



4-H Fiber Arts Project Guide

In the Oregon 4-H Fiber Arts project, youth learn to manipulate fiber through one or more steps to a finished product. Fibers include those from plants and animals, as well as some that are human-made. Members can learn the various ways to handle each kind. Most techniques in this project have existed for many years, and their uses have adapted as times have changed.

The 4-H Fiber Arts Project gives 4-H youth the opportunity to explore 13 techniques of working with fiber:

- Weaving
- Basketry
- Spinning
- Felting
- Macramé and knotting
- Braiding
- Hooking
- Embroidery
- Needlepoint
- Appliqué
- Patchwork
- Quilting
- Papermaking

Once members learn basic techniques, there are endless opportunities for them to develop their creativity and design sense.

This project guide gives a short overview of each technique. These are not instructions for teaching the specific techniques, but rather a description and some suggestions on where and how to start. Each overview describes methods, skill building, project ideas, and standards for evaluating the work. Some resource books and videos for teaching technique also are listed to help you get started. They mostly focus on beginning levels and appeal to youth; some of them can help members increase their skills. You might find more resources in a public library; or, use an online search with specific keywords. Many of these fiber arts techniques have guilds or other organizations; they also could be key resources.

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Role of a 4-H Project Leader

Members begin the 4-H Fiber Arts Project at many different ages and with different levels of experience. As Project

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Work with individual members to find the project level that best meets their needs.

Leader, it is important to work with individual members to find the project level that best meets their needs. Members learn by sharing their work and receiving evaluation. To help make this a rewarding experience, it is important to guide their work in several ways. Your role is to help 4-H members:

- Enjoy the activity.
- Learn the technique. Balance members' interest and enthusiasm with steps that ensure their success. Start with small, easy-to-finish projects that fit a member's attention span and physical dexterity.
- Move to larger projects or alternate methods to create new experiences, as members are ready. Encourage members to look at books, magazines, or other resources for ideas and to learn new techniques.
- Learn how to evaluate their work for detail of the technique and design, and identify their good skills and those they could still improve. Skill building takes practice. Some questions might include the following:
 - ◆ What did I learn?
 - ◆ Where do I need improvement?
 - ◆ How do I feel about what I did?
 - ◆ What shall I plan to do or learn next?

Evaluation also can be in the form of comparison to standards, such as those listed in "Standards for evaluating" for each technique in this project guide.

- Understand elements and principles of design and develop and use their creative abilities. They might move from using

kits or patterns to designing a project on their own.

- Keep records. *My 4-H Project Record Sheet* (4-H 038R, available online at <http://extension.oregonstate.edu/catalog/4h/> or through local Extension offices) provides a useful experience. Records can focus on specific materials used, length of time to complete a project or phase of a project, and cost of materials. The *4-H Fiber Arts Exhibit Explanation Card* (available on the Oregon 4-H website under "Expressive Arts Materials" <http://oregon.4h.oregonstate.edu/resources/materials.html>) can serve as a record of the details and skills of each individual project as well as information for a judge. Encourage members to fill it out for each item they make and keep the copies with their other project records.

Another type of record might be a file of ideas for future projects.

Younger members may not enjoy or see a value in record keeping. It might be helpful to spend time monthly to keep records up-to-date.

- Share what they know and what they have created by teaching others, giving presentations, making community displays and donations, and exhibiting their work. Members don't have to exhibit their work; but, if they want to, then show them exhibit class descriptions and work with them to learn the criteria. Evaluate the how-to instructions for a specific project to be sure the technique meets the criteria for a Fiber Arts division exhibit. For example, bead weaving using a loom fits as a weaving technique, but stringing beads—no matter how intricate—is not weaving involving a warp and weft. Likewise, "wheat weaving" suggests a weaving technique, but it is primarily braiding.

Elements and Principles of Design

Understanding the elements and principles of artistic design is basic to working with all the techniques in Fiber Arts projects.

Elements of design are the tools or parts of a total design. There are six basic elements in design.



Line is a mark longer than it is wide. It can be straight or curved, thick or thin, and run on the horizontal, vertical, or diagonal.



Shape is a closed line. Shapes are flat but have the dimensions of length and width. They include triangles, squares, circles, and freeform.



Form is a three-dimensional shape with length, width, and depth. Balls, cylinders, boxes, and pyramids are forms.



Space is the area between and around objects, or a feeling of depth.



Color is reflected light. Characteristics of color include **hue** (for example, red, blue, or green), **value** (lightness or darkness), and **intensity** (brightness or dullness).



Texture is surface quality, such as rough, smooth, soft, hard, slick.

Principles of design are the methods used to organize or arrange the elements of a design.



Balance refers to the sense of stability that is created when the elements of design (objects, colors, texture, and space) are combined.

Symmetrical balance uses very similar elements on each side of the design. **Asymmetrical balance** may use different elements on each side which still create a visual balance. **Radial balance** arranges elements around a central point; those elements may be similar.



Repetition works with pattern to make the design seem active. Repetition of elements creates unity.



Proportion is the feeling of unity when all parts of a design (their sizes, amounts, or number) relate well to each other.



Movement is the path the viewer's eye takes, often directed by lines, edges, shape, and color.



Rhythm is created when one or more elements is used repeatedly to create a feeling of organized movement. Variety is essential to keep rhythm exciting and active.



