

Pennsylvania Tick Detectives Workbook



pennsylvania
DEPARTMENT OF HEALTH



What Are Ticks?

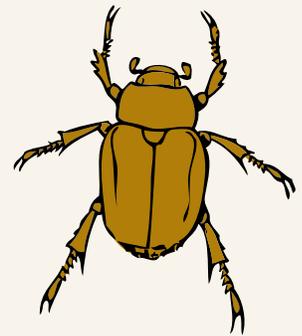
Ticks are a member of a large family of animals called **arthropods**. Like spiders, they are **arachnids**, not insects. They have eight legs instead of the six that insects have.



Arachnid (Tick)



Arachnid (Spider)



Insect (Beetle)

Ticks are blood sucking **parasites**. Blood is their food. They attach themselves to **hosts** to eat blood. They will attach to almost any kind of mammals, reptiles, and birds.

Because humans are mammals, ticks sometimes attach to humans to suck blood. If a tick attaches to a human or animal that is carrying certain types of diseases, the tick can pass it on to the next person or animal they bite.



Ticks of Pennsylvania

There are many different types (**species**) of ticks.

In Pennsylvania, the most common tick is called *Ixodes scapularis*, also called a **deer tick** or **blacklegged tick**.



Deer/Blacklegged tick



American dog tick



Asian longhorned tick



Gulf Coast tick



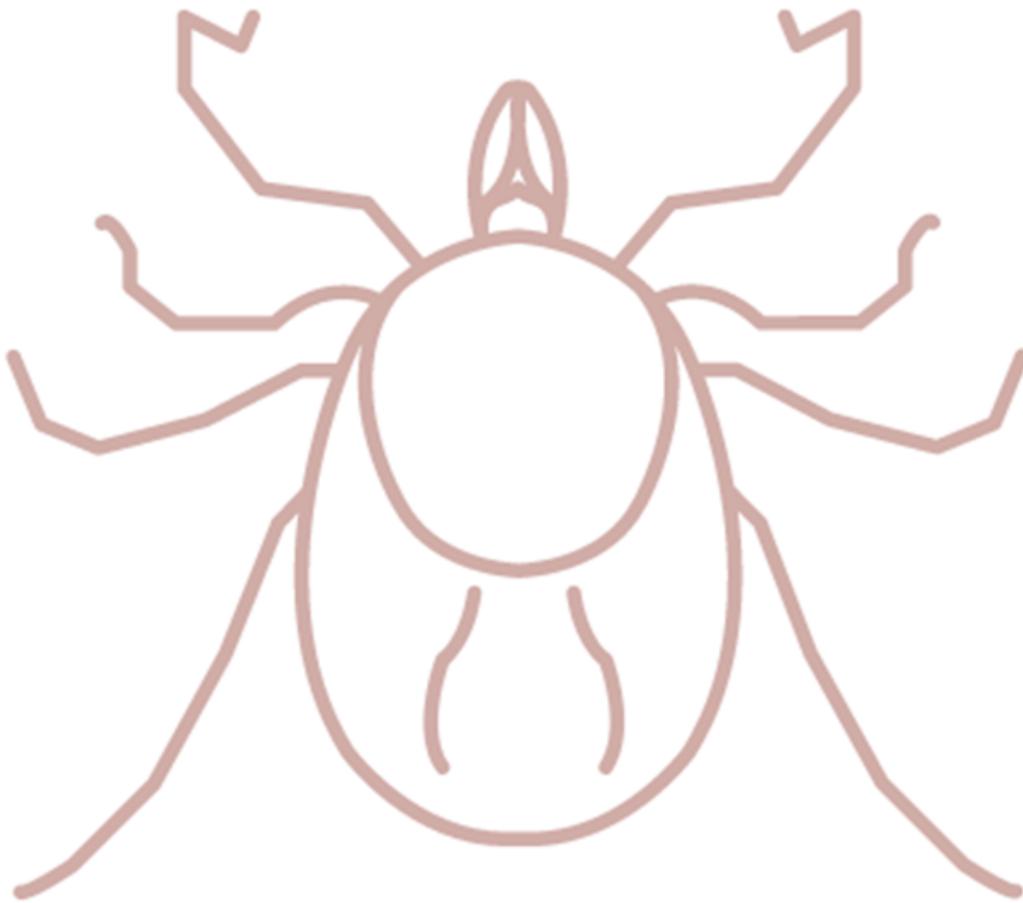
Lone star tick

How do they look the same? How do they look different?



