

FOSS ® FABRIC
TEACHER PREPARATION VIDEO TRANSCRIPT

<Larry Lowery Introduction to FOSS Program>

Lowery: Hello. Welcome to the Full Option Science System. This program was funded by the National Science Foundation. Its goal was to develop materials that would involve youngsters with both the processes and the content of science.

The program is developed with the Lawrence Hall of Science, with scientists, science educators and teachers working together as a team to develop the materials. The materials are tested in the hands of teachers and children in classrooms. It takes about two years to turn out a module.

Each module begins with firsthand experiences. This is done because it has been found that firsthand experiences are the best way for youngsters to learn about the concepts of science. As the module progresses, children are introduced to abstractions and reading materials. The sequence from firsthand experiences through reading materials is deliberate because it has been found that youngsters, when they have some experience before they read, learn and understand more from the reading. Authors of reading materials can then take youngsters to greater abstractions.

Trust the materials that you are getting acquainted with. They have been well-tested. We found that they work extremely well in the hands of all teachers and are effective for youngsters in learning about science.

<Kathy Daiker Introduction to Module>

Kathy Daiker/Narrator: Hi, I'm Kathy Daiker, and I'm here to help you get started with the Fabric module. In the Fabric module, students explore the properties of a variety of fabrics. They see how those fabrics interact with water and other materials and discover why some fabrics are better for certain uses than others.

Most of the materials you need to do this module come packaged in this one box. The kit comes supplied with enough materials for two classes of 32 students. You'll want to be sure and check the inventory sheet so that you know which materials are considered consumable and which are considered permanent equipment.

This video will give you an overview of the equipment and the preparations that you'll need to make for each of the activities and will take you to the classroom so you can see the students working at the centers. But you'll want to be sure and check your Teacher Guide for all the important details.

Take some time to read through the Overview folio before starting the module. It's full of helpful suggestions, including correlations to the national standards. You'll also find background information, classroom management tips and ideas for scheduling the module whether you teach

a full day, half day or combination kindergarten class.

The overview matrix summarizes the investigations and will help you plan the entire course of the module. The Materials folio comes next in the guide. Here is where you'll find an inventory list for the kit, materials that you'll need to supply for the investigations, directions for preparing the materials and information on ordering any replacements.

The next two folios will guide you through the investigations. These are the heart of the program and will be described in this video. In the next section are the duplication masters. Here you'll find all the students and teacher sheets and home school connections for each investigation.

With the duplication masters, you'll find center instruction cards. These are designed to be used by parents or other adult helpers to help them guide, not lead, the students through the activity. You can make copies of these and laminate the copies or put them in plastic sheet protectors to become a permanent part of your kit.

Read through the Assessment folio for more information on how to simply and effectively assess student learning. Then check out the assessment duplication masters. The assessment checklists are used during the investigations to note specific skills or concepts students develop. The Narrative Report is a sheet for you to copy and send home to parents to let them know what the children have been doing in class.

In the kit you'll find a big book and a set of eight student books, the FOSS Science Stories. These are designed to be read periodically during the module after the students have had firsthand experiences with the materials. In addition to the books in the kit, there are two trade books that go so well with the module that we've suggested their optional use during the investigations. Information about using these is found in the reading connections folio.

The Resources folio lists other wonderful books, videos, and software for your class. One of the things to think about before beginning the module is that most of the investigations take place with groups of six to ten students at a learning center and with an adult guiding the activity. If you are the only adult in the classroom, you'll find suggestions in the Overview folio about how to run the centers on your own or how to turn them into whole class experiences. In either case, plan on introducing only one investigation part on any given day.

Before you begin the module, you'll want to make copies of the Letter To Parents and send them home with the students. The letters tell parents about what their children will be studying and suggest ways that might extend the learning at home.

Next you'll need to make two charts. The Word Bank is for new vocabulary that comes up in the course of the investigations and the content chart is for recording students' suggestions about what they have learned or any questions the class would like to investigate further. To keep track of student progress, you'll need to make a copy of the two assessment checklists found in the Teacher Guide.

The Getting Ready section for each investigation suggests specific objectives to assess. Since many of the same objectives can be assessed throughout the model, this strategy is just to focus on just a few students during any single investigation. Science journals serve as useful

assessment tools as well as being an excellent way to integrate language skills with science. Suggestions for making and using these are found in the extensions section of Investigation 1.

