

The NOCTURNALS Activity Kit



Connect Reading & Science with 12 Fun Learning Activities from *The Nocturnals* Book Series.

Turnkey Activities

- Hold a Book Club with our Discussion Questions.
- Perform The Nocturnals Reader's Theater.
- Fill in the Story & Create Your Own Adventure!
- Write a Rap or Give a Cheer for Your Favorite Nocturnal!
- Play the Endangered Animal Matching Game!
- Discover New Words with Word Search & Sight Word Games.
- Use Nocturnal Animal Bingo & Learn Wacky Animal Facts!

Hands on Makerspace Programs

- Construct a Model Crater & Learn the Impact of a Meteorite!
- Make The Nocturnal Brigade with Animal Heart Crafts!
- Build Your Own Model Volcano from a soda can!
- Draw Your Own Images of The Nocturnal Animals to Create Trading Cards.
- Create Nocturnal Brigade Masks!

**STEM Connections in Blue*

Middle Grade Books



Grow & Read Early Readers



Ask Us for Free Giveaways & Prizes
Brigade Capes, Stickers and Bookmarks for your Readers!

ESCAPE THE HEAT: BE COOL.

Join us for Summer Reading with *The Nocturnals*!

Date and Time

Store Name

Location

Email

Great
for kids
7-12!



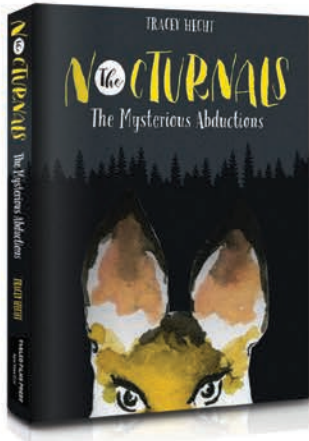
We hope you and your middle grader will attend for a book discussion, games, crafts, and puzzles to keep summer reading fun and cool!

ACTIVITIES INCLUDE:

Nocturnals' Bingo • Word Games • Making Animal Trading Cards
Creating Paper Nocturnal Animals • Building an Erupting Volcano

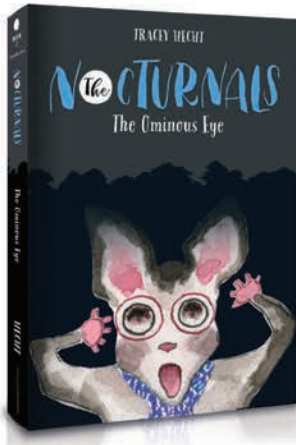
The Nocturnals, by Tracey Hecht is a non-episodic middle grade series that follows the adventures of three unlikely animal friends—Dawn, a fox; Tobin, a pangolin; and Bismark, a sugar glider. In each critically acclaimed book they solve mysteries with friendship, teamwork and humor.

THE MYSTERIOUS ABDUCTIONS BOOK CLUB QUESTIONS



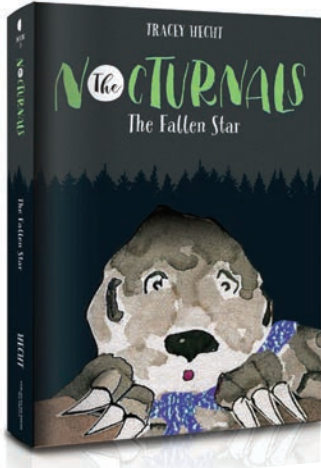
- Dawn, Bismark and Tobin make up a team, the Nocturnal Brigade. How did the Brigade meet? What qualities do each of those three characters possess that help make them work so well together? Do they have qualities that might hurt the team?
- Dawn is the leader of the Brigade. What does she do to bring the animals together as a team? What does she do when she meets Ciro the coyote? How does she talk to Boris the crocodile when she meets him? Do the animals respect her?
- When Tobin first meets Cora the wombat, Cora is afraid to speak. How does Tobin try to coax her out of her shyness? What things could you reveal about yourself that might make someone in your life feel less shy around you?
- Why don't Dawn and Bismark trust Jerry the jerboa? What does he do to the Brigade that makes them worry about his character? Does he redeem himself in the book?
- Bismark speaks many languages, as do the bats. What languages are in the book? Are you able to give examples of phrases in any of these languages? Can you come up with some new phrases that Bismark might say? Can you come up with some that the bats might say?
- Explain the rules of NOC HOC. Which animals are used as equipment in the game? Discuss the actions of the offense and defense.
- What happens to Boris in the final scenes of the book? What are the other characters' responses to his actions? How would you have handled Boris?
- What things in the book would you have done like the Brigade? What things would you have done differently?
- Discuss the meaning of poaching and endangered species in the wild. Are any of the animals endangered species? Why is poaching wrong? How do both effect the environment?
- The book takes place at night and all of the characters are nocturnal. Can you think of reasons it might be good for animals to be awake at night? Can you think of characteristics in Dawn the fox, Bismark, the sugar glider and Tobin the pangolin that are important to their nighttime survival?
- If you were to pick one character from the book who is the most like you, who would it be and why? Who is the most unlike you and why? Which character from the book would you most want as your friend and why?
- What are your favorite locations in the book and why? If you could visit the world of The Nocturnal Brigade, which things from the book would you most want to see? Where do you think these animals might live in the real world?
- Bismark is an outspoken character. He boasts about his own superior qualities and his affections for Dawn. Do you think Bismark is actually a confident character? If so, why? If no, why not?

THE OMINOUS EYE BOOK CLUB QUESTIONS



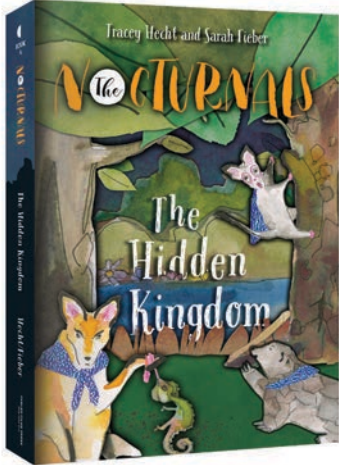
- Define the word “ominous” and discuss the qualities of mystery, horror and adventure. Does *The Ominous Eye* fit in these genres? What other genres would the novel fit? What genres would it not fit?
- How is Dawn the voice of reason within the Brigade? How does the “beast” almost destroy these qualities in her? Does the dangerous situation strengthen or weaken Dawn as a leader throughout the story? How so?
- Polyphema gains control over the animals. How is she able to do this? Why does she do it? How does each member of the Brigade respond differently to Polyphema’s control?
- How does Polyphema use Otto, the owl, to create further panic? Does her plan work? What role does Otto play in helping the Brigade discover the truth?
- Who is the real source of the destruction and mayhem in the valley? What clues help you discover that there is no “beast”? How does Dawn discover the real source? How does Dawn deal with Polyphema?
- Discuss the concept of fear and what role it plays in the story. What do the animals learn about fear from Polyphema’s false story? What does Polyphema learn from the Brigade? Can you think of other animal fables with similar lessons?
- What things in the book would you have done like the Brigade? What things would you have done differently?
- Discuss the role humor plays in *The Ominous Eye*, both for you as the reader and for the characters. What characters do you find the most humorous? What part did you find the most humorous? How would the book be different without humor?
- All story plots contain a conflict, a climax and a resolution. What is the conflict in *The Ominous Eye*, and how is it introduced? What is the climax? The resolution?
- The members of The Nocturnal Brigade are all different animals. What is the advantage of this? How does Tobin use his long tongue to save Bismark? What characteristics do Dawn and Bismark have and how do they help the Brigade on their adventures? How would the Brigade be different if they were all the same animal?
- If you were to pick one character from the book who is the most like you, who would it be and why? Who is the most unlike you and why? Which character from the book would you most want as your friend and why?
- The Nocturnal Brigade wears capes when they set out to solve a mystery. What is the purpose of the capes? Do you think it makes the Brigade more courageous and brave? Can you think of other examples of stories where the characters wear special garments to help them feel brave?

THE FALLEN STAR BOOK CLUB QUESTIONS



- The Nocturnal Brigade embarks on a heroic adventure in *The Fallen Star*. At what point is it obvious that the Brigade has to solve a mystery? Do they plan their mission, or do they react as new clues develop? Which would you do?
- Dawn, Tobin, and Bismark wear capes when they set out to solve a mystery. What is the purpose of their capes? Do you think the capes help the Brigade feel more courageous? What challenges do they encounter as they set out to solve the mystery of the fallen star?
- If you were to pick one character from the book who is the most like you, who would it be and why? Who is the most unlike you and why? Who would you most want as your friend and why?
- Dawn becomes alarmed when she, Tobin, and Bismark discover the enormous fallen star that has crashed into the valley. What is the difference between alarm and fear? Describe a time when you felt alarmed. How did you handle the alarming situation?
- Bismark wants to fight the star creatures. What is Dawn's plan? How is it different than Bismark's? Why does Tobin agree with Dawn? How does Dawn's plan lead to a satisfying conclusion?
- Tobin eats the poisoned pomelo fruit. How does he try to convince himself that he is okay? Tobin knows that he should tell his friends that he tasted the fruit. Why does he keep it to himself? What would you do in this situation? What leads to Tobin's confession? What was Bismark's reaction to Tobin's news?
- What is the purpose of the magic berry that Bismark has in his possession? Why is he conflicted about when to use it? How does Bismark decide when to use the magic berry? Did he make the best decision for the Brigade, himself, or both?
- Bismark says, "Everyone knows you can't trust anything that isn't perfect. That's why I only trust myself." No one is perfect. Describe Bismark's imperfections. Does Bismark trust the Brigade? Why does teamwork require trust?
- Aye-Aye Iris, a lemur, knows the secret of the fallen star. How does knowing the secret make Aye-Aye Iris feel important? Explain how Aye-Aye Iris prioritizes her own importance over the well-being of the other animals. Why is this not okay?
- Dawn tells Aye-Aye Iris, "It's our differences that make us unique." Describe the physical and personality differences of each member of the Brigade. How do the Brigade's differences make them stronger? What are Aye-Aye Iris's differences? Why it is important to accept everyone's differences?
- Think about what the Nocturnal Brigade did throughout *The Fallen Star*. What would you have done similarly? What would you have done differently?
- The Nocturnal Brigade rescues animals in need of help. List the animals they rescue in *The Fallen Star*. Which one is your favorite animal? Explain how your favorite animal was a victim of Aye-Aye Iris.

