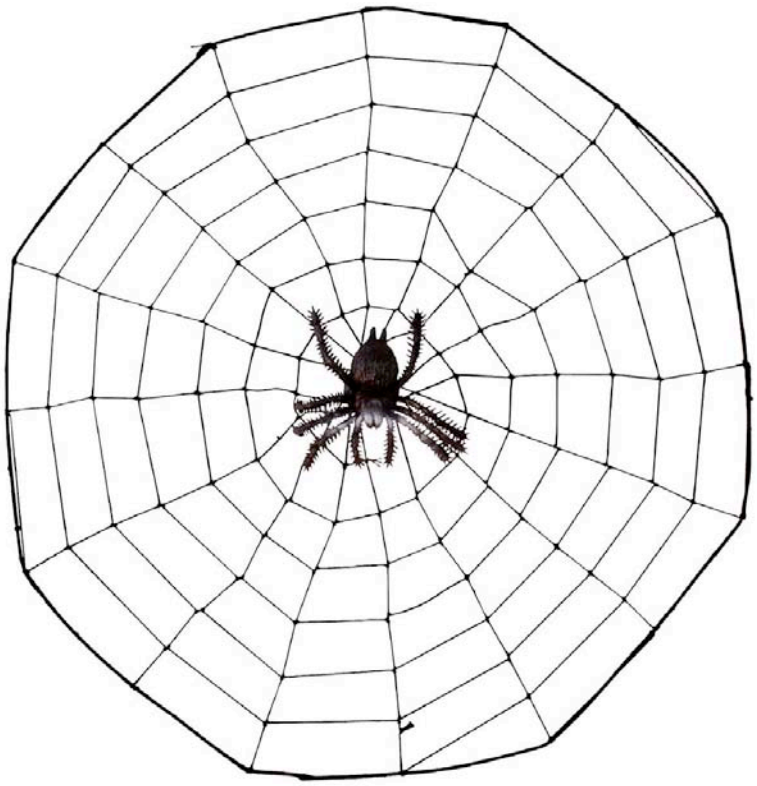
SPIDER Unit Overview

By Rebecca K. Fraker



After the introduction, classification, and informational lessons, these lessons do not have to be done in any particular order. Some lessons can be done simultaneously with others. If you wish to do the Spider Honor, students should start on the spider-identifying part early in the unit. Spider Vocabulary should also be started early. The webquest can also be worked on as part of each day.

Lessons and Resources:

First Lesson: Spiders Starting With A Bang

Classification

All About Spiders

Spider Body Parts

Spider Silk and Webs

Spider Vocabulary

Literature Connection: Spiders Save the Day

Spider Worships

Spider Silk and Webs

Spider Math

Art Music Poetry

Bibliography

Pathfinder Spider Honor

Worksheets

Webquest: A Tarantula Needs A Home

Powerpoints:

Families of Spiders
Poisonous Spiders
Webs

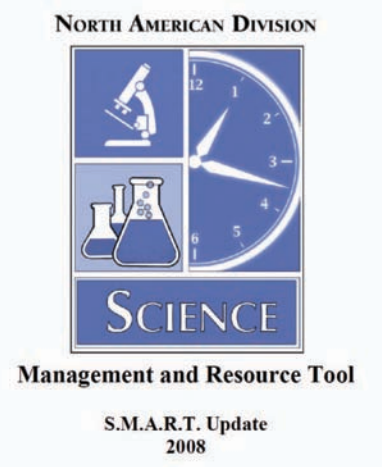
Powerpoint Game: Spider Jeopardy

Video Clips:

It Was a Dark and Stormy Day
Let's Draw Spiders
Students Sing *The Eency Weency Spider*
Preparing For the Spider Unit
Space Spiders
Arkive: Spiders Alive

These lessons follow the planning in the North American Division's SMART resource (Science Management and Resource Tool), Cycle 3. The entire manual can be downloaded in pdf form from CIRCLE.