Now we're ready to begin.

<Investigation 1, Part 1>

Narrator: In the first activity, students compare the properties of many different kinds of fabric. In Part 1 they begin their exploration. You'll need this equipment from the kit: You'll need the ten sets of blue fabrics and the zip bag. As you work with the blue fabrics, you'll notice they are all the same color and they are cut the same size and shape. We designed them that way because we wanted students to focus on the more subtle properties such as texture and weave.

You'll need to supply three or four boxes. You'll need one box for each pair of students you plan to have working at the center. You'll also need some contact paper and a copy of the instruction card called Feely Boxes.

To get ready for this part, you need to make sets of five fabrics. You'll make two different sets. The first set, the burlap set, consists of burlap, sparkle organza, seersucker, nylon and fleece. The second set, which is the denim set, consists of denim, satin, terrycloth, corduroy and knit fabric.

As you make the sets you'll want to store them in a zip bag. Once you've decided how many students you want to work at the center, you'll need to make enough sets so that half the students will be working with the burlap set and half with the denim set.

Next you need to make the feely boxes. To make a feely box, you need to tape a box shut and cut a hole in each end large enough for hands to get through. Then you'll cut a third hole that's even larger so that you can pass things in and out of the box. You can use the contact paper to cover the boxes and make them look a little bit nicer. Once you've made the boxes, you can keep them as permanent equipment in the kit, or you may want to keep them in your classroom so you can explore lots of other materials.

Students explore the samples in their zip bags to begin this activity. You'll want to be sure that both students in a pair have the same set of five fabrics. Students should use all of their senses to learn as much about the fabrics as they can. Then they are ready to identify the fabrics without being able to see them.

One set of fabrics is placed inside the box and the other set is placed on the table. The student carefully feels all of the fabrics inside the box, tries to find the one that matches, then takes both of the pieces of fabric out to see if they are the same. If a match is made, one fabric sample goes back in the feely box and one goes back on the table.

Teacher: Find one that matches that.

Narrator: If the pieces don't match, the student gets to try again. Students generally become quite expert at finding the matches and through this activity learn a great deal about the textures of the different fabrics.

At the end of each part you'll add words to the Word Bank and a sentence or two to the Content Chart about what was learned from the activity. In the Teacher Guide you'll find suggestions for adding to these charts in the wrapping up section for each part.

<Investigation 1, Part 2>

Narrator: In Part 2, students go on a fabric hunt, learn the names of the different fabric samples and then they go around the classroom and label things that are made of fabric. You'll need the ten sets of blue fabrics from the kit and you'll supply the transparent tape. You'll need to make copies of the Fabric Labels duplication master.

One column of labels uses the word fabric. The other column uses the word cloth. The two words mean the same thing so you can use one word or both. Cut the labels apart ahead of time so that each student will have at least one label. This part is conducted with the whole class.

To get ready, you'll need to make two identical sets of fabric squares. To make each set, you'll need to take out three of each of the ten different kinds of fabric so that you'll have 30 pieces in each of the two sets. If you have more than 30 students in your class, however, you'll need to pull out a few more pieces of fabric so that each student will get to make a match.

Before the students come to school or while they are out at recess, hide one set of the fabrics around the room in obvious places. Have the other set ready to hand out to the students when they begin the fabric hunt.

Teacher: Today we're going to go on a fabric hunt. I'm going to give each of you a piece of fabric. And your job is to find another one that looks just like it. After you find the match, you need to come back to the rug, sit back down on the rug and put your two pieces of fabric side by side. Okay? Who can tell me what you're going to do?

Eric, what are you going to do?

Student: You're going to have a piece of fabric. And there's going to be another one. And you have to find it. And you get it. And then you put it with the other one side by side.

Teacher: Perfect. Okay. I'm going to give each of you a piece of fabric. And as soon as you get your piece of fabric, you can go find the match.

Student: It's so simple. Simple. I found mine as easy as cheese.

Student: This is just like an Easter Egg hunt!

Narrator: You should check the students' matches to be sure that they, indeed, found two matching pieces. Sometimes the fabrics look very similar and students need extra help finding an identical match.