Color the Tick!

Color in the adult female deer tick.



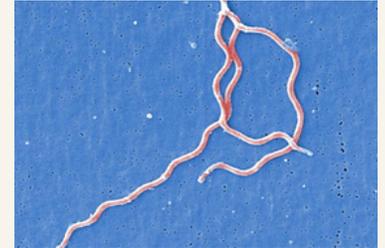
Why Do We Care About Ticks?

Ticks carry **bacteria** and **viruses** that can make people and animals sick if they are bitten by a tick. In Pennsylvania, ticks can spread multiple diseases.

Deer/
Blacklegged
tick



Borrelia burgdorferi is a corkscrew-shaped bacteria that causes Lyme disease.



The most common disease is **Lyme disease**. Lyme disease is spread by deer ticks that attach for more than 24 hours. Lyme disease can make you feel like you have the flu. It can also cause an oval or bull's eye rash called **erythema migrans** (EM, for short).



EM can be red or pink on lighter skin, but it can look brown, black, or even white on darker skin. Lyme disease can also cause arthritis, which is pain and swelling in your joints. If Lyme disease goes on for a long time without being treated, it can cause heart problems.



Are There Other Diseases?

Yes! In Pennsylvania, ticks can spread multiple diseases.

Deer ticks can also spread diseases like **anaplasmosis**, **babesiosis**, and **Powassan virus** (also called deer tick virus).



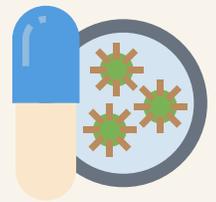
Lone star tick



American dog tick

There are other ticks in Pennsylvania that can carry other diseases. Lone star ticks can spread **ehrlichiosis** and American dog ticks can spread **Rocky Mountain spotted fever (RMSF)**.

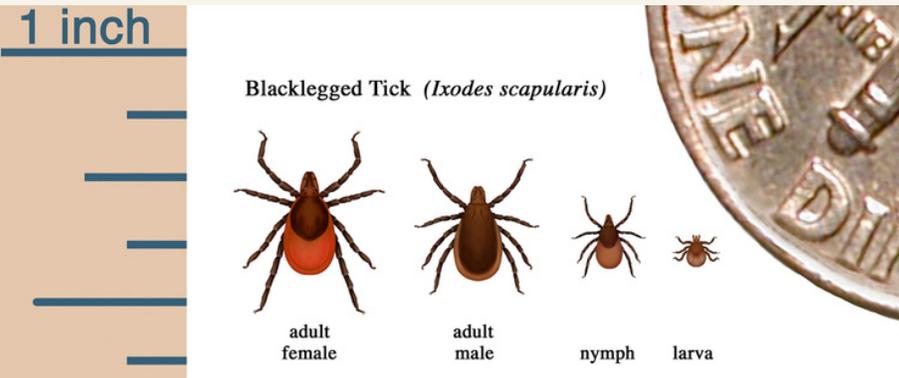
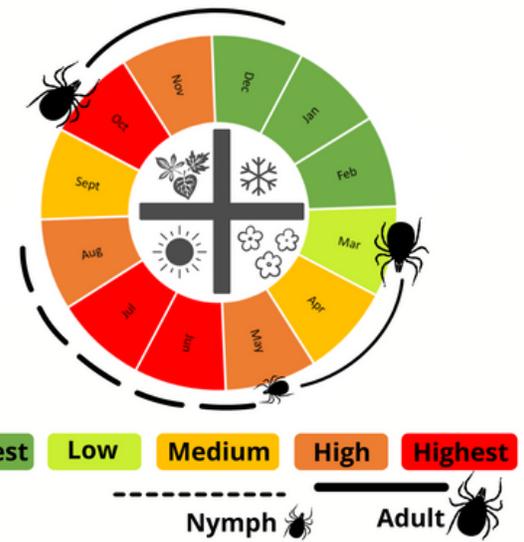
All of these diseases can make you feel like you have the flu. RMSF can cause a rash all over your body. Luckily, all of these diseases except Powassan virus can be treated with **antibiotics** or other medicines.