This material can be easily adapted for grades K through 12. In fact, while it was being developed many of my church members enthusiastically collected spiders, identified them for me, and contributed a lot of information. More than one person told me how looking consciously for spiders made them more aware of their environment.



SCIENCE CURRICULUM MAP: GRADES 1-4

	Cycle 1 Lower	Cycle 2 Lower	Cycle 3 Lower	Cycle 4 Lower
1st Qtr Life Science	Living Things Characteristics Classification Animals Fish Birds Reptiles/Amphibians Mammals Ecology Environmental Issues Natural Resources Careers and Service	Human Body Organization Sense Organs Teeth, Skeletal/Muscular System Respiratory/Circulatory System Immune System Digestive/Excretory System Careers and Service	Cells Animals Growth/Development/Behavior Organisms Invertebrates/Worms Insects/Arthropods Arachnids Careers and Service	Plants Classification Structure/Function/Importance Growth/Life Cycle Photosynthesis Reproduction Ecology General Information/Food Chain Communities/Population Careers and Service
2nd Qtr Health	Mental/Emotional Health Decision Making Self-Concept Emotions Stress Family/Social Health Family Structure Communication Careers and Service	Nutrition Nutrients Food Pyramid Dietary Guidelines Education Safety/First Aid Public Safety Recreational Safety Careers and Service	Drugs Decision Making Effects Medicines Health Principles Biblical Principles Natural Laws Careers and Service	Consumer Health Health Care Preventative/Curative Community Health Education/Resources Communicable Diseases/ Immune System Disease Transmission Careers and Service
3rd Qtr Physical Science	Heat Energy/Waves Sound Light Careers and Service	Magnetism Electricity General Information Static Electricity Current Electricity Careers and Service	Force Friction/Gravity/Mass/Weight Motion Careers and Service	Chemistry Matter Atomic Structure Mixtures/Compounds Basic Energy Simple & Compound Machines Careers and Service
4th Qtr Earth and Space Science	Meteorology General Information Weather Elements Seasons Climate Atmosphere Water (Hydrologic) Cycle Careers and Service	Geology Earth's Features Genesis Flood Earthquakes/Volcanoes Minerals/Rocks Erosion Soil Pollution Careers and Service	Origin of the Universe Astronomy History Space Exploration Solar System General Information Sun/Stars Moon Asteroids, Meteoroids & Comets The Universe Constellations Careers and Service	Creation & Evolution Geology Fossils Dinosaurs Ecology Natural Resources Environmental Issues Careers and Service

