

NINA DOS RIOS

THE SECRET LIFE OF MOSSY STONES

By Gina Meadowbrook



TEACHER'S GUIDE

About This Guide**The Secret Life of Mossy Stones — Readability**

OriMayal Spache Readability Formula	Revised Spache Readability Formula
Score: 4.35	Revised Score: 3.89 [= grade level]
Reading Difficulty: Easy	Reading Difficulty: Easy
Grade Level: Fourth Grade	Grade Level: Fourth Grade
Age Range: 9-10	Age Range: 9-10

Here's the story with words not on the Spache 3,000-word list in bold:

Teacher's Guide for The Secret Life of Mossy Stones by Maya Meadowbrook

The afternoon sun hung low over the **stream** bank, casting long shadows across the woods and grass.

Maya moved **slowly** beside the water, watching the ground **carefully**. The **stream** had changed since the spring rains. The water ran **clearer** now, and **damp** leaves had **collected** between the stones along the bank.

She was hoping to find a red backed **salamander**.

Maya had read about them in one of her **nature** books. These small **salamanders** liked cool, **damp** places **beneath** stones, **logs**, and **fallen** leaves. They had no **lungs**. Instead, they **absorbed oxygen** through their **skin**, which meant they needed **moisture** to **survive**.

That alone made them **interesting** to **Maya**.

She **knelt** beside a **cluster** of gray stones covered with **patches** of soft green **moss**.

Her father had **taught** her an important rule about looking **beneath** rocks.

"Lift the stone toward you," he had said. "Then **whatever** is **underneath** can move away from your hands."

Maya placed her fingers along the edge of a flat stone and **slowly tilted** it **upward**.

A whole world appeared **beneath** it.

The **soil** was **nearly** black and smelled of wet leaves, earth, and **mold**. Tiny **roots** **crossed** the **surface** like **pale threads**. Several **pill bugs hurried** toward the nearest **crack**.

Maya smiled.

Pill bugs were among her **favorites**.

Pill bugs look a little like **beetles**, but their backs are covered with **overlapping plates**. Some kinds **curl themselves** into a tight ball when **disturbed**. That's why some people call them **roly polies**. But they **really** are **crustaceans**, **distant relatives** of **crabs** and **shrimp**.

They can also move **surprisingly** fast. One **pill bug** ran on its many tiny legs, **barely visible beneath** its **body**. It **quickly** disappeared under a **curled** brown **leaf**.

Another stopped for a moment, then **hurried** after the first.

Beside them, a yellow brown **centipede** walked through the **loose soil**. Its legs moved in a **smooth** wave.

Maya **leaned** closer.

The stone had kept the **soil underneath** cool and **damp** even though the afternoon sun was warm. **Moss** along the top held **moisture** like a **sponge**.

A small **beetle larva** rested near one edge of the stone. A tiny **snail** slid along the rock, leaving a silver line behind it.

Maya could have watched for a long time.

Then she noticed something red **beneath** an **oak leaf**.

She stopped **moving**.

Only the tip was **visible** at first. **Maya** **carefully shifted** her head to one side.

A **narrow**, dark **salamander** lay **beneath** the **leaf**. A **reddish stripe** ran along its back.

Her **heart** jumped.

A red backed **salamander**!

It was smaller than she **expected**, no **longer** than one of her fingers.

For a moment, **Maya** **simply** watched.

Then the **salamander** **twisted sharply**.

It **twisted** again.

Something was wrong.

Maya moved closer.

A thin piece of green **net** was **tangled** around the **salamander's** middle. One end was caught **beneath** a **root**, holding the animal in place.

The **salamander tried** to move **forward**, but the **loop tightened**.

"Oh," **Maya** whispered. "You're **stuck**."

She sat back and thought.

Normally, she would not touch a **salamander**. Their **skin** was thin and **delicate**, and the **oils** and salts on **human** hands could harm them.

But leaving this one trapped in the **net** was not an **option**.

Maya carried a small pair of **blunt** tipped **scissors** in the **pocket** of her **nature** bag. She kept them for **cutting string** and **collecting plant samples**.

She took them out.

First, she **dipped** her fingers and the **scissors** into the cool **stream** water.