When the students are back at the rug, you'll hold up a sample of each of the fabric. Use a few words to describe the fabric and ask students to stand up when the kind of fabric they are holding is named.

Teacher: Okay. The next thing we're going to do is find another person or maybe even more

than one other person who has the same kind of fabric as you do. Would you go do that? When you find some other people with the same kind of fabric, would you sit down together?

Narrator: Finally students label things in the classroom that are made of fabric.

Teacher: Everybody will get one of these papers. And this paper says this is made from fabric. And you get one paper like this. And you get a piece of tape like this. And you'll stick this tag on something that is made from fabric. Okay?

You're going to be good detectives and look around. Try to find something that's a regular part of the classroom, not the fabric squares that you have in front of you.

Student: I put it on -- I put it on yours.

Student: All done.

Student: All done.

Narrator: Once the classroom is labeled, the students will be able to look around the room and see that there are many things in their environment that are made of fabric.

<Investigation 1, Part 3>

Narrator: In Part 3, students make fabric collages. They continue their exploration of the properties of fabric as they cut, tear and glue many different kinds of fabric. The only equipment you'll need from the kit are the eight pair of scissors. You'll need to supply construction paper, glue, the fabric scraps that parents have sent in as you requested in the letter you sent home before beginning the module, and a copy of the Fabric Collage center instruction card.

To get ready for this part, you'll need to cut 9 X 12 inch pieces of construction paper in half twice so you'll have 4 ½ X 6 inch pieces of paper to glue the fabric pieces on. You'll also need to cut the fabric scraps into sizes that are easy for the students to handle while they are making their collages. But before you cut all of the material, be sure to check your Teacher Guide so you'll know how much you need to save for Part 6.

Before students begin, you can show them an example of a collage so they know it is a picture of different fabrics glued onto a background. The students' challenge is to cover the entire piece of construction paper in a creative way.

Good pairs of scissors are important to the success of this activity. The scissors you use from the equipment kit will work very well for cutting the fabric. Students will enjoy cutting out shapes from the fabric, comparing how easy or difficult it is to cut the different fabrics, determining how much glue is needed to hold the pieces in place, observing how much glue soaks through the fabric and sharing what they know about fabric in the process. You'll want to make sure students have a wide variety of fabric to work with so they can see how very different fabrics can be.

The time needed for students to complete this activity is quite variable. Some students will be done in ten minutes. Others will still be working after an hour. You'll want to be sure to give students all the time they need to complete the project to their satisfaction. At this center it is the

process of learning about the fabrics through cutting, folding and gluing that is the focus, not the finished product.

<Investigation 1, Part 4>

Narrator: In Part 4, students take fabric apart to learn more about how it is put together. You'll need this equipment from the kit: You'll need the small squares of burlap, the small wool plaid squares, the index cards and the two loops. You'll need to supply glue and a copy of the center instruction card for Taking Fabric Apart.

Students begin this activity by observing a piece of burlap. Here you'll see a principal guiding a center on a day he visited the class.

Principal: Okay. The first activity we're going to do is try to take some of the threads away from the burlap. So everyone, if you can take apart -- only take apart half of it.

Student: Like this?

Principal: Just like that.

Student: What if I took all of them off?

Principal: All right. Can everyone see how this is woven together?

Student: Yes.

Principal: It goes in and out and in and out so that it stays together. Or what would happen if we took all of the threads out of one side? What would happen to the threads on the other side?

Student: The whole thing would break up and fall.

Principal: Right. The whole thing would fall apart. So the way it's weaved together keeps it together. Okay. The next thing I want you to do is glue it to the card.

Student: Now it will glue like this.

Principal: Okay. What you're going to do, see how this one is done? You're going to glue the part that's partly taken apart at the top. And then glue all your thread at the bottom in a row. Just like that. Okay?

Student: We didn't know how to weave.

Student: Look at mine.

Narrator: After students work with burlap, they take apart a second piece of fabric. This time, wool plaid.

Principal: The threads stick a little more.

Student: I got it.

Student: I think I put too much glue on it.

Principal: There you go. Okay. Good. All right. Good. Why do you think this one was easier?

Student: Because it was fatter.