SCIENCE CURRICULUM MAP: GRADES 5-8

	Cycle 1 Upper	Cycle 2 Upper	Cycle 3 Upper	Cycle 4 Upper
1st Qtr Life Science	Science Inquiry Living Things Characteristics Classification Animals Fish Birds Reptiles/Amphibians Mammals Animal Behavior Careers and Service	Science Inquiry Cells Cell Theory & Characteristics Structure Processes Human Body Organization Sense Organs Skeletal, and Muscular Systems Integumentary System Respiratory & Circulatory Systems Nervous System Careers and Service	Science Inquiry Simple Animals Invertebrates Sponges, Cnidarins & Worms Mollusks & Echinoderms Arthropods General Characteristics Insects & Arachnids Centipedes/Millipedes & Crustaceans Monerans (Bacteria) Protista Fungi Viruses Genetics Nucleus & Genetic Engineering Heredity Careers and Service	Science Inquiry Plants Classification Structure & Function Processes Reproduction Responses Ecology General Information Adaptation Food Chains Careers and Service
2nd Qtr Health	Personal Mental Health Personality Self-Concept Emotional Health Conflict Management Development Conception to Birth Puberty Reproductive System Sexual Behavior Careers and Service	Human Body Digestive System Excretory System Nutrition Nutrients Food Pyramid & Dietary Guidelines Eating Disorders Mentally/Physically Challenged Safety/First Aid Careers and Service	Drugs General Information Effects Decision Making Human Sexuality Sexual Feelings God's Plan & Sexual Issues Sexual Behavior Careers and Service	Preventative/Curative Health Care Community Health Education & Resources Teen Health Risks Risk Factors & Challenges Diseases Communicable Diseases Immune System Disease Transmission STDs & HIV/AIDS Careers and Service
3rd Qtr Physical Science	Heat Energy/Waves General Information Electromagnetic Spectrum Sound Light General Information Colors Mirrors/Lenses/Lasers Careers and Service	Magnetism Electricity Static & Current Electricity Safety, Generation & Measurement Applications Circuits, Cells/Batteries & Electronics Careers and Service	Force Basic Force Gravity Mass/Weight Elastic, Nuclear & Electric/Magnetic Friction Motion Basic Motion Laws of Motion Careers and Service	Chemistry Matter Atomic Structure Atomic Nucleus Mixtures Compounds Chemical Reactions Acids/Bases Potential/Kinetic Energy Work/Power, Machines & Mechanical Advantage Careers and Service
4th Qtr Earth and Space Science	Meteorology Weather & Climate Weather Elements Climate Atmosphere Global Warming Water (Hydrologic) Cycle Oceanography Environments Resources Tides/Currents/Waves Careers and Service	Geology Earth's Features Genesis Flood & Ice Age Tectonics Earthquakes & Volcanoes Minerals/Rocks Erosion & Weathering Careers and Service	Origin of the Universe Space Exploration Solar System General Information Planets Moon Asteroids, Meteoroids & Comets Sun The Universe Stars Galaxies and Constellations Careers and Service	Creation Evolution Earth's Age Geologic Column, Fossils & Dinosaurs Ecology Natural Resources Environmental Issues Careers and Service

STRAND 3: LIFE SCIENCE

Cycle: 3 Lower

SUB-TOPIC: Characteristics of Organisms
Focus: Animals: Arachnids **Pacing: 1 day**

ESSENTIAL LEARNING ELEMENTS:

Know the dangers of poisonous spiders (K)

LEARNING POINTS:

1. Identify characteristics of arachnids
2. Know dangers of poisonous spiders
3. Distinguish between insects and spiders

SPIRITUAL APPLICATIONS:

1. Isaiah 59:5, 6
2. Job 8:14

RESOURCES:

Scott Foresman Science, '03
– Gr. 1, Unit A, Ch. 2
– Gr. 3, Unit A, Ch. 2, Science Reference Section, p. 38
– Gr. 4, Unit A, Ch. 2

ASSESSMENT/INSTRUCTIONAL IDEAS:

1. Research arachnids and work in groups to chart differences between insects and spiders.
2. Draw and label the three main body parts of an insect.
3. Dissect a crab.

STRAND 3: LIFE SCIENCE

Cycle: 3 Upper

SUB-TOPIC: Characteristics of Organisms
Focus: Simple Animals: Invertebrates **Pacing: 1 day**

ESSENTIAL LEARNING ELEMENTS:

Distinguish between vertebrates and invertebrates (7th)

LEARNING POINTS:

1. Identify several phyla of invertebrates
2. Distinguish between bilateral and radial symmetry

SPIRITUAL APPLICATIONS:

1. Genesis 1:20-25
2. Discuss examples of symmetry in personality, lifestyle, and character.
3. An exoskeleton/endoskeleton provides strength, support, and protection as God does.