Then she **gently** lifted the wet **leaf** away.

The **salamander twisted** again.

"Easy," **Maya** whispered.

Whenever she could, **Maya** held the **plastic** instead of the **salamander**. The **knot** was tighter than it had first seemed.

One **strand crossed beneath** the animal's **belly**.

Maya slipped the **blunt** tip of the **scissors beneath** the **plastic**.

She stopped.

Too close.

She pulled the **strand slightly** away from the **salamander's body** and **tried** again.

Snip.

One side of the **loop** opened.

The **salamander suddenly wriggled forward**.

Maya quickly moved her hand.

For a second, the little animal **remained completely** still.

Then it slid into a **narrow crack** beside the stone and **vanished beneath** the **damp** leaves.

Maya let out the breath she had been holding.

She **picked** up the green **plastic**.

It looked like the kind of **net** that gardeners use to keep birds from eating their **crops**. Most of it was **brittle** and **faded**.

She **folded** it **carefully** and **tucked** it into her **pocket**.

Then she looked again at the **damp soil beneath** the stone.

The **pill bugs** had disappeared.

The **centipede** was gone.

Only the tiny **snail remained**, **moving** so **slowly** that it seemed almost **motionless**.

Maya lowered the stone **carefully**.

She **tried** to place it **exactly** where it had been before.

She **tucked** the **moss** back against the **soil**.

The dark little world **beneath** the rock disappeared.

From above, the stone looked **ordinary** again.

Maya sat on her **heels** for a moment and looked at the **stream**.

A person walking past might notice the water, the grass, or the tall trees.

They might never think about what lived **beneath** one stone.

But **Maya** knew now.

Pill bugs moved through the **damp** leaves.

Centipedes hunted in the **soil**.

Snails traveled slowly across cool rock.

Beetle larvae rested **beneath** the **moss**.

And **somewhere nearby**, a tiny red backed **salamander** was hiding **safely** in the **shade**.

Maya stood and brushed the **dirt** from her knees.

She took three steps toward home. Then she noticed another **mossy** stone.

She stopped. For a moment, she **considered** lifting it.

Then she smiled and kept walking.

There would be another day for that.

The woods had plenty of secrets left.

Vocabulary List of Words and Simple Definitions

Use this list to pre-teach words before reading, or as a reference while reading.

Grouped by type to make classroom pre-teaching easier.

Nature and Habitat

stream bank — The land beside a stream

moss — A small green plant that grows in damp places

soil — The upper layer of earth where plants grow and small animals live

moisture — A small amount of water or dampness

root — The part of a plant that usually grows underground

leaf — A flat green part of a plant

shade — An area protected from direct sunlight

crack — A narrow opening in something

crevice — A narrow crack or opening in rock or soil

shelter — A protected place where an animal can live or hide

Animals and Science

salamander — A small amphibian with moist skin, four legs, and a tail

amphibian — An animal such as a frog or salamander that has moist skin

pill bug — A small land crustacean with a hard body made of overlapping plates

crustacean — A group of animals that includes crabs, shrimp, and pill bugs

centipede — A long animal with many body segments and many legs

larva — A young stage of some insects before they become adults

snail — A soft-bodied animal that usually has a spiral shell

plates — Hard sections that cover or protect part of an animal's body

Actions

tilted — Moved something so that one side was higher than the other

absorbed — Took in or soaked up

curled — Bent into a rounded shape

hurried — Moved quickly

twisted — Turned sharply

tangled — Twisted or caught together

wriggled — Moved with quick twisting motions

vanished — Disappeared from sight

tucked — Put something carefully into a small or protected place

Describing Words

damp — Slightly wet

delicate — Easily damaged

brittle — Hard but easy to break

faded — Having lost some color

overlapping — Covering part of something else

motionless — Not moving

ordinary — Common or not unusual

Science Notes

These notes give teachers additional information connected with the story.

Red-backed Salamanders

Red-backed salamanders are small woodland amphibians. They often live beneath rocks, logs, and fallen leaves where the ground stays cool and damp.

They do not have lungs. They take in oxygen through their moist skin. Because their skin is delicate, they should normally be observed without being handled.

