



# Little Naturalist

Coloring & Activity Book



# **Hello, Little Naturalist!**

**Congratulations! You have just started on your journey of becoming a Naturalist.**

**What is a naturalist you may ask? A naturalist is someone who studies nature by carefully observing plants, animals, insects, and their environments.**

**This book focuses not only on plants and insects, but also skills and tools you can use to explore many other parts of the natural world!**

**This Book Belongs to:**

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# **What's Inside**

**1. All About Insects**

**5. Arachnid Basics**

**7. Tick Talk**

**11. Mosquito Mania**

**17. Invasive Species**

**19. Not-so-Boring Borer  
Beetles**

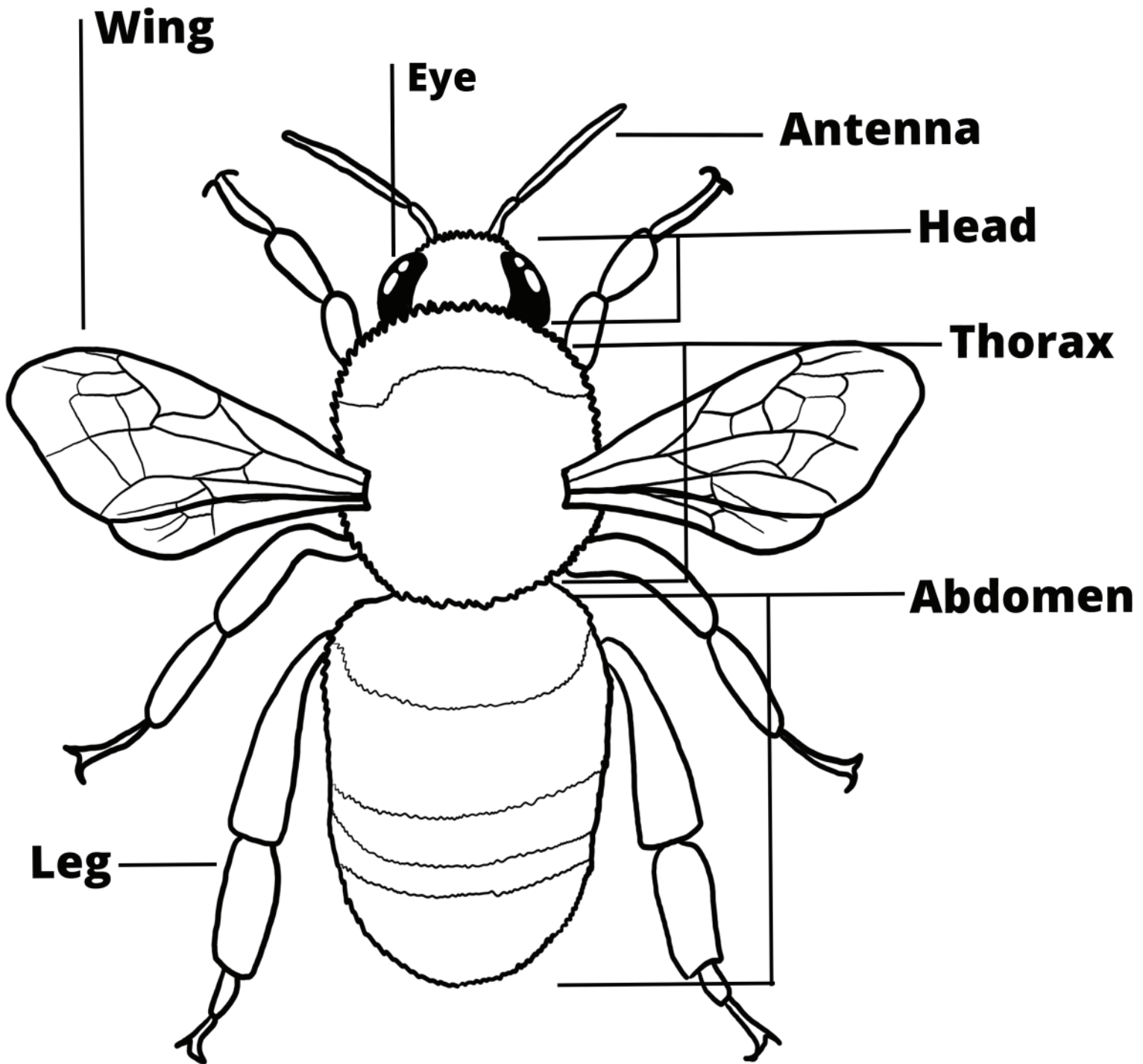
**25. Spotted Lanternfly**

**29. Tree Time!**

**35. Glossary**

**36. Puzzle Answers**

# Insect Anatomy



**Fun Fact: Not all insects have wings. Some insects have two wings and most have four!**



# What Makes an Insect, an Insect?

Using the insect anatomy page, fill in the blanks below.

1. An insect's body is divided into three parts, the \_\_\_\_\_, the \_\_\_\_\_, and the \_\_\_\_\_.

2. How many legs do insects have?

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3. How many pairs of antennae do insects have?

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Answers: 1. head, thorax, abdomen 2. six 3. one

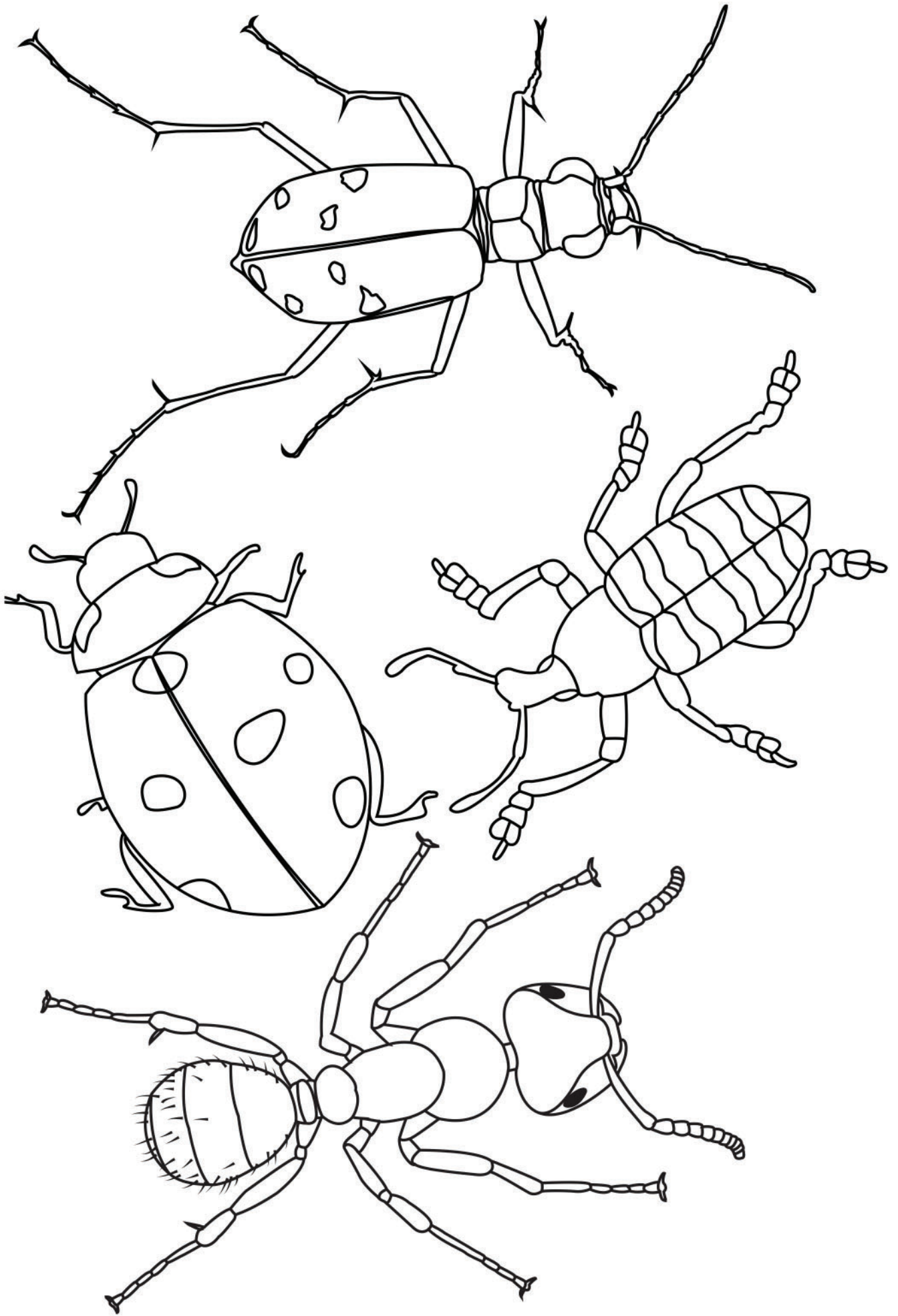
# Insect Word Search

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

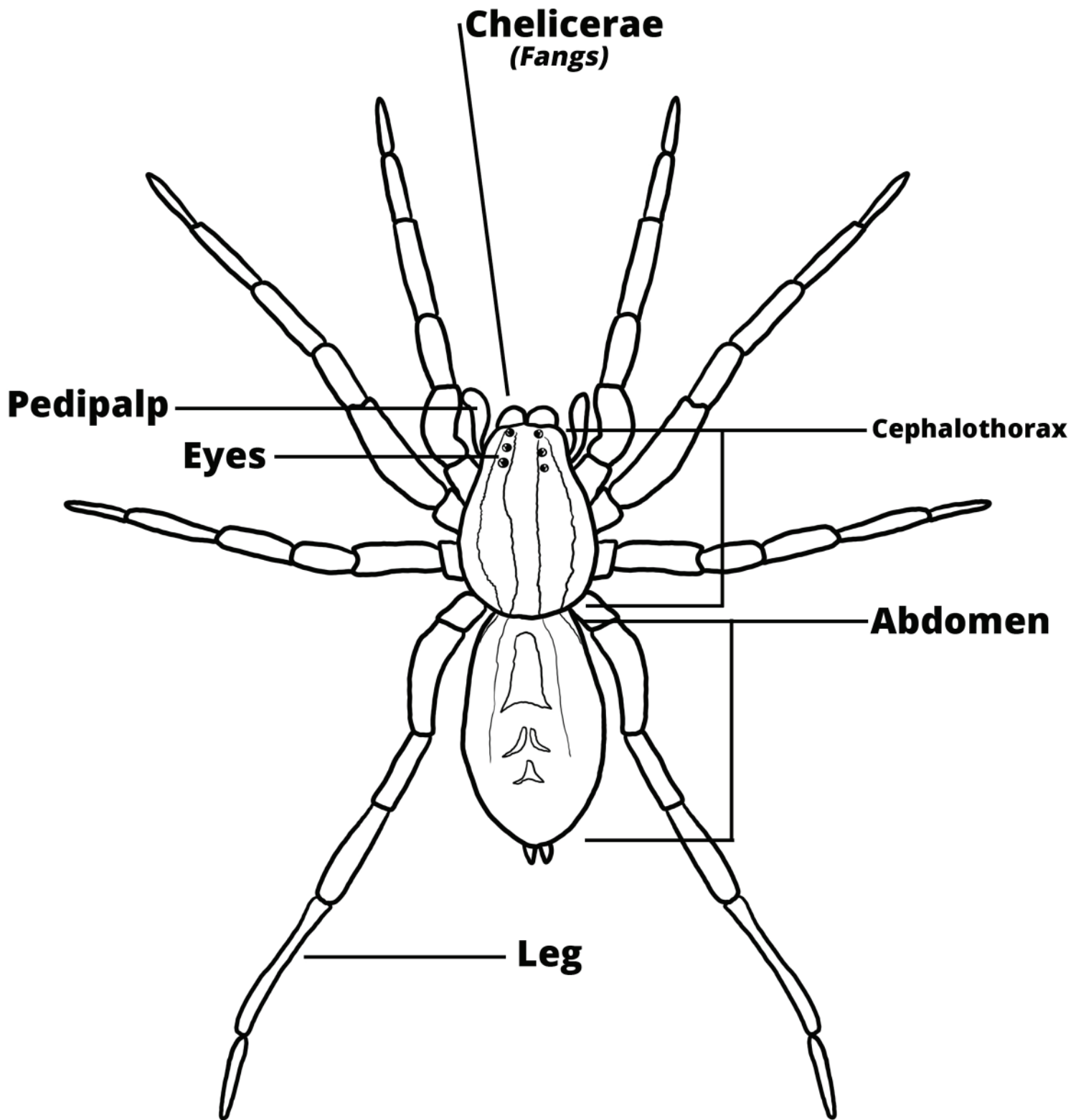
**MOSQUITO**  
**FLY**  
**MITE**  
**BEE**  
**LANTERNFLY**

**TICK**  
**BEETLE**  
**PUPAE**  
**ANT**  
**CATERPILLAR**

**GNAT**  
**MANTIS**  
**WASP**  
**LARVAE**



# Arachnid Anatomy



**Fun Fact: Arachnids are not insects. Some Arachnids include: spiders, ticks, mites, scorpions, harvestmen, pseudoscorpions, and whip scorpions.**

# What Makes an Arachnid, an Arachnid?

Using the Arachnid Anatomy page, fill in the blanks below.