RESOURCES & INSTRUCTIONAL IDEAS:

1. *Explore God's World* – Ch. 6, p. 141-145
2. Illustrate both bilateral and radial symmetry using several invertebrates of choice

NAD ESSENTIAL UPDATE:

- Invertebrates - Research

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STRAND 3: LIFE SCIENCE

Cycle: 3 Lower

SUB-TOPIC: Characteristics of Organisms
Focus: Animals: Insects/Arthropods **Pacing: 3 days**

ESSENTIAL LEARNING ELEMENTS:

Explain how insects are both harmful and helpful (K)

LEARNING POINTS:

1. Identify characteristics of insects
2. Identify common insects
3. Explain how insects are both harmful and helpful
4. Identify social insects
5. Explain the interaction of social insects within a colony
6. Explain how insects adapt to the environment
7. Identify and describe stages in the life cycle of an insect
8. Distinguish between moths and butterflies

SPIRITUAL APPLICATIONS:

1. Proverbs 6:6; 30:25, 27
2. Psalm 78:45
3. Exodus 8:21

RESOURCES:

Scott Foresman Science, '03
– Gr. 1, Unit A, Ch. 2
– Gr. 2, Unit A, Ch. 2
– Gr. 3, Unit A, Ch. 2
– Gr. 4, Unit A, Ch. 2, Science Reference Section, p. 41

ASSESSMENT/INSTRUCTIONAL IDEAS:

1. Research an insect, make a detailed drawing, write a short description of where it is found, what it eats, etc.
2. Make a model of an insect with clay and pipe cleaners.
3. Collect, mount and identify a set of different kinds of insects. Classify them as harmful or useful to farmers.
4. Observe the life cycle of a beetle (see *Scott Foresman Science, '03* – Gr. 3, p. A40-41).

STRAND 3: LIFE SCIENCE

Cycle: 3 Upper

SUB-TOPIC: Characteristics of Organisms
Focus: Arthropods: General Characteristics
Pacing: 1 day

ESSENTIAL LEARNING ELEMENTS:

Identify the characteristics and structures of sponges, cnidarians, worms, mollusks, echinoderms, and arthropods (7th)

LEARNING POINTS:

1. Describe characteristics of arthropods
2. Describe the function of an exoskeleton
3. Explain the process of molting
4. Identify the major classes of arthropods

SPIRITUAL APPLICATIONS:

Compare molting with conversion: old ways are shed, true change comes from within, we are vulnerable while waiting for new skin to harden, and the process occurs because of growth. Colossians 3:8-14

RESOURCES & INSTRUCTIONAL IDEAS:

1. *Explore God's World* – Ch. 8, p. 179-184
2. Identify arthropods from a large sample of animals.

NAD ESSENTIAL UPDATE:

- DE: Those Amazing Arthropods!

STRAND 3: LIFE SCIENCE

Cycle: 3 Upper

SUB-TOPIC: Characteristics of Organisms
Focus: Arthropods: Insects and Arachnids **Pacing: 2 days**

ESSENTIAL LEARNING ELEMENTS:

Identify the characteristics and structures of sponges, cnidarians, worms, mollusks, echinoderms, and arthropods (7th)

LEARNING POINTS:

Insects
1. Identify characteristics of insects
2. Distinguish between incomplete and complete metamorphosis
3. Identify common insect orders and examples
4. Explain how insects are helpful and harmful

Arachnids
1. Describe characteristics of arachnids
2. Explain how spiders are different from other arachnids

SPIRITUAL APPLICATIONS:

1. II Corinthians 5:17
2. Discuss, and research in Spirit of Prophecy, statements regarding how all creation is unselfish and serves others with the exception of fallen humans.
3. Parallel the ways spiders get their prey with soul-winning (some wait for prey, some go after prey and grab it). Jude 22-23