Emphasis is the part of the design that stands out and catches attention. Emphasis usually is achieved by using contrast; that is, the emphasized part is different in size, color, texture, shape, etc.



Unity is the feeling that all the parts work together.



Pattern is the repeat of an object or symbol throughout the design.



Variety is the use of several elements to hold the attention.

It's important that leaders and members discuss these terms and their meaning, so that as members begin to create their own designs, they can develop an understanding of how to organize elements and use principles to make their designs pleasing and successful.

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Weaving

Crossing and intertwining linear strips of fiber to form fabric is called **weaving**. Fibers are intertwined in an organized manner called a **pattern** or **weave structure**. There are many ways to use pattern or repetition to create design in the woven fabric.

Many cultures around the world developed the art of weaving. Many of their woven fabrics have unique combinations of technique, pattern, and materials.

Methods

Weaving includes both off-loom (or freeform) and loom methods. Freeform weaving is done using sticks, tree branches, hoops, or other supports. There are many kinds of looms, from simple ones that are easy to make (such as those made from drinking straws, cardboard, or foam meat trays) to large, intricate floor looms. The type of loom may determine the length and/or width of the weaving. The type of fiber (yarn, thread, fabric, ribbon) influences surface texture.

A simple loom also can be used for bead weaving. Decorative beads are strung on a weft thread, positioned between the warp threads, and held in place with a second weft thread.

These are some types of looms.

Inkle loom. A simple loom designed to weave several yards of narrow fabric to make belts, sashes, ties, or bookmarks.

Card weaving. The warp is strung through holes in square, sturdy cards. Twisting the cards moves the warp and makes the pattern. Strips of woven fabric can be joined to make larger items. Designs can be quite intricate.

Frame loom. A rigid frame holds the warp threads. A very simple one can be made of stretcher bars and nails. The weft yarn is picked through the warp threads with a needle or fingers. The length of the warp yarns is fixed by the size of the loom.

Navaho weaving looms are a version of a frame loom.

Rigid heddle loom. A larger wooden frame with a “heddle” (eyes and slots). The heddle holds the warp yarns and creates space for the weft yarns by moving up or down. The warp yarns are wound on a bar or carrier, so they can be very long. The maximum width of the weaving is determined by the width of the loom.

Shaft or harness loom. This loom has a number of harnesses (in multiples of four) that determine the possible intricacies of the pattern. A **table** version uses levers above the reed to pull the harnesses. A **floor** version has foot pedals that raise the harnesses. These looms allow more flexibility in the length and width of the weaving as well as intricacies of the weave.

Skill building

Growth in weaving skill comes from trying different looms and materials, larger or more advanced projects, and individual creative design.

Members can start either weaving off-loom or using any type of loom. Members also can make simple looms from many materials that are at hand.

It's best to start with a simple weave structure. This might include balanced plain weave, warp faced plain weave, or weft faced (tapestry) plain weave. These can be woven freeform or on frame or inkle looms. As skills improve, members can use more complex shaft or harness looms with more intricate weave structure and pattern. More advanced weaves include twill, patterns that are a combination of plain and twill weaves, and pile weaves.

The choice of fiber can make a project less or more difficult. Beginners will find it's easier to work with fairly stable, larger scale materials such as cotton yarns, fairly stable

cloth strips, and ribbon. More advanced materials include wool and thread.

Planning, designing, and making up the pattern can make the weaving more complex and individual.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for weaving”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

Start with small items so members can experience the technique and complete several small projects. That way, they can receive feedback sooner and evaluate their work to see where they might improve.

Project choice depends on the choice of weaving method. Examples include belts, bracelets, wall hangings, placemats, pillows, table runners, and samplers.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate weaving projects for the following characteristics.

- The selvage is consistent. Loops along the edge are the same size and not too large for the materials being used.
- There are no unintentional changes in width (draw-in) along the sides of the finished fabric.
- The choice of warp and weft materials is suitable for the intended use of the finished product.
- The evenness of beat (spacing of the weft fibers) is consistent and suitable for the use of the woven fabric.
- Tension on the warp is consistent. The weft is at right angles to the warp unless variation is a deliberate part of the weave.
- The project has been finished well. If the item is for practical use rather than

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The goal is for members to develop an understanding of what makes good-quality work.

decoration, the finish is appropriate for the use. The warp threads are secured.

- The project is clean and smooth or unwrinkled as appropriate for the materials used.
- Basic elements and principles of design are pleasing.

Resources for weaving

You might find many of these books and videos in local libraries or for sale in bookstores.

Books

Friendship Bands: Braiding, Weaving, Knotting by Marlies Busch, Nadja Layer, Angelika Neeb, and Elisabeth Walch, 1997, Sterling Publishing Co., Inc. (ISBN 0-8069-0309-0).

Instructions for making friendship bracelets in 70 designs, with dozens of variations that use simple braiding, weaving, and knot-tying techniques. Bead weaving instructions are included.

Weaving for Beginners by Jessie Rubenstone, 1975, J.B. Lippincott Company (ISBN 0-397-31635-6).

A very basic introduction to weaving with a simple-to-make, harness-type loom. Items to make include headbands, belts, pillows, wall hangings, and rugs.

Weaving on Cardboard, Simple Looms to Make and Use by Marthann Alexander, 1972,

Taplinger Publishing Co, Inc. (ISBN 0-8008-8120-6).