THE HIDDEN KINGDOM BOOK CLUB QUESTIONS



- At the beginning of *The Hidden Kingdom*, the Nocturnal Brigade hears a familiar sound, but they aren't sure what it is. Explain why they accuse Tobin of making the sound. How do they determine the source of the sound?
- What is Cora's condition when they find her? Dawn thinks she knows where a watering hole is, but Cora doubts that she can make the journey. Explain why Tobin ties the blue snake-skin cape around Cora.
- Dawn is the clear leader of the Nocturnal Brigade. Discuss the animals' loyalty to Dawn. What does such loyalty say about her leadership skills?
- Strength may refer to one's physical abilities, but it may also be a character trait. How does the drought affect the physical strength of the animals? Discuss how they call upon strength of character to solve the mystery of the drought. Identify individual strengths of Dawn, Tobin, and Bismark.
- If you were to pick one character from the book who is the most like you, who would it be and why? Who is the most unlike you and why? Who would you most want as your friend and why?
- Bismark says, "My greatness has put me in danger. That's all there is to it." (p. 45) He also says, "With my brilliant powers of detection, I will solve this mystery." (p. 51) What do these statements say about his personality? How does he cause trouble for the Nocturnal Brigade as they attempt to solve the mystery of the drought?
- Describe the tumbleweed that Dawn finds. What is the purpose of the tumbleweed as the story advances? What about the mysterious voices, churning ground, swirling tree bark, and disappearing water? How are these clues that something evil is the cause of the drought?
- Discuss the false hope that the animals experience on their quest to solve the mystery. Even Dawn is confused by the strange events. How do the flowers give them hope again?
- How is Bismark his own worst enemy when the Brigade comes face to face with King Kami, a chameleon? What is Tobin's role in saving Bismark?
- Bismark says the fight between Tobin and King Kami is a "tongue-of-war." How does such wordplay make the plight of the Nocturnal Brigade humorous? In what other ways do the authors create humor?
- Discuss King Kami's explanation for causing the drought. What is the moral of the story? King Kami creates havoc in the forest. How does he help the Nocturnal Brigade save the animals in the forest?
- Think about what the Nocturnal Brigade did throughout *The Hidden Kingdom*. What would you have done similarly? What would you have done differently?
- Fear is an underlying theme in the entire *Nocturnals* series. Compare and contrast the way the animals deal with fear in *The Hidden Kingdom*. How does the personality of each animal explain the way each animal confronts fear?

FILL IN THE STORY GAME

How to Become a Member of The Nocturnal Brigade

Do you want to join the _____ Nocturnal Brigade? Great! You will
ADJECTIVE
 be _____ with Dawn the fox, Tobin the pangolin, Bismark
VERB ENDING IN ING
 the sugar glider and _____ a very brave _____ .
NAME OF SOMEONE IN THE ROOM ANIMAL

The Nocturnals follow these _____ guidelines in our daily adventures.
ADJECTIVE

1. Members always meet at night in front of the big _____ when the
NOUN
 moon is _____ and the stars are _____ .
ADJECTIVE ADJECTIVE

2. The group _____ a cape made from _____ snakeskin
PAST TENSE VERB ADJECTIVE
 that Bismark _____ took from one of our _____ who at-
ADVERB PLURAL NOUN
 tacked him in the _____ forest.
ADJECTIVE

3. We like to eat _____ pomelos, a/an _____ fruit that
ADJECTIVE ADJECTIVE
 looks like a _____ and tastes like a _____ .
NOUN NOUN

4. We help other _____ animals when they are in trouble in the
ADJECTIVE
 _____ forest that is filled with many _____ .
ADJECTIVE PLURAL NOUN

So, if you think you can _____ by these guidelines
VERB
 then you can be a member of the Nocturnal Brigade!

• **Directions:** Take turns choosing a word
 • for each part of the speech to help the
 • Nocturnal Brigade fill in the story.
 • If you're playing alone, fold along the
 • dotted lines to hide the story.

- Adjective: _____
- Verb ending in ing: _____
- Name of someone in the room: _____
- Animal: _____
- Adjective: _____
- Noun: _____
- Adjective: _____
- Adjective: _____
- Past tense verbs: _____
- Adjective: _____
- Adverb: _____
- Plural noun: _____
- Adjective: _____
- Adjective: _____
- Adjective: _____
- Noun: _____
- Noun: _____
- Adjective: _____
- Adjective: _____
- Plural noun: _____
- Verb: _____



The NOCTURNALS FILL IN THE STORY GAME

Help The Nocturnals Discover the Villains!

Dawn, Tobin and Bismark have met many villains on their nocturnal adventures. Each of the _____ villains are _____, and _____ the other animals in _____.

1. Boris the Crocodile is _____ leader of the Croc team and has an _____ voice. When Boris _____ the entire forest hides and _____ to _____ to escape the _____ crocodile gang.

2. Polyphema the Tuatara uses her third _____ to help her _____. She tries to _____ gain the trust of the other _____ animals but Dawn doesn't trust her _____ stories about _____.

3. Iris the Aye-Aye has _____ teeth and _____ claws. She uses her third _____ to tap tap tap the _____ which makes everyone _____. Iris says, "Beware of the _____ in the moonlight."

Directions: Take turns choosing a word for each part of the speech to help the Nocturnal Brigade fill in the story. If you're playing alone, fold along the dotted lines to hide the story.

- Adjective _____
- Adjective _____
- Verb _____
- Name of a place _____
- Adjective _____
- Adjective _____
- Present tense verb _____
- Verb _____
- Name of a place _____
- Adjective _____
- Body part _____
- Present tense verb _____
- Adverb _____
- Adjective _____
- Adjective _____
- Name of an animal _____
- Adjective _____
- Adjective _____
- Body part _____
- Noun _____
- Adjective _____
- Noun _____

WRITE A RAP FOR BISMARK

View a picture of Bismark doing something silly.

Bismark says to Tobin, “We can be bold in adventure... we can be brave in challenge... we can be—” (p. 13 *The Mysterious Abductions*)

Write and perform a rap about the Nocturnal Brigade that reveals the characteristics expressed by Bismark.

GIVE A CHEER FOR THE NOCTURNALS OR THE CROCODILES!

View a picture of the animals at the game.

“The bleachers were boiling with anticipation and excitement.” (p. 191 *The Mysterious Abductions*)

Use information from the text about the players of NOC HOC and write a cheer for each team to use in the final showdown.



N^{The}CTURNALS

Endangered Animals Matching Game!



Where in the world would you find these endangered animals?
Draw a line and match the endangered animals to their geographic location. Then read on to discover how you can help save these unique creatures!



Sunda Pangolin

New Zealand



Aye-Aye

Southeast Asia



Woylie

Northern Africa & Asia



Jerboa

Australia



Tuatara

Madagascar

Check the answer key to see how many animals you matched correctly.
Don't worry if you got less than a perfect score; now you can tell your friends about these unusual endangered animals. Interested in learning more?

READ THE FOLLOWING RESOURCES!

www.earthday.org/ • www.worldwildlife.org/initiatives • www.pangolins.org/ • www.nwf.org/

Pangolin – Southeast Asia; Aye-Aye – Madagascar; Woylie – Australia; Jerboa – Northern Africa and Asia; Tuatara – New Zealand

— ANSWER KEY —



The NOCTURNALS WORD SEARCH

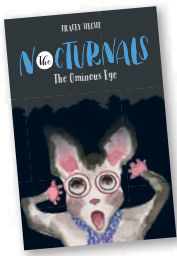
T O M L K E N C S P H T K N S V S N D N
R I I E T L Z S R O A S N C W H O E Z O
M E S T A B E V O O R N U E R A T S X I
D A D V E N T U R E C R G I D C D L M P
P E J I K S P Q G Q R O E O E O T A O M
R X R R L U C N U Y D K D T L O R N O A
O S A E W G A A I E E M E I B I N R N H
W D K E P D R N P D S D P I L K N U L C
L X Z D R S G A Y E N T N F T E V T I S
E F L A P P I N G U K R A M S I B C G T
R X I G R M G H I U M Y S T E R Y O H A
S O H I H I Y V W K S O L E M O P N T R
R F V R W O M B A T R U G L K I T T A S
U N G B I T I Y H Y P G N I L B M E R T
U G N I Y F I T S A G R E B B A L F D S

ADVENTURE
BATS
BISMARK
BRIGADE
CHAMPION
CROCODILE
DANGERS
DARKNESS

DAWN
ESCAPE
FLABBERGASTIFYING
FLAPPING
FOX
MOONLIGHT
MYSTERY
NOCTURNALS

PANGOLIN
POMELO
PROWLERS
QUEST
RODENT
SCURRYING
SHRIEKED
STARS

SUGARGLIDER
TOBIN
TREMBLING
UNDETECTED
WHISPERED
WOMBAT



The Ominous Eye Word Search

S T I C O N V U L S E D M O W S Y
I H M N N C I E I L D S H Q T S N
L G G G T H L M P Z I J J A D Y W
H U U V J I E N B N G O M A I E A
O A T C T D M F O L Y P C Q S O T
U R T E B E W I L D E R M E N T C
E T U A F D T Y D D E V A E R E B
T S R D I C Z F E A S C E W L Y D
T I A V E I N S T I T U T E D E G
E D L F N Z E K A U Q I B H T S N
S E R L D D I H C T E R N L S U I
Z E I R E D A R A M A C U G T O R
P A N G U L A R E T F P H C A B E
D E T P U R E V O M A V A F L L T
S H A R D S Z R H T S K B N K U S
S C I T N A Y R A S C E N T E B U
I D E T A U T C N U P G M K D Y M

ANGULAR
ANTICS
ASCENT
BEREAVED
BEWILDERMENT
BULBOUS
CAMARADERIE
CATAPULTED
CELEBRATORY

CHIDED
CONVULSED
DISTRAUGHT
ELITE
ERUPTED
FIEND
GUTTURAL
INSTITUTED
INTIMIDATING

MESMERIZED
MUSTERING
NIMBLE
PERFECTIONISM
PUNCTUATED
QUAKE
RECOIL
RETCH
SHARDS

SILHOUETTES
STALKED
STAMPEDE
TAWNY
WARY



GROW & READ SIGHT WORD GAMES

What Are Sight Words?

