



pets in the
classroom

Spectacular Spiders

Adapted from	https://petsintheclassroom.org/wp-content/uploads/2015/08/Learning-About-Spiders-Pano-PreK-2nd-Small-Animal.pdf
Pet: Spiders	Class: PK-2

Brief Overview: This engaging STEM lesson will introduce kindergarteners to the unique characteristics and behaviors of spiders, fostering curiosity and appreciation for these often misunderstood creatures. This lesson encourages students to think critically about the purpose of spider webs and how they play a vital role in the survival of these eight-legged creatures. By exploring the different types of webs and their functions, students will gain a deeper understanding of the unique adaptations of spiders.	Lesson Breakdown Lesson 1: Learning About Spiders Lesson 2: How Do Spiders Live? Lesson 3: Create a Spider Web
Essential Question How do spiders use their webs to survive?	

Subjects <ul style="list-style-type: none"><input checked="" type="checkbox"/> Science<input checked="" type="checkbox"/> ELA<input checked="" type="checkbox"/> Math<input checked="" type="checkbox"/> STEM<input type="checkbox"/> Art<input type="checkbox"/> Other	Stem Connections Science: how do spiders live Technology Engineering: create a spider web Math: counting responses, measuring
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Performance Expectations/ Standards

NGSS Standards:

NGSS.K-LS1-1. Use observations to describe patterns of similarities and differences among plants, animals, and their environments.

NGSS.K-ESS3-2. Use observations and data to describe patterns in weather changes.

NGSS.K-2-ETS1-1. Design solutions to a problem using a simple design process.

CCSS:

CCSS.ELA-K.RL.1. Read with purpose and understanding.

CCSS.ELA-K.SL.1. Participate in conversations and discussions with peers and adults.

CCSS.ELA-K.W.1. Use a combination of drawing, dictating, and writing to compose informative or narrative texts.

CCSS.MATH.K.CC.1. Count to 100 by ones and tens.

CCSS.MATH.K.MD.1. Describe and compare measurable attributes of objects, such as length, height, and weight.

I CAN statements

- identify and describe the main characteristics of spiders.
- explain how spiders use their webs to catch prey.
- design and create a simple spider web using various materials.
- communicate my understanding of spiders through drawings, writing, and oral presentations.

Materials

Books: (other books may be substituted)

"The very busy spider" by Eric Carle

"Miss Spider's Tea Party" by David Kirk.

Masking tape

White paper

White crayons

Black watercolor paint

Small pictures of spiders

Alphabet spider cards

Meter or yard sticks

Teacher Background

Spiders, with their eight legs, intricate webs, and diverse adaptations, have long captivated human curiosity. These fascinating creatures, belonging to the class Arachnida, are abundant and diverse, inhabiting nearly every corner of the globe. From the delicate orb weavers that adorn gardens to the elusive tarantulas that reside in burrows, spiders play vital roles in ecosystems as predators and prey.

Anatomy and Adaptations

Spiders possess a unique body plan divided into two main parts: the cephalothorax and the abdomen. The cephalothorax houses the head, which bears eight eyes, two pairs of appendages, and the chelicerae, specialized mouthparts used for injecting venom. The abdomen, connected to the cephalothorax by a narrow stalk, contains the internal organs and spinnerets, the silk-producing organs.

Spiders' adaptations are remarkable, enabling them to thrive in a variety of environments. Their eight legs provide agility and maneuverability, allowing them to climb, crawl, and even jump. Their silk, a protein-based fiber, is incredibly strong and versatile, used for web construction, prey capture, and even transportation.

Webs: A Tapestry of Silk

Spiders' most iconic feature is their webs, intricate structures woven from silk. These webs serve various purposes, including capturing prey, providing shelter, and even serving as communication signals. Different spider species construct distinct web types, each tailored to their specific hunting strategies.

Orb weavers, known for their circular webs adorned with sticky droplets, patiently await prey to entangle themselves. Wolf spiders, on the other hand, actively pursue their prey, relying on their webs as temporary snares.

Venoms and Feeding

Spiders are venomous creatures, using their venom to subdue and incapacitate their prey. Their venom, injected through the chelicerae, contains neurotoxins that affect the nervous system of their victims. While most spider venoms are harmless to humans, a few species, such as black widows and recluse spiders, can cause serious bites requiring medical attention.


Spiders exhibit a diverse range of feeding strategies, reflecting their varied habitats and prey choices. Some spiders, like orb weavers, capture flying insects, while others, like wolf spiders, hunt ground-dwelling insects or even small vertebrates.

Ecological Significance

Spiders play crucial roles in maintaining ecological balance as predators. They regulate insect populations, preventing outbreaks that could harm crops or spread diseases. Their webs also serve as habitats for other invertebrates, creating a complex web of life within ecosystems.

Conservation and Human Interactions

Despite their importance, spiders face threats from habitat loss, pesticide use, and human misconceptions. Education and outreach are essential to promote understanding and appreciation of these fascinating creatures.

