Caterpillars

A Watercolor Field Guide for Young Naturalists



28 PRINTABLE PAGES · AGES 6 TO 8

Caterpillars

A Watercolor Field Guide for Young Naturalists

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INKLINGS WORLD

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How to Use This Packet

Caterpillars · Ages 6 to 8

There is no right order

Every page stands on its own. You can work straight through, or pull out the one page that matches what your child found in the garden this morning. Nothing later depends on anything earlier.

One page, one sitting

Each page is a single task. A child of six will usually spend ten to twenty minutes on one. If a page is finished in two minutes, it was the wrong page for today, not a page done badly.

Read the reading pages aloud

Several pages carry a short paragraph of real science. For a six-year-old, read it together. For an eight-year-old, let them read it and then tell you what it said.

The answer key is at the back

Page 31. Every answer there has been checked against a published source — federal agencies, museums and university extension services. Where sources genuinely disagree, the key says so rather than picking a side.

Two pages in this packet have no single right answer, and that is deliberate. Page 26 asks a child to sort caterpillars into butterflies and moths — which cannot be done by looking. Page 27 asks whether a study of fifteen caterpillars is enough to be sure of anything.

What's Inside

Anatomy, pages 6 to 13

What a caterpillar is made of: the parts, the real legs and the false ones, the hooks that grip like Velcro, the breathing holes along its sides, and twelve tiny eyes that cannot see a picture.

Growing and living, pages 14 to 18

Molting, an astonishing growth rate, what frass is, and what silk is for — including a single thread that can run a thousand yards.

Staying alive, pages 19 to 22

Camouflage, false eyes, a smelly orange fork, and an honest, calm page about which caterpillars to admire without touching.

Caterpillars and the world, pages 23 to 27

Picky eaters, why an oak tree matters, who eats caterpillars — and two pages that ask a child to think rather than recall.

Wrapping up, pages 28 to 31

Vocabulary with handwriting practice, measuring, a review page, and the answer key.

Print at 100 percent, or 'actual size'. Do not use 'fit to page' — it shrinks the ruler on page 29 and the measuring will come out wrong.

What Is a Caterpillar?

A caterpillar is a young butterfly or a young moth. It is the eating stage of the life cycle. A caterpillar spends almost all of its time doing one thing: chewing leaves and growing. Most of the caterpillars you find will grow up to be moths.



Have you ever found a caterpillar? Where was it?