1. An arachnid's body is divided into two parts: the \_\_\_\_\_ and the \_\_\_\_\_.

2. How many legs do arachnids have?

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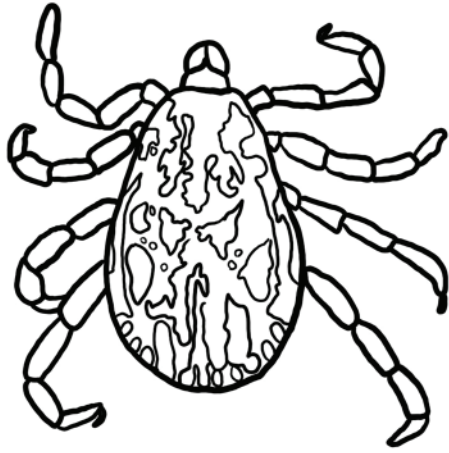
3. How many pairs of antennae do arachnids have?

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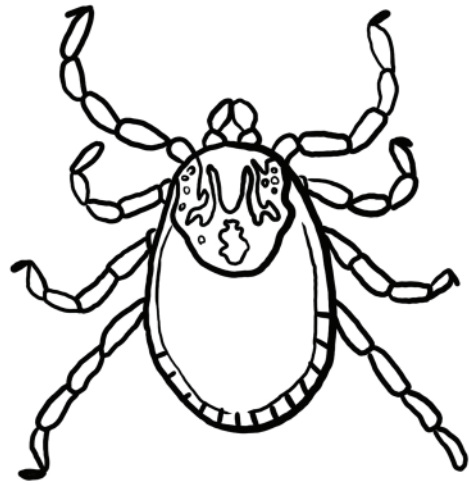
Answers: 1. cephalothorax, abdomen 2. eight 3. zero



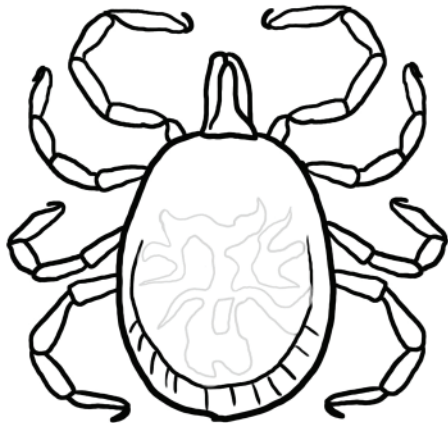
# Types of Ticks



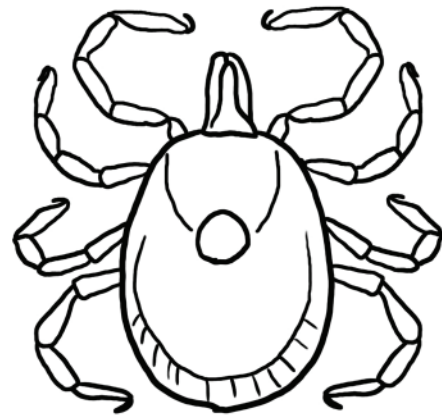
**Male Dog Tick**



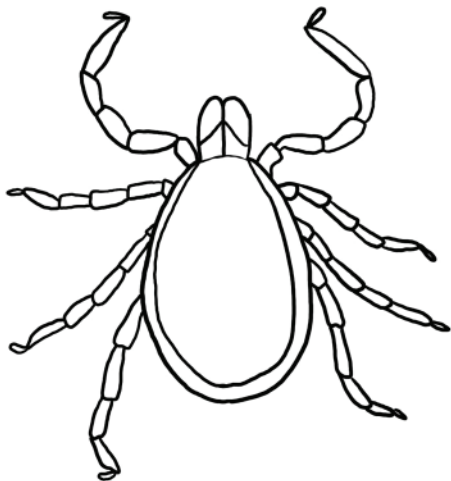
**Female Dog Tick**



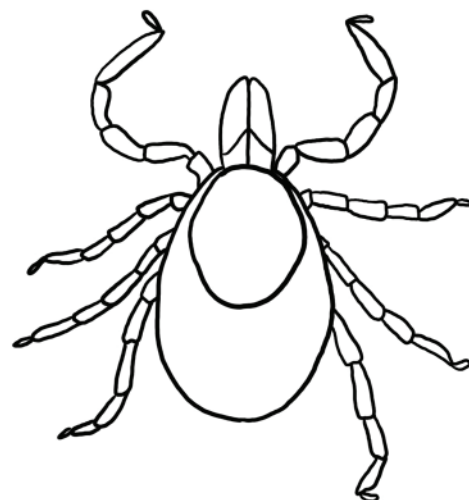
**Male Lone Star Tick**



**Female Lone Star Tick**



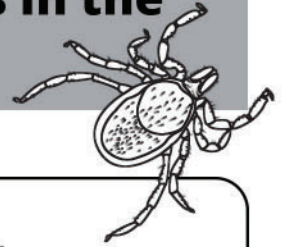
**Male Deer Tick**



**Female Deer Tick**

# Tick Unscramble

Can you unscramble the tick-related words in the following sentences?



An animal that feeds on another animal and causes it harm is called a **SAPARTEI**.

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Ticks are a type of **AHACRNID**, an animal that has 8 legs.

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To find a host, ticks stretch out their front legs to catch onto an animal. This is called **UTSQGEIN**.

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A **DREE CITK** is a type of tick that carries Lyme Disease.

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A **LNOE ASTR** tick is a type of tick that has a white spot on its back.

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Answers: Parasite, Arachnid, Questing, Deer Tick, Lone Star

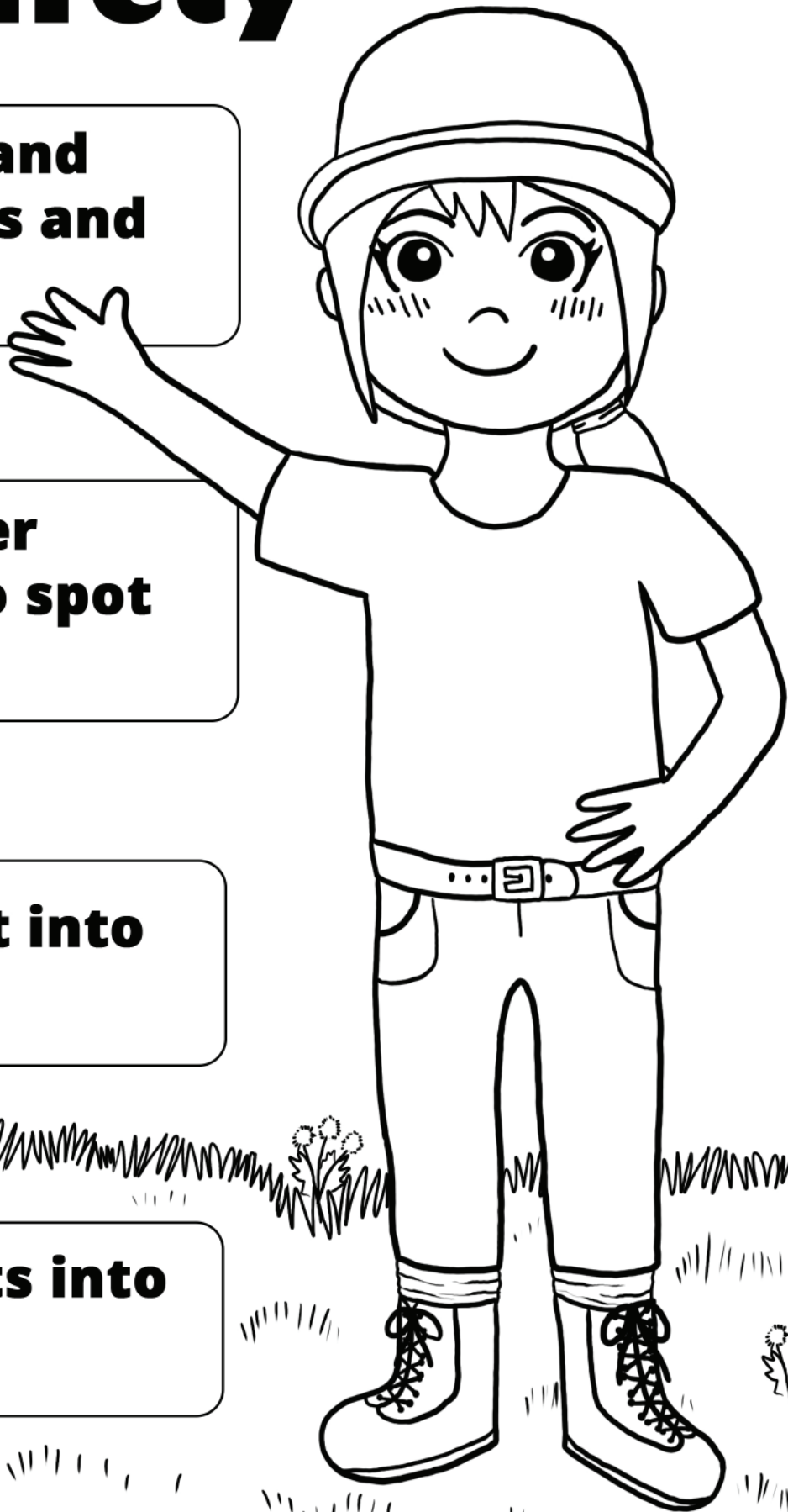
# Tick Safety

**Stay on trails and avoid tall grass and leaf piles**

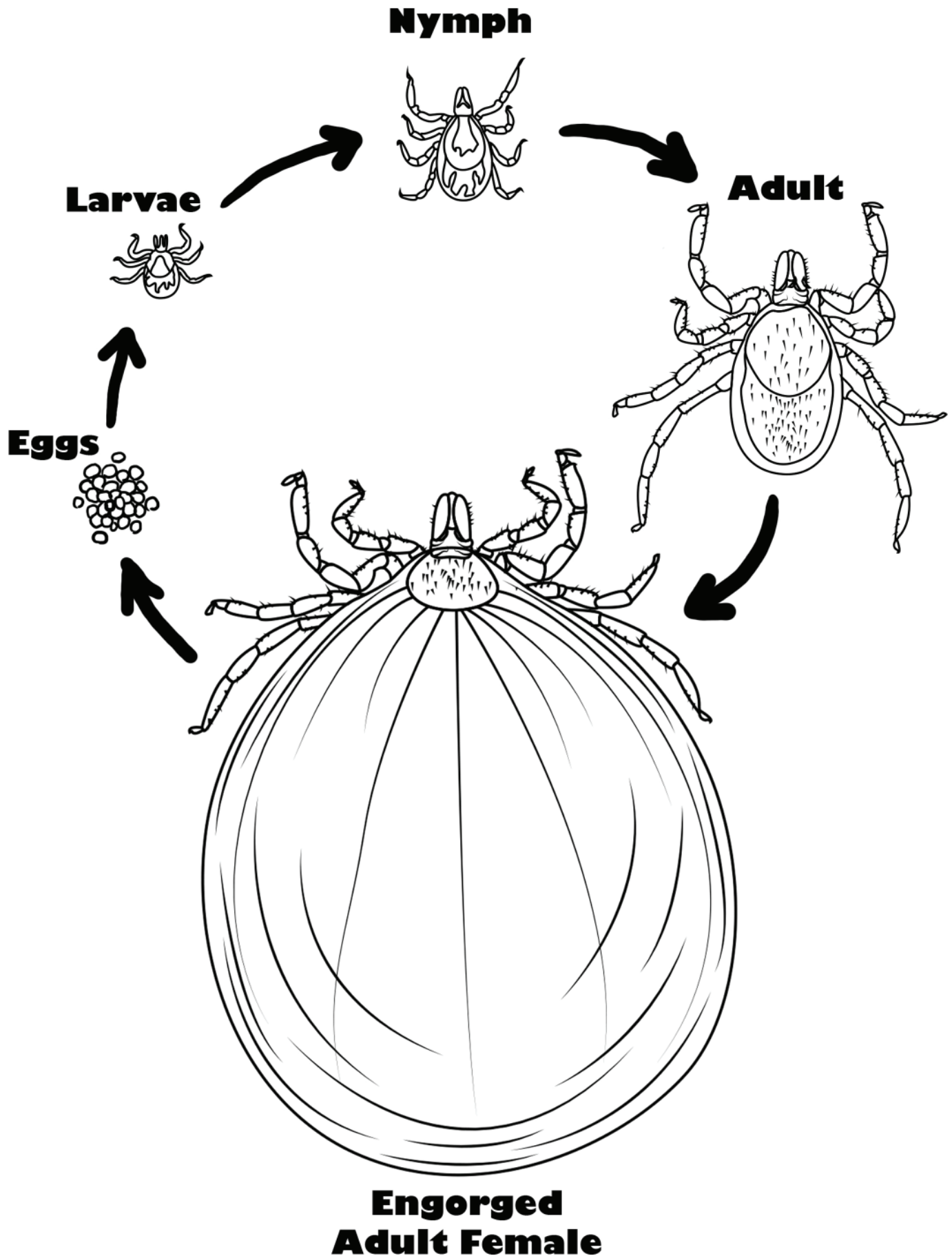
**Wearing lighter colors helps to spot ticks easier**