Principal: Okay. It was fatter so it was easier to hold onto. And this was much more --

Student: Slower.

Principal: This was skinnier or fatter? Was this skinnier or fatter?

Student: Skinny.

Principal: Skinnier. So this one was harder to separate. So this one was much easier and quicker to do. And this one was harder to do. Okay. Thank you. You did a fabulous job. Now you can wash your hands.

<Investigation 1, Part 5>

Narrator: In Part 5, students learn more about how fabric is put together by weaving a piece of their own using yarn. You'll need this equipment from the kit: You'll need a four inch square of cardboard for each student and you'll need the skeins of yarn. You need to supply masking tape and a copy of the center instruction card called weaving.

To get ready for this part, you'll need to cut the skeins of yard. First you'll need to cut one of the yellow skeins into long pieces, 120 centimeters or 48 inches long. Then you'll need to cut the other skeins of yard into smaller pieces, 15 centimeters, about 6 inches long. If you look in the Getting Ready section from the Teacher's Guide, you'll find two suggestions for making this preparation quick and easy.

Weaving is quite a challenge for kindergarten students. You may want to invite a class of older students to join you for this activity so your kindergarteners will have plenty of help. Students begin by securing the long piece of yellow yarn to the corner of the cardboard with a piece of masking tape. They wrap the yarn around the cardboard six times, keeping tension on the yarn and trying to space the yarn evenly across the cardboard. They should tape the end of the yarn on the same side of the cardboard they've started on.

Teacher: Now I'm going to start weaving. And I'm going to start with the green yarn. You can choose whichever color you like when you do your weaving. I'm going to start with an over-under pattern. Watch how I do this.

I'll go over the first yarn and under the second one and over the third one and under the next one and over and under until I get to the end. And then I pull it down to the bottom. On the first row I started going over the yellow yarn so this row I need to start going?

Class: Under.

Teacher: Under. Good. So I'll start under, over, under, over.

Student: Under, over. Under, over.

Student: Now it's done. Now pull down. Good.

Narrator: Most kindergarteners pick up the over-under pattern fairly easily but it's the next piece that gets tricky, when they have to alternate the pattern. Students will need quite a bit of guidance to learn the process.

Student: What color comes next?

Student: Yellow.

Student: No, red. Red comes next. See, you went blue, green, blue, green, blue, green, red.

Student: Okay. Now go over, under.

Student: Over and under.

Teacher: Boys and girls, can you stop for just a moment and look down here? And I want to show you what I've noticed with some of the weavings. Let's look at Sam's.

Sam, could you hold yours up? Okay. Here is Sam's.

And then Morgan, can I see yours?

When some people weave, their weaves are a tight weave. And when some people weave, their weaving is a loose weave.

Sam, what do you think yours is, a tight weave or loose weave?

Student: Loose.

Teacher: A loose weave. There's more spaces in between his rows.

Morgan, does yours look like a tight weave or a loose weave?

Student: Tight.

Teacher: Now, what did you do to make this tight?

Student: Weave.

Teacher: What did you do that was different?

Student: I pulled it.

Teacher: You pulled it down. Do you think you pulled it down really hard maybe and maybe Sam didn't pull his so hard?

And that's fine. If you like yours to be loose, then you don't pull it down as hard. And if you

want yours to be tight, then you pull it down harder. Now, which way do you think will use the most yarn? Will a loose weave use the most yarn or a tight weave?

Class: Tight weave.

Teacher: Good. That looks great.

Narrator: Students learn more about the structure of fabric as they go through the process of making their own piece.

<Investigation 1, Part 6>

Narrator: In Part 6, students explore different ways that they can sew fabric together. You'll need this equipment from the kit: You'll need the scissors, the needles and the carpet thread. You'll need to provide fabric scraps. These are the ones that you saved from Part 2. And you'll need a copy of the center instruction card called Sewing.

To get ready for this activity, you'll need to cut a piece of thread for each student working at the center. It should be about 60 centimeters long. That's 24 inches. Then you'll need to thread the needles, double it back and tie a knot at the end. Then you can stick the needles into a piece of fabric so they won't get lost before the activity begins.

You'll also need to cut pieces of fabric for the students to sew. Each student will need one ten centimeter or four inch square, two if you want them to make a pocket. Cut some of the fabrics into shapes such as hearts, diamonds and circles for the students to sew onto the squares or you can let them do the cutting.