What Is a Tick's Life?

Ticks have four life stages: **egg**, **larva**, **nymph**, and **adult**. Once they hatch from eggs, ticks must eat one blood meal at each stage before they can **molt** and move to the next life stage.

TICK ACTIVITY AND BITE RISK



Female ticks lay about 1500 eggs in the spring. The larvae emerge in August and have only six legs, like insects. The larvae take a blood meal and molt.

The nymphs emerge in May of the following year and have eight legs. Nymphs are active and biting people and animals in the summer months of June and July.

These nymphs develop into adults and become active in October. Ticks can be out anytime during the winter when the ground is not frozen.



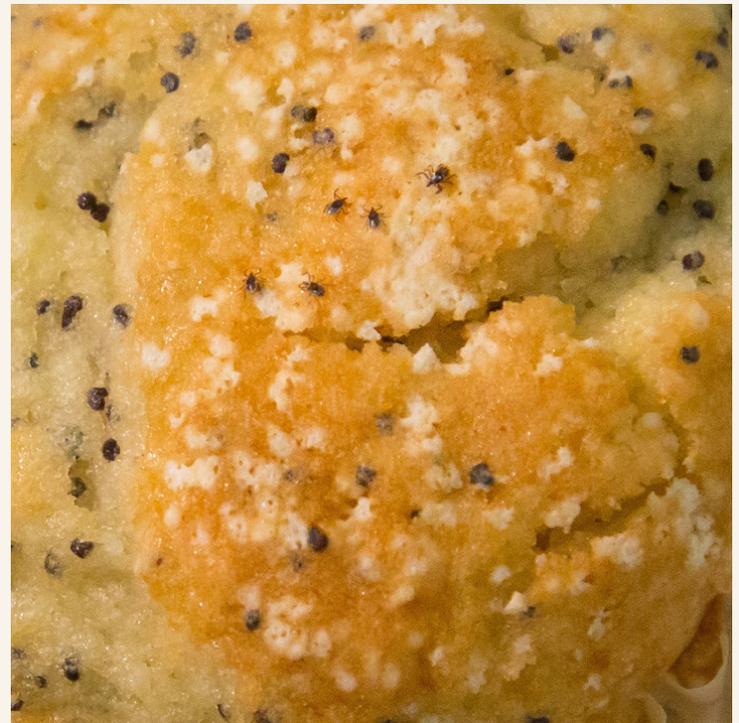
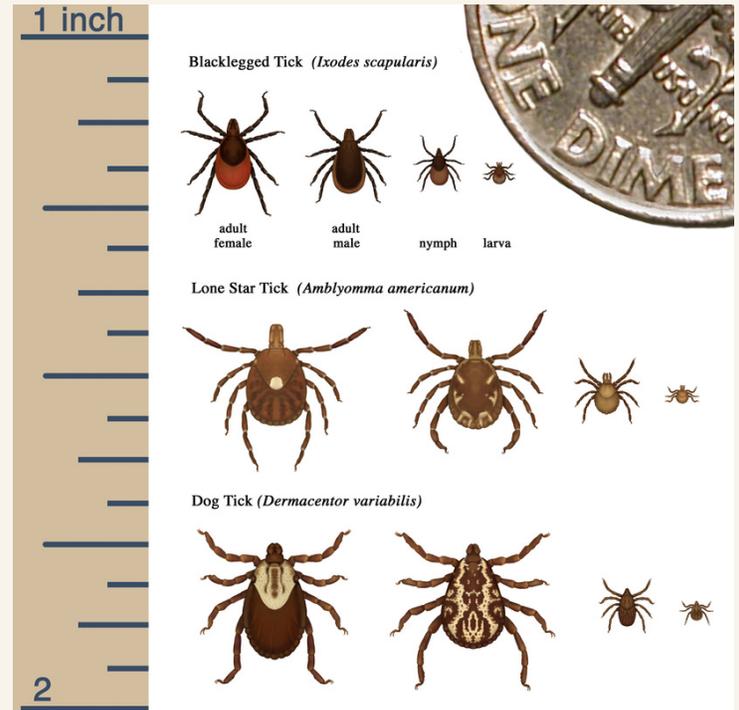
How Big Are Ticks?