**Tuck your shirt into your pants**

**Tuck your pants into your socks**

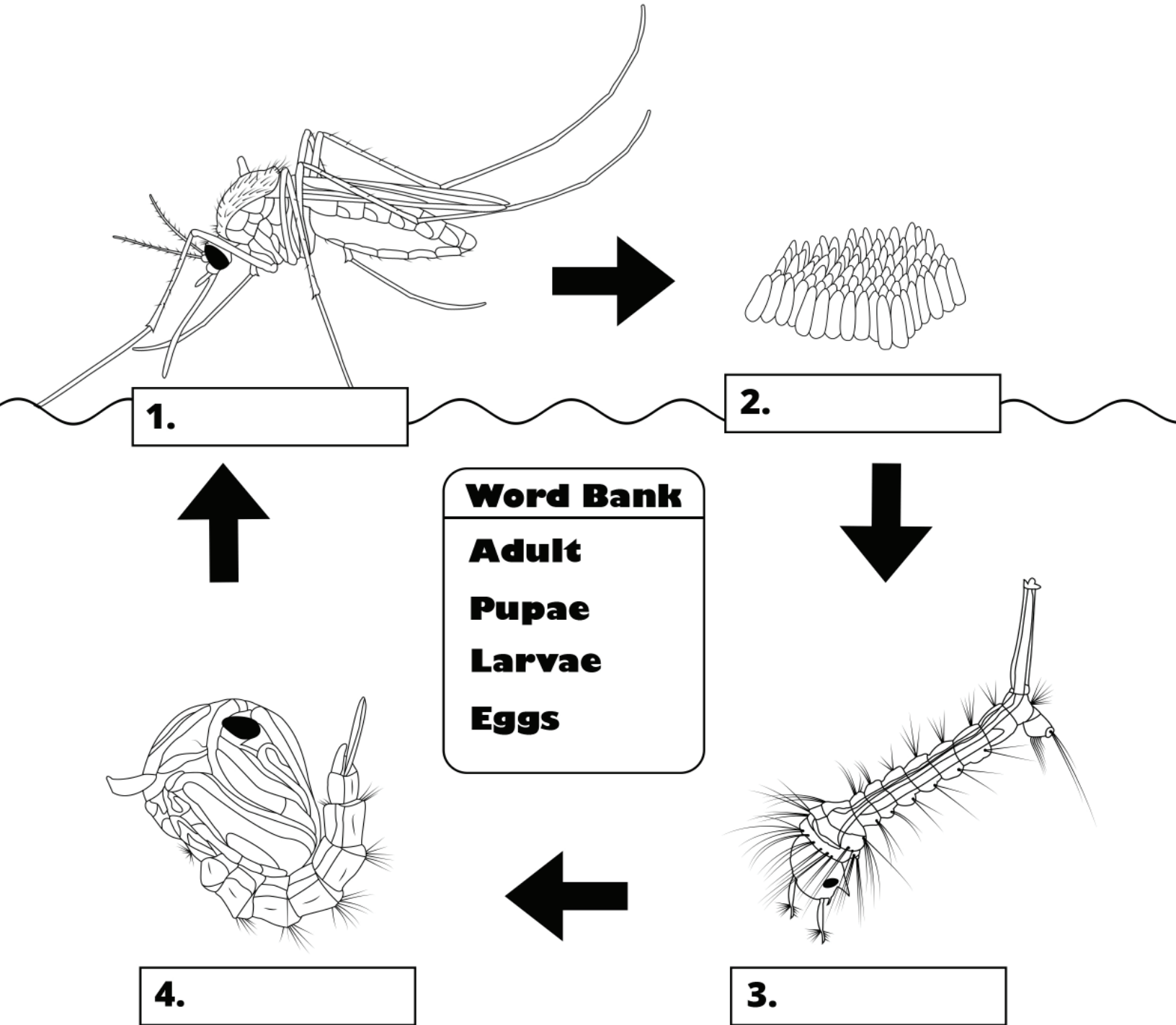


# Tick Life Cycle



# Mosquito Life Cycle

Can you name each stage of the mosquito life cycle?



# What's a mosquito?

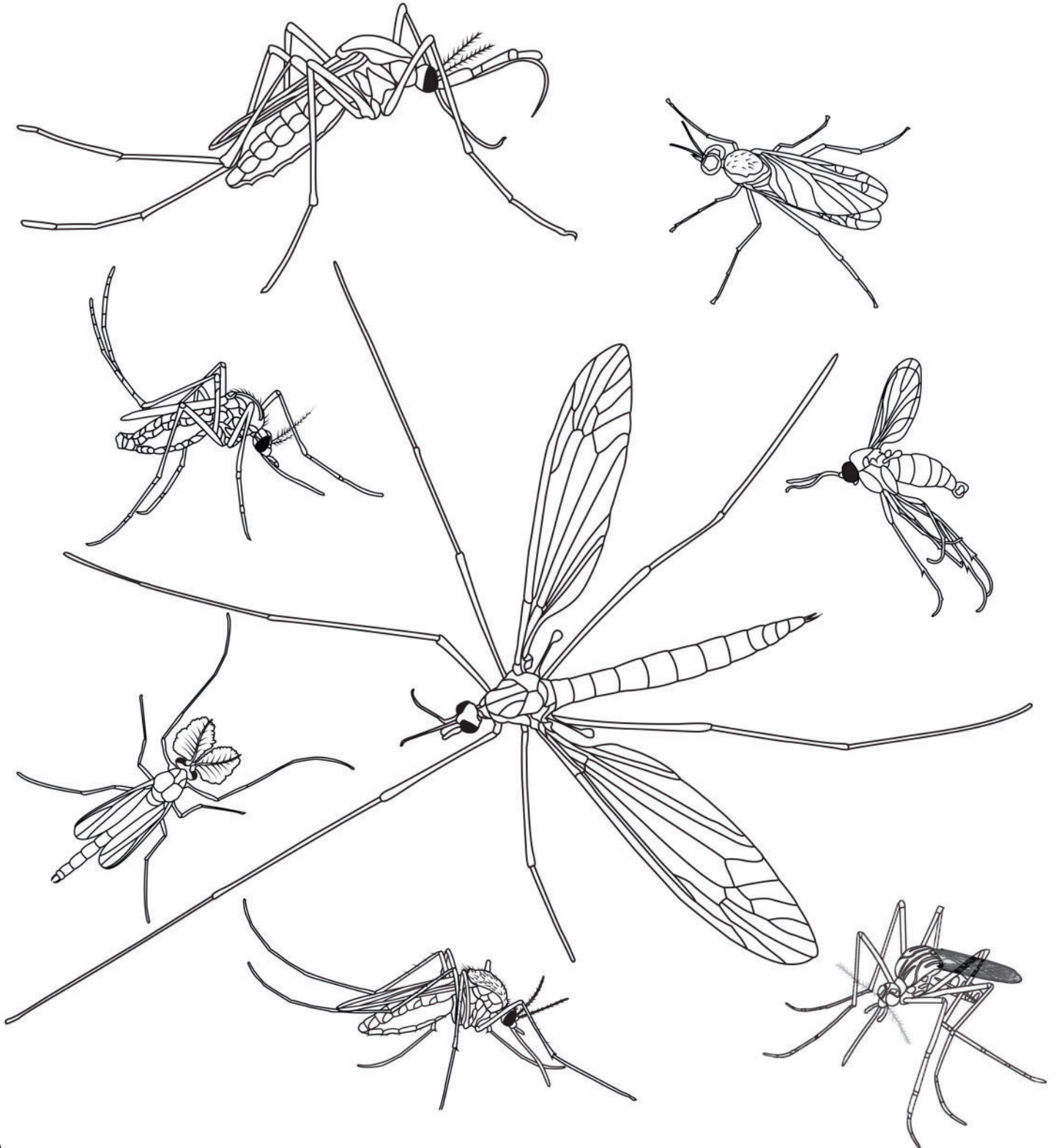
Which of these statements are true and which are false? Circle the answers below.

1. Mosquitoes are a type of fly. TRUE or FALSE
2. All mosquitoes bite humans. TRUE or FALSE
3. Mosquitoes drink blood in order to create eggs. TRUE or FALSE
4. Mosquitoes are pollinators. TRUE or FALSE
5. Mosquito bites can make you sick. TRUE OR FALSE
6. Mosquito larvae live in water and can even survive in a bottle cap full of water. TRUE or FALSE
7. Mosquitoes can be found on every continent. TRUE or FALSE
8. Only female mosquitoes bite. TRUE or FALSE
9. Mosquitoes can be over an inch in size. TRUE or FALSE
10. Mosquitoes have a straw-like mouth called a "proboscis". TRUE or FALSE

Answers: 1. True, 2. False, 3. True, 4. True, 5. True, 6. True, 7. True, 8. True, 9. False, 10. True

# Mosquito Look-alikes

Can you identify the non-mosquitoes? Mosquitoes are known for having long straw-like mouths, these mouths are called a "proboscis". With this information, circle which insects below are NOT mosquitoes



# Mosquito Scrambler



Can you unscramble these mosquito-related words?

1. TOOIMUSQ

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2. ALAREV

---

3. UEAPP

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4. GGES

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5. WTRAE

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6. EBIT

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7. BGU YRPAS

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8. OSBIORSPC

---

9. AENANTEN

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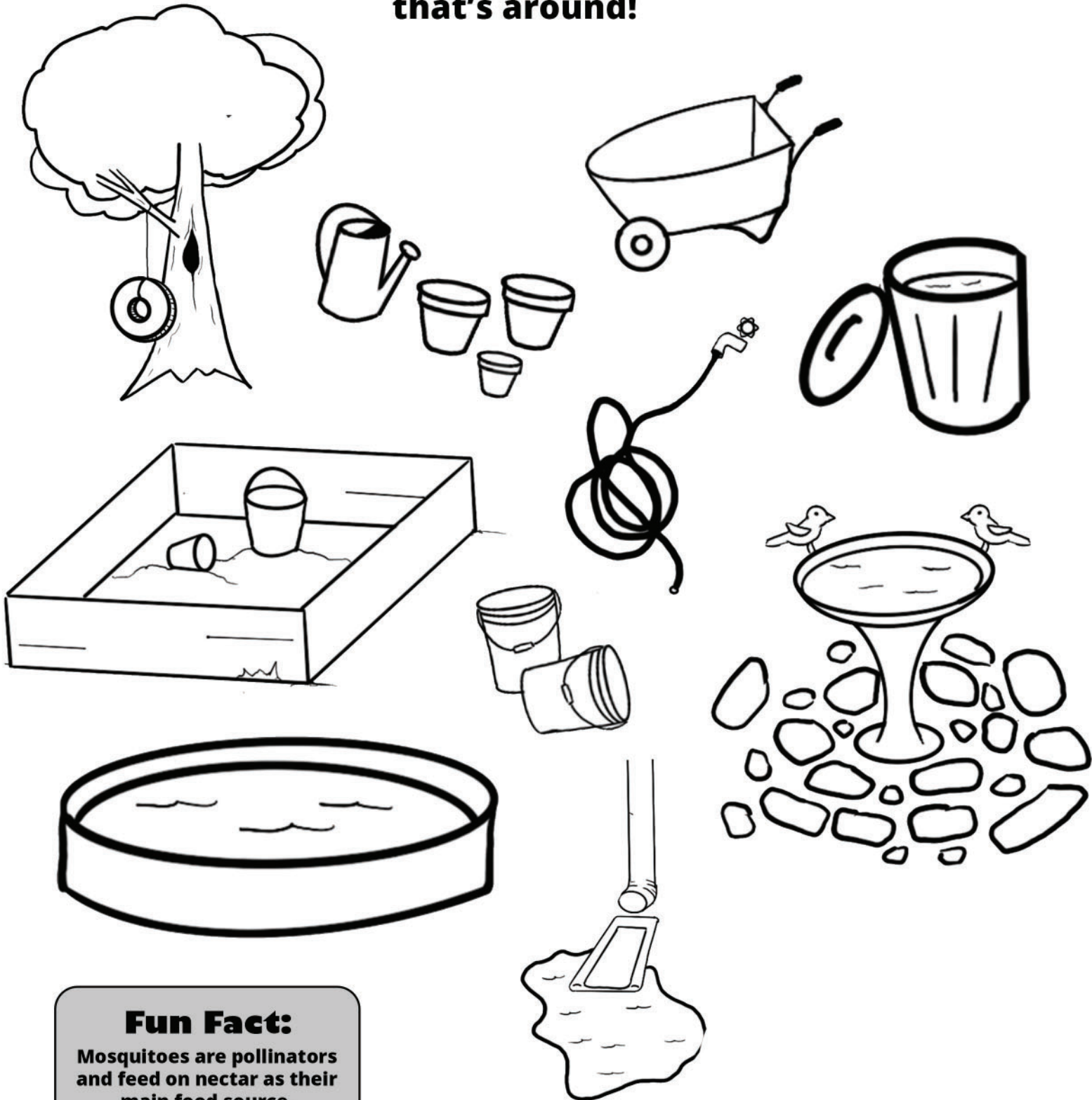
10. NMEBADO