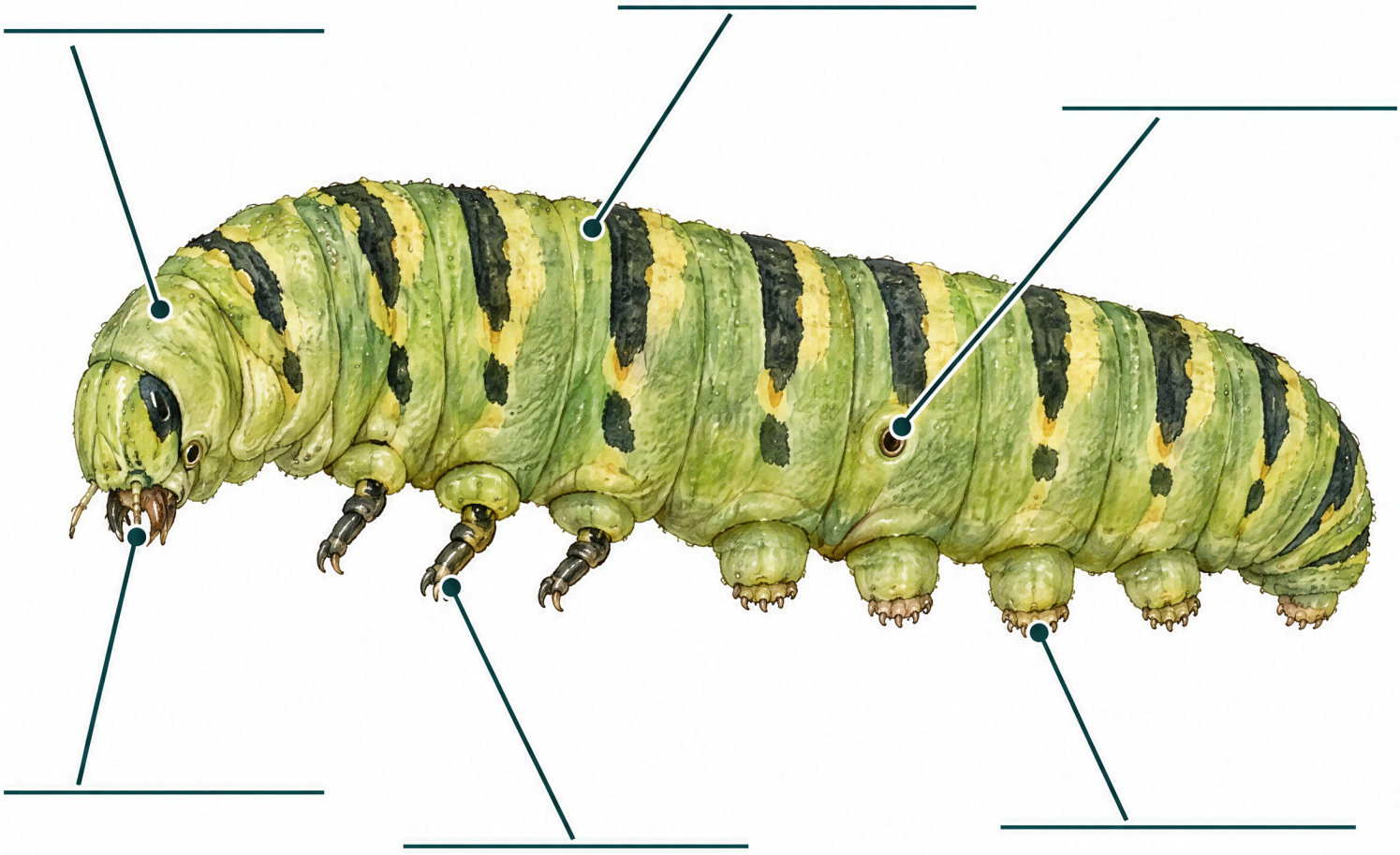
_____

_____

_____

Parts of a Caterpillar

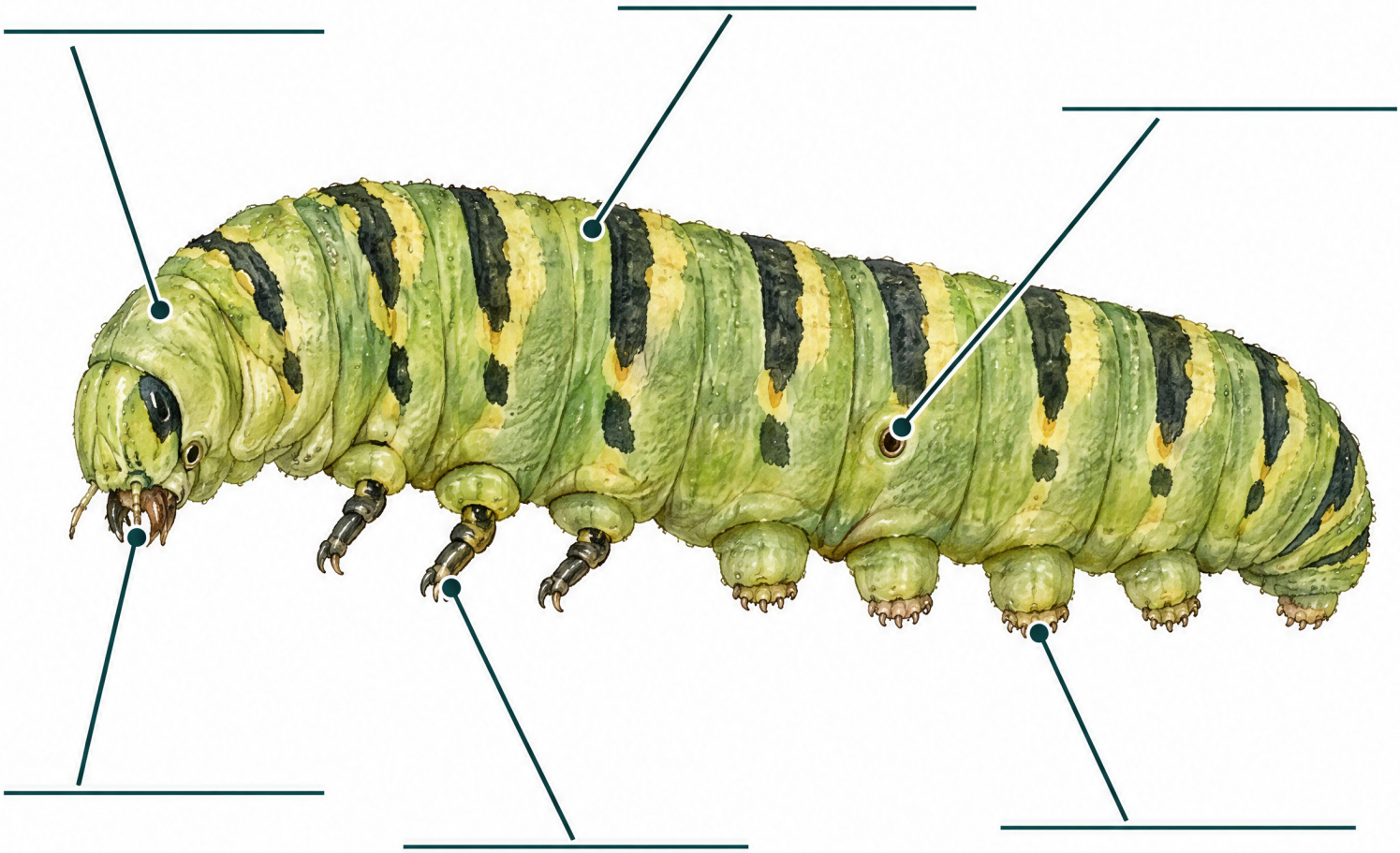
Use the word bank to label each part.



head true leg proleg spiracle mandible segment

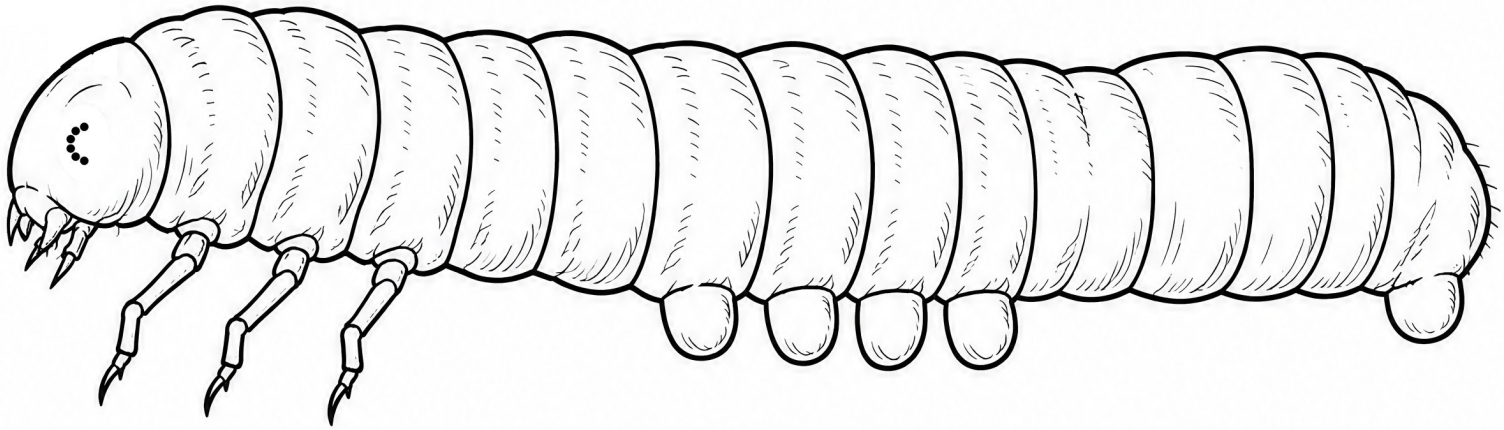
Parts of a Caterpillar

Can you label it without the word bank this time?



Six Real Legs and Ten False Ones

Color the real legs orange. Color the false legs green.



A caterpillar has three pairs of real jointed legs near its head — six legs, just like every grown-up insect. The stubby ones further back are called prolegs. They are not real legs at all.

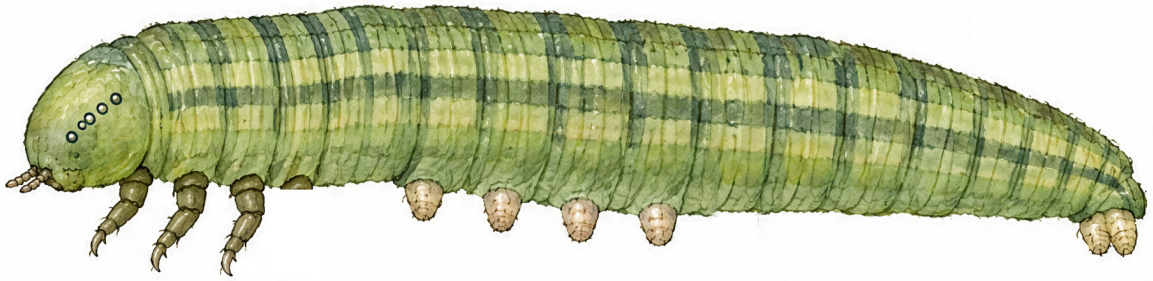
Real legs I counted: _____

False legs I counted: _____

Caterpillar or Look-Alike?