Easy instructions for getting started using inexpensive, easy-to-make looms of several types.

Weaving Without a Loom: Simple Projects for All the Family by Veronica Burningham, 1998, Search Press, Ltd. (ISBN 0-85532-818-5).

Simple weaving techniques using sticks, cardboard, hardboard, picture frames, and rings or hoops. There are easy-to-follow instructions and a range of simple, inexpensive projects.

You Can Weave! Projects for Young Weavers, Kathleen M. Monaghan and Hermon Joyner, 2001, Sterling Publishing Co, Inc. (ISBN 0-87192-493-5).

A beginning guide that has simple looms to make from inexpensive materials, a variety of projects, and suggestions for keeping the weaving in the intended shape. It includes some simple heddle loom construction and bead weaving.

Videotapes (available for loan from the State 4-H Office; contact your local Extension office to order)

Card Weaving by Candace Crockett (97 minutes)

This video introduces the basic techniques of card weaving, which involve simple tools, cardboard cards, and yarn. Complete directions for two projects are included.

Introduction to Weaving by Deborah Chandler (57 minutes)

This video presents the basics: types of looms and tools, vocabulary, characteristics of fibers and yarns, and how to calculate the amount of yarn needed for a project.

Rigid Heddle Weaving—Level 1 by Betty Davenport (93 minutes)

This style of weaving is done on a wooden loom. This video includes warping and other techniques unique to the rigid heddle loom. Projects present a variety of stripes and texture weaves as well as finishing techniques.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials”
<http://oregon.4h.oregonstate.edu/resources/materials.html>

Basketry

Basketry involves weaving, coiling, twining, or plaiting fibers into a shape. We commonly think that basketry is for making baskets, but many other items, such as bags and hats, can be made this way.

Methods

Most basketry is created by varying four basic basket construction methods.

Coiled. A core (bundle of strands or rods) is stitched into a spiraling oval or round form. There are many kinds of materials and stitch types that can be used for the core bundles or stitching.

Twined. Two or more flexible elements encircle a base. **Pairing** and **waling** are specific types of twining. Materials can vary from flexible native naturals to waxed linen, cordage, or other fibers.

Woven. Rigid stakes or spokes create a warp, and more pliable materials are woven in and out to create a weft. Materials can be flat or round and either natural or human-made.

Plaited. Stakes and weavers are the same material. They are woven together in either a diagonal or horizontal/vertical orientation in plain or twill weaves.

Skill building

Solid base baskets are probably the easiest to make. A cut piece of wood with holes around the edge to attach the fibers replaces the more involved base of fibers. The sides of a solid base basket can be woven in any shape with any of the four methods.

Twining with a solid or freeform base also can be fairly simple. Plaited and coiled methods can be more difficult, as can designs that add handles and lids.

The type of material chosen also can make a project more difficult. Some materials are naturally flexible, while others need complicated preparation and handling before you can use them.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for basketry”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

Start with small items so members can experience the technique and complete several small projects. That way, they can receive feedback sooner and evaluate their work to see where they might improve.

As members advance in their skills, they can try different methods of basketry, different materials, and mixing a variety of materials. Larger projects or those with more intricate designs can expand the member’s experience. Collecting, preparing, and even dyeing “found” natural materials can be part of an individual design process.

You can use basketry techniques to make baskets, mats, sculptures, hats, purses or bags, and wall hangings. Snowshoes and caned chair seats also are made using basketry techniques.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate basketry projects for the following characteristics.

- Tension on elements is even.
- Shape is developed or maintained as intended.
- Weave or stitching pattern is maintained.
- Ends are fastened or finished correctly.
- Materials are added inconspicuously.
- Materials have been prepared or handled properly.
- Item is level and/or symmetrical, as intended.

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The goal is for members to develop an understanding of what makes good-quality work.

- Handles or lids are attached securely.
- Item can be used as intended.
- Basic elements and principles of design are pleasing.

Resources for basketry

You might find many of these books and videos in local libraries or for sale in bookstores.

Books

Making Creative Baskets—Alternative Materials, Simple Techniques by Jane La Ferla, Lark Books, 2002 (ISBN 1579903827). Learn the four simplest ways to make a basket: weaving, twining, plaiting, and coiling. Includes projects in a variety of shapes, sizes, and materials.

Pine Needle Basketry: From Forest Floor to Finished Project by Judy Mallow, Lark Books, 1997 (ISBN 1887374140). Covers the basics from gathering pine needles through how to make a variety of baskets.

The Basket Book: Over 30 Magnificent Baskets to Make and Enjoy by Lyn Siler, 1988, Lark Books, Sterling Publishing (ISBN 0806968303). Complete instructions with many close-up illustrations of each step. Weave 32 basic designs by hand from natural materials.

Creative Basket Making by Lois Walpole, North Light Books, 1996 (ISBN 0-89134-299-0).

Contains clear instructions for using the stake-and-strand method (weaving) and the plaiting method. Suggestions and instructions for projects are included.

Videotapes (available for loan from the state 4-H office; contact your local Extension office to order)

Splint Basketry—I, Appalachian Egg Basket by Robin Taylor Daugherty (79 minutes). The video presents all aspects of weaving an Appalachian egg basket: possible styles, shapes, and materials; preparing materials; adding ribs; and finishing techniques.

Splint Basketry—II, Spoked and Plaited Techniques by Robin Taylor Daugherty (96 minutes).