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Answers: 1. Mosquito, 2. Larvae, 3. Pupa, 4. Eggs, 5. Water, 6. Bite, 7. Bug Spray, 8. Proboscis, 9. Antennae, 10. abdomen

# Tip N' Toss!

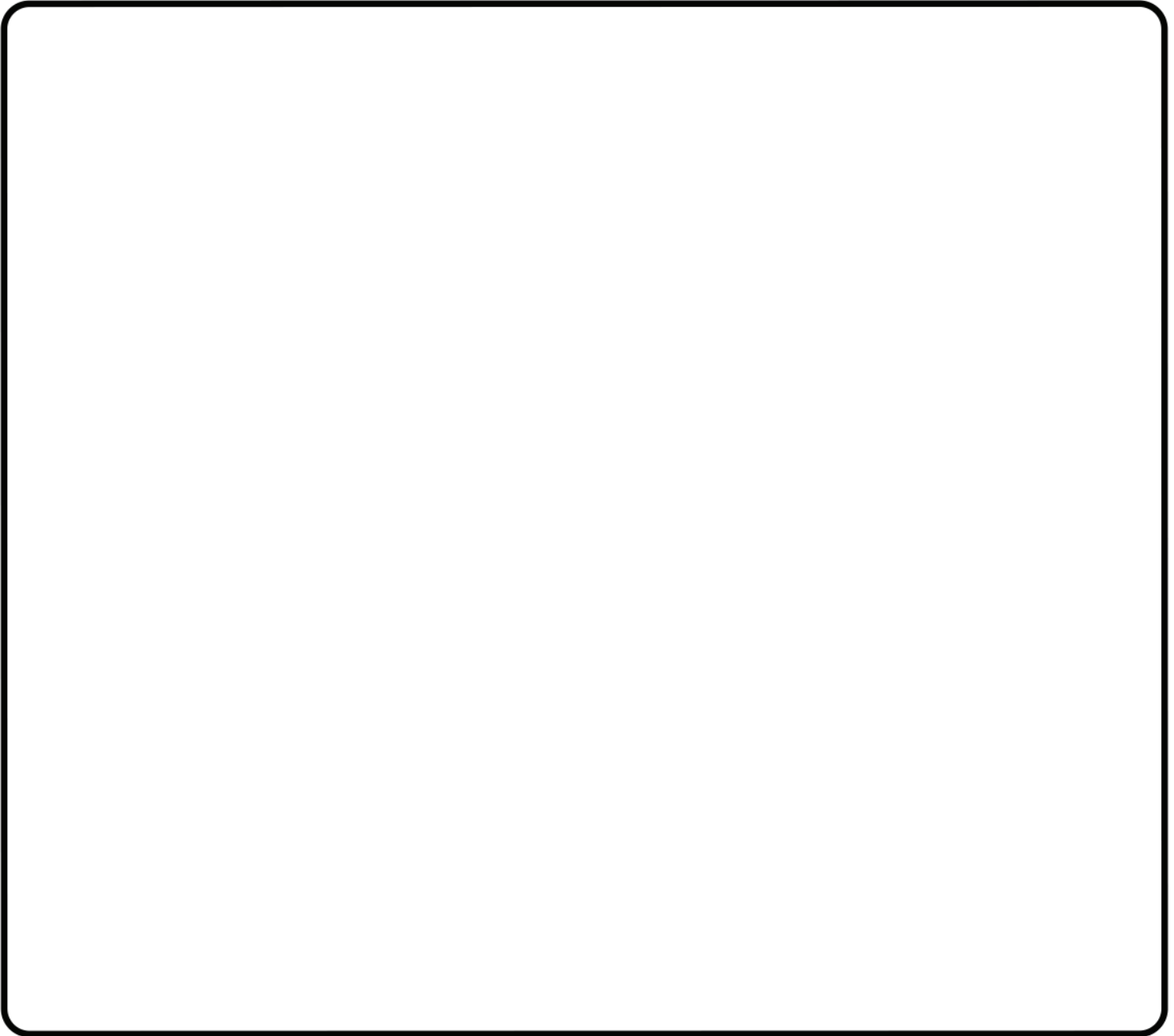
In order for mosquitoes to be able to breed, it only takes about one bottle cap full of water! To help keep your yard free of mosquitoes, make sure to Tip N' Toss any water that's around!



## Fun Fact:

Mosquitoes are pollinators and feed on nectar as their main food source.

**Draw a picture of your backyard or favorite park. Write in the box below what areas could possibly breed mosquitoes.**



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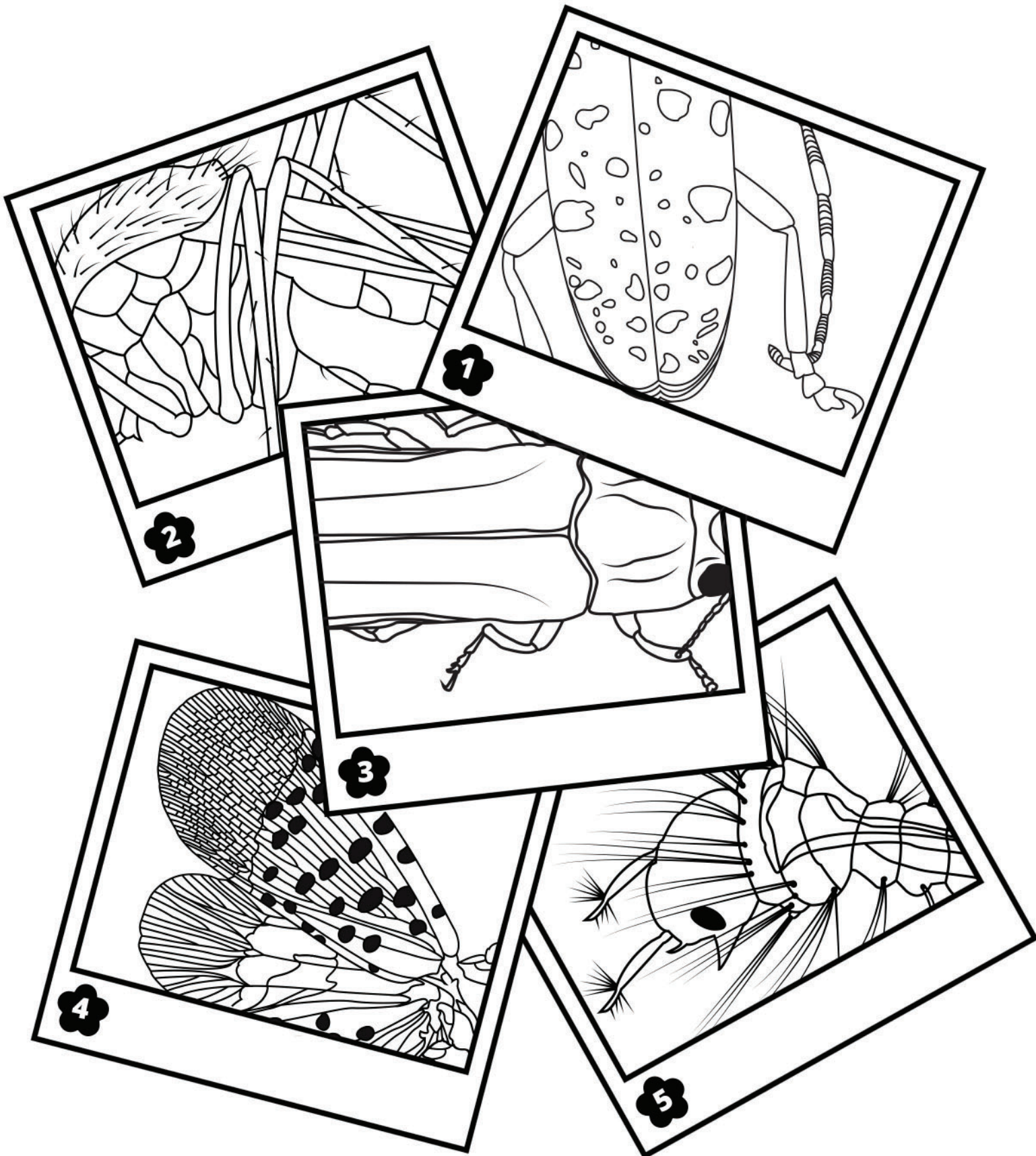
# What's an invasive species?

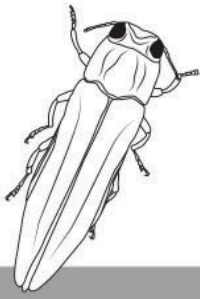
**Which of these statements are true and which are false? Circle the answers below.**

- 1. Invasive species are plants or animals that don't naturally live here. TRUE or FALSE**
- 2. Invasive species are harmful to the environment . TRUE or FALSE**
- 3. Invasive species help nature stay balanced. TRUE OR FALSE**
- 4. People sometimes bring invasive species here by accident. TRUE or FALSE**
- 5. Spotted lanternflies are an invasive species. TRUE OR FALSE**
- 6. Invasive species don't have any natural enemies in the place they're brought to. TRUE or FALSE**
- 7. Invasive species cost the United States \$26 Billion a year. TRUE or FALSE**
- 8. Moving firewood can spread invasive species. TRUE or FALSE**
- 9. Walking off-trail DOES NOT spread invasive species. TRUE or FALSE**
- 10. Invasive species prevent native species from thriving . TRUE or FALSE**

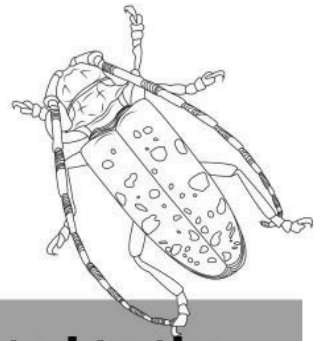
Answers: 1. True, 2. True, 3. True, 4. True, 5. True, 6. True, 7. True, 8. True, 9. False, 10. True

# Can you name the insect in each picture based off of its close-up?





# Borer Beetle Unscramble



Can you unscramble these words that are related to the emerald ash borer and Asian long-horned beetles?