Count the false legs on each one. Only one of these is a caterpillar.

A



☐

B



☐

C



☐

A caterpillar has five pairs of false legs or fewer.
Six or more, and it is not a caterpillar at all.

Why an Inchworm Loops

Most caterpillars have five pairs of prolegs spread along the body. An inchworm has only two pairs, right at the back. The middle of its body has nothing to hold on with — so it must arch its back into a loop to walk. That is why it looks like it is measuring.



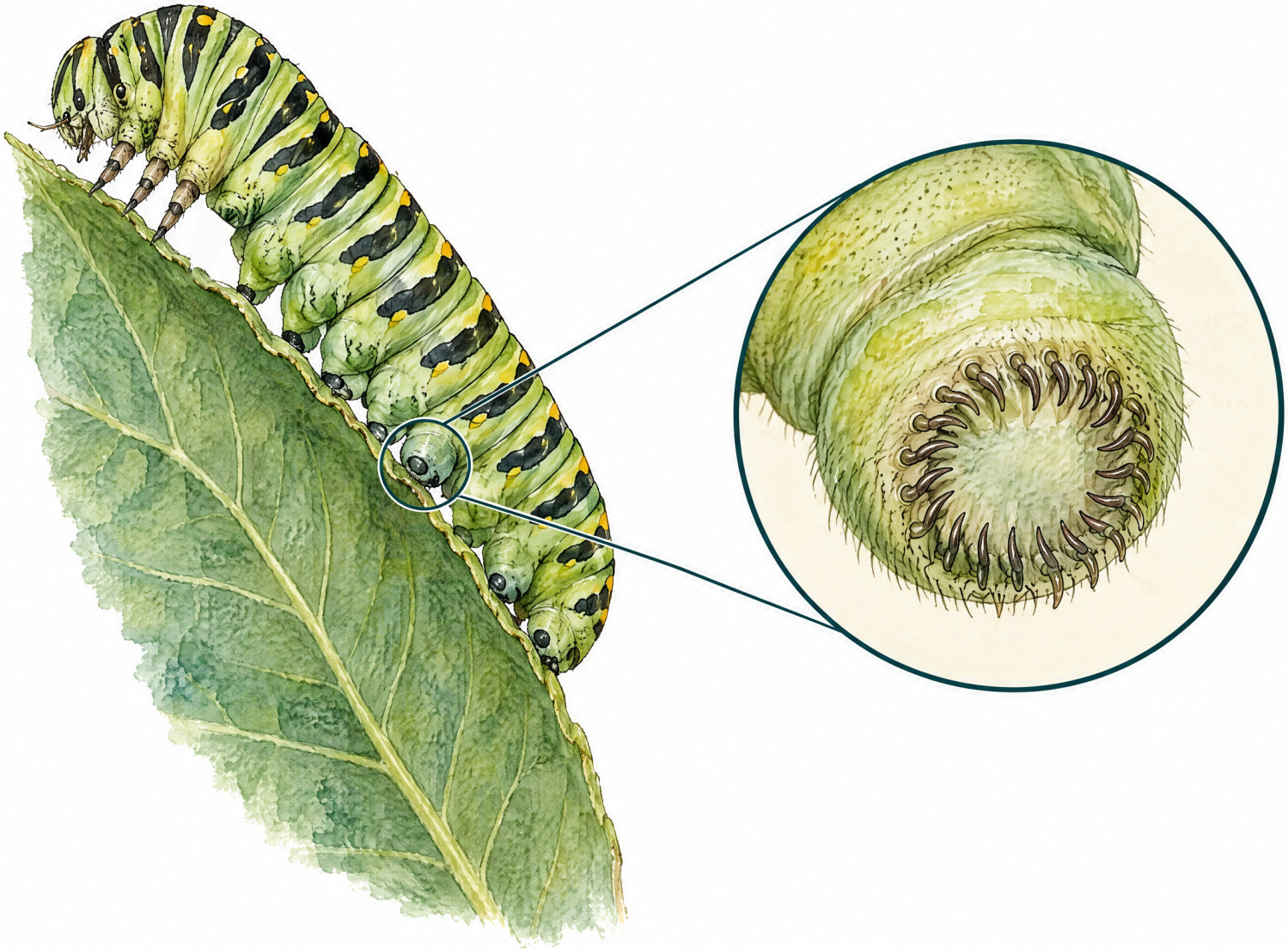
1. Stretched flat
2. Arched into a loop
3. Stretched flat again



Draw an inchworm making a loop.

Hooks Like Velcro

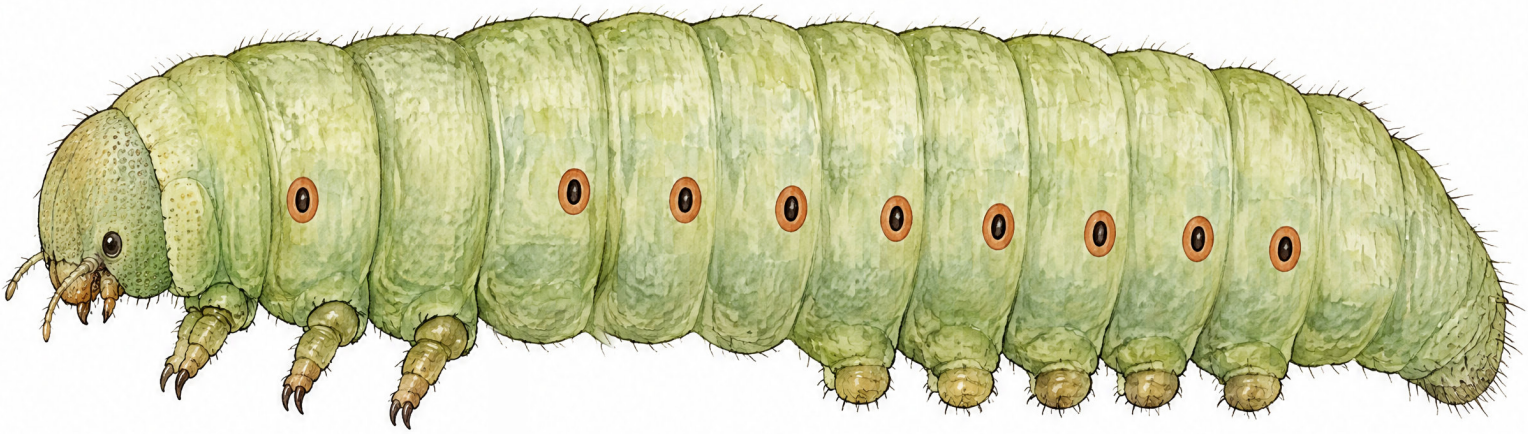
How does a caterpillar hold on so tightly? The bottom of each proleg is covered in a ring of tiny hooks called crochets. They catch on leaves, bark and silk the way Velcro catches on cloth.