Ticks are tiny!

This is why we have so many tick-borne diseases in Pennsylvania. The ticks that attach to you are so small and hard to see that people don't always notice them unless they look for them.

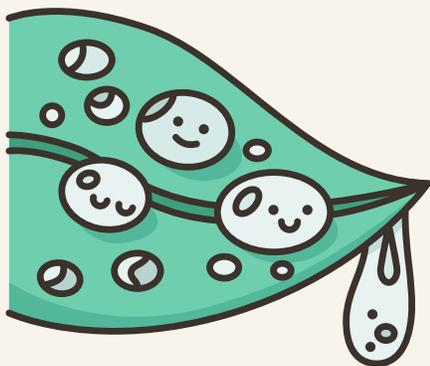
Nymphal ticks are about the size of a poppy seed and adult ticks are about the size of a sesame seed.

Can you find the five ticks in this picture of a poppy seed muffin?



Where Do Ticks Live?

Everywhere! Deer ticks can be found in every area of Pennsylvania, even in cities like Philadelphia and Pittsburgh. These cities have parks that attract wildlife like mice and chipmunks that can carry ticks.



Ticks can dry out, so they like moist and humid (warm and wet) **habitats**.

Things ticks love:

- Shade
- Leaf piles
- Tall grass
- Wood piles
- Animals for food

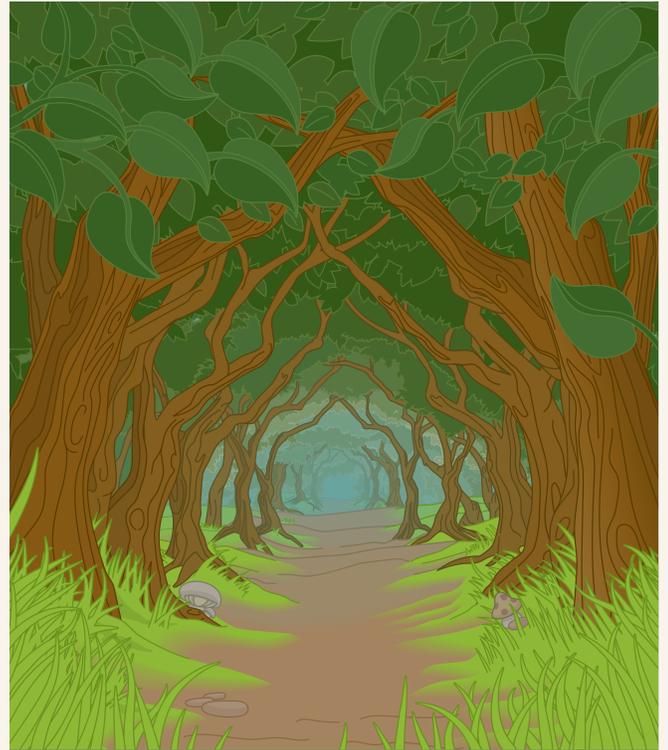
Things ticks hate:

- Direct heat
- Water
- Short grass
- Mulch
- No food



Find the Tick Habitats

Circle the places where ticks might live in the pictures below.



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How Do I Protect Myself From Ticks?



Year-round tick bite prevention is the best defense against Lyme disease



Have an adult help you put on **insect repellent** (bug spray) before you go outside. Have them find one that is registered by the EPA on this website: <https://www.epa.gov/insect-repellents/find-repellent-right-you>



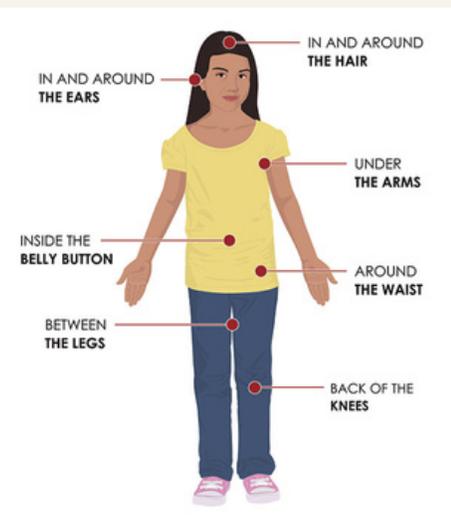
Have an adult treat your shoes and clothes with **Permethrin**, a spray that lasts through many washes and can protect you for a long time. Permethrin kills ticks when it is used to treat shoes, clothes, and gear. It should not be put on skin.