Pill Bugs

Pill bugs may look like insects, but they are actually crustaceans related to crabs and shrimp.

Some kinds can roll themselves into a ball when disturbed. Their overlapping body plates help protect them.

Centipedes

Centipedes have many body segments and many legs. They are predators and hunt other small animals in soil and leaf litter.

Beetle Larvae

A beetle larva is the young stage of a beetle. Many beetle larvae live in soil, wood, or leaf litter before changing into adult beetles.

Land Snails

Land snails have soft bodies and usually carry a spiral shell. They move using a muscular part of the body called the foot.

A Tiny Habitat Under a Rock

A rock lying on damp soil creates a small habitat. It blocks direct sunlight and helps the soil beneath it stay cooler and wetter.

The animals Maya sees beneath the stone depend on this protected environment. 2
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Before Reading

1. Look at the title *The Secret Life of Mossy Stones*. What do you think might be living beneath the stones?
 2. Have you ever looked underneath a rock or fallen log? What did you find?
 3. Why might small animals prefer a cool, damp place?
 4. What kinds of animals do you think could live in soil or beneath leaves?
 5. What should a person do after lifting a rock to look underneath it?
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During/After Reading — Comprehension

1. What animal was Maya hoping to find?
2. Where do red-backed salamanders like to live?
3. Why do salamanders need moisture?
4. What rule had Maya's father taught her about lifting stones?
5. What did the soil beneath the stone smell like?
6. What animals did Maya first see beneath the stone?
7. Why are pill bugs not insects?
8. What did the centipede's legs look like as it moved?
9. What small animal left a silver line on the rock?
10. What did Maya see beneath the oak leaf?
11. How did Maya know that something was wrong with the salamander?
12. What was wrapped around the salamander?
13. Why did Maya normally avoid touching salamanders?
14. Why did Maya wet her fingers before helping the salamander?
15. What tool did Maya use?
16. What happened after she cut the plastic?
17. What did Maya do with the old netting?
18. Why did Maya replace the stone where she found it?

The story gives a particularly clear sequence from discovery to rescue: Maya notices the animal twisting, recognizes the netting, wets her fingers, cuts the loop, and watches the salamander escape. 2 Teacher's Guide The Secret Li...

Sequencing Exercise

Put these events in the correct order.

- Maya noticed plastic around the salamander.
- Maya lifted a mossy stone.
- The salamander disappeared beneath the leaves.
- Maya found several pill bugs.
- Maya wet her fingers and scissors.
- Maya put the old plastic into her pocket.
- Maya saw a red-backed salamander.
- Maya cut the plastic loop.
- Maya lowered the stone back into place.

Answer Key

1. Maya lifted a mossy stone.
 2. Maya found several pill bugs.
 3. Maya saw a red-backed salamander.
 4. Maya noticed plastic around the salamander.
 5. Maya wet her fingers and scissors.
 6. Maya cut the plastic loop.
 7. The salamander disappeared beneath the leaves.
 8. Maya put the old plastic into her pocket.
 9. Maya lowered the stone back into place.
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Inference and Thinking

19. Why did Maya stop moving when she first noticed something red beneath the leaf?
20. Maya normally would not touch a salamander. Why did she decide to touch this one?

21. Why did Maya hold the plastic instead of the salamander whenever she could?
22. Why did the pill bugs and centipede disappear after Maya lifted the stone?
23. Why do you think the snail was still there when Maya looked again?
24. Why was it important for Maya to put the stone back in the same place?
25. What does Maya's behavior tell you about the way she observes nature?
26. At the end of the story Maya sees another mossy stone but decides not to lift it. Why might she have made that choice?

That final question works nicely because the story itself simply shows Maya deciding that “there would be another day for that” rather than explaining a lesson to the reader. 2

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WH-Words Questions — More Practice

Use complete sentences when possible.

Who taught Maya how to lift a stone safely?

What animals did Maya see beneath the stone?

When did Maya realize that the salamander needed help?

Where was the salamander hiding?

Why did Maya wet her fingers?

How did Maya free the salamander?

What did Maya do with the plastic netting?

Where did the salamander go after it was freed?

Why did Maya put the rock back?

