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MAKING SILK THREADS

Spider Silk 200 micron

This image depicts the silk strands of a spider, at high-powered magnification. Russ Crutcher, of <u>Microlab NW</u>, has graciously made this image of spider silk available. Click on it for a better view.

Web-spinning spiders have glands which make silk. The silk is a <u>protein</u> which spiders can eat and recycle. Each gland produces a different type of silken thread. <u>Those threads</u> perform different functions in the webspinning/prey-capturing process, such as:

- Attaching threads
- Walking threads
- Sticky threads
- Adhesive threads
- Prey-encapsulating threads
- Cocoon-spinning threads

When we examine a spider's anatomy, we see it has "<u>spinners</u>." Those spinners (or spinnerets) are like little nozzles which shoot-out the threads made in the spider's glands. They, together with the spider's legs, are the tools needed to weave a web.

Different types of spiders spin different types of webs. Their glands and spinnerets also look different. Thanks to the <u>California Academy of Sciences</u>, we can examine highly magnified glands and spinnerets (the "A" picture is the overview for each) in the following spiders:

- <u>Hypochilus pococki</u>, North Carolina
- <u>Filistata insidiatrix</u>, Siena, Italy
- Megadictynathilenii, New Zealand
- <u>Goeldia</u>, Chile

When the silk thread first comes out of the spider's body, it is a liquid. It becomes a solid when the air mixes with it.

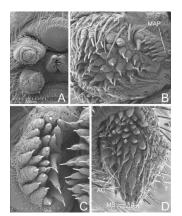
The spider is now ready to begin spinning a web.

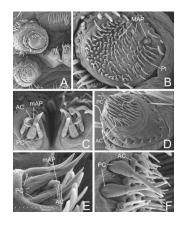
See Alignments to State and Common Core standards for this story online at: http://www.awesomestories.com/asset/AcademicAlignment/MAKING-SILK-THREADS-Charlotte-s-Web

See Learning Tasks for this story online at: http://www.awesomestories.com/asset/AcademicActivities/MAKING-SILK-THREADS-Charlotte-s-Web

Media Stream









<u>Spider Spinners</u> <u>Image, described above</u>, online courtesy Ed Nieuwenhuys. PD View this asset at: <u>http://www.awesomestories.com/asset/view/Spider-Spinners</u>

Glands and Spinnerets of North Carolina Hypochilus Pococki Image online, courtesy California Academy of Sciences (San Francisco) "Atlas of Entelegynae." PD View this asset at:

http://www.awesomestories.com/asset/view/Glands-and-Spinnerets-of-North-Carolina-Hypochilus-Pococki

<u>Glands and Spinnerets of Siena, Italy Filistata Insidiatrix</u> <u>Image online</u>, courtesy California Academy of Sciences (San Francisco) "Atlas of Entelegynae." PD

View this asset at:

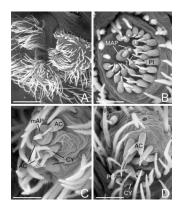
http://www.awesomestories.com/asset/view/Glands-and-Spinnerets-of-Siena-Italy-Filistata-Insidiatrix

Glands and Spinnerets of New Zealand Megadictynathilenii

Image online, courtesy California Academy of Sciences (San Francisco) "Atlas of Entelegynae."

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Spider Silk 200 micron

<u>Glands and Spinnerets of Chile Goeldia</u> <u>Image online</u>, courtesy California Academy of Sciences (San Francisco) "Atlas of Entelegynae." PD

View this asset at: http://www.awesomestories.com/asset/view/Glands-and-Spinnerets-of-Chile-Goeldia

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