What else can you think of that grips like this?

Breathing Through Its Sides

A caterpillar has no nose and no lungs. It breathes through tiny holes along its sides called spiracles. Air travels from the holes into a network of little tubes that reach every part of its body.

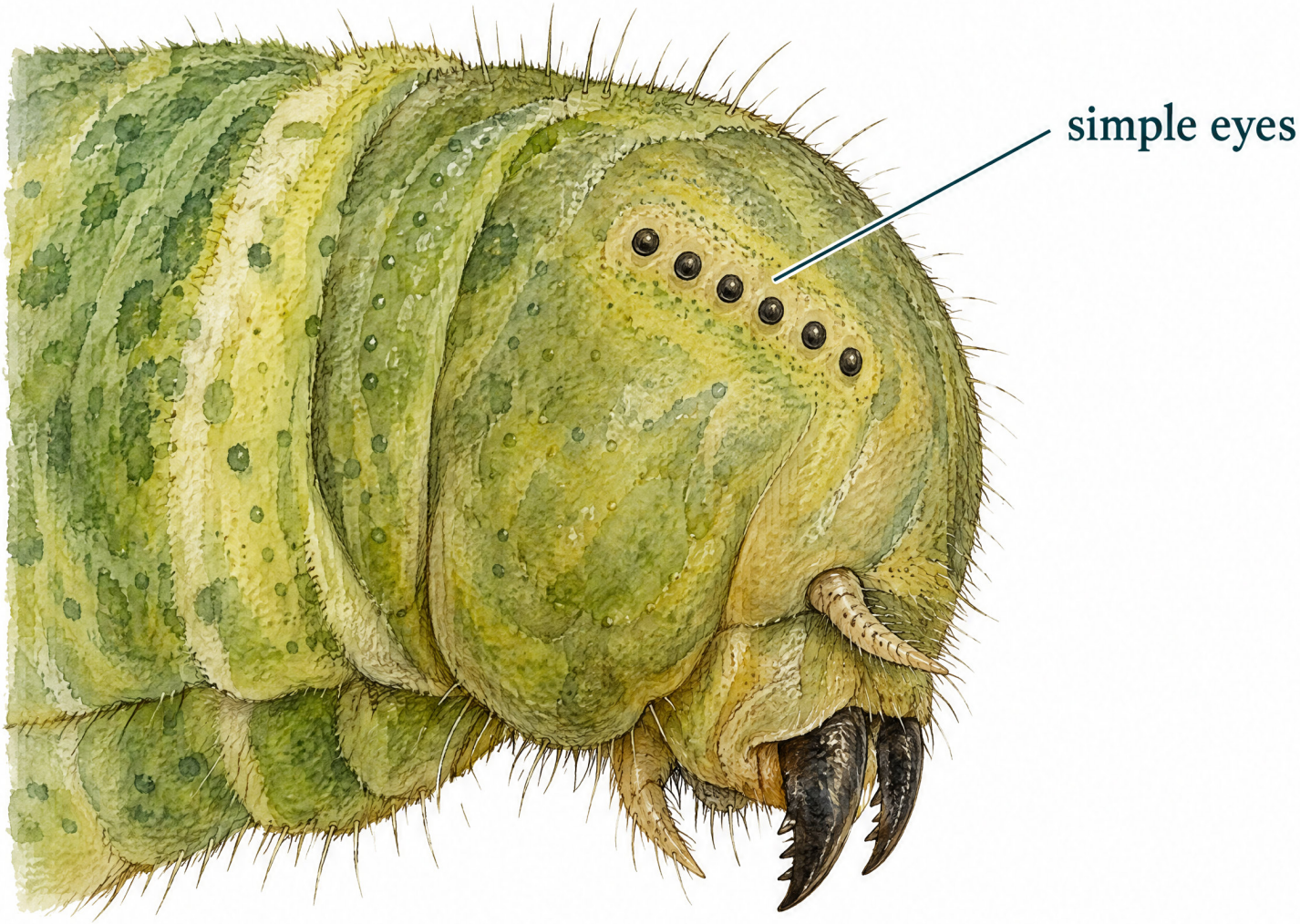


Circle every spiracle you can find, then write how many.

I found _____ spiracles.

Twelve Tiny Eyes

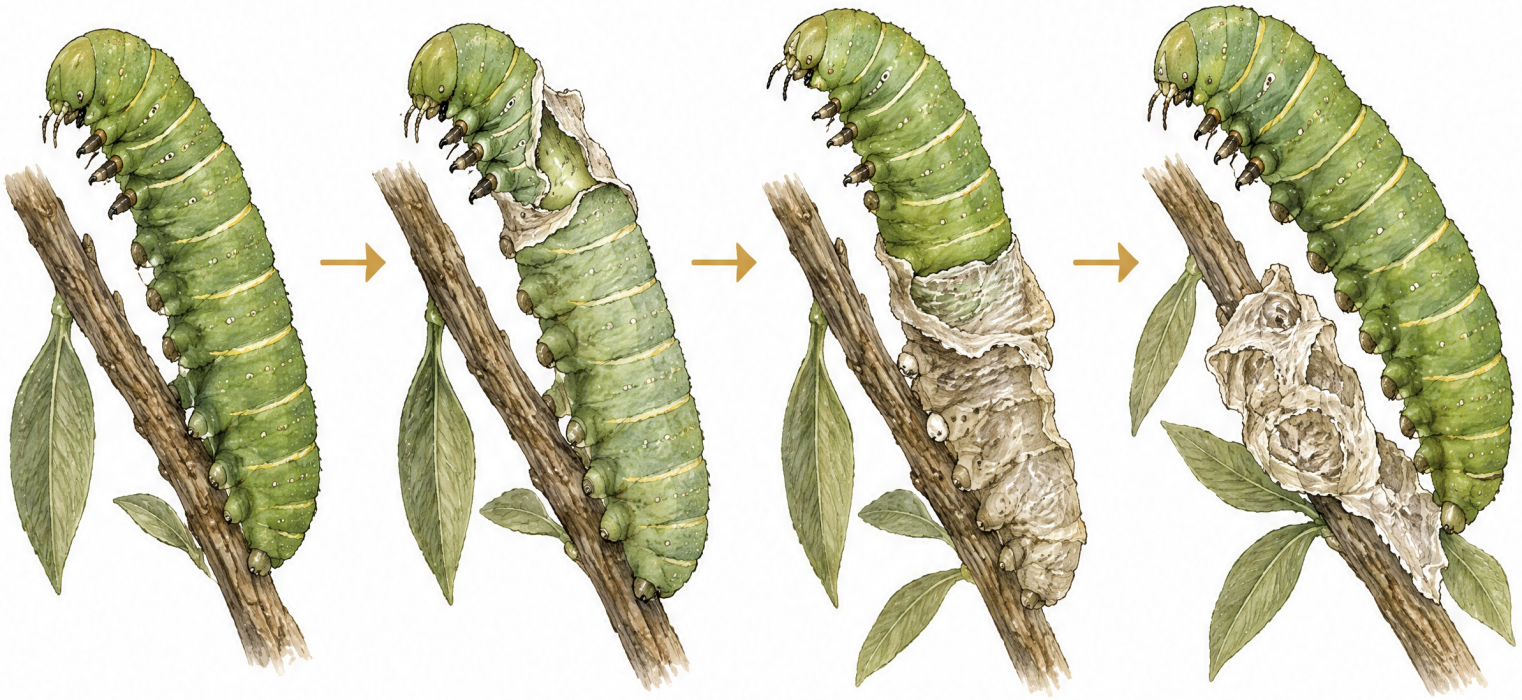
A caterpillar has six tiny simple eyes on each side of its head — twelve in all. But it cannot see a picture the way you can. Its eyes only sense light and dark, blurry shapes, and movement. A caterpillar finds its food mostly by touch and smell.