Sight words are high-frequency words that can be difficult to “sound out.” By learning to recognize sight words, new readers can focus on decoding more complex sentences.

The Nocturnals Sight Word Cards are broken into sets so you can grow the deck as your emerging reader’s confidence grows. All the words appear in *The Nocturnals* Grow & Read titles and are based on the Fry and Dolch lists—the two sight word lists most widely used in early literacy instruction. Use these cards to play the games below, boosting literacy practice and family fun at the same time!

SILLY VOICES

Each player draws a card and reads the word aloud in a different silly voice, taking turns until the pile is finished.

Read words as Dawn, Tobin, Bismark, or another animal. Read with different emotions. Try reading as a pirate or while holding your tongue.



MEMORY

Place the cards facedown. A player turns over two cards and reads the words aloud.

If they match, the player keeps them. If not, the player turns them over and repeats with different cards, using memory to locate the pairs.



GO FISH

Deal five cards to each player and place the remaining in a “pond” pile.

Players read aloud from one of their cards and ask another player if he or she has a card with the same word. If so, the player must give over the card; if not, he or she has to “go fish,” drawing another card from the pond.

Continue until the pond is empty. The player with the most pairs wins.



NOCTURNAL BRIGADE

Add one Nocturnal Brigade card to the deck. Shuffle and deal all the cards.

Each player identifies the pairs he or she has, reading off the words and discarding the pairs. Each player takes turns taking a card from the player to the left, reading and discarding pairs as they form.

Continue until all cards are matched and one player has the Nocturnal Brigade card.



Sight Words Set #1

was

my

mean

all

not

it

the

up

at

big

out

of

yes

you

but

Nocturnal Brigade



Print x 2

Cut out cards

Sight Words Set #2

had

sun

from

back

will

let

him

tree

put

this

too

day

why

her

good

down



Print x 2

Cut out cards

Sight Words Set #3

night

what

small

right

both

hand

head

late

again

feet

animal

time

very

took

brown

sleep



Print x 2

Cut out cards

NOCTURNALS BINGO BOARDS

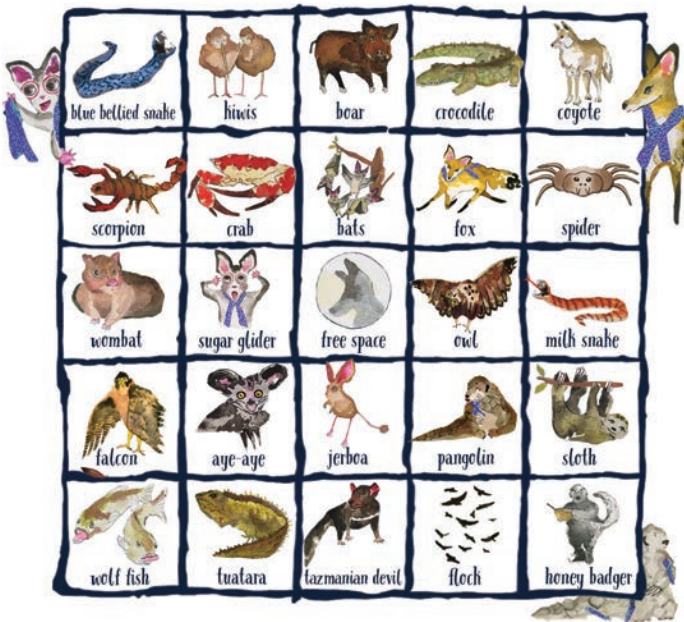
The NOCTURNALS BINGO



The NOCTURNALS BINGO



The NOCTURNALS BINGO



The NOCTURNALS BINGO



NOCTURNALS BINGO CALL CARDS



aye-aye



bats



blue bellied snake



bear



coyote



crab



crocodile



falcon



flock



fox



honey badger



jerboa



kiwis



milk snake



owl



pangolin



scorpion



sloth



spider



sugar glider



tasmanian devil



tuatara



wolf fish



wombat

Wacky Animal Facts for The Nocturnals Bingo Game!

Welcome to *The Nocturnals* Bingo! Get ready to play games with some furry, and not-so-furry, friends. This bingo game is extra special because instead of having letters and numbers, each square has the name of an animal featured in *The Nocturnals* book series. The game features the three main characters: Dawn, a red fox; Bismark, a sugar glider; and Tobin, a pangolin. It also has all kinds of other creatures—bats, coyotes, crocodiles, and more—on the cards. We'll call out the name of each animal along with a fun fact about that species, and you can mark it on your board. Fill five squares in a row, and you're the winner!

Wacky Animal Facts

Pangolin

- Pangolins are covered in scales that look like armor, and while that may look strange, they're actually made of something called keratin. Take a look at your fingernails. Your nails are made of keratin, too, just like Tobin's scales!
- Just like skunks, pangolins spray something smelly when they feel threatened or scared. This keeps predators from getting too close.

Sugar Glider

- Unlike humans, sugar gliders don't need flashlights to see in the dark. Because their eyes are positioned on the side of their heads, they have excellent night vision.
- While playing in the mud might sound fun to you, sugar gliders hate being dirty. They're constantly cleaning their fur and polishing it using a special substance that comes out of their eyes.

Red Fox

- Red foxes are the largest species of fox, but they're still quick on their feet. They can run up to thirty-five miles per hour and can even climb onto the branches of trees as long as they're not too high up.
- Have you ever seen a dog bury a bone and come back to it later? Red foxes like to do this, too. They often hoard and store large amounts of food in different locations to find when they're hungry again.

Crocodile

- Dogs aren't the only animals that use barking to communicate—crocodiles make a similar noise. They use different barks to communicate all kinds of things, including a special bark to warn other crocodiles about danger.
- Sometimes all that swimming can make a crocodile cold. Instead of grabbing a towel to warm up, they like to lie in the sun on flat rocks near the water.

Nocturnals Bingo Wacky Animal Facts

Tuatara

- A tuatara might look like an ordinary reptile from far away, but if you look a little closer, you can see that the tuatara has something that sets it apart from other reptiles—a third eye on the top of its head.
- The name “tuatara” means “peaks on the back.” These reptiles have small spikes running from the top of their necks to the end of their tails.

Aye-Aye

- Aye-eyes are known for their gigantic tails, which are often more than double the size of the rest of their body.
- Aye-eyes might look like rodents at first, but they’re actually primates, which means that they’re related to chimpanzees, apes, and even humans.

Kiwi

- Kiwis can’t see as well as humans and have very poor eyesight. To identify their surroundings, they use their keen sense of smell and little whiskers on the base of their bill, which allow them to feel around.
- Unlike some social animals, kiwis are very shy and solitary. They travel in groups of six to twelve but like to seek shelter in their own burrows and will usually hide from other animals.

Tarantula (spider)

- Scared of a tarantula’s bite? Don’t be! A tarantula’s main form of attack is shooting the tiny barbed hairs on its body at attackers.
- Tarantulas might look a little scary, but they’re mostly harmless. A bite from a tarantula might hurt a little, like being stung by a bee, but it’s not poisonous.

Blue-Bellied Snake

- These snakes might look a little scary, but they’re not mean. Blue-bellied snakes are naturally shy and won’t bite unless they’re threatened.
- You won’t find a Blue-bellied snake in your backyard or garden. Blue-bellied snakes are native to Australia and can be found in inland areas in the Southeast.

Bat

- If you snacked like a bat, you’d eat your weight in insects every day. An average bat can eat more than a thousand insects per hour. That’s a lot of bugs!
- Some people think of bats as being related to vampires because they feed on blood, but most bats subsist on fruit and insects.

Scorpion

- Missing your night-light? Scorpions glow blue underneath UV light because of fluorescent chemicals in their exoskeletons.
- Hungry? Scorpions can go six to twelve months without eating. They’ll eat one huge meal and store it and burn it slowly over time.

Coyote

- While coyotes are known for being fast on land—they can run up to forty miles per hour—they’re also great swimmers! They’ve even colonized islands!
- Coyotes have a hard time being quiet. They’re known for their loud calls and make over eleven different noises with distinctive meanings.

Nocturnals Bingo Wacky Animal Facts

Jerboa

- Don't let size fool you! While the jerboa may only be a few inches tall, it can jump up to ten feet!
- Jerboas have excellent hearing and use sounds and even vibrations to understand their surroundings and to communicate.

Wombat

- Like many other nocturnal mammals, wombats could benefit from a pair of glasses. They have poor eyesight but make up for it with great hearing and a keen sense of smell.
- Wombats love being underground. They're known for constructing elaborate tunnel systems in the deep sand.

Falcon

- Falcons aren't picky about where they live. You can find them in forests, deserts, tundras, mountains, and just about everywhere else.
- A little-known fact about falcons is that they're excellent singers. Pairs of falcons are known for singing duets before sunrise as a way to let other falcons know where their territory is.

Owl

- If you try to do something sneaky behind an owl's back, chances are it'll catch you. Owls can rotate their heads 270 degrees, almost all the way around, so they don't miss a thing.
- Owls are known for swallowing their prey whole and then spitting up the bones later. Yuck!

Sloth

- Sloths aren't exactly full of energy. They sleep about fifteen hours a day.
- If you ever gave a sloth a lollipop to lick, it might be gone pretty quickly, since sloths can extend their tongues a full foot out of their mouths.

