



Activity 601A
Properties of Materials

Silk By the Yard

Objective Experiment with the quantity and flexibility of spider silk.

What You Need Yardstick
Scissors
Clock with second hand

Ball of string
Meter stick

Safety Follow your parent's or teacher's rules for safety.

- Directions**
1. The average spider can easily produce about 32 yards of silk at a single setting.

Measure out 32 yards of string. The string will be your "silk".
 2. Select a "prey" to wrap the silk around. It may be a stuffed animal, beanbag chair, or a large pillow.
 3. Start winding the silk around the prey. Count and record the time (in seconds) that it takes to use up all the silk.

Time to Use Up Silk: _____ seconds

4. Spider silk may stretch as much as $\frac{1}{4}$ of its length before breaking. How much would your silk stretch before breaking?

Cut a piece of string that is equal to the amount that stretched.

Add this silk to the prey.

5. Why do you think spider silk needs to stretch so far before breaking?

- Go Further**
1. All spiders make silk, but not all spiders spin webs. Explore ways that these common Virginia spiders use silk: Jumping Spider, Nursery Web Spider, and Wolf Spider.
SpiderRoom.info . . . Spider Species . . . Virginia Species

2. A book in Europe states that a spider can spin about 30 meters of silk. How does this compare with 32 yards of silk? Explain your answer.

- Spider Math**
1. Three spiders decided to make their own spider silk quilt. Each spider spun out 10 yards of silk for the quilt. When they join all of their silk together how many yards long will the quilt be?
 2. One day a spider caught 2 flies and 3 crickets in its web. The fly is 2 grams and a cricket is 4 grams. What is the mass (grams) of the insects?

- Spider Literature**
1. Check out Spiders In the News to find out the latest in spider achievements!
SpiderRoom.info . . . Spider Experts

2. Read the book, **Spider Magic**, by Dorothy Hinshaw Patent.
SpiderRoom.info . . . Spider Yarns . . . Books . . . Non-fiction