What do you think the world looks like to a caterpillar?

Too Big for Its Skin

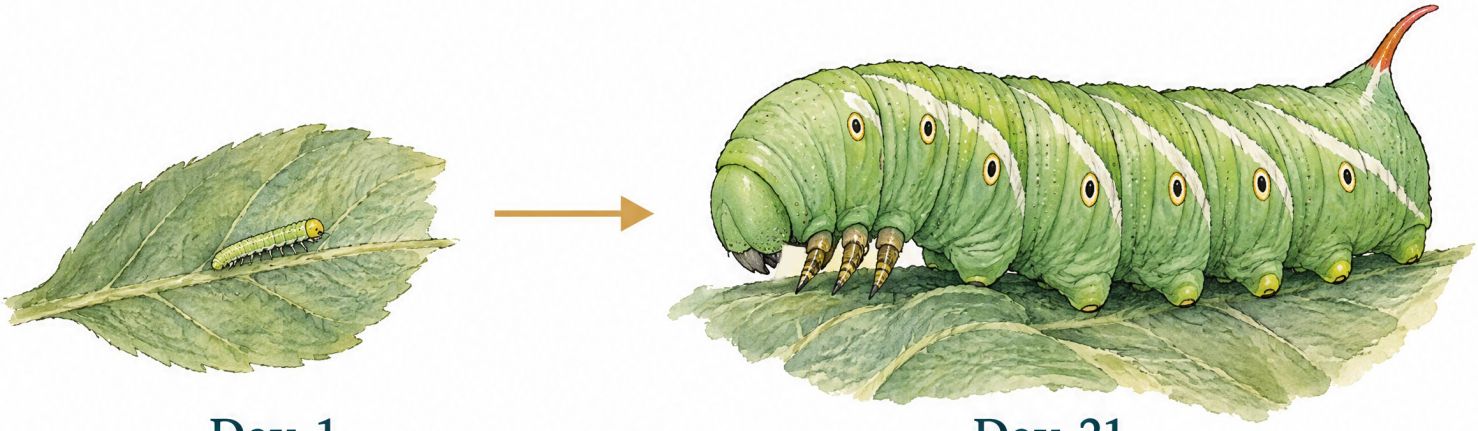
A caterpillar's skin cannot stretch. So when it grows too big, it climbs right out of the old skin and wears a new one that was waiting underneath. Most caterpillars do this about five times. The stage between two sheddings is called an instar. Even the hard head is replaced.



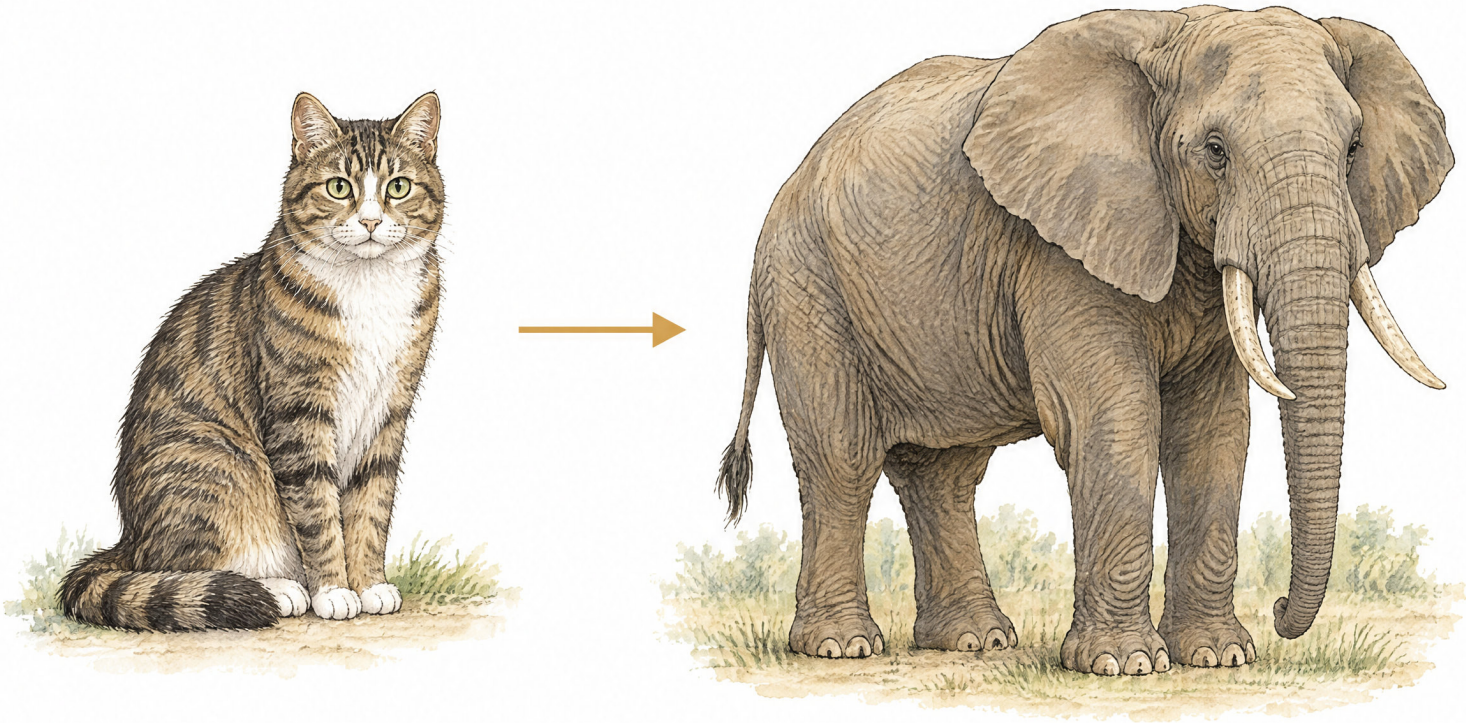
Many caterpillars eat the old skin afterwards, so nothing is wasted.

