

RAFT IDEAS

Topics: Ethnobotany,
Fiber Arts, Scientific
Exploration

Materials List

- ✓ Cotton fluff stands or other appropriate plant fibers
- ✓ Water

This activity can be used to support the teaching of:

National Curriculum for Social Studies:

- Traditions & culture (Theme 1, Culture)
- Knowledge and understanding of the past (Theme 2, Time, Continuity, and Change)

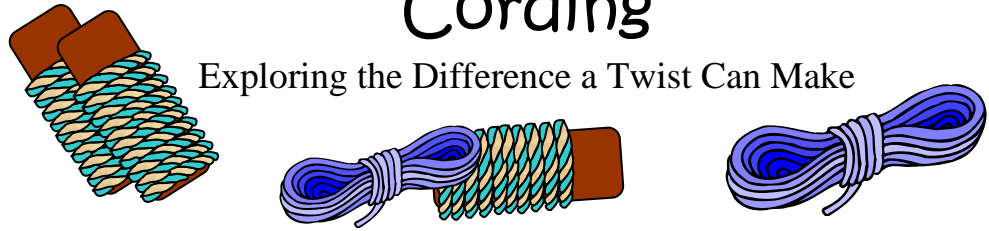
Next Generation Science Standards:

- Forces & Motion (Middle School, Physical Science 2-2)
- Science & Engineering Practices (grades 4-8)



Cording

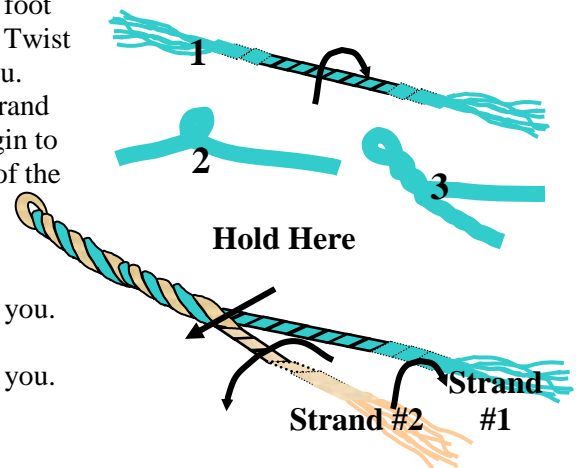
Exploring the Difference a Twist Can Make



Explore how fluffy, single fibers can be twisted together to form strong cording.

To Do and Notice

1. Examine the cotton fluff strands and notice how easily they pull apart. Cotton fibers are short, and before processing (spinning or cording) they are not attached together in any way, so they will simply pull apart. Cording (i.e. - twining) wraps individual strands around each other to create one long strand.
2. Start with a section of cotton about 1 foot long. Submerge the strand in water. Twist the middle inch tightly away from you. Release tension and notice that the strand will make a loop, fold in half and begin to wrap around itself, creating one end of the cord and 2 working strands.
3. Once started, the action is:
Twist, Twist, Switch:
 - a. Twist strand 1 tightly away from you.
 - b. Pull strand 1 over strand 2.
 - c. Twist strand 2 tightly away from you.
 - d. Pull strand 2 over strand 1.
 - e. Repeat. Repeat. Repeat...



Important Hints:

- Hold the cord taught just above the working strands!
- Keep working strands thoroughly wet.
- Add more fluff stands when necessary by overlapping a new strand with the old.
- If cording unravels after drying, try again but **twist** the **opposite** direction.

The Content Behind the Activity

People from around the world have turned plant fibers into cording for thousands of years. Cording was then used to tie objects together to make useful and necessary items such as fishing nets, shelters, bridges, and ship rigging. Pulling forces on the twisted cording are directed inward, actually tightening the fiber bond by increasing sliding friction and causing thousands of individual fibers to act as one.

Taking it Further

- Experiment with a variety of dyes to add color to produced cording: food coloring, Kool-aid, coffee or tea, or natural plant materials.
- Weave cording into finished textiles or use it to practice knots (RAFT Idea Sheets *Prism Heddle Loom* and *All Tied Up*)
- How much weight will the cord hold before breaking? Test it and find out!

Web Resources (Visit www.raft.net/raft-idea?isid=54 for more resources!)

For more information on:

Forces: <http://hyperphysics.phy-astr.gsu.edu/hbase/force.html#deform>

The largest ball of twine: www.roadsideamerica.com/attract/MNDARtwine.html