Tasmanian Devil

- Tasmanian devils are known for making loud shrieks and calls that can sound a little scary, which is partly why they're called "devils" in the first place.
- Tasmanian devils like to sleep under rocks or in caves, logs, and burrows. They can only be found in Tasmania, an island in Australia.

Boar

- You wouldn't want to give a piggyback ride to a boar. They can weigh over 600 pounds!
- Wild boars like to live in large groups of six to twenty, called sounders. Females are more likely to stick to the pack and protect their babies, while males tend to leave the sounder and venture out on their own.

Crab

- A lot of crabs walk sideways, which can look a little strange. However, some can walk forward and backward, and some crabs are great swimmers!
- A crab would make an excellent band member since crabs mostly communicate through drumming. They also snap and wave their pincers.

Nocturnals Bingo Wacky Animal Facts

Wolf Fish

- The wolf fish is not your average sea creature. Some species of wolf fish can be up to four feet long and way up to eighty-eight pounds.
- A dentist would have a hard time with a wolf fish since they have large fangs flanked by three rows of teeth on each jaw.

Milk Snake

- Milk snakes are on the larger side, growing up to sixty inches long. That's one big reptile!
- These creatures are called "milk" snakes because they're commonly found near barns, so farmers used to think they drank cows' milk.

Honey Badger

- Honey badgers have long claws on each of their four feet. These claws help them run quickly, scoop out fruit, and grab prey.
- These creatures are called honey badgers because they're known for preying on beehives and eating the bee eggs and honey inside.

Flock

- A flock of owls is called a parliament, but you won't see one very often. Owls are usually solitary creatures, preferring to spend time alone rather than in a flock.
- The term for a flock of vultures changes depending on what they're doing. Vultures in flight are called a kettle, those in trees are called a committee, and those that are eating are called a wake.

References and Helpful Links for More Information

IUCN Red List of Threatened Species (<http://www.iucnredlist.org/>), the University of Michigan's Museum of Zoology Animal Diversity Web (<http://animaldiversity.org/>), Science Kids (www.sciencekids.co.nz/), Animal Planet (www.animalplanet.com), Animal Corner (<http://animalcorner.co.uk/>), Live Science (www.livescience.com), the World Wildlife Fund (www.worldwildlife.org), and National Geographic (www.nationalgeographic.com/).

Make a Model of a Crater and Learn the Impact of a Meteorite



Problem

How does a meteorite's size and distance from the surface of Earth affect the formation of a crater?

Inquiry-Based Skills

Data collection, measurement, observations, controlling variables, analyzing data, drawing conclusions.

Materials (per group)

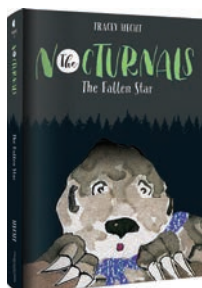
- 12- to 15-quart dish tub
- Newspaper
- 2-pound bag of flour
- Cocoa powder
- Meter stick
- Metric ruler
- 3 meteorites (rocks or marbles: one small, one medium, and one large)

Procedure

1. Make a prediction of how the size of a meteorite will affect a crater's formation.

2. Make a prediction of how a meteorite's distance from Earth's surface will affect a crater's formation.

3. Lay out some newspaper to protect your work surface. Set the tub in the middle of the newspaper and carefully pour flour into the tub until the flour is about 4 cm deep. Lightly shake the tub to make sure the flour's surface is flat.
4. Sprinkle just enough cocoa powder to lightly cover the surface of the flour.
5. Have one group member hold the meter stick next to the tub and identify the 25-cm mark.
6. Have another group member drop the small "meteorite" from a height of 25 cm.
7. Without removing the "meteorite," use the ruler to measure the diameter of the crater. The *diameter* is the length from one side of the crater to the other. Record the measurement in the data table.
8. Repeat steps 6–7 with the medium and large meteorites, making sure to drop them in different areas of the tub so you have three different craters.
9. Compare the three different craters and record any observations in the data table.
10. Remove the three meteorites and gently shake the tub to smooth out the flour and flatten the surface. Sprinkle the surface again with cocoa powder.
11. Repeat steps 5–10 for each height: 50 cm, 75 cm, and 100 cm. Be sure to measure and record the data for each drop and crater, along with other careful observations.



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Data Table

Drop Height (cm)	Crater Diameter (cm)			Observations
	Small Meteorite	Medium Meteorite	Large Meteorite	
25				
50				
75				
100				

Analyze and Conclude

1. Compare your data results to your predictions. Were your predictions correct? Explain.

2. Describe the differences between the crater made by the large meteorite dropped from 25 cm and the one dropped from 100 cm.

3. Using your observations of the impact crater, describe how the area and living things around it would be immediately affected.

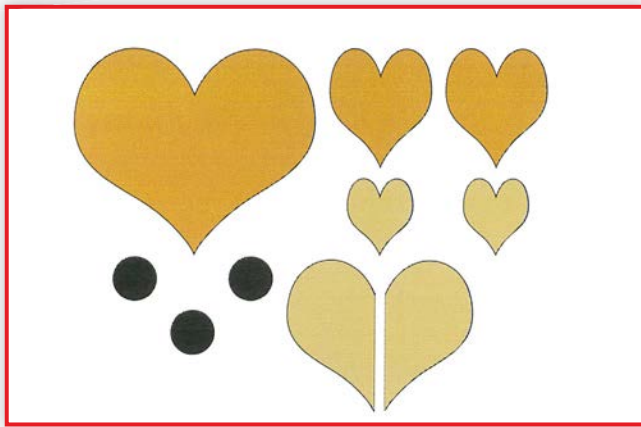
4. Earth has been struck several times in the past by meteorites, some larger than 50 meters in diameter. Explain why many of these craters cannot be seen today.



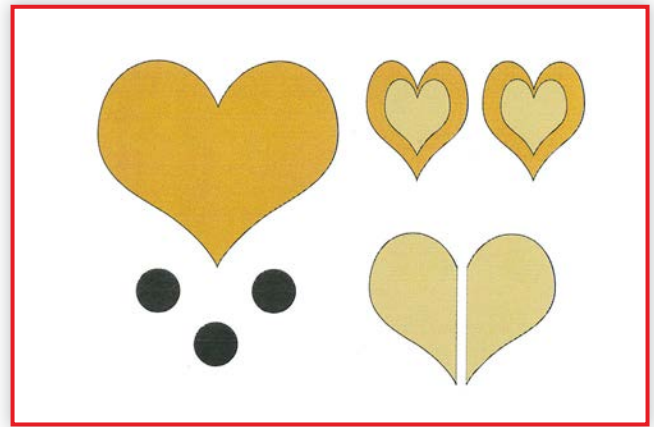


Heart Craft: Dawn the Fox

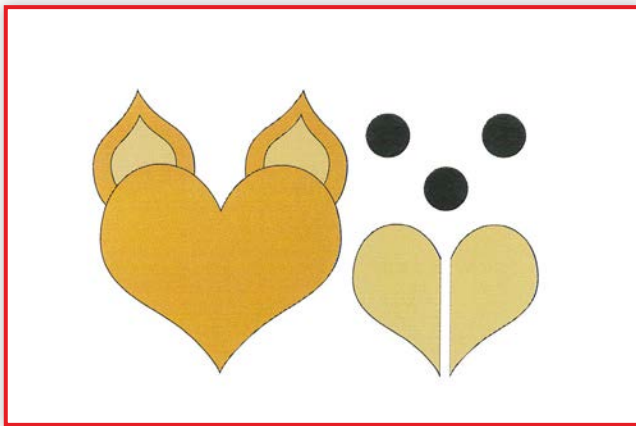
Materials needed
Crayons or colored pencils
Scissors
Glue stick