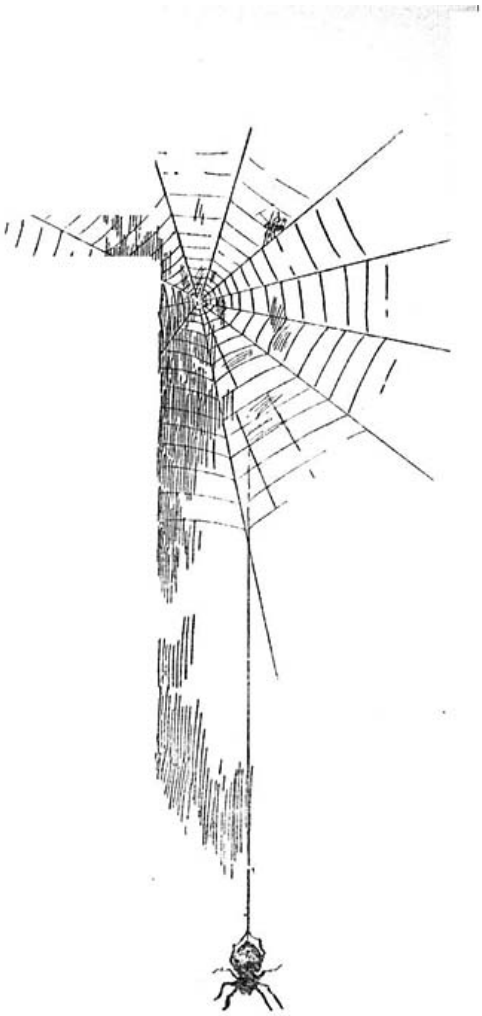
RESOURCES & INSTRUCTIONAL IDEAS:

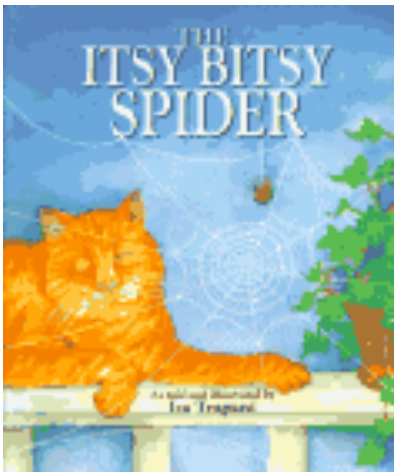
1. *Explore God's World* – Ch. 8, p. 188-201
2. Go on a "bug hunt." Collect and identify insects and arachnids.
3. Illustrate the stages of metamorphosis in several examples of insects.
4. Research a disease-carrying insect. Provide a solution for preventing the disease that is appropriate for the life cycle of the insect.

NAD ESSENTIAL UPDATE:

- Arachnid - Diagram
- Insect - Diagram
- Six-Legged Arthropods

BIBLIOGRAPHY





Spiders on the WEB

http://www.americanarachnology.org/ Advanced information. There are really great links on its page: **http://www.americanarachnology.org/peucetia.html**

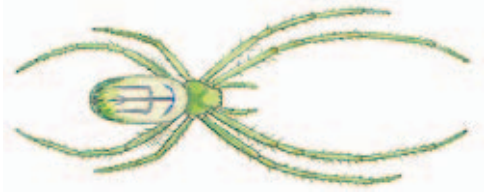
http://www.sedl.org/scimath/pasopartners/spiders/welcome.html Nice set of lessons and information about spiders

www.arkive.org This site does exactly what it says—it has images and videos of life on earth. There are dozens of short video clips and still photos of spiders. Search under **invertebrates.**

www.spiderzrule.com You'll almost feel as if this site has TOO much information. Lots of questions and answers you won't find any place else, such as "can a spider bite kill a pet?"

Spider Bites

http://www.badspiderbites.com/ Here you can find info on spider bites. The most interesting feature of this site, though, is an interactive site that shows how different substances affect the spider web. **http://www.badspiderbites.com/spiders-on-drugs/** **This is a must-see site.**



THE SPIDERS MYTH SITE

http://www.washington.edu/burkemuseum/spidermyth/ Look here to debunk many of the spider myths that are around. Some of these you have probably repeated as truth.

NATIONAL GEOGRAPHIC

http://animals.nationalgeographic.com/animals/?source=NavAniHome
Information and a few video clips.

