Educational Innovations Inc.®

Fabric Identification Kit

SM-615

	Dye Mixture #1	Dye Mixture #2
FILAMENT ACETATE		
BLEACHED COTTON		
SPUN POLYAMIDE		
SPUN POLYESTER		
SPUN POLYACRYLIC		
SPUN SILK		
SPUN VISCOSE		
WORSTED WOOL		

Materials

- 1 Instructions
- 5 feet of Multi-Fiber Ribbon
- 3 packages of Powdered Drink Mix
- 2 Dye Mixture Pellets
- 1 package of Assorted Unknown Fabrics

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Teacher Information

Replacement materials are available from Educational Innovations, Inc.
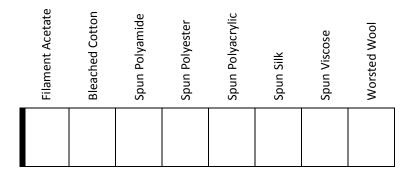
Multi-Fiber Unknowns
SM-610

Multi-Fiber Dyes
SM-605

Multi-Fiber Ribbon
SM-600

Preparation Notes:

1. Make photocopies of the worksheets on pages 2-3 for your students.

2. Cut the multi-fabric ribbon into strips about 1 cm wide. You will end up with about 150 pieces. A paper cutter or rotating fabric blade works well.

3. Prepare and label the containers of dye following the instructions on the packages. Two ml of 5% vinegar can be substituted for the 1 ml of 10% acetic acid. (1 ml is approximately 20 drops.)

4. Provide several staplers so that students can fasten samples to their instruction sheet.

5. Prepare the unknown samples by cutting them into small strips and identifying them with either a permanent marker or a stapled tag.

6. Remind students to dye each sample the same number of minutes.

The color of cloth depends upon the type of fabric chosen and the specific dye used. A dye, whether it be a powdered drink mix or crushed marigold flower petals, will color each type of fabric differently. To test a new dye on different fabrics, chemists often use a Multi-Fiber ribbon. The ribbon you will use is made up of eight different common fabrics. When this Multi-Fiber ribbon is dyed, each of the eight fabrics will be dyed differently. Notice the black thread next to the acetate end.

Filament Acetate | Bleached Cotton | Spun Polyamide | Spun Polyester | Spun Polyacrylic | Spun Silk | Spun Viscose | Worsted Wool

I.   Dyeing a Multi-Fiber Ribbon with Powdered Drink Mixes

Several dyes used in the food industry are also useful for dyeing fabric. Soak a piece of Multi-Fiber ribbon in each of the three warm solutions prepared from powdered drink mixes. After five minutes, remove the ribbon, rinse with water, dry with a paper towel, and staple to the chart.

Powdered Drink	Dyed Ribbon
1.	(staple ribbon here)
2.	(staple ribbon here)
3.	(staple ribbon here)

Which fabrics are best for dyeing with powdered drink mix?

1st _____   2nd _____

II.   Dyeing a Multi-Fiber Ribbon with Another Colored Liquid

Many food products can be used to dye cloth. Coffee, tea, boiled crushed flower petals, grape juice, etc. all can be used to dye certain kinds of fabric.

Dye Used:	(staple ribbon here)

Which fabrics are best for dyeing with another colored liquid?

1st _____   2nd _____

III.   Dyeing a Multi-Fiber Ribbon with Mixture #1 and Mixture #2

Chemists use mixtures of dyes to help identify fabrics. When a Multi-Fiber ribbon is dyed with these mixtures, each type of fabric is dyed differently. Place a piece of Multi-Fiber ribbon into each of two dye mixtures. After five minutes, remove the ribbon, rinse with water, pat dry, and staple to your sheet.

Dye Mixture #1	(staple ribbon here)
Dye Mixture #2	(staple ribbon here)

Fabric	Dye #1 Color	Dye #2 Color
Filament Acetate		
Bleached Cotton		
Spun Polyamide		
Spun Polyester		
Spun Polyacrylic		
Spun Silk		
Spun Viscose		
Worsted Wool		

IV.   Identifying an Unknown Fabric Using Dye Mixtures #1 and #2

Cut your unknown fabric sample into two pieces. Dye one piece in dye mixture #1 and the other in dye mixture #2. Using the chart from the previous experiment, you should be able to identify the type of fabric.

Dye #1	(staple unknown fabric here)
Dye #2	(staple unknown fabric here)

Fabric Unknown # _____   Type of Fabric = _____

V.   Extensions

Try mordanting the cloth before dyeing by soaking the fabric first in vinegar, a solution of baking soda, or a solution of alum. These solutions prepare the fabric for accepting the dye. Often the mordanted fabric will dye a different color.

Take Your Lesson Further

As science teachers ourselves, we know how much effort goes into preparing lessons.
For us, *"Teachers Serving Teachers"* isn't just a slogan—it's our promise to you!

Please visit our website
for more lesson ideas:

www.TeacherSource.com/lessons

Check our blog for classroom-tested
teaching plans on dozens of topics:

http://blog.TeacherSource.com

To extend your lesson, consider these Educational Innovations products:

The Lois McArthur Mystery: A Murder Investigation (CSI-455)

All the intrigue, mystery and excitement of an actual case arrives at your school with The Lois McArthur Mystery in a cost-effective way! A single scenario that relates biology, chemistry and physics tools to criminal investigations. Each student in three classes of 24 will be able to conduct the following tests: Blood analysis, fiber analysis, fingerprints, and handwriting analysis.

Case of the Kidnapped Cookies: A Crime Scenario (CSI-730)

Which of the student staff members has stolen the disks of warm chewy deliciousness? This kit pushes the forensics unit into many disciplines, as your students work to solve and try The Case of the Kidnapped Cookies! Comes complete with all the evidence, full teacher guide, student worksheets and enough materials for 30 students to participate. Designed to be used over five days, one class session per day. Can be extended beyond the five days to include a trial.

Fingerprinting Ink Pads (CSI-300)

These Identicator® pads can be used on any paper. With clean ink technology, the slight residue left on the hands can be easily removed by rubbing them together or wiping them clean with a towel or cloth. No ink-removing cleaners are needed.

Red Cabbage Extract (IND-100)

A safe and easy Universal Acid/Base Indicator. As the pH of a solution increases, red cabbage juice changes gradually from red to green. By matching the color of the solution to the included chart, the pH of a solution can be determined. Safer than phenolphthalein. This powdered extract is enough to prepare five gallons of indicator solution.