larger than a human's.
2. The giraffe lung "collapses" on itself when the air is released just like the hose.
3. He stated that, "It couldn't be more beautifully designed!" If something is designed, it requires a designer!

DIGGING DEEPER

1. The giraffe is a lot larger and therefore require a larger lung. In addition, because of their long neck if the lungs weren't larger they would die. This is because they need the larger lungs to have the proper "good air" to "bad air" ratio.
2. The Okapi. One problem is that the Okapi is still here and isn't ancestral to anything other than other Okapi's!
3. ****Wrap it up!**** Discuss all of the design features that were covered in this series. Use them as examples of God doing what He said that He did in Genesis 1 and Genesis 2. Stress that He did it the way that He said that He did it and the evidence actually supports that. The evidence doesn't support slow gradual processes of gas turning itself into everything that we see.

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