A Thousand Times Bigger

A hornworm caterpillar hatches smaller than a grain of rice. Three weeks later it weighs more than a thousand times as much. Imagine if a house cat grew that way in three weeks. It would end up heavier than an elephant.



Day 1 Day 21



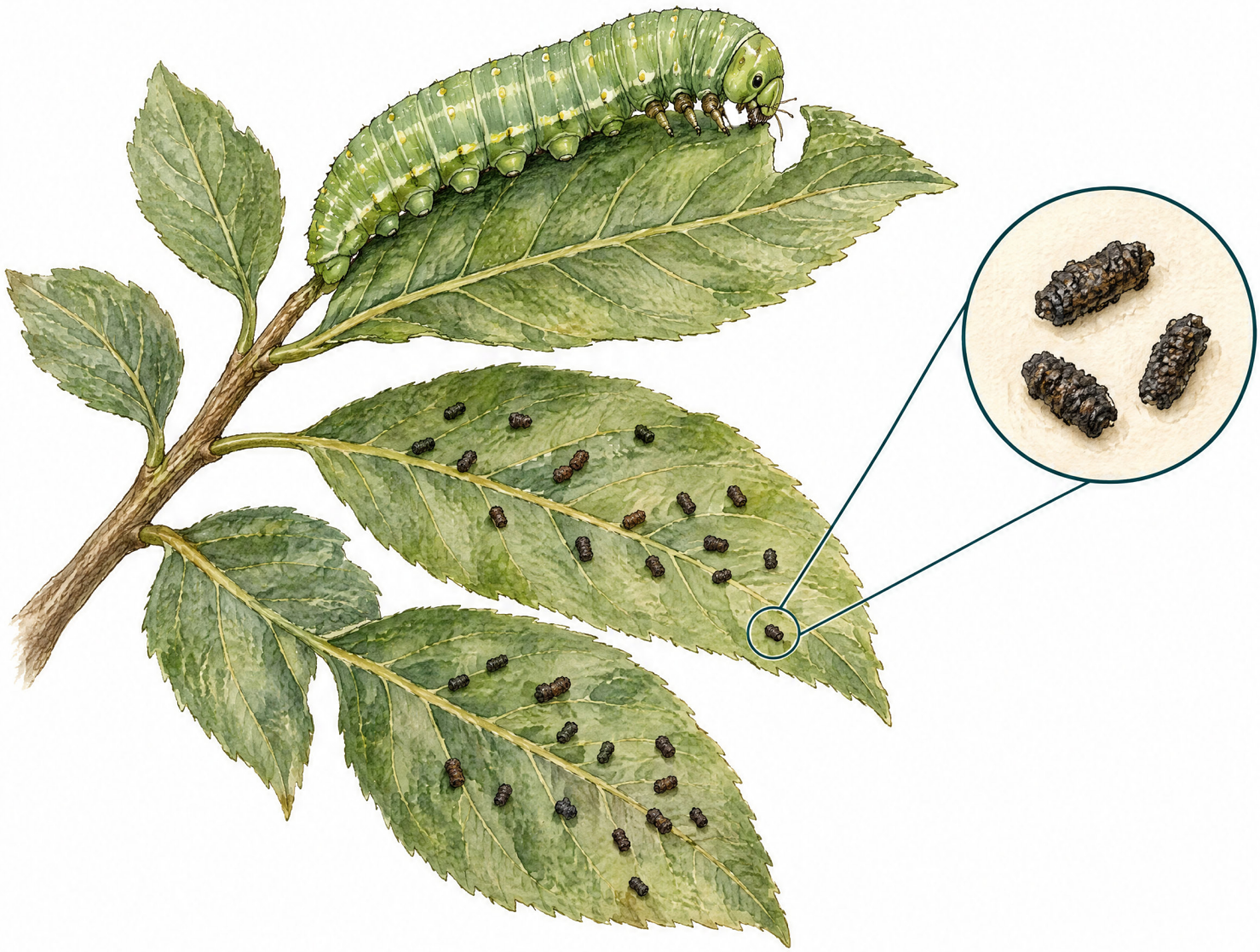
What else can you think of that grows very fast?

_____

_____

What Is Frass?

Caterpillar droppings have a proper scientific name: frass. It looks like tiny dark pellets on the leaves below. Scientists use frass to find caterpillars they cannot see. Some caterpillars even fling their frass far away, so that hungry birds cannot smell where they are hiding.



Why do you think flinging it away helps the caterpillar stay safe?

A Rope Made of Silk

A caterpillar makes silk in glands that started out as spit glands. It comes out of a tiny nozzle on its lower lip and hardens the moment it touches the air. Silk has four big jobs.



Floating to a new tree



Building a shelter



Escaping danger



Making a cocoon

One Very Long Thread

A silkworm caterpillar spins its whole cocoon from a single thread that never breaks. Unwound, that one thread can stretch from three hundred to a thousand yards — longer than nine football fields. It takes about one hundred and fifty cocoons to make a single silk tie.



If one tie takes 150 cocoons, how many cocoons would two ties take?

Hide in Plain Sight

A caterpillar is a soft, slow meal for a hungry bird. So many of them survive by not looking like caterpillars at all.



A twig that is not a twig



A bird dropping that is not a bird dropping

Why would a bird fly straight past both of these?

Big Fake Eyes

Some caterpillars grow up to look like something much scarier than they are. The spicebush swallowtail caterpillar has two huge false eyes on its swollen front end. It is completely harmless — but for a moment, a bird sees a small green snake looking back at it, and decides to leave.



The real eyes are tiny and hidden underneath. Can you find where the real head is?

The Smelly Orange Fork

A black swallowtail caterpillar has a secret weapon. When something frightens it, a bright orange fork shoots out from just behind its head and gives off a horrible smell. It is called an osmeterium. It is completely harmless to people — but a hungry bird does not stop to find out.



Calm



Alarmed

Why is a bad smell useful if you cannot run away?