The video shows how to make two different baskets, one round and the other square or rectangular. It includes styles, shapes, and materials; preparation of materials; weaving steps; and finishing.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Websites

<http://www.basketmakers.org> Basketmakers website, Susi Nuss, editor. A comprehensive, informative site.

Spinning

Drawing out and twisting fibers into thread or yarn is called **spinning**. A variety of fibers can be spun, and different fibers can be blended. Several strands can be plied together to make a variety of textures.

Methods

You can use a simple drop spindle or spinning wheel to spin fiber, or even simply roll fibers together with your hands or across your leg. The drop spindle or spinning wheel puts twist in the fiber while the hands control the length of fiber allowed to twist. There are several methods of pulling out the length of fiber (**drafting**) which allow different control of the process.

Sheep's wool is the most common fiber used for spinning. Other possibilities include other animal fibers (alpaca, llama, goat, rabbit, dog), silk, and plant fibers (flax and cotton).

You can spin yarn from one fiber, or you can blend several fibers together. The yarn may be single ply or have two or more spun strands plied together. The thickness of the yarn and the amount of twist per inch influences the strength and feel of the yarn. It is important to match yarn characteristics to the intended use.

Skill building

A simple drop spindle can introduce the technique. A spinning wheel has more parts to coordinate and control.

Whether using a spindle or a wheel, wool is the easiest fiber to work with, and middle-length fibers are easier than long fibers. Beginners might start with pencil roving (a prepared form of wool fibers) while they learn how to choose and prepare a fleece for spinning. First yarns probably will be single ply. It takes more skill to ply yarns with two, three, or more strands.

More experienced spinners can move in several directions to seek new challenges. Cotton or silk fibers are more difficult to spin than wool. Blending kinds of fibers

develops new skills. Fine, even yarns and consistently even, heavy yarns are more difficult to spin. Fancy yarns made by plying different fibers are also a challenge.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for spinning”) to describe the techniques you have used, skills you have improved, and new things you have learned. You should be able to describe on the card a suitable match between the yarn you have created and a planned use.

Project ideas

Start with small items so members can experience the technique and complete several small projects. That way, they can receive feedback sooner and evaluate their work to see where they might improve. In most cases, spun yarn is not the end product but is meant to be used to make something else. It is important for members to make a connection between what they want to make and the chosen fiber and yarn characteristics.

Members can learn to weave, knit, or crochet using their yarn. They can learn to identify the various characteristics of wool fibers from different animals, and to select and prepare fiber from the raw state. Members may be interested in learning to dye fibers or yarns. There are many dyeing methods. This leads to an understanding of color and color theory.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their yarn for the following characteristics.

- Twist of the yarn should be even.

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The goal is for members to develop an understanding of what makes good-quality work.

- The yarn should be of even thickness unless it is meant to be thick and thin.
- Weight and twist of the yarn should be appropriate for final use.

Resources for spinning

You might find many of these books in local libraries or for sale in bookstores.

Hands on Spinning by Lee Raven, 1987, Interweave Press, Inc. (ISBN 0934026270).

Clear directions and diagrams explain the spinning process, from spinning fibers on your thigh through use of a drop spindle and wheel. Covers how a spinning wheel works, choosing a wheel, preparing fibers, carding, twisting, and plying.

Spin It!: Making Yarn from Scratch by Lee Raven, 2003, Interweave Press, Inc. (ISBN 1931499365).

Step-by-step instructions and illustrations explain how to make yarn using handspindles. Designed for the beginning spinner. Includes instructions for five simple projects.

Spindle Spinning from Novice to Expert by Connie Delaney, 1998, Kokovoko Press (ISBN 0966095200).

How to spin with top or bottom whorl spindles, Navajo, and support spindles.

Contains good instructions with illustrations.

Spinning Designer Yarns by Diane Varney, 1987, Interweave Press (ISBN 1-931499-39-X).

Introduces the intermediate spinner to super-soft luxury fibers, textured effects, dyeing fibers in new and exciting ways, predicting how novelty yarns will look in finished fabrics, blending fibers for color and texture effects, and spinning singles and plied yarns. Includes Corespun, bouclé, snarl, knotted, and tufted yarns.

The Ashford Book of Spinning: Revised Edition by Anne Field, 1999, Shoal Bay Press (ISBN 0908704941).

Although written specifically for the Ashford wheel, the material is basic, with both text and photo illustrations. Learn to spin on a spindle and a spinning wheel, use a niddy noddy, hand cards, and a drum carder. Many spinning techniques and ways to spin novelty yarns are illustrated. Includes projects for using handspun.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Felting

Felt making is an ancient craft, perhaps the first way that fabric was made. The process of felting causes fibers to intertwine and hold together in a bonded, random order. Once fibers are felted, the process is not reversible.

Most animal fibers that have overlapping scales can be felted. The most commonly used fiber is wool from sheep. Fibers differ greatly in how they felt, even fibers from different animals of the same species.

Methods

There are basically three methods of causing fibers to felt or hold together.

Wet felting needs only water, wool, and your hands, but it often includes soap and some simple tools to help the process. Fibers also can be felted by agitating them with water and soap in the washing machine.

Dry felting or **needle felting** uses long, barbed needles to push the fibers together and cause them to interlock. The needles can vary in diameter, shape, and the depth of the barb. Wet and dry felting can be used on the same project.