1. SAH ETRE

\_\_\_\_\_

2. ELAMP

\_\_\_\_\_

3. LONHRONG

\_\_\_\_\_

4. OBRER

\_\_\_\_\_

5. RMLAEDE

\_\_\_\_\_

6. TLEEEB

\_\_\_\_\_

7. TEXI LOHE

\_\_\_\_\_

8. IHCNLNNAEG

\_\_\_\_\_

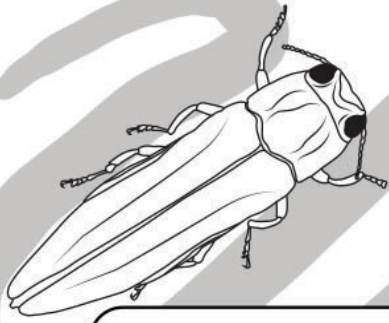
9. WDOO

\_\_\_\_\_

10. RFSAS

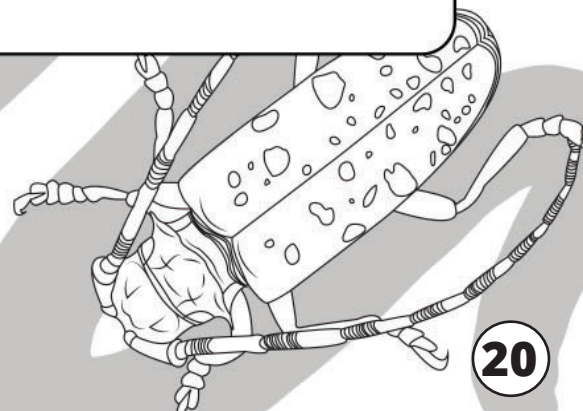
\_\_\_\_\_

Answers: 1. Ash Tree, 2. Maple, 3. Longhorn, 4. Borer, 5. Emerald, 6. Beetle, 7. Exit hole, 8. Channelling, 9. Wood, 10. Frass

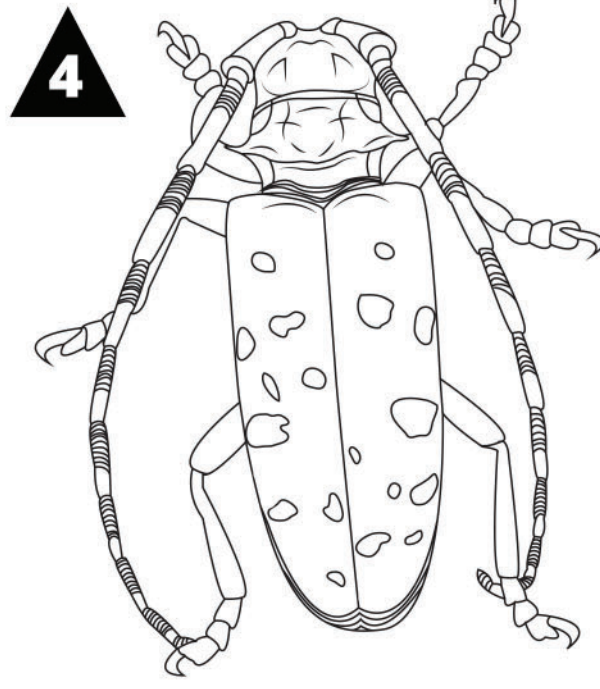
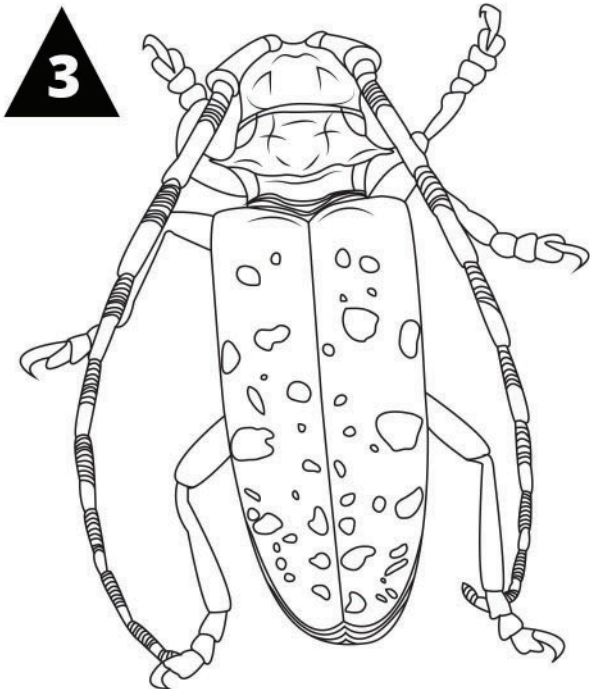
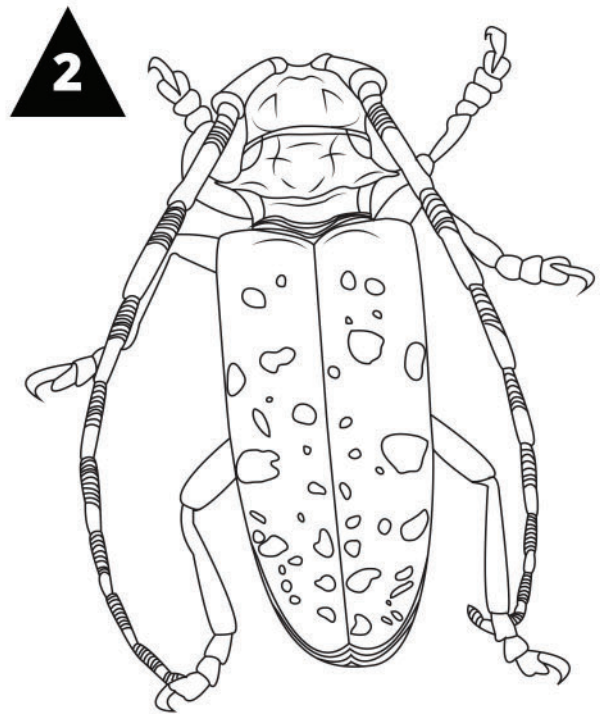
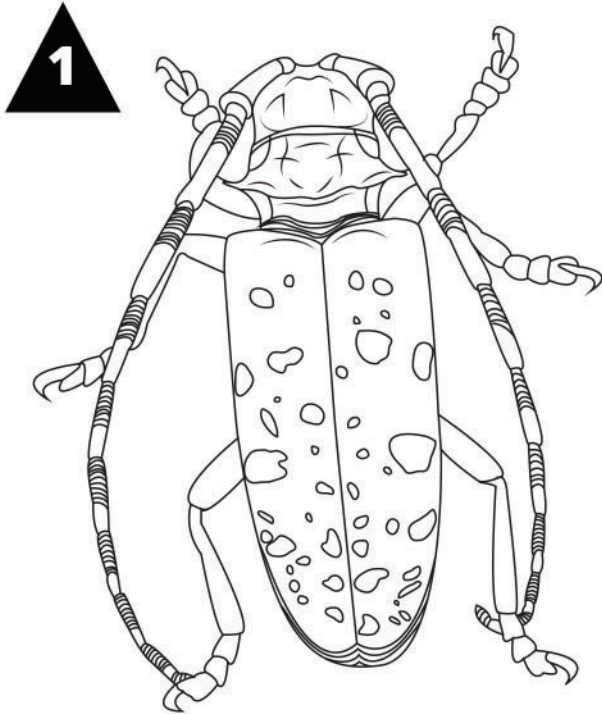


## **What's a Borer?**

**Borers are insects that chew through wood as they feed, leaving a winding maze of tunnels throughout the tree. Too many of these tunnels can hurt or kill a tree, and there are some invasive borer species that are more destructive than others. Examples include the emerald ash borer, which harms ash trees, and the Asian long-horned beetle, which mainly affects maple trees.**

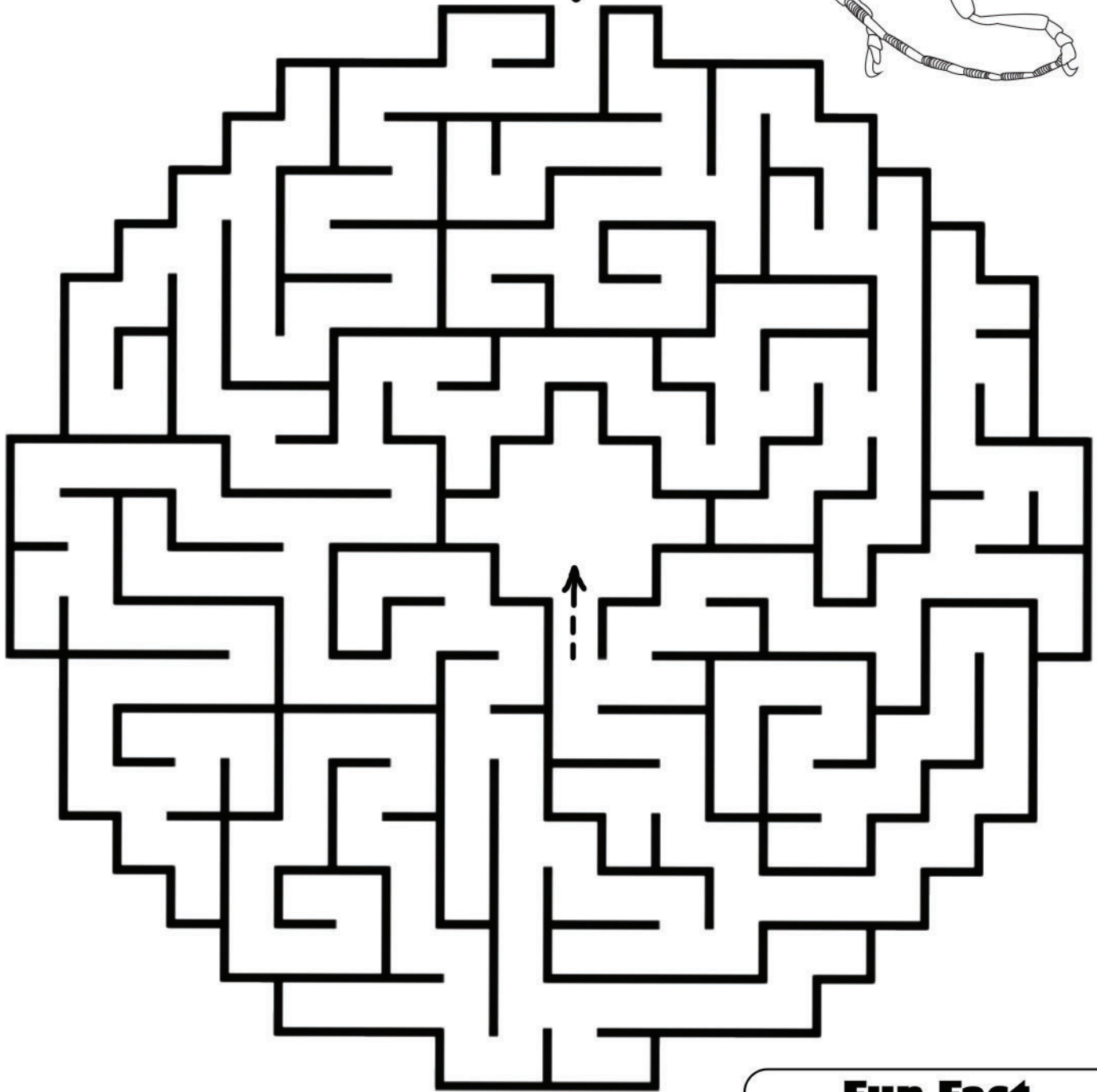
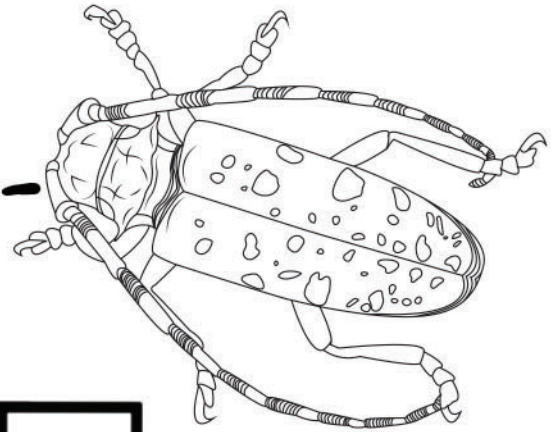