Stay in the middle of the trail in the woods and try to avoid tick risky habitats (leaf piles, brush, wood piles).



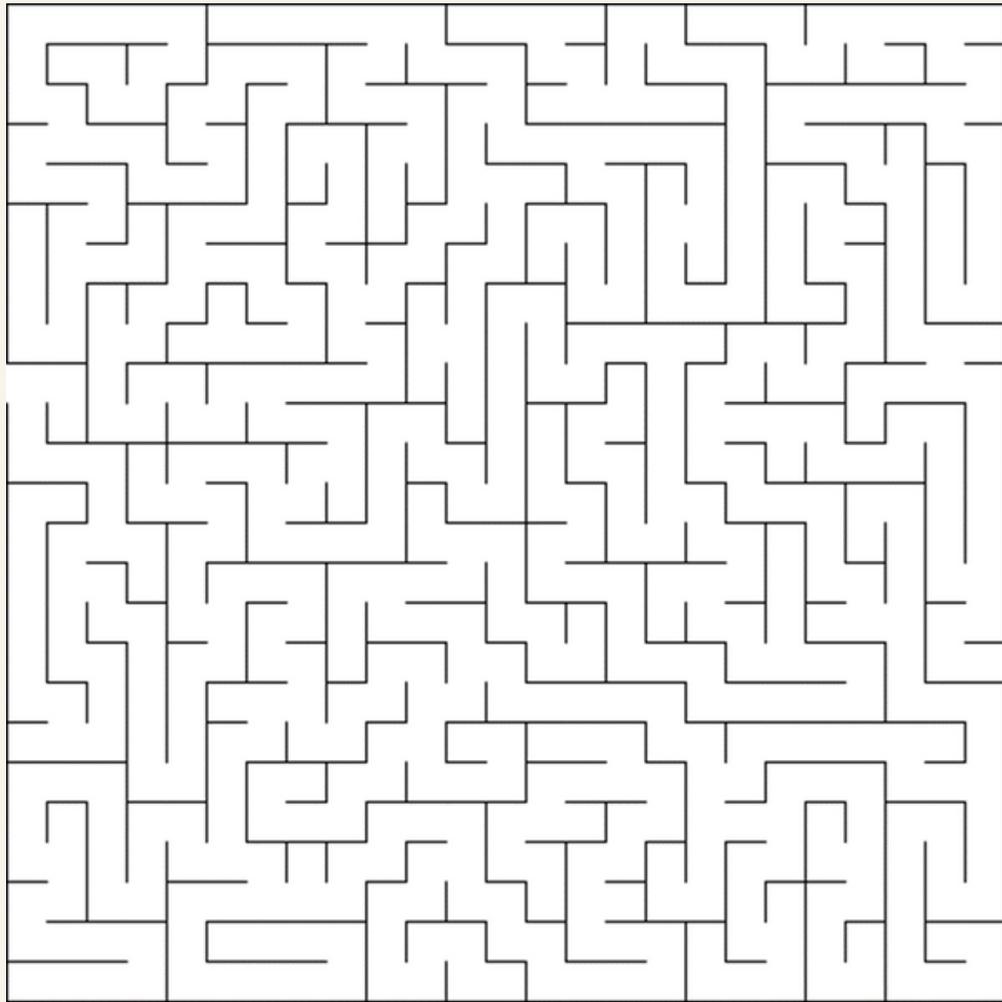
Shower and check for ticks after being outside. This can help you get ticks off of you before they have time to attach and eat. Be sure to have an adult help you check all of the spots in the picture to the right.



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Be A Protection Hero!

Can you help the kids get to their insect repellent?



What If I Find A Tick On Me?