Teacher: Now you have one square. And that's going to be our piece that we are working on. You can pick any paper you want. You have scissors. And you can cut the material. Let's cut this -- I'm going to pretend.

Cut this up. And take your needle and sew it onto this other material, this piece that you have. You cut it in little pieces. You can do anything you want. You have to hold this up. If anybody wants help starting, you can pick any color material you want here. Pick anything you want. Cut it in little pieces and start to attach it with the thread. Do you want to take a piece? I can help you start.

What fabric do you like? Pick your favorite. Whatever material. There's lots of different colors. Here is a monkey. That would be fun. You can cut out the monkey and put him on there. Okay. Katrina, do you see this? I'm putting it through. I'm going to pull -- see, the knot is going to hold it.

Narrator: You can let the students explore different ways of attaching the two pieces of fabric together. But if they become frustrated, you may want to show them how to sew a shape onto the square using a running stitch.

Teacher: Bottom and top. Now you go ahead and try that. There you go; there you go. How are we doing over here? This is good. And pull through the thread. Now, let's see. This is your bottom -- this is -- wait. Do you want him on here? That's not going to come through. So let's

put it through right here on the edge. There you go. Now look. He's going to stay there.

Now, do you want to -- I can show you the running stitch if you would like. Okay? Where would you want to go around the edge? Do you want to go around the edges? What we do is come around -- this is called...

Narrator: If they have difficulty determining where to place the needle next, have them turn the fabric over each time they stitch.

Teacher: Right over the edge. Do you see that? Can you keep doing that? Why don't you keep trying?

Student: It's coming together.

Teacher: It's bunching. Pull it. You've seen this before on your clothes. You have it on your skirt. See how it bunches up. It gathers up. If you don't want it to gather up, pull it. There you go. It's straight. And if you like it gathered, then you can leave it gathered. Something you can do with the running stitch and connect it is go back and back up. Can you see this?

Student: Yeah.

Narrator: Offer a second square to students who would like to make a pocket that they can put things in. You'll need to discuss how many sides should be sewn (they will want to be able to put things in them when they're finished) and how close the stitches need to be so things won't fall out.

Student: There.

Narrator: When the students are finished, you can display the sewing projects on the bulletin board or let them take their projects home.

Student: There.

<Investigation 2, Part 1>

Narrator: In this activity, students conduct several investigations to see how fabrics interact with other materials. In Part 1, they drop water on the fabrics to see what happens. You'll need this equipment from the kit: You'll need the ten different kinds of blue fabric, plastic cups, the droppers and the zip bags. You need to supply water, a clothes line and clothes pins for drying the fabrics or it works just fine if you want to lay the fabrics out on newspaper to dry, paper towels and the center instruction card called Water and Fabrics.

Each student will need a set of ten blue fabrics. You'll store each of the sets in a zip bag. You'll also need to put water in plastic cups. You'll need each cup about one-third full. And you'll need one cup for each pair of students.

Teacher: Try to find this one. Okay?

Narrator: Students begin this activity by taking the terrycloth out of their bags of fabric.

Teacher: Put it down and put some water in the droppers.

Narrator: They use their droppers to put a few drops of water on the cloth and observe what happens. They will see the fabric absorbs the water very quickly. And it may even look like there was never any water dropped on the fabric at all.

Teacher: What could you use this for?

Student: Towel.

Teacher: As a towel, right.

Narrator: Next students drop water on nylon and satin and compare their observations. The nylon is somewhat waterproof so the students will see that the water beads up on the surface of the fabric. This is a phenomenon that the students will find very interesting and will spend a lot of time exploring.

When they drop the water on the satin, something very different happens. The water spreads through the fabric very quickly leaving a large wet spot. They may even notice that they can see the grain of the tabletop through the fabric.

Student: Oh, look it. You can see your hand through on this one.

Narrator: Students continue to drop water on each of the fabrics and discuss what uses each fabric would be good for. Terrycloth absorbs water so it might make a good towel. Nylon repels water so it might make a good rain coat. Each of the fabrics interacts with the water a little differently and the students will want to spend lots of time exploring that interaction. When the students are finished with their water investigations, you'll need to dry the fabric so another group can use them the next day.