_____

_____

Look, Don't Touch

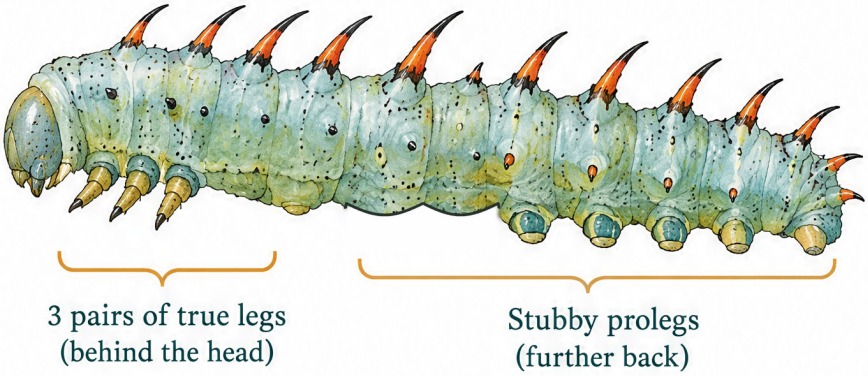
Most caterpillar hairs and spines are just for show and are completely harmless. A few kinds have hollow spines with venom inside, and those only sting if you touch them. So the safe rule is simple: look closely, but do not pick up — especially anything spiny.



Soft as a kitten. Do not touch.



Looks fierce. Completely harmless.



Which one would you have picked up? What does that tell you about judging by looks?

_____

_____

Picky Eaters and Not-Fussy Eaters

Draw a line from each caterpillar to the plant it needs.

Some caterpillars are specialists. They can eat only one kind of plant, and without it they starve. Others are generalists and will eat many different leaves.



Monarch



Walnut and hickory



Black swallowtail



Milkweed



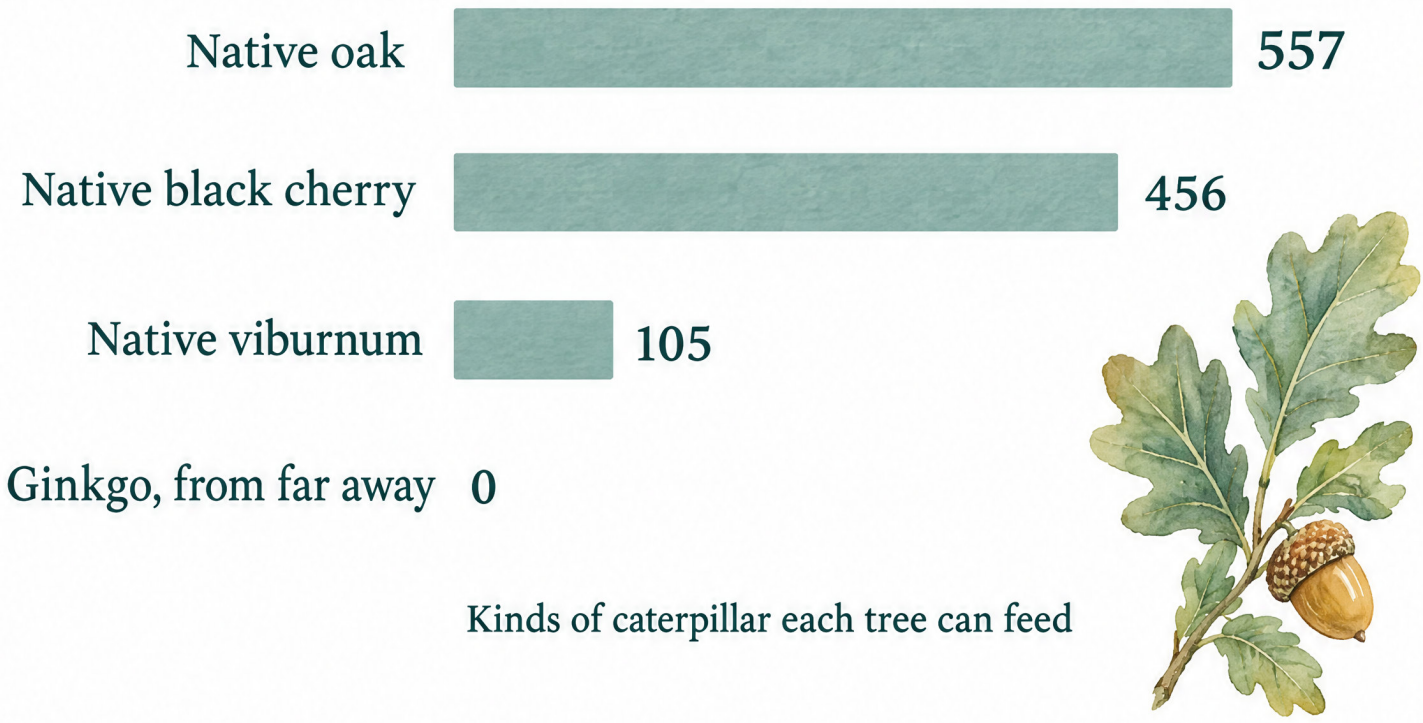
Luna moth



Parsley and dill

The Mighty Oak

Not every tree feeds the same number of caterpillars. Some native trees feed hundreds of different kinds. Some trees brought here from far away feed almost none at all.



Which tree would you plant if you wanted to feed the birds? Why?

_____

_____

Who Eats Caterpillars?

Almost everything does. Caterpillars are soft, slow and full of food, which makes them the most important meal in the whole garden. A pair of chickadees needs more than five thousand caterpillars to raise one nest of chicks. No caterpillars means no baby birds.



5,000 caterpillars = 1 family of chickadees

What would happen to the birds if all the caterpillars disappeared?

_____

_____

_____

Butterfly or Moth?

Check the box for what you think each one will become.



☐ butterfly ☐ moth



☐ butterfly ☐ moth



☐ butterfly ☐ moth



☐ butterfly ☐ moth

Now turn to the answer key. You may be surprised.

Can a Caterpillar Predict Winter?

Lots of people say that a woolly bear caterpillar with a wide rust-colored band means a mild winter is coming. It is a lovely idea, but it is not true. The bands show how old the caterpillar is and how good the last growing season was. Every time it sheds its skin, it grows a little more rust and a little less black.



