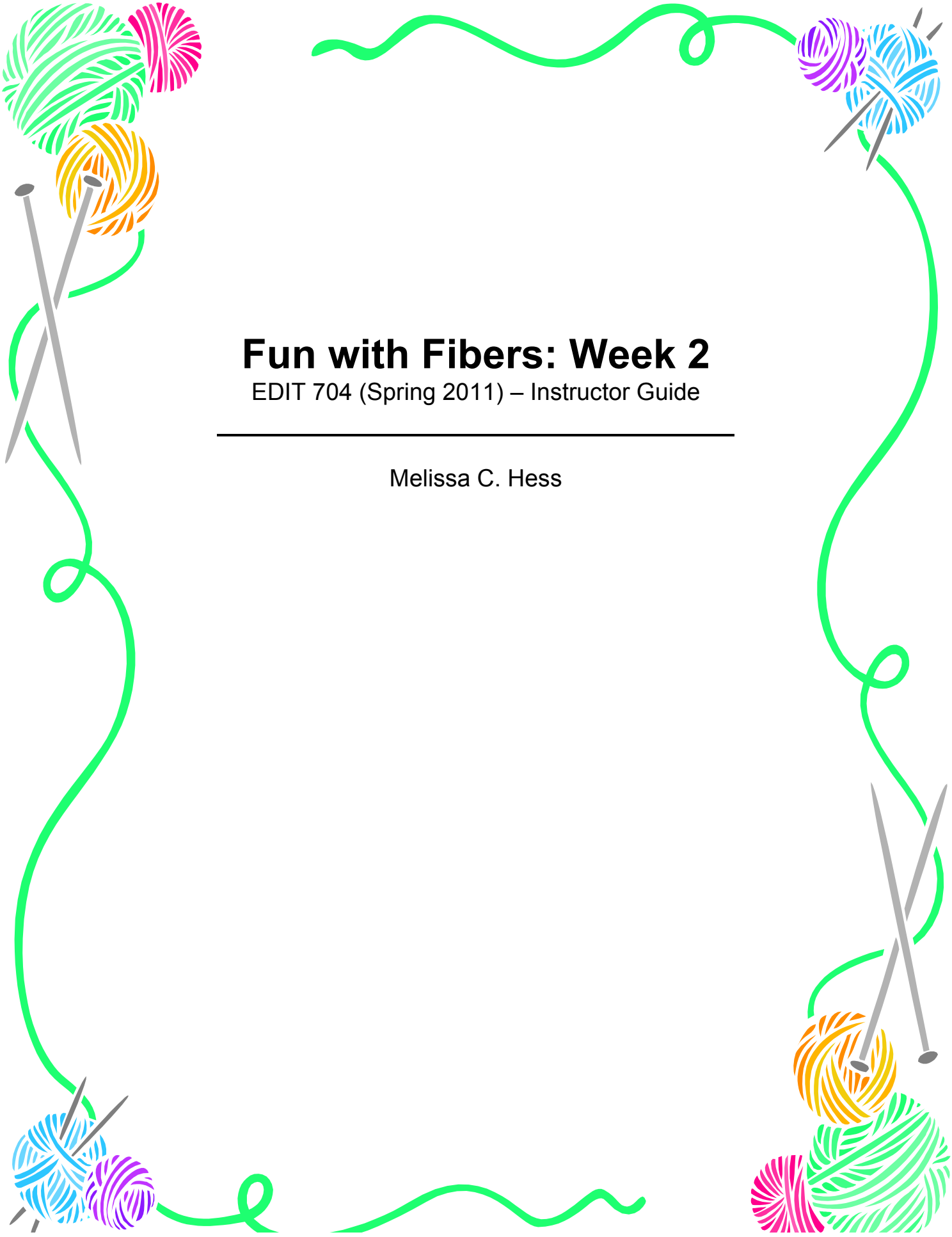

Fun with Fibers: Week 2

EDIT 704 (Spring 2011) – Instructor Guide

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Purpose
The purpose of this instructor guide is to assist the instructor with the delivery of a lesson about how to determine fiber types through a burn test to a class of up to eight adult participants that will work in groups of two.

Context
This lesson is intended to be the second in a series of four classes offered by a yarn shop regarding the different types of fibers that can be used for weaving, spinning, knitting, and crocheting.

Assumptions
This guide assumes the following:

- The instructor has experience determining fiber types through burn tests
- The instructor can explain the differences between the different fiber families and types

Objectives
Upon completion of this lesson, participants will be able to:

- Perform a burn test
- Distinguish between different types of cellulose and protein fibers based on the burn test results

Lesson Requirements
In order to facilitate this lesson, the instructor needs the following items:

- Work tables
- Up to nine chairs (one for each participant and one for the instructor)
- Up to nine tea light candles (two for each group and one for the instructor)
- Up to five metal pie pans (one for each group and one for the instructor)
- Up to five bowls (one for each group and one for the instructor)
- Several gallons of water
- A fire extinguisher
- Matches or a lighter
- Sufficient fiber samples of cotton, flax, hemp, alpaca, silk, and wool yarns in different colors and weights
- A copy of Judith MacKenzie McCuin's book *The Intentional Spinner: A Holistic Approach to Making Yarn* (ISBN 978-1-59668-080-7)
- One skein each of cotton, hemp, silk, and wool yarns

Icons

	This icon highlights information that should be communicated to the participants.
	This icon highlights notes to the instructor.
	This icon indicates when materials should be passed around to/by the participants.