Fulling is the process of felting an item that was first created by loose knitting, crocheting, or weaving. Fulling usually is done by the wet method either by hand or in a washing machine.

Skill building and project ideas

It is best to start with small, simple designs so members can experience the technique and complete several small projects. That way, they can receive feedback sooner and evaluate their work to see where they might improve.

Members

Develop your felting skills by trying more techniques, larger or more advanced projects, and individual creative design. More advanced projects increase in size, complexity, and number of parts.

Projects can be either wearable or decorative items. Possibilities include beads and buttons, inserts for cards, and cut shapes for ornaments or embellishment. Flat pieces could be left flat for wall hangings or sewn into simple bags or pillows.

A progression of projects from simple to more difficult in wet felting might be: rope making, beads and balls, flat pieces with or without surface designs, flat pieces which can be sewn together to make items, flat pieces shaped to become three-dimensional, vessels, seamless wearable items.

Dry felting projects might be divided into flat work or sculptures. The more intricate or involved the design, the greater the difficulty of the project.

Members might need to learn weaving, knitting, and/or crocheting to produce items for fulling. They might be interested in learning to dye the fibers they choose. There are many dyeing methods. This leads to an understanding of color and color theory.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for felting”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work.

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their felting projects for the following characteristics.

- Firmly felted. Fibers do not change position when pressed or pulled upon; the intended shape is maintained.
- Evenly felted. There are no thin or thick areas unless they are intended for the design.
- Materials and structure are suitable for the intended use of the project.
- Wearable items fit as intended.
- Basic elements and principles of design are pleasing.

Resources for felting

You might find many of these books in local libraries or for sale in bookstores.

Fundamentals of Felting by Patricia Spark, 1989, Unicorn Press (ISBN 0-916658-48-1).

Basic felting including choosing and processing fiber, flat and three-dimensional techniques, finishing the felt, and methods for creative design. There is a source directory for supplies and additional resources.

Needle Felting by Anne Einset Vickrey, 2002, Craft Works Publishing (ISBN 0-9619053-2-8).

Techniques, equipment and materials, and instructions for various projects including flat and sculpted items; a source

directory for supplies; and additional resources.

Scandinavian-Style Felting by Patricia Spark, 1992, Unicorn Press (ISBN 0-916658-50-3).

A more advanced book on the regional Scandinavian felting methods of making three-dimensional objects held together with felted rather than sewn seams. Includes materials and equipment, projects of increasing difficulty, and resources.

The Art of Felting by Anne Einset Vickrey, 1997, Watson-Guptill Publications (ISBN 0-8230-0262-4).

History, wet method materials and tools, and instructions for various projects including simple ropes, beads, rope and bead figures, flat felt and surface designs, felt balls, masks, vessels, seamless wearables, and puppets. There are pictures of the steps, lots of finished products that might appeal to youth, and a source directory for supplies.

The Weekend Crafter: Felting by Chad Alice Hagen, 2002, Lark Books (ISBN 1-57990-252-9).

History, wet method materials and tools, and instructions for various projects built on balls, ropes, and flat felted pieces. There are instructions for lots of decorative and wearable items that might appeal to youth.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Macramé and Knotting

Macramé is the art of ornamental knotting. It originated as a decorative way to finish a woven fabric and became a technique for creating entire items or garments. Tatting also is based on knotting and forms a type of lace or decorative motif.

Methods

There are many different **macramé** knots and techniques to choose. More intricate pieces are a combination of different knots. Macramé usually is worked on a flat surface called a **knotting board**. The board supports the work, and pins hold the work in place. A grid on the surface can help keep the cords and knots spaced evenly. An alternate method is to secure cords to a support (cord, dowel, ring, or belt buckle held firmly in place) so they can be tied under tension.

Knot-tying materials vary in type of fiber, both natural and synthetic, and diameter of the cord, thread, or rope. Use material that is strong enough to withstand the abrasion of repeated knotting and does not have too much give or elasticity.

Tatting uses one knot called a **double stitch**, worked in groups over a single thread. A tatting shuttle carries the thread and helps form the knots. Tatting also can be done using a long needle of even diameter with a blunt tip at one end and an eye for the thread at the other. The needle size must be matched to the thread being used. The knots are worked over the needle and then transferred to the thread. Tatting usually is worked with fine, smooth cotton thread so it forms a strong but delicate looking lace.

Skill building

For macramé, it is best to start with small items using materials that are pliable, uniform, and of a size appropriate to the item but not too fine. The smaller the diameter of the materials, the harder it is to see the knot being formed, and more knots

might be needed. Members can build their skill by trying larger projects using more complicated knots.

Start tatting with small, basic motifs. Needle tatting is easier than shuttle tatting. Patterns and books often show basic, intermediate, and advanced skills.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for macramé and knotting”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

For macramé, members can try coasters, belts, placemats, animal leads or leashes, napkin rings, key chains, hatbands, jewelry, and purses or bags.

For tatting, good starting projects are small motifs to decorate note cards or simple lace edgings to attach to another item.

As their skill grows, members can make larger, more intricate items, work with more than one color, or add beads with either type of knotting.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their macramé and tatting projects for the following characteristics.

- Knots are tied correctly.
- Spacing of knots follows the intended pattern.
- Cords or threads are added inconspicuously.
- Ends are finished securely.
- Basic elements and principles of design are pleasing.