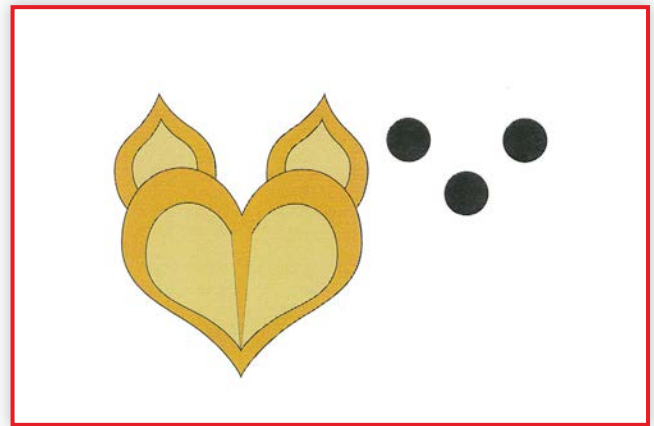
Step One: Color and cut pieces out



Step Two: Glue inside ears to outside ears



Step Three: Glue ears (upside down) to outside face



Step Four: Glue inside face to outside face



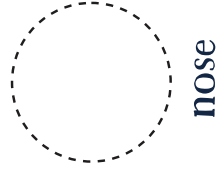
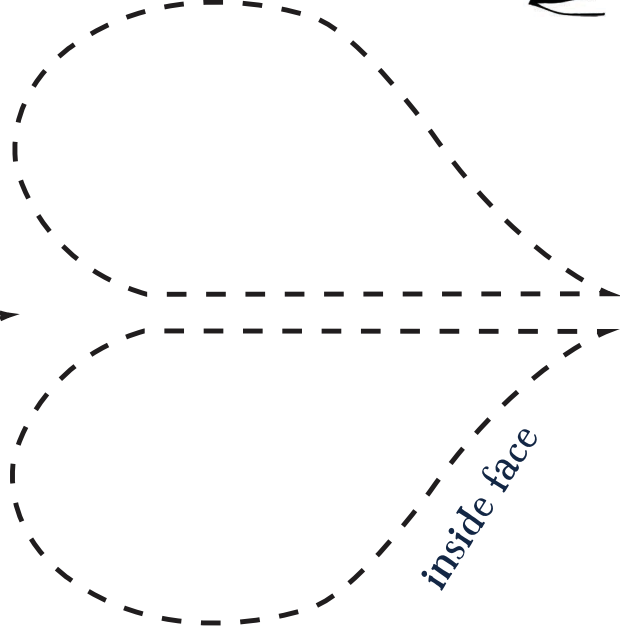
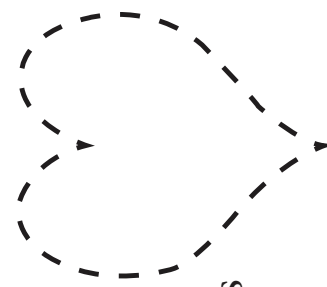
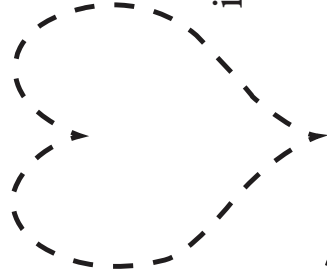
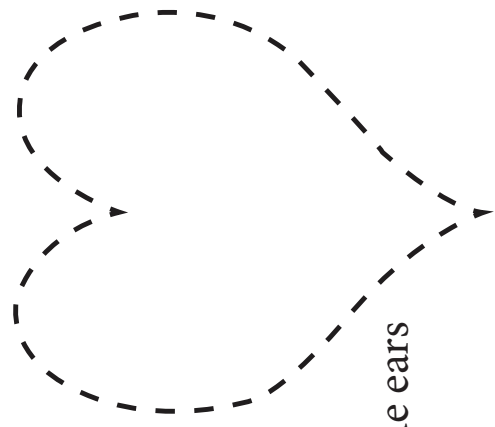
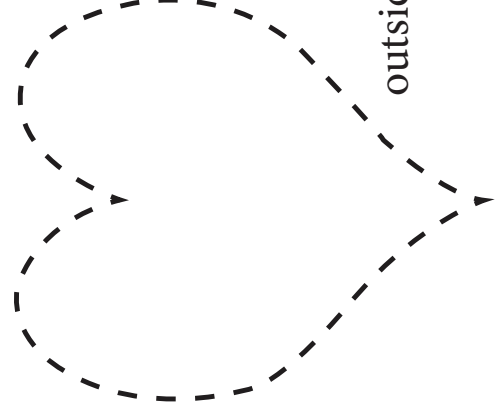
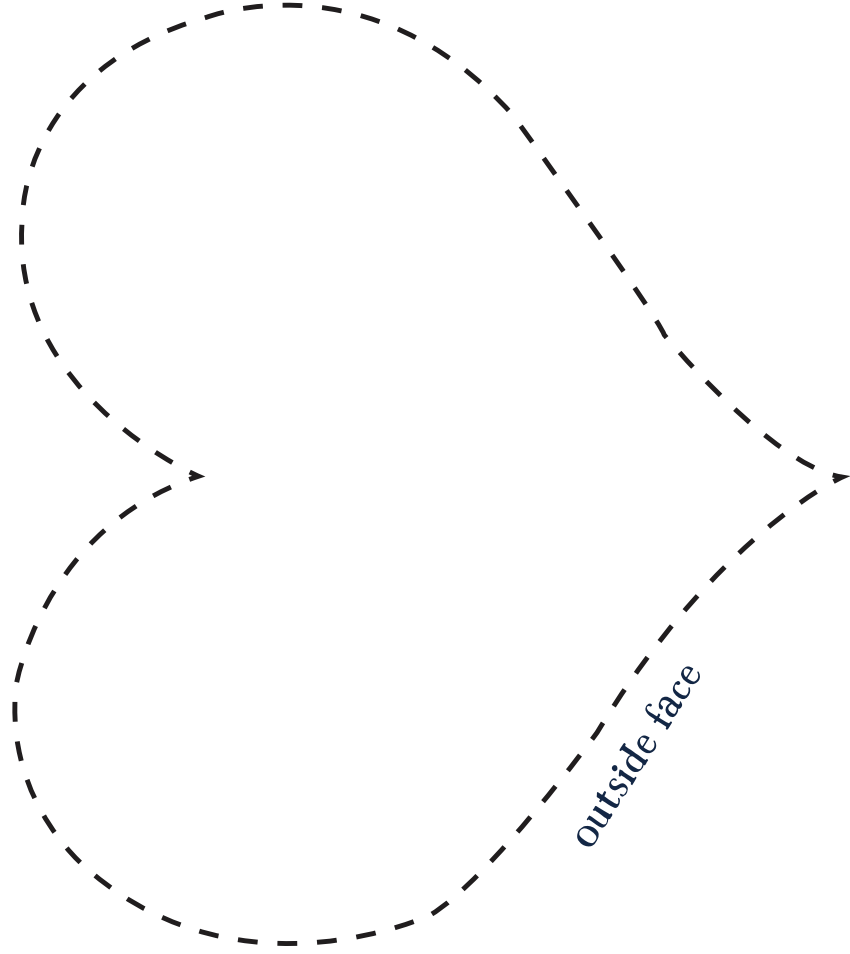
Step Five: Glue eyes and nose to face



Step Six: Shape eyes with a crayon or colored pencil

Dawn the Fox

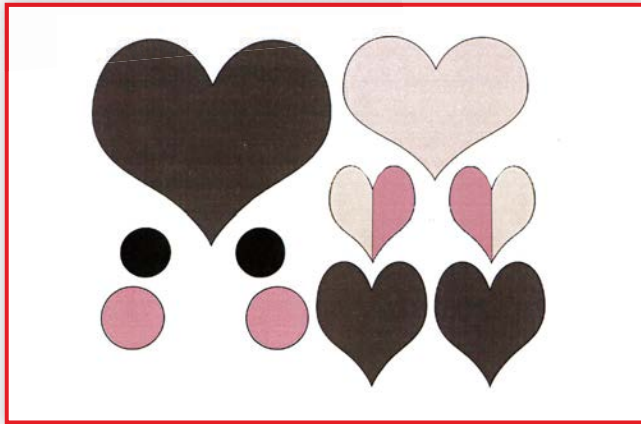
Color the pieces and then cut them out



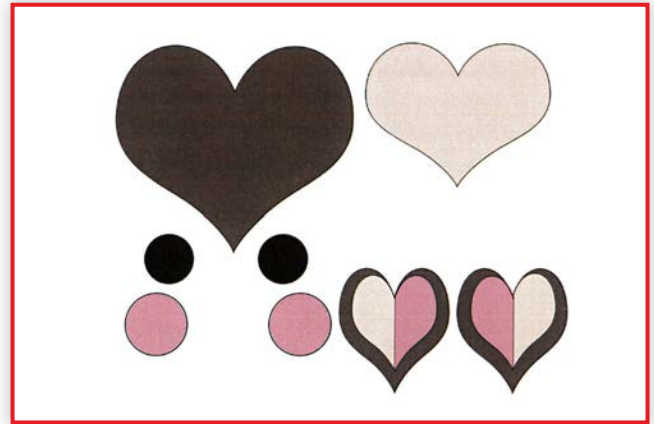


Heart Craft: Bismark the Sugar Glider

Materials needed
Crayons or colored pencils
Scissors
Glue stick



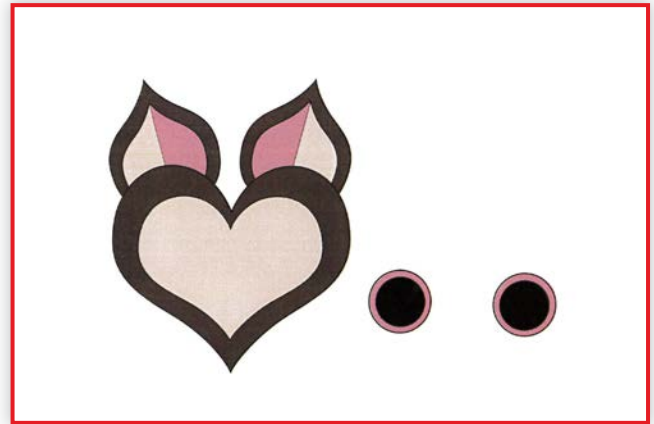
Step One: Color and cut pieces out



Step Two: Glue inside ears to outside ears



Step Three: Glue ears (upside down) to outside face



Step Four: Glue inside face to outside face and inside eyes to outside eyes.