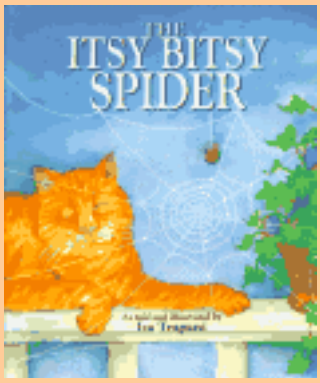
SAN DIEGO ZOO http://www.sandiegozoo.org/zoo/index.php

There are clips, info, games, and crafts on this site.

Books

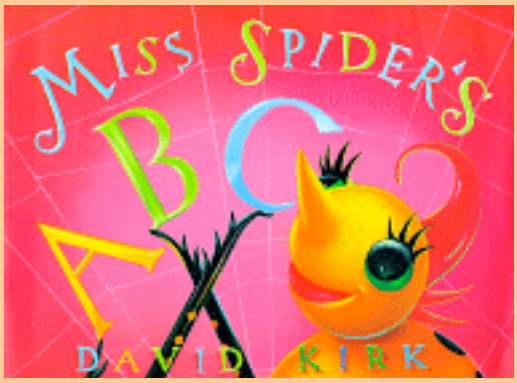
I shamelessly copied these recommended books from the Kinderkorner site. Kinderkorner.com/spiders is a great resource spot for lower grades. These books are linked to the Amazon site for purchasing.

These books are recommended and formatted on the Kinderkorner site at http://www.kinderkorner.com/spiders.html



The Itsy Bitsy Spider
My class LOVES this book! The traditional fingerplay gets five new verses as the spider climbs the kitchen wall, a pail, a rocking chair, and a maple tree, and has encounters with a cat and a mouse.
A must-have book with beautiful watercolor pictures. Under $6.

The Very Busy Spider
A board book edition of the best-selling story features thermographic pages and a raised spider web children can feel for themselves. Under $5
Also available in hardcover.



Miss Spider's ABC
From ants to the zebra butterfly, Miss Spider's friends prepare for her giant surprise birthday party: "Bumblebees blow balloons ... Earthworms entertain ... Fireflies fandango ... Moths mingle ... Owlflies ogle."
More Miss Spider books can be found further down this page.

Mighty Spiders!

A Hello Science Reader
From tiny spiders the size of a grain of sand to their larger relatives that are bigger than your hand, this delightful rhyming book introduces children to the world of amazing arachnids. Under $3.

Spiders

A beautiful science book from popular author Gail Gibbons, presenting the diversity of spider habitats and behavior, and explaining the way different spiders build their webs. Under $6.

Spider's Lunch

By acclaimed Magic School Bus author Joanna Cole
An introduction to the arachnid world explains how a hungry garden spider must obtain food by carefully building a web and then patiently waiting to catch something. Under $4.

Amazing Spiders

Dramatic photos, time-lapse sequences, and detailed artwork show how a spider spins a web. Learn about a spider that flings its own poisonous hairs at its enemies, and about spiders as large as a dinner plate.

Anansi The Spider

A Caldecott Honor Book
When Anansi sets out on a dangerous journey and gets into all sorts of trouble, each son does one thing to help, and all their efforts together save their father. Under $5.

The Lady and the Spider

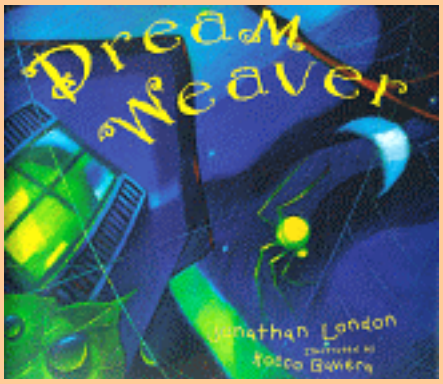
A Reading Rainbow book
A spider who lives in a head of lettuce is saved when the lady who finds her puts her back into the garden. I also use this book during my Come Into the Garden unit. Under $5.

Spiders Have Fangs ... and Other Amazing Facts About Arachnids

From the "I didn't know that" series ... lots of information that your students will love.