4-H Project Leader

The goal is for members to develop an understanding of what makes good-quality work.

Resources for macramé and knotting

You might find many of these books in local libraries or for sale in bookstores.

Friendship Bands by Marlies Busch, Nadja Layer, Angelika Neeb, and Elisabeth Walch, 1997, Sterling Publishing Co. (ISBN 0-8069-0309-0).

Instructions for making bands using braiding, weaving, and knotting techniques.

Friendship Bracelets by Camilla Gryski, 1993, William Morrow & Co. (ISBN 0-688-12437-2).

Instructions for making friendship bracelets using knotting techniques.

Friendship Bracelets by Veronique Follet, 1995, Search Press (ISBN 0 85532 803 7). More friendship bracelets using knotting techniques; some are more advanced.

Learn Needle Tatting Step by Step by Barbara Foster, 1998, Handy Hands, Inc. (ISBN 1-883432-05-7).

Photos and text describe basic steps of needle tatting, including instructions for left-handed tatters. Some simple projects are included.

Reader's Digest Complete Guide to Needlework, Virginia Colton, editor, 1979, Reader's Digest Association (ISBN 0-89577-059-8).

Includes information on both macramé and tatting.

The Complete Book of Tatting by Rebecca Jones, 1985, LACIS Berkeley (ISBN 0-916896-39-0).

Complete instructions for getting started and suggestions for projects.

The Weekend Crafter: Macramé by Jim Gentry, 2002, Lark Books (ISBN 1-57990-280-4).

Photos and instructions for many small projects that might appeal to youth.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Websites

<http://www.handyhandstatting.com>

Handy Hands Tatting website.

A comprehensive, informative site for patterns, books, and supplies. Includes basic online instruction with photos.

Braiding

Braiding intertwines multiple strands of fiber to form ropes, cords, or other shapes such as lace. It is somewhat like weaving, except that braiding does not use separate warp and weft fibers.

Methods

Three-strand braiding is probably the most common form. It is done using three strands of fiber and, while keeping tension on the strands, alternately crossing the left strand and then the right strand over center. This makes a flat, pliable braid that can be laced into round and oval shapes. Alterations in the sequence produce rounded or square corners on a flat piece. Three-strand braiding commonly is used for floor rugs, but you also can make things like coasters, placemats, or ropes (see “Project ideas”).

As more strands are added (4, 5, 6, or 7 strands), the braid becomes wider and less flexible. You can give braids a different appearance by varying the braiding pattern.

Bobbin lace is a form of braiding using very fine materials. Bobbin lace uses a support surface, called a **lace pillow**, and an actual-size pattern, called a **pricking**. Pins hold the work in place, and the thread is carried on lace bobbins. The bobbins act as handles to move the thread and weights to keep tension on the thread. A wide range of styles can be created, from geometric to complex floral or pictorial designs.

Japanese braiding (Kumihimo) is the art of cord-making using braiding. Traditional Japanese braids are made using a stand to support the strands. The ends of the strands are wound around weighted bobbins.

Wheat weaving is an ancient craft found in almost every culture that raises grains for food. It was originally a way to please the gods and save seed for the next year’s planting. Today, wheat weaving has grown to include some very large and intricate designs. Although it is called weaving, the technique is primarily braiding. Stalks of wheat are soaked in water to become pliable enough to bend without breaking.

Skill building

It is easier to make smaller projects working with fewer strands of fiber. Three-strand braiding is much easier than 4-, 5-, 6-, or 7-strand braiding. Materials that are consistently pliable and hold the braid without slipping are the easiest to use. As members progress from basic skills, they can learn to design their own items.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for braiding”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

Start with small items so members can experience the technique and complete several small projects. That way, they can receive feedback sooner and evaluate their work to see where they might improve.

Fabric braiding commonly is used to make rugs. Using various other fibers, members can make belts, bracelets or necklaces, key chains, zipper pulls, coasters, mats, ropes, and animal leads or tack. As members expand their skills, projects become larger or more intricate. Design, perhaps especially related to color or pattern, is something members can develop to express their individual creativity.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work.

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their braiding projects for the following characteristics.

- Even tension is applied to the strands.
- The pattern is maintained correctly.
- New materials are added inconspicuously.
- The final project has the desired shape.
- Ends are finished appropriately.
- Materials are appropriate for the intended use.
- Basic elements and principles of design are pleasing.

Resources for braiding

You might find many of these books in local libraries or for sale in bookstores.

Friendship Bands by Marlies Busch, Nadja Layer, Angelika Neeb, and Elisabeth Walch, 1997, Sterling Publishing Co. (ISBN 0-8069-0309-0).

Instructions for making bands using braiding, weaving, and knotting techniques; short, simple projects using inexpensive embroidery floss.

Kumihimo: Japanese Silk Braiding Techniques by Catherine Martin, 1986, Lark Books (ISBN 0-937274-59-3).

A small book consisting exclusively of 16 bobbin designs. Very traditional (Japanese) describing only Maru Dai (round stand) techniques.

Reader's Digest Complete Guide to Needlework, Virginia Colton, editor, 1979, Reader's Digest Association (ISBN 0-89577-059-8). Includes chapters on bobbin lace and rug braiding using fabric strips.