<Investigation 2, Part 2>

Narrator: In Part 2, students put several different kinds of stains on fabric and then they try to get it clean. You'll need this equipment from the kit: The six inch squares of muslin, permanent marker, popsicle sticks, squeeze bottles, droppers, scrub brushes and basins.

You'll need to supply the staining materials, things like grape juice concentrate, mustard, ketchup and salad dressing work well. You'll also need small paper cups to put the staining materials in, some laundry detergent. You'll also need your clothes line and clothes pins or you can just use the newspaper to lay the pieces of fabric on to dry.

And this time you'll need two center instruction card because you'll set up two different centers, one for getting cloth dirty and one for washing fabric. You also need to supply water. You'll need enough to fill each of the basins one half full. You may also want to find a large bucket so you can cart the water outside to the washing center.

To get ready for this activity, you'll need to write the students' names on the pieces of fabric using the permanent marker. You'll need to put the staining materials into the small paper cups,

fill the small squeeze bottles with the laundry detergent and then fill each basin one half full with water.

You'll need to stain a piece of muslin that won't be washed. Students will compare the pieces of cloth that they've washed to this piece to see just how much of the stains they've gotten out.

To begin this activity, students take their pieces of muslin out to an area with lots of dirt and grass. They begin by rubbing them on the ground. They will have to rub fairly hard to put the grass stain on the fabric. Then they add indoor stain.

Teacher: Kevin, try putting it in a spot where there isn't another stain.

Narrator: You'll want to encourage the students to put each stain on a different part of the fabric so they can see how well it washed out later. Students will work very hard on staining the fabrics. After all, how many times does someone tell you to go out and get dirty?

Student: I need some mustard.

Student: What's this water for?

Narrator: When students are ready to wash their fabrics, they go to the washing center. They begin by using water only as the cleaning agent. They will find that some of the stains will come out but not too much.

Student: Okay. It's clearish.

Narrator: Next they use laundry detergent and scrub brushes to see if they can get more of the stains out. Remember, these bottles will allow only one drop at a time to squeeze out. You may want to remind the students of this if they seem frustrated the detergent won't come out any faster.

Students scrub their pieces of fabric with great enthusiasm. You may even need to set a time limit for scrubbing. When they are finished, students compare their washed fabric to the fabric you stained but not washed.

Teacher: What's happened to your stains?

Student: Mine are gone.

Teacher: You did pretty good.

Narrator: Students will find that most of the stains came out. The detergent and scrub brushes work much better than water alone. But they may find there are still a few remnants of stains that simply could not be washed out.

<Investigation 2, Part 3>

Narrator: In Part 3, students use food coloring to permanently color their pieces of muslin. You'll need this equipment from the kit: The pieces of muslin that the students used in Part 2,

the food coloring and the quarter liter containers. You need to supply water, a measuring cup, measuring spoons, vinegar, paper towels, the clothes line and clothes pins or a newspaper for drying the fabric and the center instruction card called Dyeing Fabric.

You'll need to prepare the dyes before the students begin this activity. You'll want to prepare two containers of each of the colors: Red, yellow and blue. To prepare each container you'll put ten drops of food coloring in. As you can see, I've put the food coloring in this container already. Then you'll need to put in two 5 milliliter spoons of vinegar. That's about two teaspoons. Then you'll need to add 50 milliliters of warm water. That's about one-third cup. When you've prepared all six containers of the dye, then you're ready for the activity.

Teacher: Before you dye your fabrics, you're going to practice different ways to fold it. Let's -- can I use yours, Carl?

If you can, fold it back and forth like a fan like this. That would be one way to fold it. Like this. Or you could fold it in half this way and again and again and again like this. Or you could fold it in a triangle. Show me how that would look. How would you do a triangle? A triangle. Good. And then can you fold it again in a triangle. And again and again.

See if you can try some different ways of folding until you've found your favorite way. And when you find your favorite way, then you're going to go over to the dye table, Brett. And you'll start with the yellow. And you'll dip one corner into the yellow. And then blot it off on a paper towel. And then you'll go to the red. And you'll dip a different corner into the red. And then you'll blot that off. And then you'll go to the blue and dip another corner into the blue and blot that off.