Spectacular Spiders

A young girl takes readers on a tour of her yard, explaining how garden spiders trap insects for food, spin webs, and leave retractable silk draglines wherever they go.

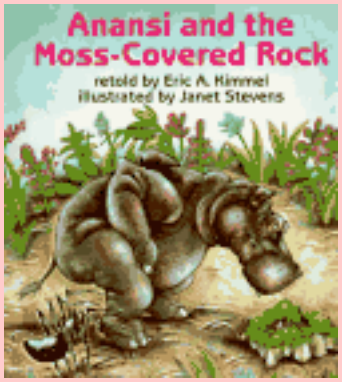


Dream Weaver

An evocative, hypnotic picture book about a little boy watching a tiny yellow spider, in the up-close and personal vein of Verdi and Stellaluna. My personal favorite spider story.

Be Nice to Spiders

A sweet story about a little boy who gives his spider to the zoo, because his apartment doesn't allow pets. Lots of good information.

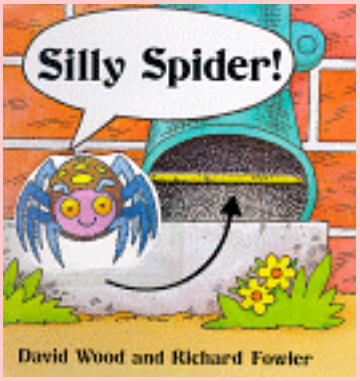


Anansi and the Moss-Covered Rock

Anansi the Spider uses a strange moss-covered rock in the forest to trick all the other animals, until Little Bush Deer decides he needs to learn a lesson. Under $6.

The Adventures of Spider

Six folktales about Spider, including those which explain how he got a thin waist and a bald head and why he lives in ceilings and dark corners.



Silly Spider!
A spider pops up all around the bathroom -- in the sink, under the soap, behind a towel. Features a separate spider that slips through die-cut holes and pops up behind flaps on the following page.

Extremely Weird Spiders
A wonderful book filled with pictures the kids really enjoy!
Under $5.

Insects and Spiders Eye-to-Eye
Through the magic of stereographic photography, readers to come face-to-face with some of nature's coolest creatures.
Under $8.

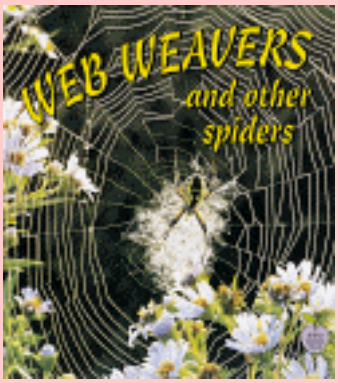
Identifying Spiders
Outstanding photos everyone will enjoy!
Under $8.

The Little Buggers
Insect & Spider Poems
Twenty Four poems that will make your students laugh and giggle ... fun pictures and great rhymes!

Nature Watch Spiders
Written for older students, this book still makes a fine addition to your classroom library and is a hit on the science table!

Spiders Spin Webs

Incredibly lush illustrations and simple, airy verse introduce 15 types of arachnids: "Spiders spin webs / Like weavers of old, as / Their spinneret patterns, / Like magic, unfold. / That's how spiders spin webs." Under $6.



Web Weavers and Other Spiders

You'll squirm over the stunning full-color close-ups of strange and dangerous arachnids doing what they do best - spinning, trapping, and slowly digesting their prey. Under $5.

Like Jake and Me

A Newberry Award winning book. Alex feels he doesn't have much in common with his stepfather Jake until a fuzzy wolf spider brings them together. Highly recommended.

My reference books

How & Why: Spiders Spin Silk by Elaine Pascoe, 2002, Gareth Stevens Publishing, 330 West Olive Street, Suite 100, Milwaukee, WI 53212, USA, 24 pages.

Spiders by Rebecca Gilpin, 2002, USBORNE Publishing LTD, 83-85 Saffron Hill, London, England, 32 pages

Charlotte's Web