# Which Asian long-horned beetle is different from the rest?



**Your  
Answer:**

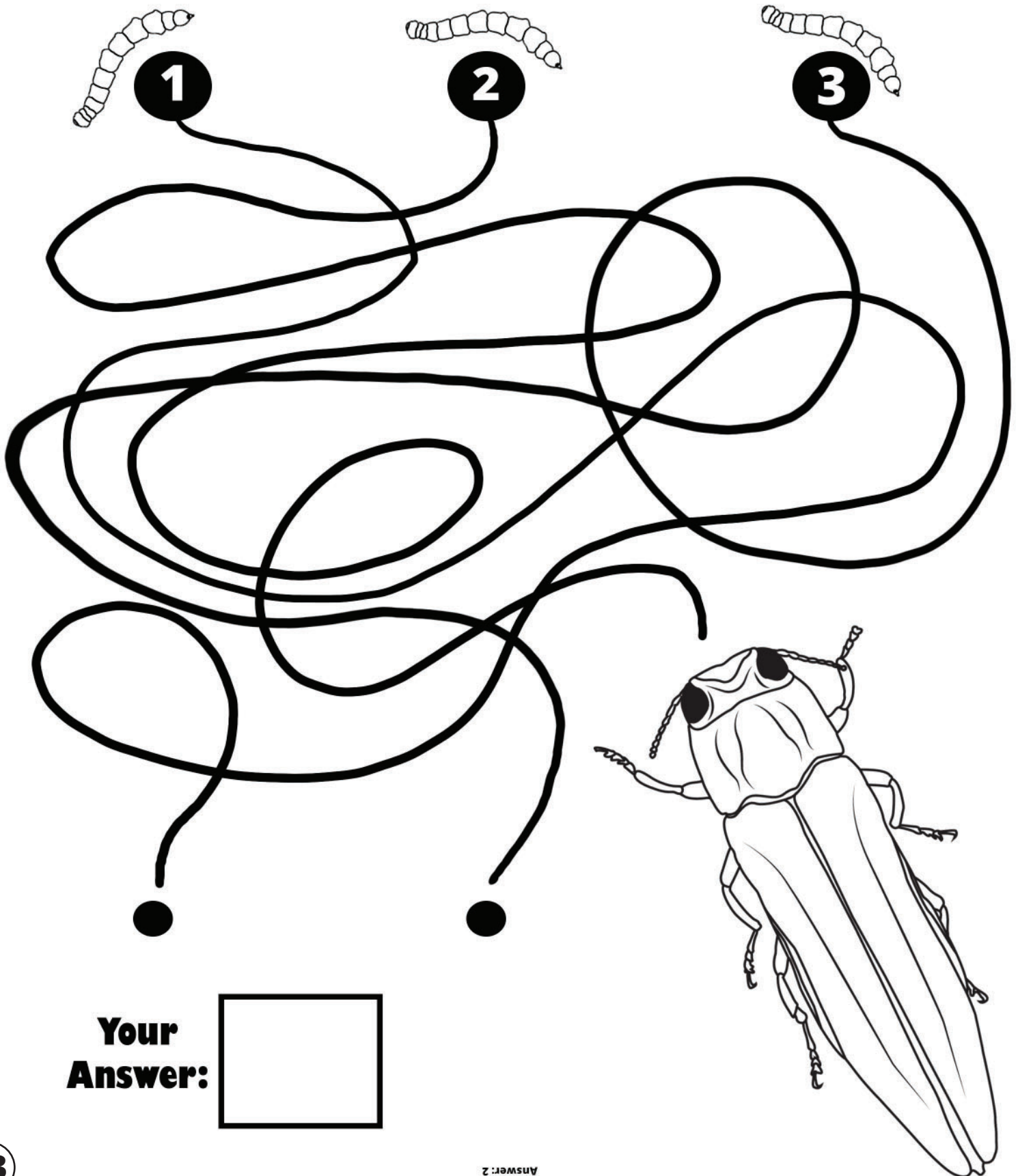
**Can you help the  
Asian long-horned  
beetle find its way  
to the center?**



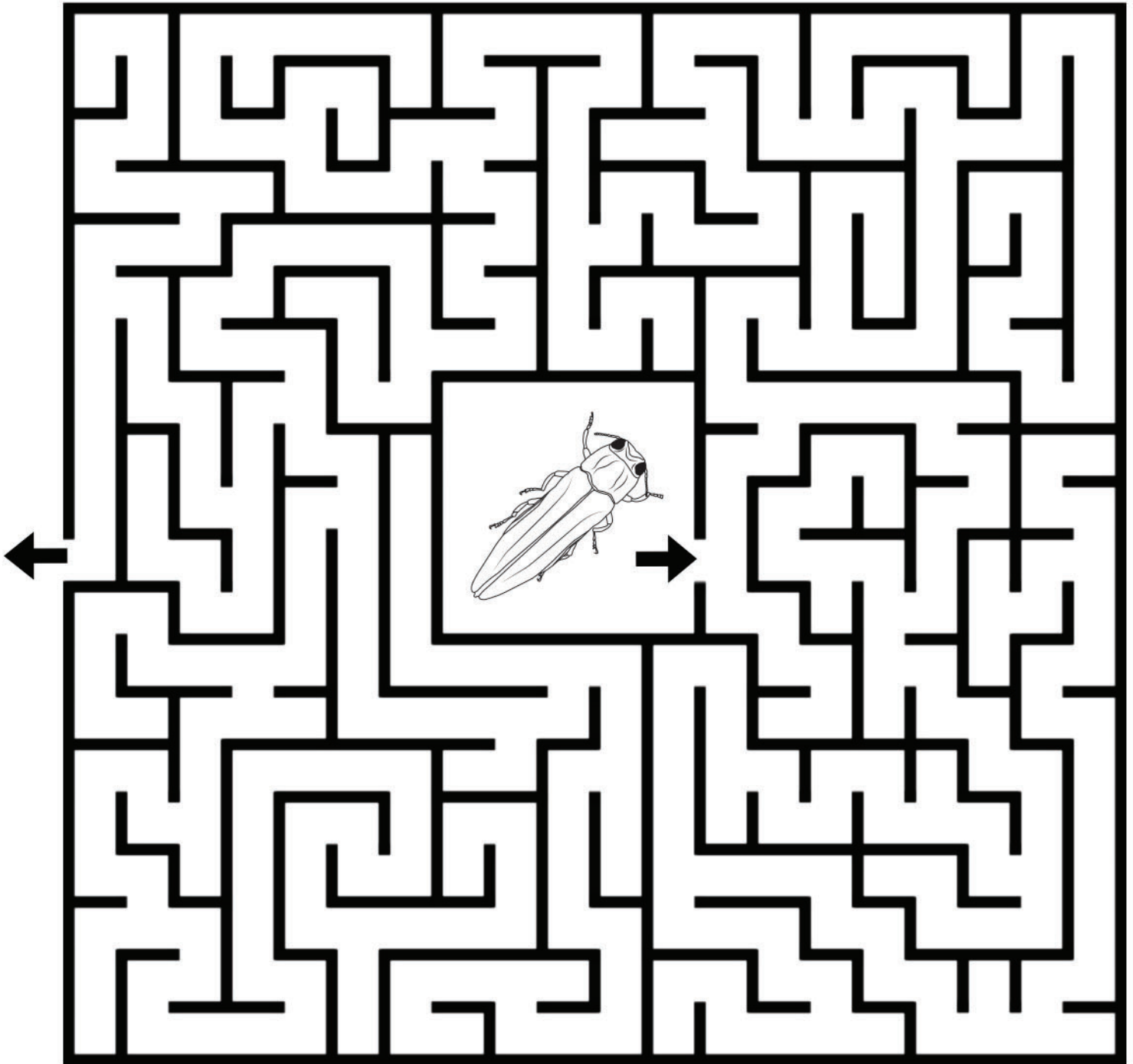
**Fun Fact**

**The hole Asian long-horned beetles leave behind when they exit a tree are about the width of a pencil.**

# Which line leads to the adult emerald ash borer?

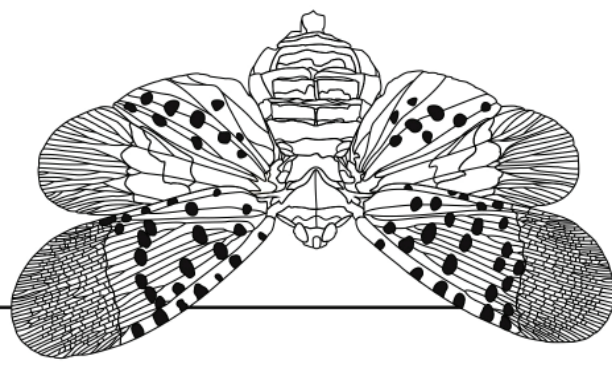


# Can you help the emerald ash borer escape from the maze?



## **FUN FACT:**

**The emerald ash borer beetle is part of the beetle family of “buprestidae” which are known as jewel beetles**



## **What's a Spotted Lanternfly?**

**The spotted lanternfly is a kind of plant hopper insect which is invasive. This means that they are not from this area naturally and have no predators here to eat them. Without predators, there are too many spotted lanternflies. Spotted lanternflies feed on our important trees and crops. The spotted lanternfly uses a sharp, straw-like mouth called a proboscis to suck the sweet juices from a plant. Their host tree is called the "Tree of Heaven", which is also an invasive species.**

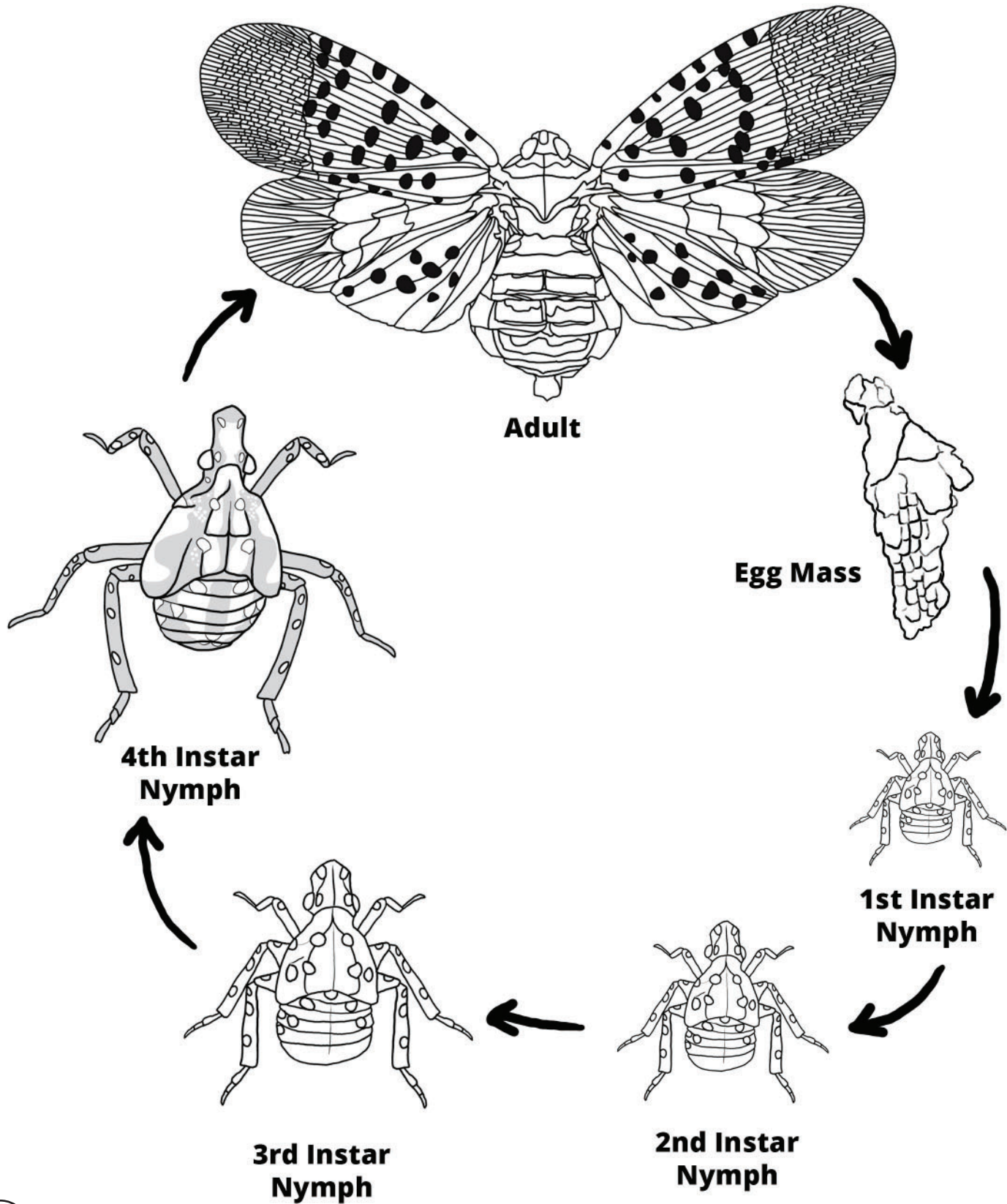




**How many Spotted Lanternflies do you see? \_\_\_\_\_**

Answer: 14

# Spotted Lanternfly Life Cycle



# Spotted Lanternfly Unscrambler



Can you unscramble these Spotted  
Lanternfly-related words?