And then when you're all done, you'll put it between towels to get off any extra dye. And when you open it up, you'll see what kind of design you have from the fabric dyed. So keep folding until you find a way that you like. And do you remember which color you're going to start with?

Student: Yellow.

Teacher: You can go do yours.

Narrator: It is important that they use the yellow dye first, then the red and then the blue. This order helps to ensure that lighter colors don't get colored up by darker colors.

Teacher: Okay. Pick a different corner for the red. Then blot it. And then the third corner in the blue. Oh, not all the way.

Student: Wow. Cool.

Student: Cool, man.

Student: I have little kinds of lines in the middle. Hey, Katherine.

Student: It's a rainbow.

Teacher: Who folded theirs in triangles?

Student: I did.

Teacher: You did? You, too? And which way did you fold yours, Andy?

Student: Kind of rectangled and squared. Rectangled and square.

Teacher: Hold yours up and compare yours with Katherine's. You folded yours the square way. They go straight up and down.

Katherine, which ways do yours go? It looks like you have an X.

Student: Yeah.

Student: That's what happened to me, too.

Teacher: Yeah. If you folded it in triangles, it looks different than if you folded it into squares.

Narrator: In this activity, students see that fabric can interact with dyes to be intentionally and permanently colored.

Student: You made yours kind of cool, too.

<Investigation 2, Part 4>

Narrator: In Part 4, students make picture graphs. The graphs will show their choices of fabric that they would use to make various items of clothing. All you'd need from the kit are these six fabrics. You'll need a piece of denim, corduroy, sparkle organza, seersucker, nylon and fleece. You supply chart paper and a marker.

To get ready for this activity, you'll need to make copies of the Clothing Pictures student sheet. Each student will need one picture for each kind of clothing you plan to graph. You'll need to draw a large grid on the chart paper. The squares need to be large enough for the clothing pictures and the fabric samples to fit inside. Then you'll need to tape one of the fabric samples in each square at the bottom.

The class begins this part by discussing how different kinds of fabric are better for some uses than for others. For example, remember in an earlier activity students decided terrycloth would be good for a towel because it absorbs water so well. Then the teacher introduces the graphing activity.

Teacher: I'm going to pass you a piece of paper that looks like this. It has a picture of what on it?

Class: Pants.

Teacher: A picture of pants. Your job is to decide which one of these fabrics would make the best pair of pants. Don't shout it out. When I give you your paper, you will come up to the graph. And if you think that sparkle organza would make the best pair of pants, you're going to put your picture right there in that first square. And then we'll keep putting them in the square so

the rows get longer. Okay? You're going to come up and put it on the graph. And then go back and sit down in your place. Okay?

Yelda, go ahead. Yelda, go ahead.

As soon as you get your paper, go on up to the graph and choose which fabric you think would be best for pants. And then we'll see if Alex remembers to go back to his place on the rug. And then go back to your place on the rug in the circle.

Okay. Some of you have forgotten to stay back in your places around the circle. Geoffrey, go back. I need to be able to walk here.

Narrator: When all of the students have made their choices and attached their pictures to the graph, the class discusses the results. Students can answer questions about how the graph was organized. For example, you might ask which fabric was chosen the most often for pants or were there any that weren't chosen. Students discuss how they were able to answer these questions by looking at the graph.

Teacher: Who can tell me why do you think that most people chose denim?

Student: Because you can't see through it. And it's bendable kind of.

Teacher: Curtis said it's bendable and you can't see through it. Is there another reason why denim is a good fabric?

Student: It's hard.

Teacher: It's hard. It would be strong for a pair of pants. Who can tell me why nobody chose sparkle organza? Why didn't anybody choose sparkle organza for a pair of pants? It's so sparkly and pretty.

Eric, why --

Narrator: This activity helps students pull together all of the knowledge they have learned about fabrics from the previous activities so they can consider how the fabrics are used in everyday life.

Fabric, a material so often taken for granted, makes fascinating studies for kindergarten students. In this module students have been introduced to a wide variety of fabrics. They've explored the properties of different fabrics and have seen how they interact with other materials. One thing you can be sure of, students will look at fabric in a very different way.

Student: They look like rainbows, don't they?