Younger

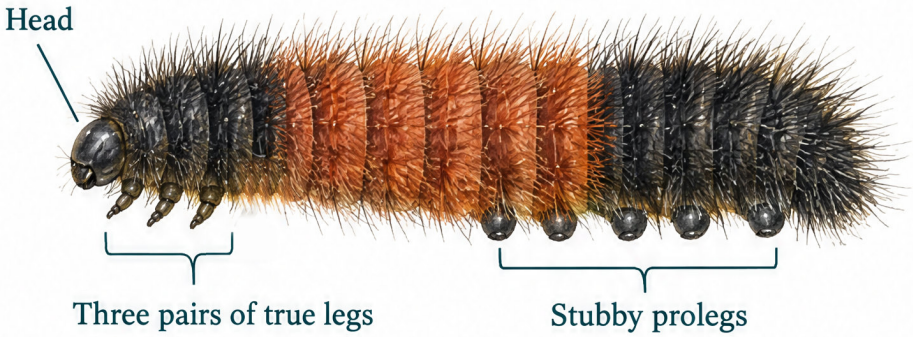


Older



Oldest

Anatomy: three pairs of jointed true legs behind the head and no more, stubby prolegs further back.



The idea comes from a study in 1948. A scientist looked at just 15 caterpillars.

Do you think 15 caterpillars is enough to be sure about something? How many would you want to look at?

Caterpillar Vocabulary

Draw a line from each word to what it means. Then trace the word.

proleg

proleg

a breathing hole in the side

instar

instar

a tiny gripping hook

frass

frass

a stubby false leg

spiracle

spiracle

a smelly orange fork

osmeterium

osmeterium

caterpillar droppings

crochet

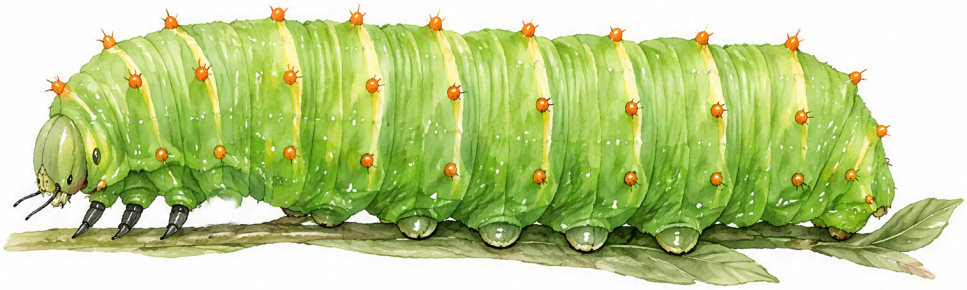
crochet

the stage between two skin sheddings

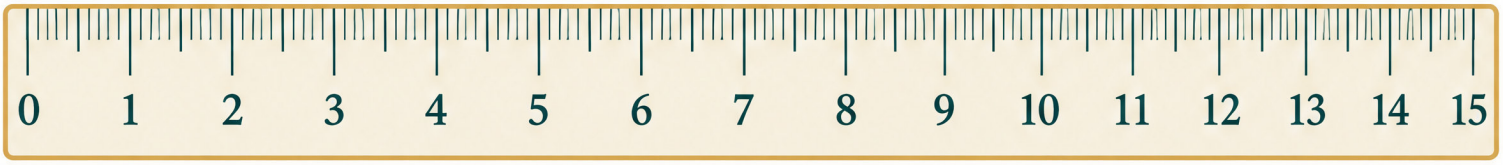
Measure the Caterpillars

Use the ruler to measure each one. Then write its length.











What I Learned



1. How many real legs does a caterpillar have?

   _____

2. What is a proleg?

   _____

3. What is caterpillar poop called?

   _____

4. How does a caterpillar breathe?

   _____

5. Name one way a caterpillar hides from birds.

   _____

6. Can you tell a butterfly caterpillar from a moth caterpillar by looking?

   _____

The most surprising thing I learned:

_____

_____

_____





Answer Key

Caterpillars — every answer checked against a published source

P6–7 Parts of a Caterpillar

head · true leg · proleg · spiracle · mandible · segment

P8 Six Real Legs, Ten False

Real legs: 6 (three pairs). False legs: 10 (five pairs).

P9 Caterpillar or Look-Alike?

A is the caterpillar — five pairs of false legs. B is a sawfly larva: its false legs run in an unbroken row with no gap, which is six or more. C is a beetle grub and has none at all.

P10 Why an Inchworm Loops

It has only two pairs of prolegs, both at the back. The middle of its body has nothing to hold on with, so it must arch into a loop.

P12 Breathing Through Its Sides

Nine. One on the first segment behind the head, and eight more along the body.

P13 Twelve Tiny Eyes

Six on each side, twelve in all. They sense light and dark, blurry shapes and movement — not pictures.

P14 Too Big for Its Skin

Because skin cannot stretch. Most shed about five times. The stage between two sheddings is an instar.

P15 A Thousand Times Bigger

More than a thousand times heavier, in about three weeks.

P16 What Is Frass?

Caterpillar droppings. Flinging it away stops birds smelling where the caterpillar is hiding.

P17 A Rope Made of Silk

Floating to a new tree · building a shelter · escaping danger · making a cocoon.

P18 One Very Long Thread

300 cocoons — 150 for each tie.

P19 Hide in Plain Sight

Because neither one looks like food. One looks like a twig, the other like a bird dropping.

P20 Big Fake Eyes

The real head is small and tucked underneath, well below the false eyes.

P21 The Smelly Orange Fork

A smell works without running away — the bird leaves rather than find out. It is harmless to people.

P22 Look, Don't Touch

The soft furry one — the puss caterpillar — is the stinger. The huge fierce hickory horned devil is harmless. You cannot judge by looks.

P23 Picky Eaters

Monarch to milkweed. Black swallowtail to parsley and dill. Luna moth to walnut and hickory.

P24 The Mighty Oak

Oak 557 · black cherry 456 · viburnum 105 · ginkgo 0. Plant the oak.

P25 Who Eats Caterpillars?

There would be no baby birds. A pair of chickadees needs more than 5,000 caterpillars for one nest.

P26 Butterfly or Moth?

There is no right answer — that is the lesson. You cannot tell by looking; the species must be identified first. Most will be moths: nearly 11,000 kinds live in the United States.

P27 Predict Winter?

No. The bands show the caterpillar's age and how good the last season was, not the winter ahead. Answers on the study will vary — 15 is a very small number.

P28 Caterpillar Vocabulary

proleg = a stubby false leg · instar = the stage between two skin sheddings · frass = droppings · spiracle = a breathing hole in the side · osmeterium = a smelly orange fork · crochet = a tiny gripping hook

P29 Measure the Caterpillars

Monarch 25–45 mm · luna moth 55–70 mm · hickory horned devil up to 14 cm.

P30 What I Learned

1. Six. 2. A stubby false leg. 3. Frass. 4. Through spiracles along its sides. 5. Looking like a twig or a bird dropping, or growing fake eyes. 6. No.

One to keep, not fix: a monarch has six legs, but the front pair is small and held tucked up, so it can look as though it has four. Both statements are true.

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