Lesson 1: Learning About Spiders		
Time	Materials	Activity
15 mins		<p>Gather the students and introduce the question of the day: How do we feel about spiders?</p> <p>On the board, create a graph, "How Do You Feel About Spiders?" and record the students' responses. Have the students make a happy face for those who like spiders and a sad face for those who don't like spiders or are afraid of them. Have the student count up their responses together.</p>
15 mins	Alphabet spider cards (teacher chooses the letters to use)	<p>Play Smack that spider!</p> <p>Description: Use alphabet spider cards and a fly swatter to play this game. Teacher will be calling out a letter and the children should be able to smack (with the fly swatter) the spider with the letter the teacher has called out.</p> <p style="text-align: center;">Sample Card:</p> <div style="text-align: right;">  </div>
15 mins	<p>"The very busy spider" by Eric Carle</p> <p>Or other book</p>	<p>Read: "The very busy spider" by Eric Carle</p> <p>Afterwards, have a class discussion about the book. Ask the students:</p> <ul style="list-style-type: none"> Why do spiders make webs? What do you like to build? Which animals visited the spider while it was making a web? How did the spider feel at the end of the story?

Lesson 2: How Do Spiders Live?

Time	Materials	Activity
10 mins		<p>Where do spiders live?</p> <p>Explain to the children that spiders can thrive and live in almost any place: on the edges of the ocean, on plants, under rocks, in trees, in caves and even over the water. The only places that spiders cannot inhabit are the oceans, the highest mountains and the polar regions. Spiders are seen on almost every continent.</p>
15 mins	Spider web on the floor with masking tape Meter stick	<p>Using masking tape, create a spider web on the floor. Have the children take turns jumping on to the spider web and measuring their efforts. Write these on the board so students can see how far they jumped.</p>
10 mins		<p>Ask students, "What do spiders eat and drink?"</p> <p>Explain to the children that spiders will eat nearly any sort of insect. Some spiders hunt the insects that they eat, while others may spin a web or wait in a burrow until an insect walks by or flies in. Spiders drink water from natural sources.</p>
10 mins		<p>Ask the students, why do spiders need webs?</p> <p>Explain that spider webs serve various purposes, including capturing prey, providing shelter, and even serving as communication signals. Different spider species construct distinct web types, each tailored to their specific hunting strategies.</p>

Lesson 3: Create a Spider Web		
Time	Materials	Activity
10 mins	White paper (Or paper plate) White crayon Paintbrush Black water color paint Water for clean up	<p>Have the students draw a spider web of their own design on a sheet of white paper using a white crayon. (different colored crayons can also be used)</p> <p>Create a crayon resist picture by having the students paint over their crayon drawing with black watercolor paint - the wax of the crayon will resist the paint.</p>

Lesson 3: Create a Spider Web

15 mins	"Miss Spider's Tea Party" by David Kirk.or other book	While the paintings are drying, read the story. "Miss Spider's Tea Party" by David Kirk. Ask the children, What is Miss Spider setting up to do? How many beetles did she invite? How many cups did Miss Spider set for her tea party? What did Miss Spider do after everyone flew away?
10 mins	Small pictures of spiders Coloring supplies	Have the students glue the sample pictures of spiders onto their webs. Transcribe their dictated stories, preserving their unique voices and ideas.
10 mins		Encourage the students to share their webs and stories with the class.

Differentiation

For students who need more support, provide a template to guide their web creation. Suggest sentence starters for their stories to get them started or allow them to dictate their stories. Assist them with measuring their jumps

For advanced students, challenge them to create a 3D spider web using yarn and sticks.

Assessment				
Criteria	Exemplary (4 points)	Proficient (3 points)	Developing (2 points)	Needs Improvement (1 point)
Spider Web Creation	Creates a spider web that is intricate and detailed	Creates a spider web that is somewhat intricate and detailed	Creates a spider web that is simple and lacks detail.	Creates a spider web that is incomplete or inaccurate.

Story Dictation	Dictates a story that is creative, engaging, and easy to follow. Uses descriptive language and dialogue.	Dictates a story that is somewhat creative and engaging. Uses some descriptive language and dialogue.	Dictates a story that is simple and lacks creativity. May have difficulty using descriptive language or dialogue.	Dictates a story that is incomplete or difficult to follow.
Story Sharing	Shares the story with the class in a clear, confident, and engaging manner. Uses appropriate body language and eye contact.	Shares the story with the class in a somewhat clear and confident manner. Uses some appropriate body language and eye contact.	Shares the story with the class in a hesitant and unclear manner. May have difficulty using body language or eye contact.	Does not effectively share the story with the class.

Extension

- Read additional stories and books about spiders to further engage students' interest in these creatures.
- Create a classroom spider web corner where students can display their spider web creations and share their knowledge about spiders.
- Create a large classroom sized spider web
- Capture a spider and allow students to watch it for a short time before releasing it .