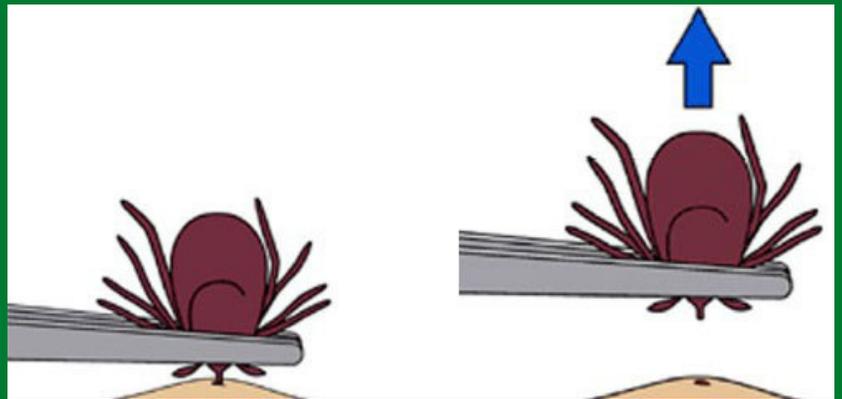
If you find a tick on your body, tell an adult right away! If the tick did not bite you, have an adult get rid of it. If the tick did bite you, have the adult take it off (**remove**).

FOR ADULTS:

The best way to remove a tick is with pointy tweezers.

Grab the tick as close to the skin as possible.

Pull straight up to avoid any twisting.



Clean your hands and the bite area with rubbing alcohol or soap.

Never crush a tick with your fingers.

The best ways to get rid of a tick are:

-  Put it in alcohol
-  Place it in a sealed bag or container
-  Wrap it tightly in tape
-  Flush it down the toilet



Can You Find The Tick Detective Words?

Words can be:

forward →

vertical ↓

diagonal ↘ ↗

Name: _____

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

ADULT
BLACKLEGGED
BULLSEYE
DEER
FISHING
HIKING
LARVAE
OUTDOORS
RASH
SHRUBS

ARACHNID
BLOOD
CAMPING
DEET
GARDEN
HOST
LEAVES
PERMETHRIN
REMOVE
TICK

ARTHROPOD
BRUSH
CHECK
FARM
GRASS
HUNTING
NYMPH
PREVENT
REPELLENT
WEEDS



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Glossary

Arthropod: animal that has no backbone and a hard outside covering called an exoskeleton.

Arachnid: an arthropod of the class Arachnida, such as a spider or scorpion.

Parasite: a living thing which lives in or on another living thing.

Host: a living plant or animal on which a parasite lives.

Species: a category of living things that ranks below a genus, is made up of related individuals able to produce fertile offspring, and is identified by a two-part scientific name.

Deer tick: a type of tick commonly found in Pennsylvania. Also known as blacklegged tick.



Glossary

Blacklegged tick: a type of tick commonly found in Pennsylvania. Also known as deer tick.

Bacteria: a tiny single-celled organism (living thing) that can sometimes make people and animals sick.

Virus: a very tiny organism that can only live and reproduce inside another living cell and can make people and animals sick.

Lyme disease: a serious disease that is caused by a bacterium transmitted by some ticks.

Erythema migrans: an oval or bull's eye shaped rash that is caused by Lyme disease.

Anaplasmosis: a disease that is caused by a bacterium transmitted by some ticks.



Glossary

Babesiosis: a disease that is caused by a parasite transmitted by some ticks.

Powassan Virus: a disease that is caused by a virus transmitted by some ticks.

Ehrlichiosis: a disease that is caused by a bacterium transmitted by some ticks.

Rocky Mountain spotted fever: a disease that is caused by a bacterium transmitted by some ticks.

Antibiotic: a medicine used to treat illnesses and infections caused by bacteria, or tiny organisms.

Egg: a single female germ cell, or reproductive cell.

Larva: an active immature form of a tick. Tick larvae have six legs.



Glossary

Nymph: an active immature form of a tick. Nymphal ticks have eight legs.

Molt: shed old feathers, hair, or skin, or an old shell, to make way for a new growth.

Habitat: the natural home or environment of an animal, plant, or other living thing.

Insect Repellent: a substance that deters insects or other pests from approaching or crawling on people or animals.

Permethrin: a chemical spray used on clothes and gear that kills ticks and mosquitoes.