The Beginner's Guide to Braiding: The Craft of Kumihimo by Jacqui Carey, 1997, Search Press, Limited (ISBN: 0855328282). Instructions use simple materials to produce square, round, flat, honeycomb, hollow, and rounded flat braids. There are suggestions for making a simple stand from cardboard and a lamp frame, and bobbins from film canisters.

The Book of Wheat Weaving and Straw Craft by Morgyn Owens-Celli, Sterling Publishing/Lark Books, 1998 (ISBN 157990078X).

There are instructions for natural projects ranging from simple to more elaborate. Twenty different weaving techniques include fans and harps, love knots, Celtic knots, Earth Mother, and Glory Braid.

The Good Housekeeping Illustrated Book of Needlecrafts, Cecelia K. Toth, editor, 1997, Search Press Limited (ISBN 0688126391).

Includes basic instructions for rectangular and round or oval braided rugs, including lacing and finishing techniques.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Hooking

Pulling loops or short strands of yarn or fabric through a backing material to make a pile surface is called **hooking**. The pile can be patterned and/or textured.

Methods

There are several hooking methods. They differ by type of hook used; type of fiber, yarn, or fabric used for the surface of the item; and type of base material. The type of fiber used and the height of the pile combine to make slightly different-looking surfaces.

Latch hook. A latch hook helps pull the ends of a cut piece of yarn around the crosswise threads of rug canvas. This forms a knot to hold the yarn in place. This may look similar to a Rya rug, although true Rya rugs are made using a tapestry needle to make stitches on a heavy, woven, Swedish backing fabric. The loops that form between the Rya stitches can be left as loops or cut.

Hand hook. A hand hook pulls loops of fabric through the base fabric. The pile generally is short, and the loops are uncut. The texture of the pile depends on the width of the strip and the fabric used to make it. Medium weight, firmly woven woollens are the most common fabrics used with a hand hook. Strips are usually between $\frac{3}{32}$ inch and $\frac{1}{4}$ inch wide. The rug base usually is burlap or monk's cloth.

Locker hook. A locker hook looks much like a crochet hook but with a large needle eye at the end opposite the hook. It pulls loops of fiber, commonly fleece or roving, through the squares of rug canvas. The loops are carried on the shaft of the hook and then locked into place by pulling a strong yarn threaded in the eye of the hook through the loops as they slide off the hook. Yarn or strips of fabric can be used in place of wool or roving.

Anchored loop is another name for this technique.

Punch hook or needle. A punch needle commonly is used with rug or tapestry yarn. By pushing the hollow threaded needle in and out of the base fabric, the pile automatically forms on one side. A pile gauge on the needle helps determine the height of the pile. The base fabric usually is either monk's cloth or burlap.

Skill building

Start with small items so members can experience the technique and complete several small projects. That way, they can receive feedback sooner and evaluate their work to see where they might improve.

Precut rug yarns for latch hooking may be an easy starting point. Latch hooking and locker hooking use rug canvas that determines the spacing of the yarns or fabric by the size of the mesh. Sometimes the colors for the design are marked directly on the canvas as a guide.

Using monk's cloth or burlap backing requires and develops more skill, as members must control the spacing of the hooked fibers. More skill is required when the design is charted or graphed, especially as the design becomes more complex. Choosing the colors of the fabrics or yarns, cutting the strips themselves, and dyeing fabrics also require and develop more skill and understanding.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see "Resources for hooking") to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

Depending on the height of the nap and the type of filling material, possible projects might include: coasters, potholders, trivets, pillows, wall hangings, bags or purses, area rugs, vests or other clothing items. Members also can explore dyeing fibers,

yarns, and fabrics to create the colors they desire. Hooking is a technique to which members can readily apply the elements and principles of design in creating original projects.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their hooking projects for the following characteristics.

The goal is for members to develop an understanding of what makes good-quality work.

- Loops or yarn ends are even in height and length unless purposely designed otherwise.
- The spacing of the surface material is close enough to cover the backing. There are no holes.
- Coordination of method and materials holds the pile in place. Yarn or fabric strips do not pull out of the backing.
- Backing is appropriate to size of filling material.
- Pattern is followed correctly to reproduce the design.
- Project is finished appropriately.
- Project is clean and presentable.
- Basic elements and principles of design are pleasing.

Resources for hooking

You might find many of these books in local libraries or for sale in bookstores.

Basic Rug Hooking by Alice Beatty and Mary Sargent, 1990, Stackpole Books (ISBN 0811723062).

Step-by-step instruction for creating traditional hand-hooked rugs in the primitive style. Includes much information on colors and dyeing of fabric as well as suggestions for directional hooking.

Creative Locker Hooking by Leone Peguero, 1998, Lacis Publishing (ISBN 0916896951).

Basic instruction for locker hooking.

Reader's Digest Complete Guide to Needlework, Virginia Colton, editor, 1979, Reader's Digest Association (ISBN 0-89577-059-8). Includes information on hooking and knotting (latch hooking) rugs, including finishing techniques.

Rug Hooking for the First Time by Donna Lovelady, 2003, Sterling Publishing Co. (ISBN 0806993871).

This book focuses on the primitive style of rug hooking using wool strips. It offers very easy-to-understand, basic information covering supplies and techniques plus instructions and patterns for a variety of items including pillows, purses, tote bags, wall hangings, and rugs.

The Complete Book of Rug Hooking by Joan Moshimer, 1975, Dover Publications (ISBN 0-486-25945-5).