Vocabulary in Context

27. The ground under the stone was **damp**. What does *damp* mean?
28. The pill bug had **overlapping** plates. What does *overlapping* mean?
29. The garden netting was **tangled** around the salamander. What does *tangled* mean?
30. Maya was careful because a salamander's skin is **delicate**. What does *delicate* mean?
31. The old plastic was **brittle and faded**. What do those words tell you about it?

32. The snail seemed almost **motionless**. Was it moving quickly or very slowly?
33. The salamander **vanished** beneath the leaves. What happened?
34. What is the difference between a **crack** and a **crevice**?
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Cause and Effect

Match each cause with its effect.

Cause: The stone blocks some of the sun.

Effect: The soil underneath stays cooler and damper.

Cause: The plastic loop is caught around the salamander.

Effect: The salamander cannot escape.

Cause: Maya cuts the plastic loop.

Effect: The salamander can move away.

Cause: Maya lowers the stone back into place.

Effect: The animals again have a dark, protected space.

Cause: Maya removes the old plastic.

Effect: Another small animal is less likely to become caught in it.

Compare and Contrast

Choose two animals from the story.

Students may use these sentence starters:

Both animals...

The _____ has _____, but the _____ has _____.

The _____ moves by _____.

The _____ lives _____.

One important difference is _____.

Possible pairs:

- pill bug and centipede
 - salamander and snail
 - beetle larva and pill bug
 - centipede and salamander
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Personal Connection

35. Have you ever found a small animal outside? What did you find?
36. Which animal in the story would you most like to observe? Why?
37. Would you rather explore beneath rocks, around a pond, or among fallen leaves? Why?
38. What small animals live near your home or school?
39. What would you do if you found a wild animal caught in string or plastic?
40. Why can two people look at the same place but notice different things?

Optional Extension Activities

1. Look Beneath a Rock

If there is an appropriate and safe outdoor area, students can carefully look beneath a rock.

Record:

Location — Damp or Dry — Animals Seen — Plants Seen — Other Observations

Students should replace the rock in its original position after observing.

2. How a Pill Bug Rolls

Use the science illustration showing a pill bug curling into a ball.

Students describe the sequence using:

First — Next — Then — Finally

Older or stronger ESL students can write one complete sentence for each stage.

3. Animal Classification Chart

Animal	Animal Group	Legs	Special Feature
Pill bug	Crustacean	Many	Some can roll into a ball
Centipede	Myriapod	Many	Predator
Beetle larva	Insect larva	6	Young stage of a beetle
Snail	Mollusk	0	Spiral shell
Salamander	Amphibian	4	Breathes through moist skin

4. Draw the Hidden Habitat

Ask students to draw the space beneath a mossy stone.

They can label:

stone — moss — soil — roots — leaves — pill bug — centipede — snail — salamander

More advanced students can write three sentences describing why the habitat is good for small animals.

5. Science Detective

Ask students to find evidence in the story that the space beneath the stone is:

dark

cool

damp

protected

Students should point to words or events in the story that support each answer.

6. Design a Microhabitat

Students draw a protected place for one of the animals in the story.

They must include at least three things the animal needs, such as:

shade — moisture — soil — leaves — hiding places

Then describe their habitat to a partner.

Teacher Note

The Secret Life of Mossy Stones combines Grade 4 reading comprehension with introductory life science.

The story can be used to teach:

Reading skills

- literal comprehension
- sequencing
- inference
- cause and effect

- compare and contrast
- vocabulary in context
- WH-question formation and response

Science concepts

- microhabitats
- amphibians
- crustaceans
- insect larvae
- centipedes
- land snails
- animal adaptations
- the importance of moisture and shelter

For beginning ESL learners, select a smaller group of high-use words such as **rock, moss, soil, damp, snail, bug, leaf, wet, under, and move.**

Intermediate learners can work with the complete vocabulary list and comprehension questions.

More advanced learners can use the science sections for classification, comparing animals, explaining cause and effect, and giving evidence from the text.

Maya's rescue of the salamander also creates an opportunity to discuss the difference between **observing a wild animal** and **handling one because it is in immediate danger**. In the story, she normally avoids touching salamanders because of their delicate skin, but intervenes because the animal is trapped.