1. RLENYANFTL

---

2. LTPNA HPREPO

---

3. YNPMH

---

4. GEG SASM

---

5. FYL STWATRE

---

6. OTEDTPS

---

7. ETRE FO HNAVEE

---

8. ESPAGR

---

9. NSTIRA

---

10. EOHNWEYD

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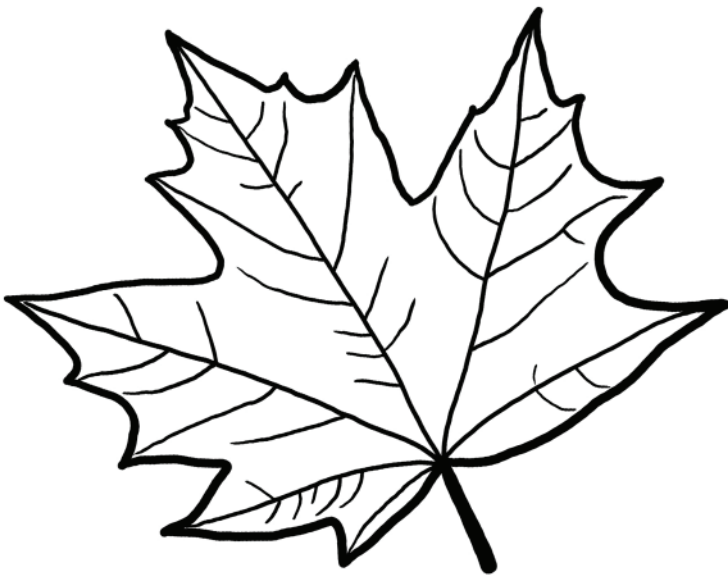
Answers: 1. Lanternfly, 2. Plant Hopper, 3. Nymph, 4. Egg Mass, 5. Fly Swatter, 6. Spotted, 7. Tree of Heaven, 8. Grapes, 9. Instar, 10. Honeydew



# **What's a Tree?**

**A tree is a woody plant that's made up of a main stem, called a trunk, branches that grow from the trunk, leaves that grow from the branches, and roots that keep the tree upright and provide it with nutrients. Trees grow bigger and taller than most plants and help provide us with the fresh air that we breathe.**

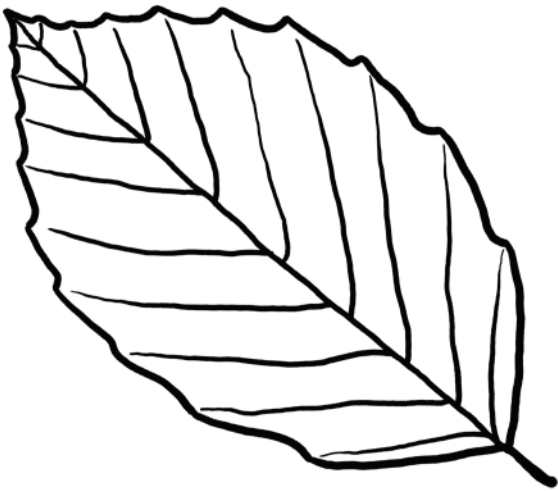




**Maple**



**Oak**



**Beech**



**Walnut**

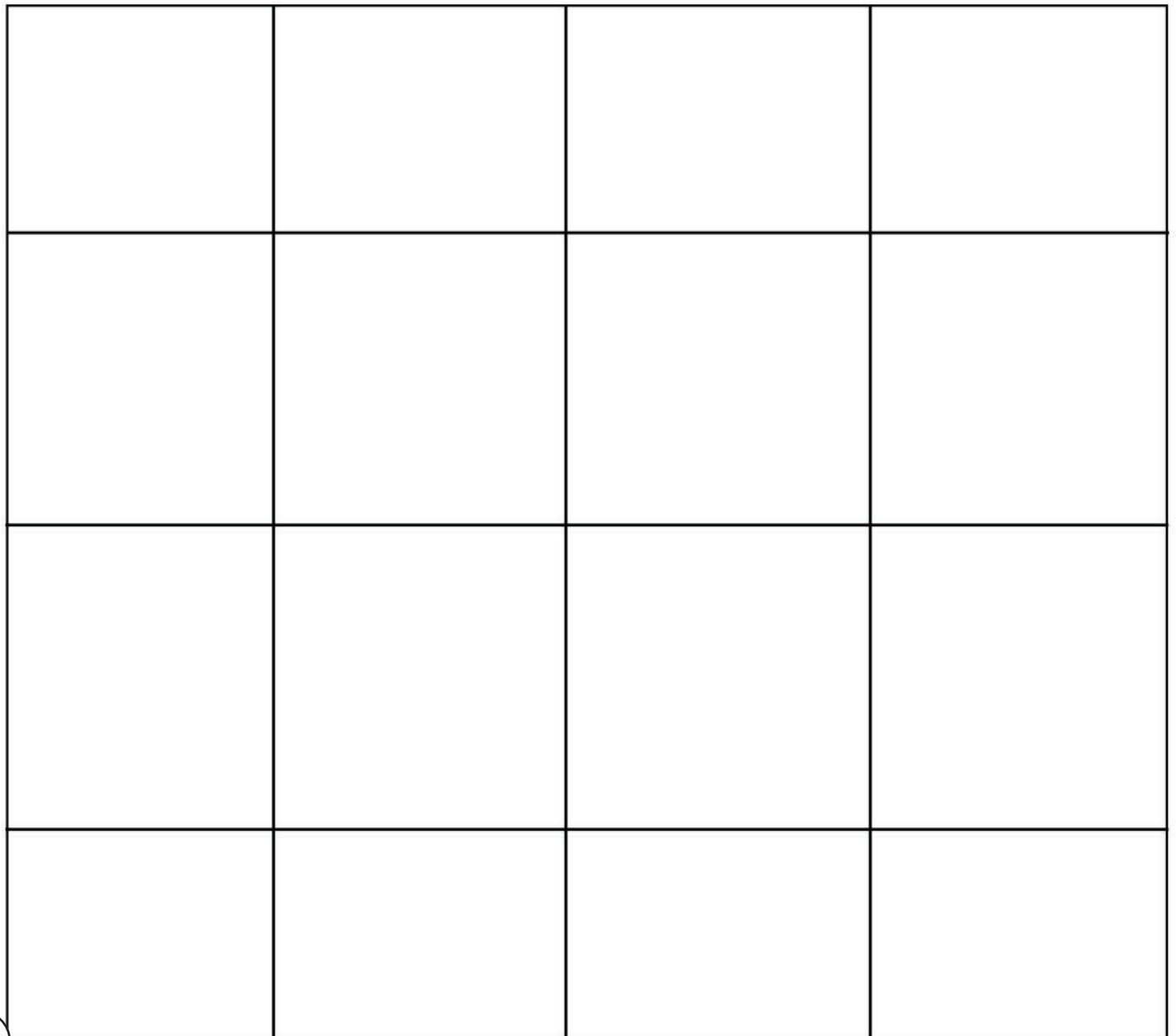
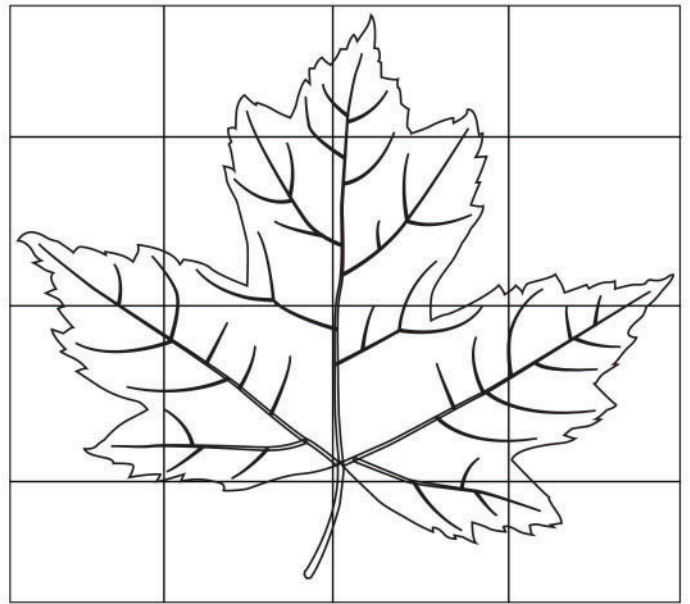


**Tulip Tree**



**Sweetgum**

**Use the  
grid to  
draw the  
Red Maple  
leaf.**



# Tree Word Search

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

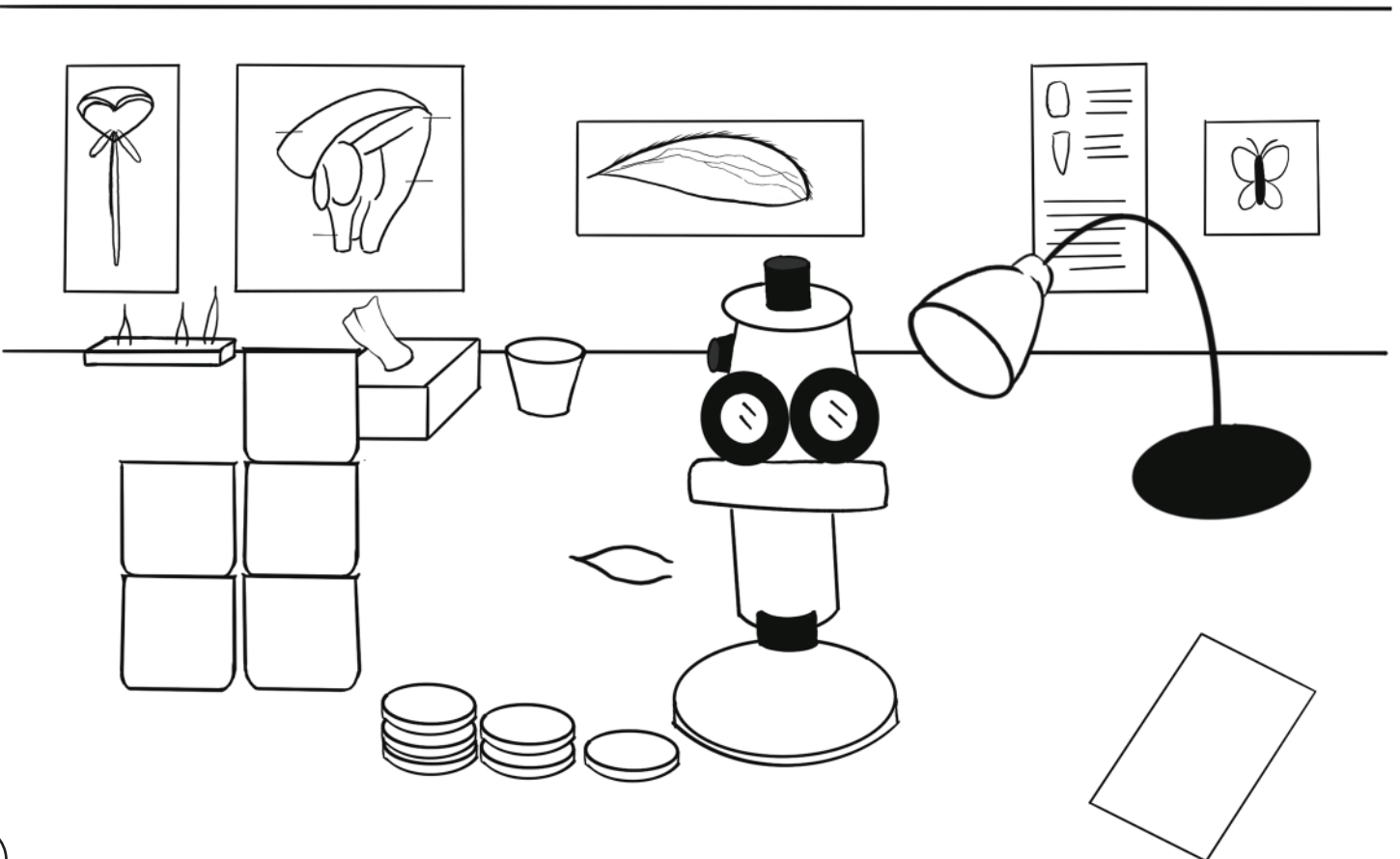
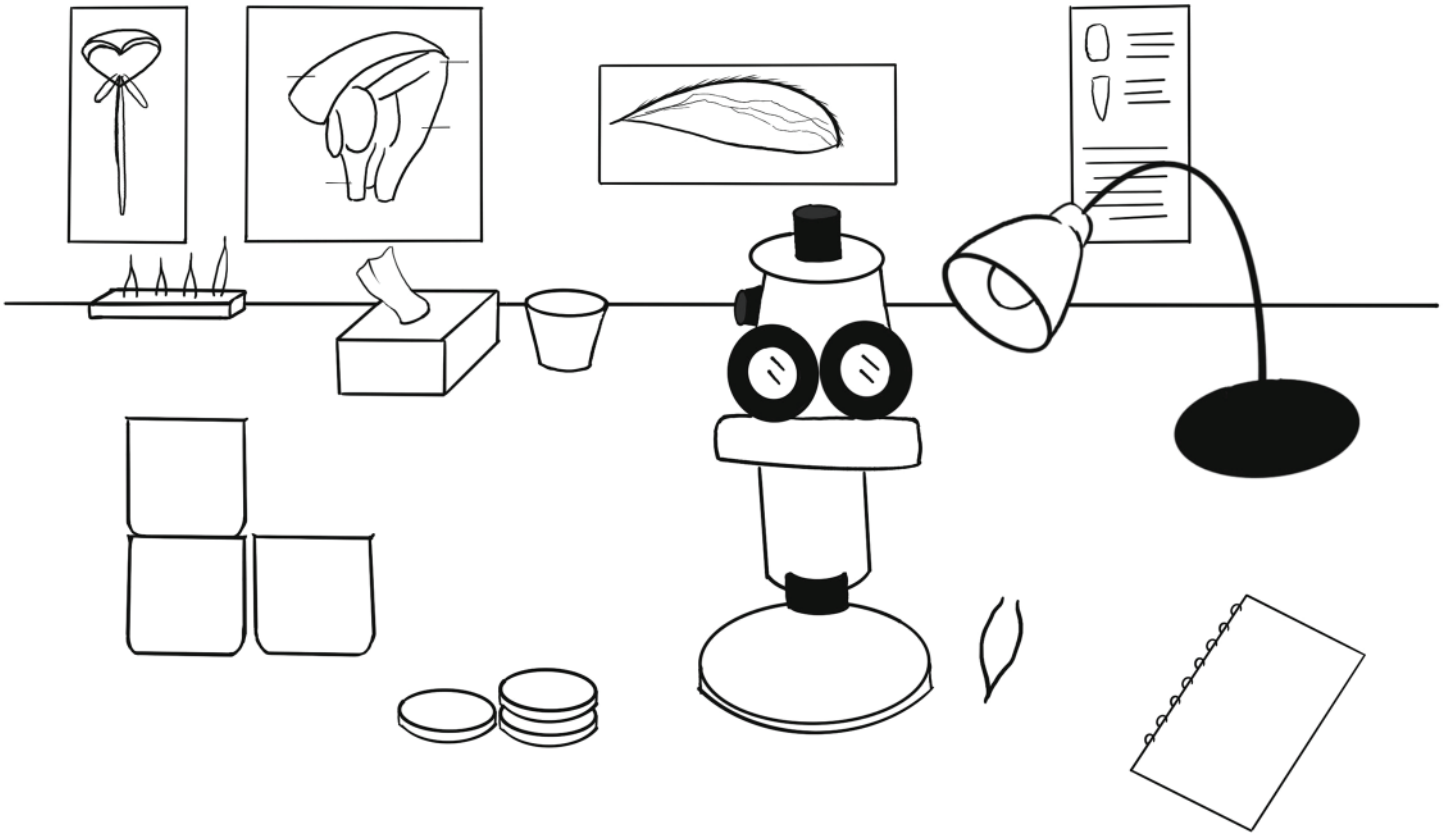
**ASH**  
**ELM**  
**OAK**  
**MAPLE**