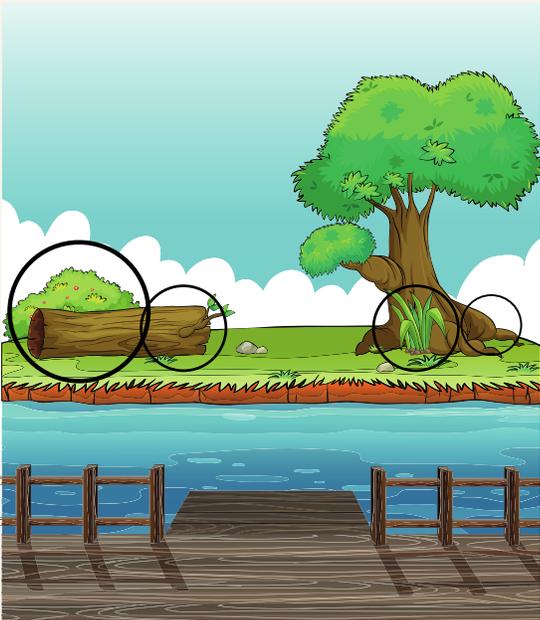


Puzzle Answers

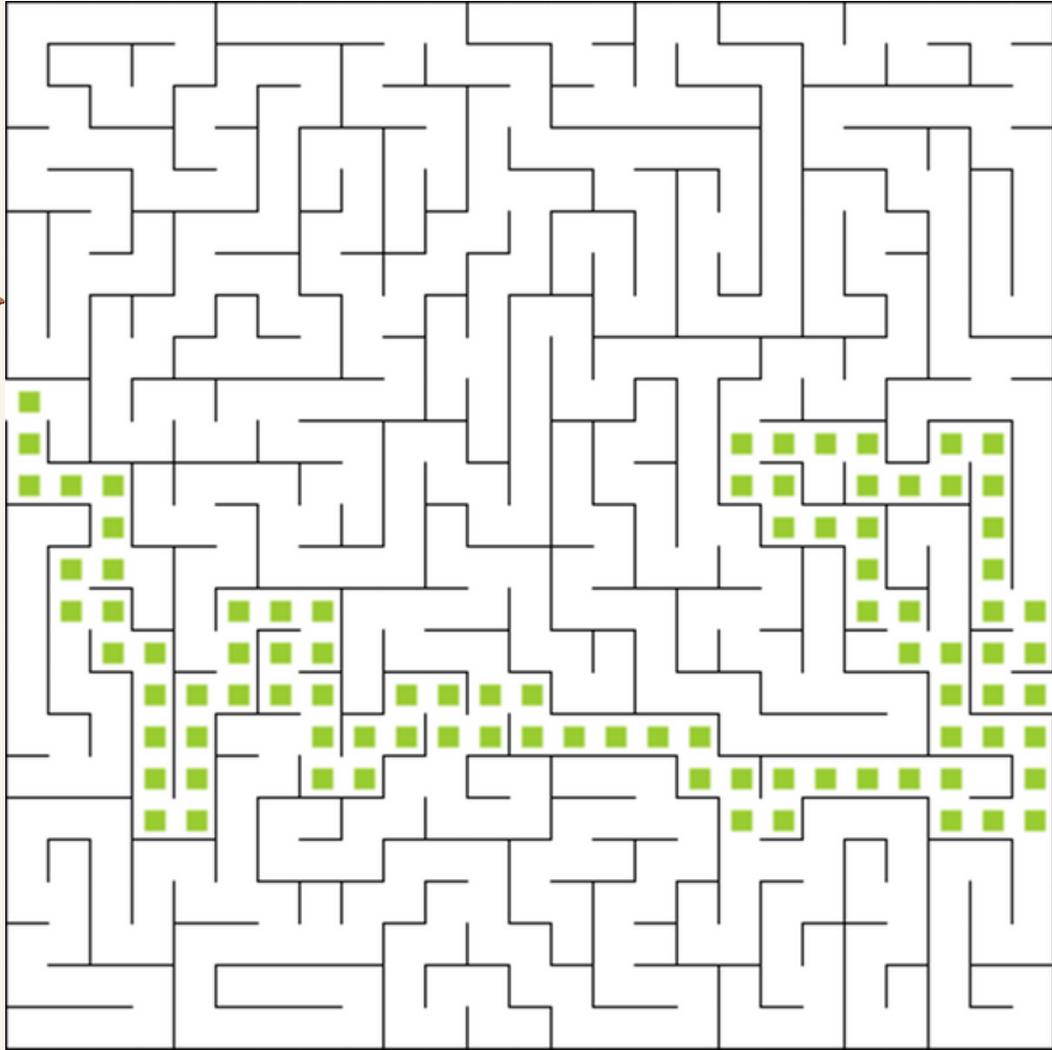


Puzzle Answers

Circle the places where ticks might live in the pictures below.