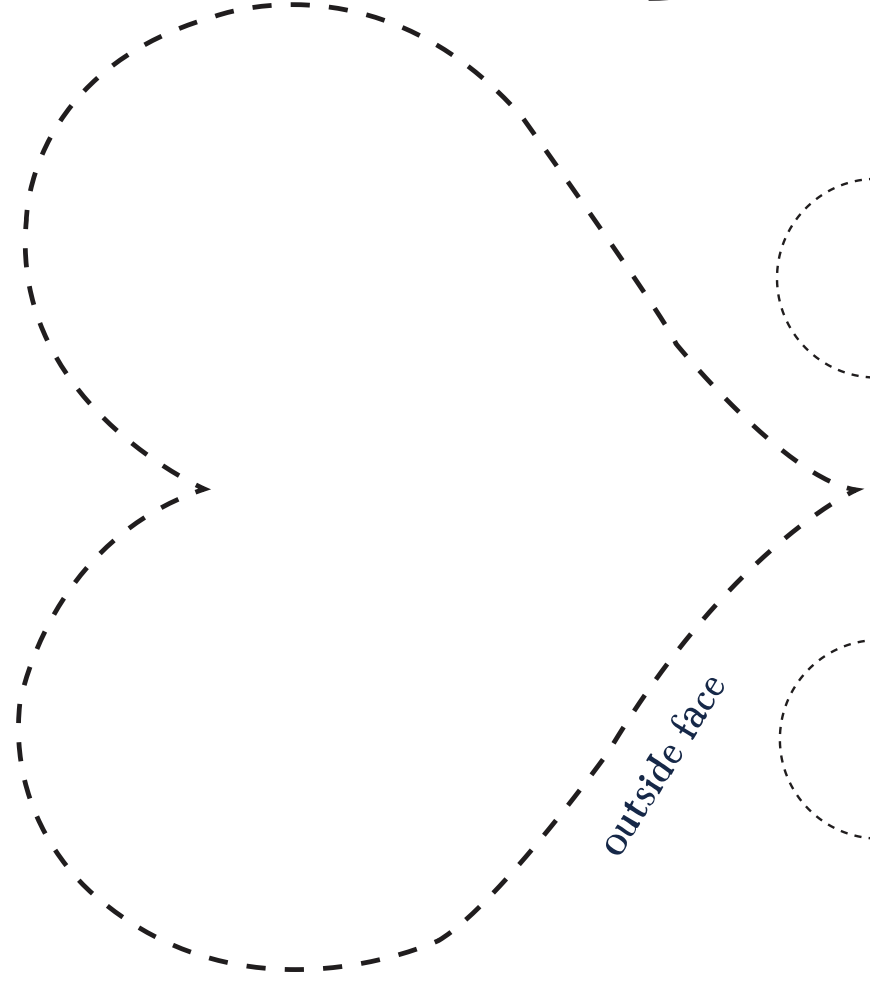
Step Five: Glue eyes to face



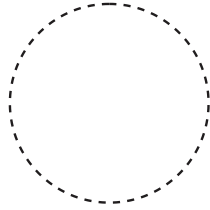
Step Six: Color nose and mouth with a crayon or colored pencil

Bismark the Sugar Glider

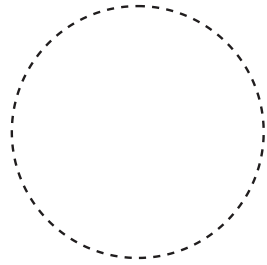
Color the pieces and then cut them out



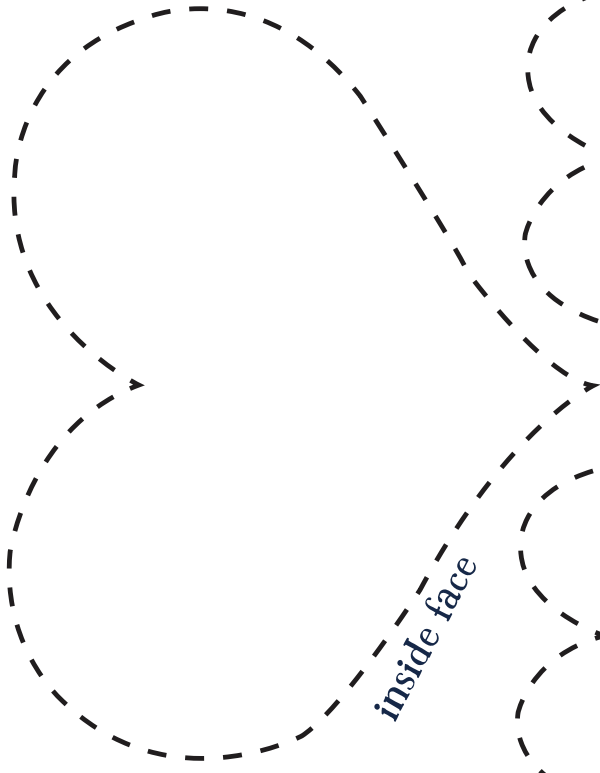
outside face



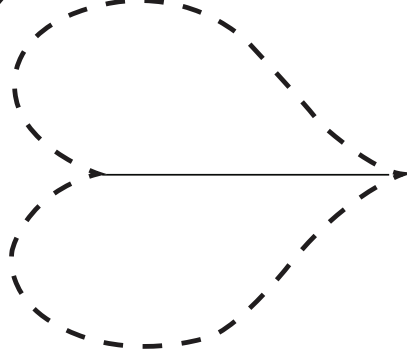
inside eyes



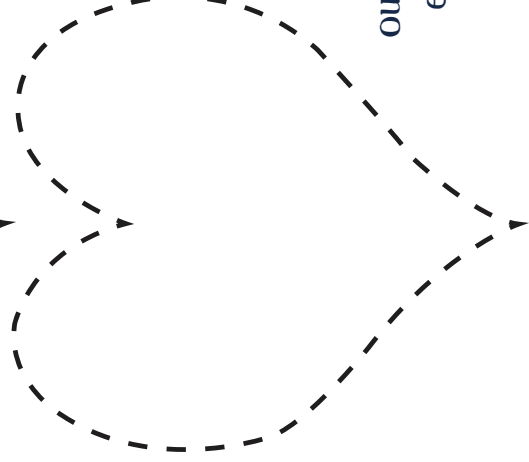
outside eyes



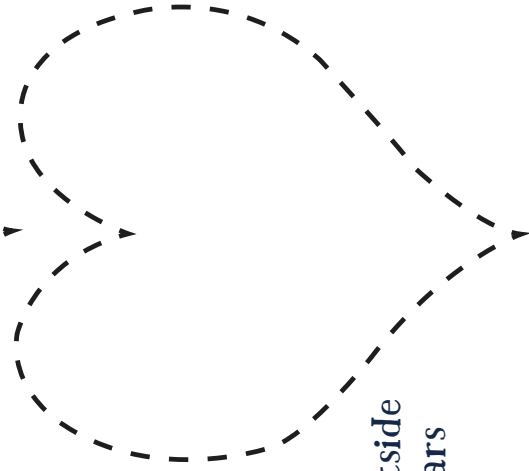
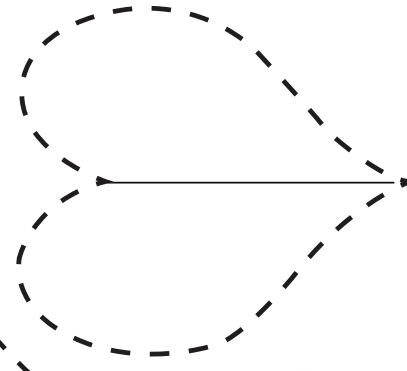
inside face



inside ears



outside ears





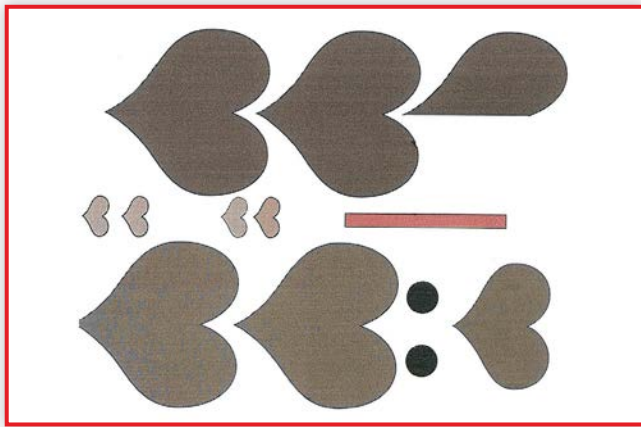
Heart Craft: Tobin the Pangolin

Materials needed

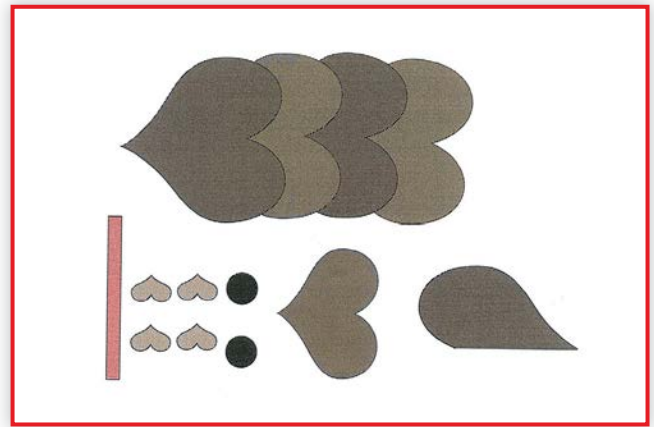
Crayons or colored pencils

Scissors

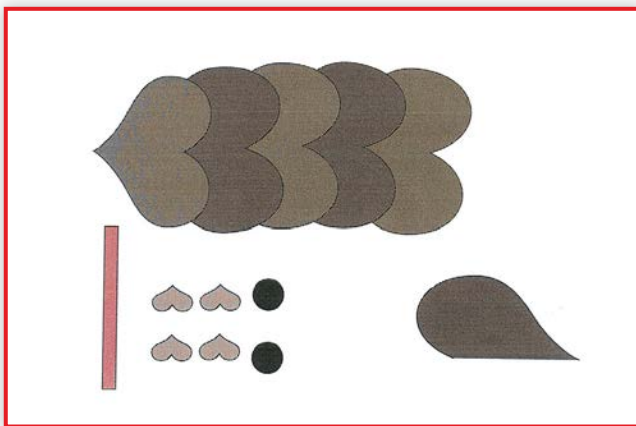
Glue stick



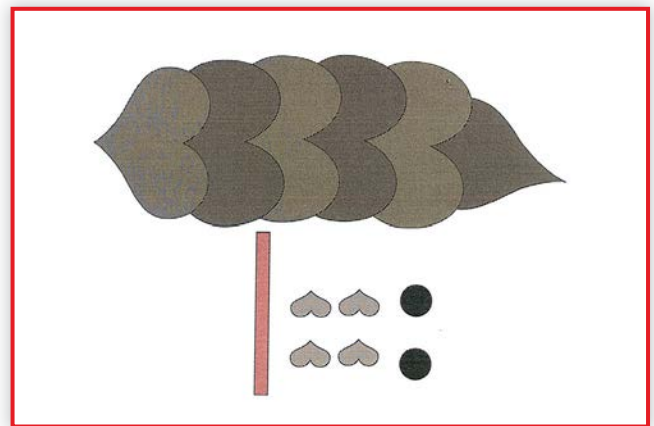
Step One: Cut colored pieces out



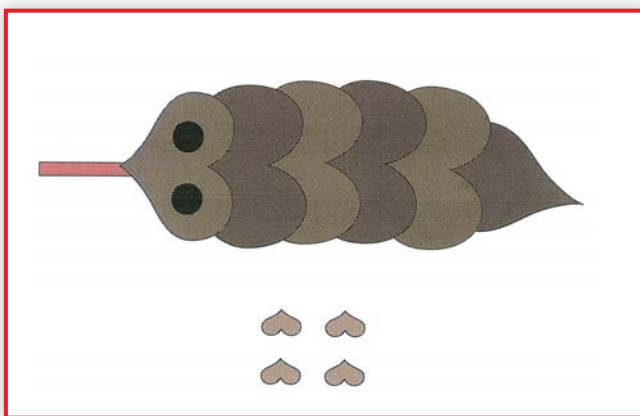
Step Two: Glue four body pieces together