**CHESTNUT**  
**TREE OF HEAVEN**  
**BLACK LOCUST**  
**BEECH**

**BLACKGUM**  
**TULIP**  
**HOLLY**  
**POPLAR**

**BIRCH**  
**WILLOW**  
**WALNUT**

# Can you spot the 7 differences between the laboratories?



**YOU DID IT!**

**Little  
Naturalist**

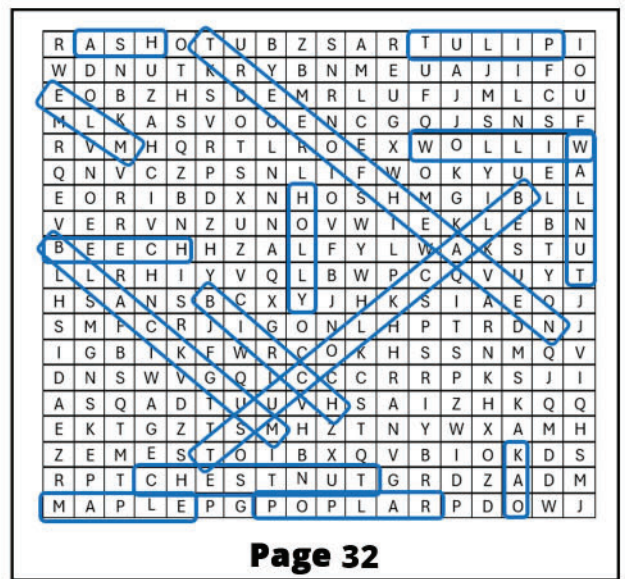
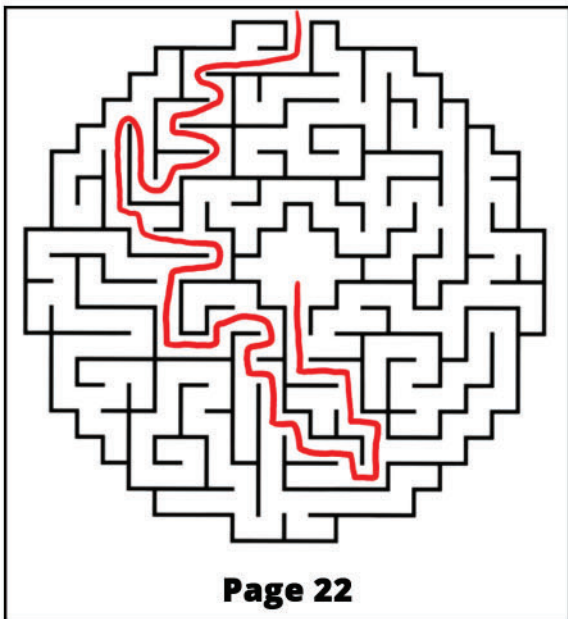
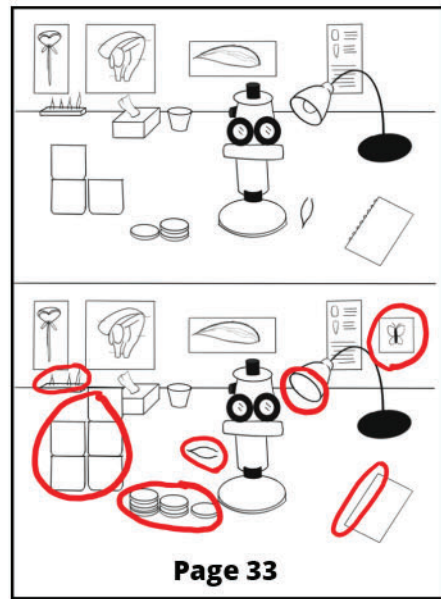
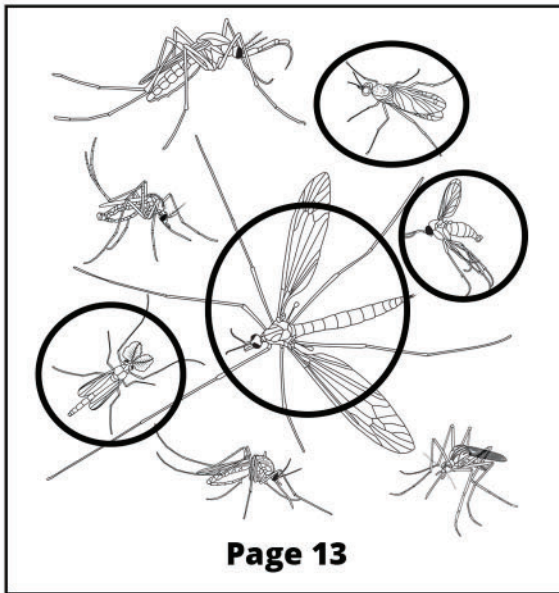
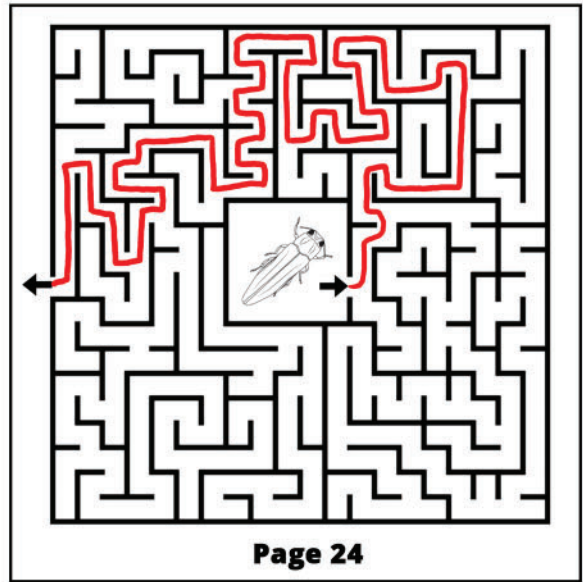
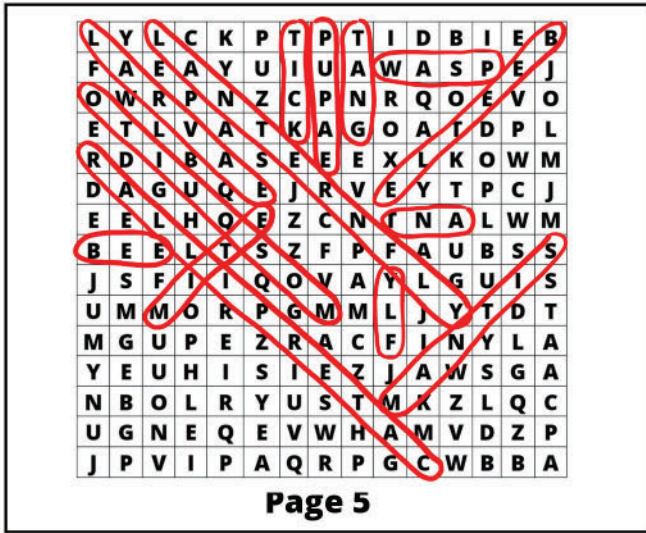
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# Glossary

- **Abdomen** – The rearmost segment of an insect's body. It contains the heart and other organs.
- **Antennae** – Paired sensory organs on the head of insects.
- **Arachnid** – Identified by bodies that are divided into two sections, the cephalothorax and the abdomen. The class Arachnida includes spiders, mites, ticks, scorpions, pseudoscorpions, and harvestmen.
- **Asian Long-horned Beetle (ALB)** – This large, black beetle with long antennae is an invasive species from East Asia. It spends most of its life cycle in maples, willows, and ash trees. Its larvae feed on the inner wood, creating tunnels and galleries that result in a loss of structure and death.
- **Borer** – Insects that feed on wood. Often, it's the larvae of adult beetles that hatch and feed on the wood.
- **Cephalothorax** – A fused head and thorax, seen in Arachnids
- **Chelicerae** – Used for feeding, these jointed appendages are found on some arachnids.
- **Egg Mass** – A protective structure around insect eggs.
- **Emerald Ash Borer (EAB)** – This shiny, green, invasive beetle has killed most of the ash trees in PWC. The larvae feeds inside the tree, damaging its ability to move vital nutrients. EAB can also fly long distances or be transported inside of firewood.
- **Engorged** – After excessive feeding, an animal becomes swollen. This happens to ticks after they have taken a full blood meal.
- **Honeydew** – A sugary solution excreted by insects.
- **Host** – A plant or animal where a parasite lives.
- **Insect** – Identified by their three body parts (head, thorax, abdomen), three pairs of legs, and two pairs of wings (if present). Most common life form on the planet.
- **Instar** – A stage of insect development between molts.
- **Invasive Species** – An insect that is not native to the ecosystem it is in. Invasive insects can also cause harm to the environment, the health of humans, and/or the economy.
- **Larva** – The juvenile form of an insect. Larvae look different from adults and have different body parts.
- **Mosquito** – A flying insect that uses its proboscis to take blood meals.
- **Nymph** – A type of juvenile form of an insect that resembles an adult insect, but smaller and without wings.
- **Organism** – An individual plant or animal.
- **Parasite** – An organism that takes from another, its host. The action of the parasite hurts the host.
- **Pedipalp** – Segmented appendages attached to the cephalothorax of arachnids. These vary in use and structure. In scorpions, they are the pincers that hold their prey. In spiders they can function as sensory organs, hold food, and be used for reproduction purposes in male spiders.
- **Plant Hopper** – A type of insect known for their ability to hop that feed on plant juices and produce honeydew.
- **Proboscis** – A long tube-like mouth part that is used like a straw.
- **Pupae** – The third stage in an insect's life cycle (egg, larvae, pupae, adult). The larval body is broken down and reformed into its adult body.
- **Questing** – A behavior displayed by ticks that increases their chances of finding a host. The tick climbs onto a structure like grass and waits with its front legs outstretched. When a potential host brushes past, the tick can attach itself. This behavior can be triggered by heat, movement, or the carbon dioxide we exhale.
- **Spotted Lanternfly** – An invasive species of plant hopper that causes harm to our trees and crops.
- **Thorax** – One of the three main body parts of insects. In between the head and the abdomen, the legs and wings are attached here.
- **Tick** – A group of parasitic arachnids. Ticks feed on the blood of their host. They will take meals from many different hosts in their lifetime, making them a major vector of disease.
- **Tree** – A woody plant that's made up of a main stem, called a trunk, branches that grow from the trunk, leaves that grow from the branches, and roots that keep the tree upright and provide it with nutrients. Trees grow bigger and taller than most plants and help provide us with the fresh air we breathe.
- **Tree of Heaven** – An invasive species of tree that is the host tree of spotted lanternflies. Some say it smells like burnt peanut butter.
- **Vector** – An organism that transmits a disease or parasite from one host to another.
- **Wing** – A body part that allows some insects to fly.

# Answer Key

\*Some answers can be found upside down on the bottom of the page that they are on\*





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Mosquito & Forest Pest Management**  
Construction & Operations Division  
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