Puzzle Answers

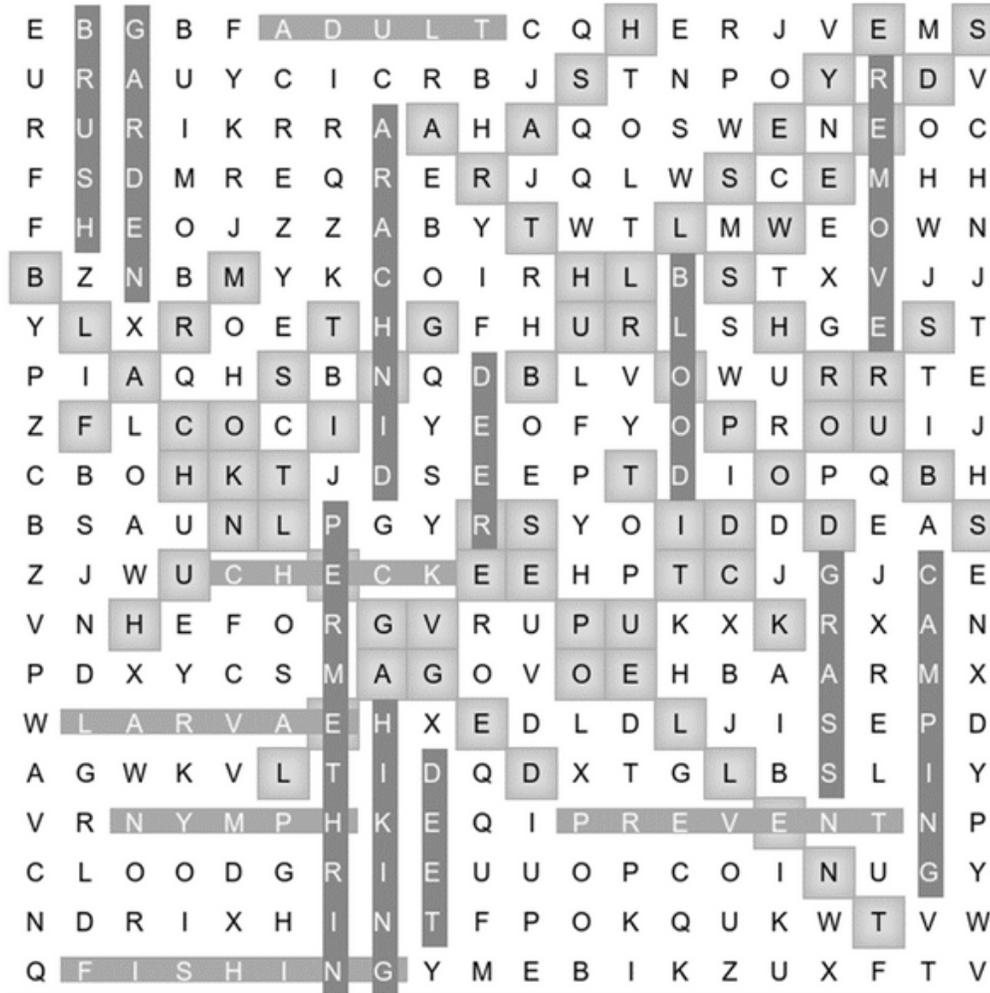


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Puzzle Answers

Name: _____

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ADULT
BLACKLEGGED
BULLSEYE
DEER
FISHING
HIKING
LARVAE
OUTDOORS
RASH
SHRUBS

ARACHNID
BLOOD
CAMPING
DEET
GARDEN
HOST
LEAVES
PERMETHRIN
REMOVE
TICK

ARTHROPOD
BRUSH
CHECK
FARM
GRASS
HUNTING
NYMPH
PREVENT
REPELLENT
WEEDS