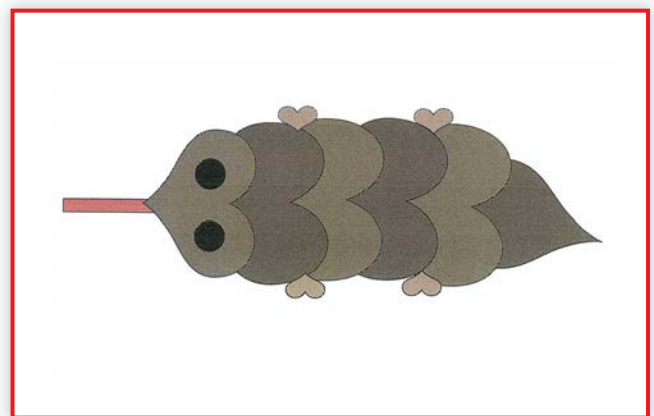
Step Three: Glue face to body



Step Four: Glue tail to body (underneath)



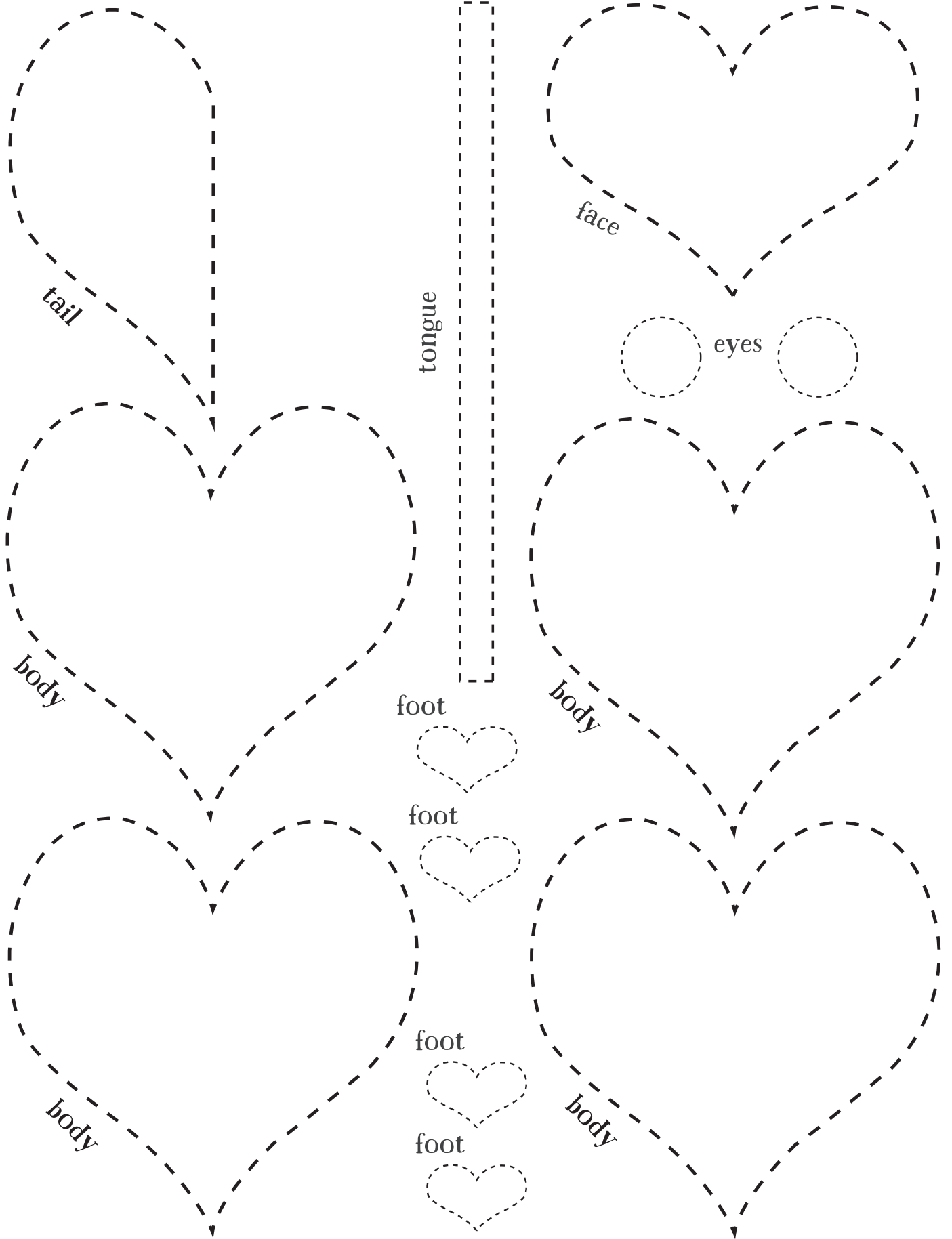
Step Five: Glue eyes and tongue to face



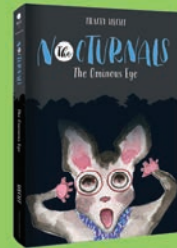
Step Six: Glue feet to body

Tobin the Pangolin

Color the pieces and then cut them out



Make a Model of a Volcano and Learn about The Ring of Fire!



1. WHAT IS A VOLCANO?

Deep inside the Earth is an extremely hot core, which heats a layer of the Earth called a mantle. The mantle is made up of very hot rock that is continuously moving in convection currents. These currents allow the rock of the mantle to soften when it's closer to the core. As the softened mantle mixes with gasses and water, it becomes less dense, slowly rises and magma is formed. Magma usually stays below the Earth's surface, or its crust. Sometimes the molten magma finds a weak spot in the crust and comes to the surface forming a volcano.

HOW IS IT FORMED?

All volcanoes are formed over a pocket of magma, which geologists call a magma chamber. With enough pressure, the magma will move upwards through a pipe in the center of the volcano, until it can leave through vents. At the top of a volcano there is a main vent and many small vents along the slopes. Once the magma leaves the vent onto the Earth's surface, it is now called lava, which pours out of the vents until the pressure inside the volcano is released.

2. Use the materials and instructions below to create a model of a volcano and show your children a demo of how a volcano erupts.

MATERIALS NEEDED:

- Baking pan
- Soda can
- Moist soil or play dough
- Baking soda
- Vinegar
- Red food coloring



PROCEDURE:

Step 1: Place the baking pan on a level surface. Set the soda can in the middle of the pan.

Step 2: Mound and shape the moist soil or play dough around the can to form a mountain. Bring the soil (or play dough) right up to the top of the soda can's opening. Be careful not to get any soil or play dough inside the can.

Step 3: Pour one tablespoon of baking soda into the soda can.

Step 4: Color one cup of vinegar with red food coloring.

Step 5: Pour the colored vinegar into the soda can. Have your children observe the red foam that spills out of the top and down the soil like lava from a volcano.

3. Explain what's going on to your children. Explain that the baking soda is reacting with the vinegar to produce carbon dioxide gas and that the gas builds up enough pressure to force the foaming liquid out of the top of the can.



4. Discuss what the foaming liquid represents—inside the volcano it's called magma, but once it reaches the surface it's called lava. References and helpful links include:

- <https://www2.usgs.gov/faq/taxonomy/term/9819>
- <http://kids.nationalgeographic.com/explore/science/volcano/#volcano-explode.jp>

**NEXT GENERATION SCIENCE STANDARDS
USED IN THIS ACTIVITY**

4-ESS2-2: Earth's Systems

- Analyze and interpret data from maps to describe patterns of Earth's features.

ESS2.B: Plate Tectonics and Large-Scale System Interaction

- The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features where people live and in other areas of Earth. (4-ESS2-2)



 <p>SUGAR GLIDER</p> <p><i>Petaurus breviceps</i></p> <p>Sugar glider</p>	<p>PANGOLIN</p> <p><i>Manis javanica</i></p> <p>Malayan pangolin</p>
<p>WOMBAT</p> <p><i>Lasiorhinus krefftii</i></p> <p>Northern hairy-nosed wombat</p>	<p>FOX</p> <p><i>Vulpes vulpes</i></p> <p>Red fox</p>

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PANGOLIN

Pangolins are covered from just above their nostrils to the tips of their tails by rows of hard, overlapping, movable sharp-tipped scales. They are between 79 and 88 cm, including their tails which are prehensile (or capable of grasping.) These very rare animals are mainly solitary and very timid. Pangolins move quickly when threatened and are strong diggers and climbers.

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SUGER GLIDER

Sugar gliders are very small creatures with their head and body measuring 12-33cm and their tail somewhere between 15-48mm. They have a gliding membrane from the outer side of their forefoot to their ankle of the rear foot, enabling them to glide up to 45 meters. One of a sugar glider's most distinguishable traits is the stripe down their back to the end of their nose and on the sides of their faces.

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FOX

Red foxes are not always red; their coats range in color from a pale yellowish to a deep brown with white or ashy undersides. Red foxes are 45-90cm long with tails 30-55cm long. Their graceful frames can run up to 48km/h and jump up to 2m high. Foxes often live in dens that have been abandoned by other animals

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WOMBAT

Wombats have thick stocky bodies about 1 m long. These large headed creatures have small eyes, pointed ears, and long whiskers. Wombat's eat grass with their continuously growing molars. Their bad eyesight and good sense of hearing and smell leads this animal to burry tunnel systems in deep sands.