Setup 

Before the beginning of class, place the tea light candle in the center of the pie pan. Fill the pie pan with approximately one-quarter inch (¼ inch) of water and place a bowl filled with water next to the pie pan. Repeat these steps for each group. Also, make as many copies of the advance organizer and the handout as there are participants signed up for the class.

Lesson Overview

Part	*Activity*	*Estimated Time*
I	Introduction	10 minutes
II	Burn Test Process	10 minutes
III	On Your Own	15 minutes
IV	Can You Tell the Fibers Apart?	15 minutes
V	Summary	10 minutes

Part I: Introduction **10 minutes**

As participants are getting settled into the class, start conducting burn tests using flax and silk; the flames for these types of fiber produce sparks and they smell strongly as they are burned. Once everyone is settled and paying attention, stop the tests and begin your introduction.

 Welcome. In this week's class, we are going to learn how to conduct a fiber burn test so that you can tell different yarns or fiber apart if you happen to loose the ball band. As a reminder, my name is _____. By the end of today's class you'll be able to perform burn tests, and will be able to distinguish between different types of cellulose and protein fibers based on their test results.

As you remember from last week, two of the three fiber types are cellulose fibers and protein fibers.

 Pass around the skeins of cotton, hemp, silk, and wool yarns so that the class can touch the yarn as you remind them of the different characteristics of the two fiber types covered during the previous week's lesson.

 Cellulose fibers come from plants like cotton, hemp, or flax, while protein fibers are animal based and come from sheep, goats, llamas, rabbits, or camels. As such, the fibers have different structures on the cellular level and they react differently when they get wet or are burned. Today, we're going to look at what happens when you burn these types of fibers. We're not going to burn every type of cellulose or protein fiber tonight as we only have an hour, but instead will burn three of each type.

 Give out the advance organizer while telling the class they can use this sheet to keep track of their test findings.

Part II: Burn Test Process **10 minutes**

 Pair up with the person next to you. In front of you, you should have a tea light candle in a pie pan that has about one-quarter inch (¼ inch) of water in it. You should also have a bowl of water. If at any point during our testing you get nervous about holding burning yarn, **drop the yarn in bowl of water.** Remember, safety first. I'm going to quickly light the candles

 Light the candles while double-checking that each work area is set up appropriately as described in the Setup section.

 To conduct a burn test, slowly move the fiber into the flame. Watch what happens next. Does the flame change color? Is the top of the flame a different color than the

bottom? Are there sparks? Look at the yarn. Did it quickly catch fire or not? Do you hear anything? Hissing?

 Demonstrate the process described above several times with different, fresh samples while pointing out what the participants should be looking for (flame color, sparks, etc…). Identify the different fibers used and discuss how different fibers react to the flame.

 Ok. Now move the fiber out of the flame. Does it keep burning? How quickly does it go out? What color is the smoke? Does the smoke smell? Is the burned fiber producing? If so, what color is it? Smell the burned yarn. If it smells, what does it smell like?

 Demonstrate the process described above several times with different, fresh samples while pointing out what the participants should be looking for (burning, smoke, smoke color, smoke smell, ash color, etc…). Identify the different fibers used and discuss how different fibers burn, smoke, and smell after being taken out of the flame.

 While you are conducting your tests, think about your senses—particularly your sense of smell and sight. How does the fiber smell and look in the flame? How does the fiber smell and look out of the flame?

Part III: Own Your Own **15 minutes**

 Now that I've demonstrated how to conduct a test, it's time for you to conduct several.

 Have the participants perform their own burn tests with known samples so they experience for themselves how different fibers react to flame. Provide guidance and answer questions on proper burn test procedures as needed. Remind the participants to use their senses (sight, smell, hearing) while evaluating the samples.

Part IV: Can You Tell the Fibers Apart? **15 minutes**

 Now that you've conducted burn tests with known samples and have recorded your results, it's time to practice conducting them with "unknown" samples. Does

anyone have any questions before we get started?

 Answer any questions and then have the participants conduct their own burn tests with unknown samples so they practice determining fiber type by how the fiber reacts to the flame. Remind the participants to use their senses (sight, smell, hearing) while evaluating the samples.

Part V: Summary **10 minutes**

 What did you find? Who wants to describe how wool reacts to flame? What about cotton?

 Lead a brief discussion about participants' findings before sharing page 57 of Judith MacKenzie McCuin's book *The Intentional Spinner: A Holistic Approach to Making Yarn*, which lists the burn test characteristics of cellulose and protein fibers.

Note: The page also shares results for manufactured fibers, which will be covered in the third class. The handout, however, does not include the information about manufactured fibers. This book is available for sale in the yarn shop and can be purchased by class participants at any time to supplement the course content.

 Distribute the handout the copies of the modified page 57 (only includes results for cellulose and protein fibers).

 Instruct the participants to compare their own results to those listed on the sheet. Briefly discuss any discrepancies.

 Thanks for coming to tonight's lesson. I look forward to seeing you next week. We're going to discuss manufactured fibers, their characteristics, and conduct burn tests on them. Have a great evening!