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 <p>KIWI</p> <p><i>Apteryx australis</i></p> <p>Brown kiwi</p>	<p>JERBOA</p> <p><i>Euchoreutes naso</i></p> <p>Long-eared jerboa</p>
<p>COYOTE</p> <p><i>Canis latrans</i></p> <p>Coyote</p>	<p>CROCODILE</p> <p><i>Crocodylus porosus</i></p> <p>Saltwater crocodile</p>



JERBOA

Jerboas are incredibly tiny with their body measuring 7-9 cm and their tails 15-16cm. The rodents have ears that are one-third longer than their head helping them to use vibrations and sound to communicate. Due to their small size, these creatures hunt in the night to remain safe.

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KIWI

Kiwis are flightless birds about the size of a chicken. They are shy, mainly solitary animals that will usually try to escape threats instead of attacking. Due to poor vision, kiwis utilize their long bills to dig deep into the ground to find creatures to eat, which includes worms, insects, and crayfish.

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CROCODILE

Crocodiles range in size with males measuring up to 7m long and females up to 3m long. They hunt in water with only their eyes and nostrils exposed. With their heavyset jaws containing 64-68 teeth and their ability to eat under water, crocodiles just have to lunge to capture their prey. Most people are unaware that crocodiles bark to communicate.

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COYOTE

Coyotes excellent sense of hearing and smell make them fit for the life of a nocturnal. They can run up to 65 km/h and jump 4m. It's no secret that coyotes are extremely vocal animals but some would be surprised how secretive they are. Coyotes form packs and live in dens that they find or they dig their own.

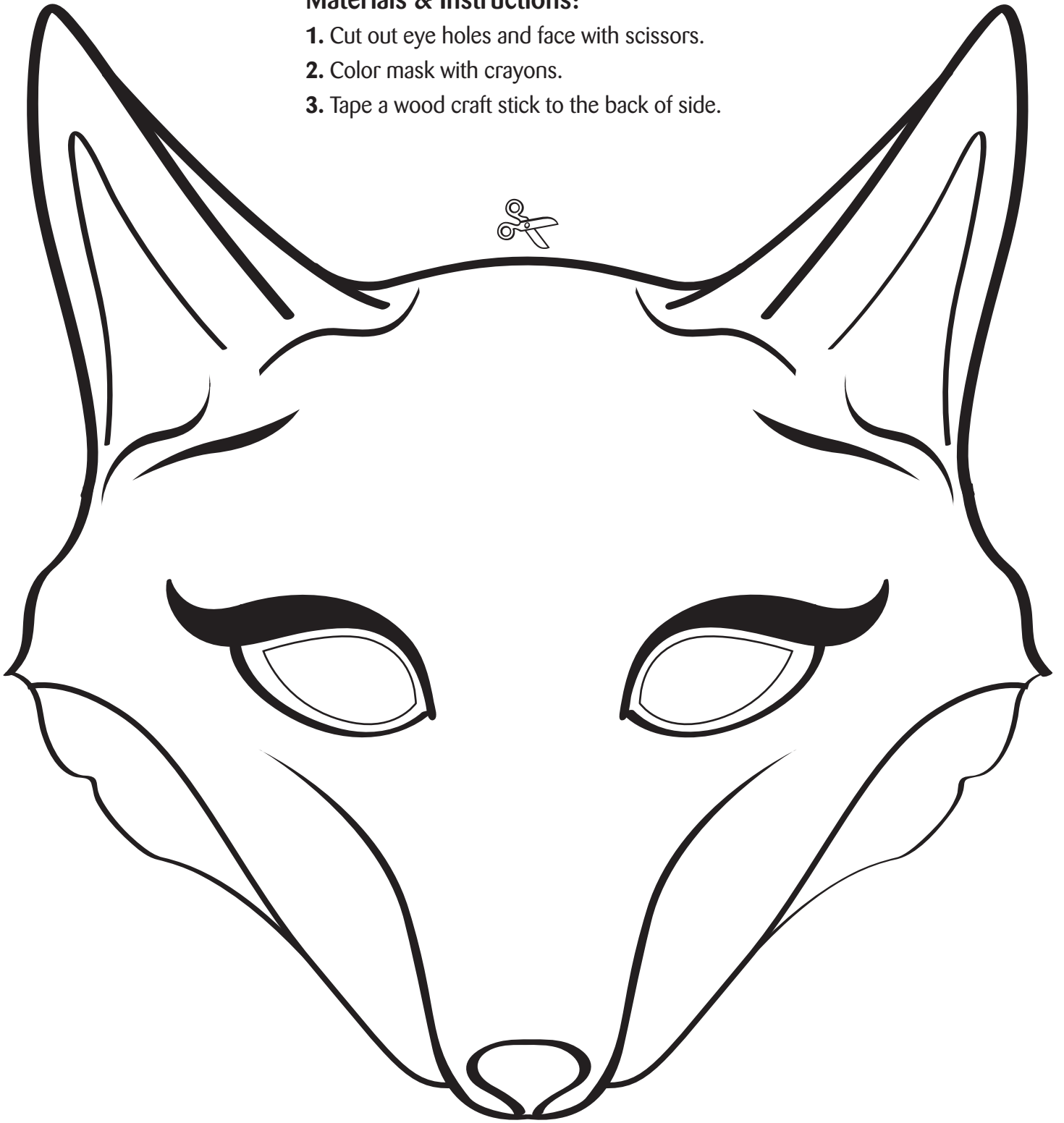
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Dawn the Fox Mask

Materials & Instructions:

1. Cut out eye holes and face with scissors.
2. Color mask with crayons.
3. Tape a wood craft stick to the back of side.



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Bismark the Sugar Glider Mask

Materials & Instructions:

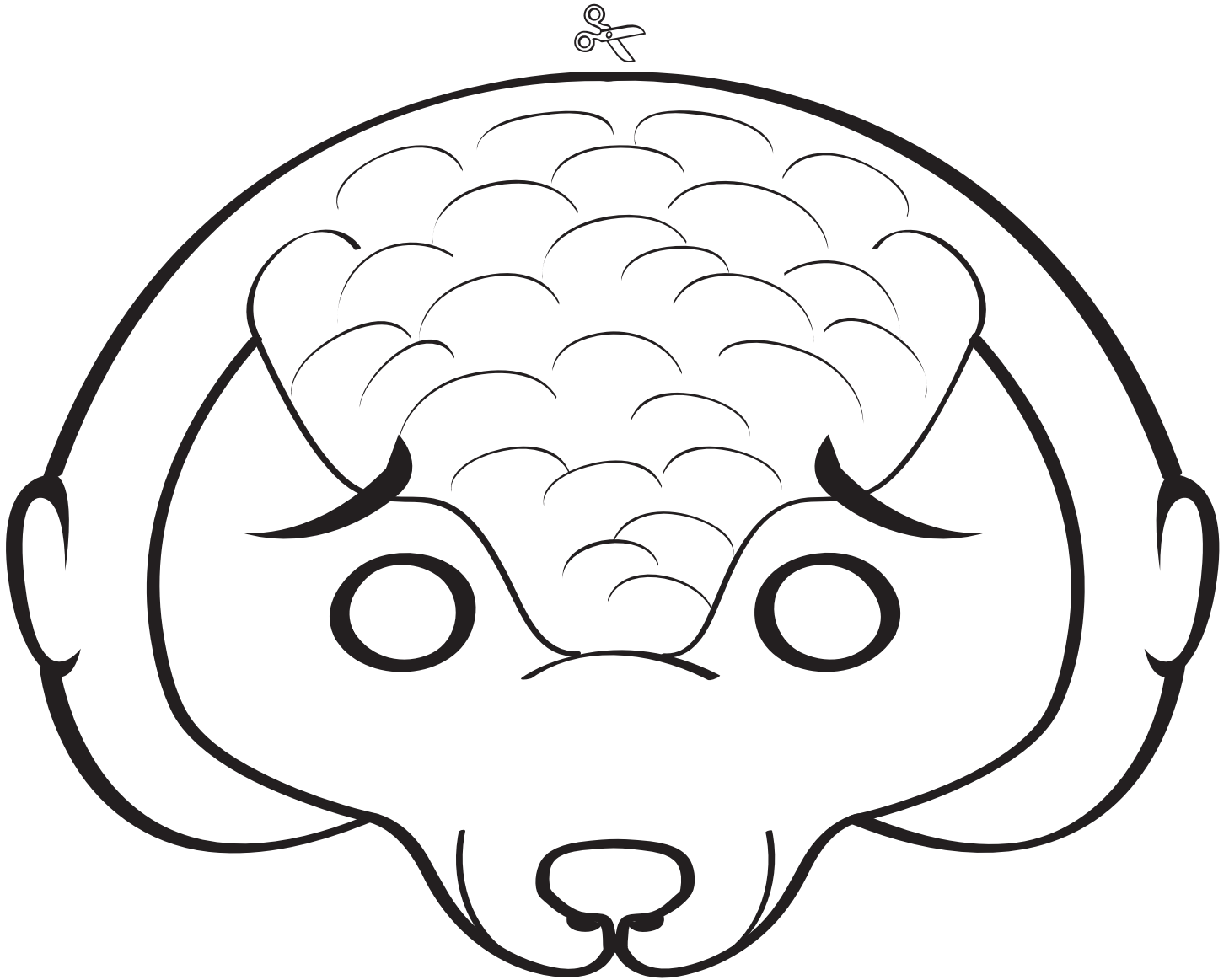
1. Cut out eye holes and face with scissors.
2. Color mask with crayons.
3. Tape a wood craft stick to the back of side.



Tobin the Pangolin Mask

Materials & Instructions:

1. Cut out eye holes and face with scissors.
2. Color mask with crayons.
3. Tape a wood craft stick to the back of side.



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