Complete information on hand-hooking rugs from basic skills to more advanced. Includes dyeing and detailed shading of fruits, flowers, and animals.

The Good Housekeeping Illustrated Book of Needlecrafts, Cecelia K. Toth, editor, 1994, Hearst Books (ISBN 0688126391). Includes information on hand hooking, latch hooking, and punch hooking related to rug making. Also includes finishing techniques.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Websites

There are a number of commercial websites with instructions and supplies for locker hooking. Search using the words “locker hooking.”

Embroidery

Embroidery is the embellishment of fabric with needlework. Needlework uses many types of stitching and hundreds of different stitches. Some combinations of style, stitch type, fabric, and sometimes color have become **types of embroidery** with particular names.

Methods

Basic embroidery simply adds a design of thread or yarn to the surface of fabric by stitching. The different types of embroidery are defined mostly by type of materials used (base material and thread or fiber) and certain types of stitches. More intricate stitches are combinations and variations of a few basic ones.

Most types of embroidery traditionally are done by hand, but some embroidery also can be done by freehand guiding of a sewing machine. Some home sewing machines use a small computer to stitch digital designs automatically.

For both hand and sewing machine embroidery, a frame or hoop often is used to hold the fabric taut during stitching. This helps keep the stitches more even in tension and avoids puckers in the base fabric. Machine embroidery also uses a variety of stabilizers with the base fabric.

For hand embroidery, there are many patterns or designs to follow as a graph or chart, and others that are transferred to the surface of the fabric as a guide. Charted designs are used with fabric that is suitable for counting threads or squares to guide the stitching.

Stitch families

Stitches are the basic units of a design. They either outline or fill in a shape. Each stitch family has a base stitch with a basic sequence, and many variations can be built from the basic sequence.

Backstitch. These require a stitch backward before the stitch moves forward.

They are used mostly for outline but can be used for filling an area.

Blanket stitch. Blanket stitches carry a line of the yarn or thread across the base of upright legs. They work very well as an edging and are also used to outline.

Chain stitch. These are looped stitches that resemble the links of a chain. They often are used for outlines and decorative borders.

Couching. Couching is done using two working yarns or threads. The first is laid across the design area and the second yarn holds it in place with various stitches over the top. Couching can outline or fill in designs.

Cross stitch. All cross stitches are made with two crossing stitches. They can be used as outlines, borders, or to fill in an area.

Feather stitch. Feather stitches are open, looped stitches with the opening alternating from right to left.

Filling stitch (detached). Detached filling stitches make a pattern while filling an area with separate, individual stitches that do not connect to each other.

Filling stitch (laid). Laid filling stitches create a grid or lattice to fill in a design area. First, long threads are laid in two or more directions across the area. Then, anchoring stitches are taken, usually where the laid threads intersect.

Running stitch. Running stitches are simple in-and-out stitches leaving at least a thread or two of fabric between each stitch in the line. Running stitches generally are used for outlining. Variations of this stitch are used for hand quilting and darning.

Satin stitch. Satin stitches are closely set, straight stitches used to fill in a design smoothly and completely.

Weaving stitch. Weaving stitches weave over a base network of threads. They can be used to cover an area with a textured surface. Raised needle weaving creates a shape that lifts slightly from the surface of the fabric.

Embroidery fabric

Almost any fabric can be embroidered, but there are three types that are used most.

Common weave fabrics are firmly woven fabrics with a relatively smooth surface. Organdy, linen, hopsacking, and burlap are examples from this group.

Even-weave fabrics have the same number of threads per square inch in both the warp and weft directions. Single even-weave, Hardanger, and Aida cloth all belong to this group.

The third type of fabric has an **evenly spaced surface pattern**. Ticking, gingham, and dotted Swiss are examples of this group.

Threads and yarns

The most common threads and yarns used for embroidery include: embroidery floss, pearl cotton, matte embroidery cotton, narrow ribbon, crewel yarn, Persian yarn, tapestry yarn, knitting yarn, rug yarn, machine embroidery thread, and metallic threads. Generally, these are uniform throughout their length without thick or thin areas or slubs.

Needles for hand embroidery vary depending on the diameter of the thread or yarn and whether a sharp or blunt tip works best. There are special machine needles to use with metallic threads.

Specialty types of embroidery

Blackwork. A counted thread embroidery traditionally done with black silk thread on white linen. Repetitive patterns are used to fill in the design area.

Crewel. An embroidery traditionally done with very fine wool yarns, although other fibers also are used. A transferred design usually is used.

Cross stitch. A traditional embroidery in which the design is worked in a simple stitch that crosses threads to form an X. Variations of the stitch also may be used. Embroidery floss is used most often with many types of fabric. Even weaves are

especially suitable, because the fabric creates a natural grid to help guide stitch placement. Fabrics with an evenly spaced surface pattern also are used.

Assisi is a type of reverse cross stitch in which the background is filled with cross stitch and the design area is open.

Cutwork. An openwork embroidery in which the outline of the design is worked in a fine buttonhole stitch before parts of the design are cut away. Closely woven fabrics and pearl cotton or embroidery floss are used most often.

Drawn thread. A counted thread embroidery in which some of the warp or weft threads are removed from an area before the stitches are worked. Then, the stitching pulls the remaining threads together into a pattern. It is typically used for a border on linens.

Hardanger. An openwork embroidery in which the design is framed by blocks of satin stitch. Warp and weft threads are clipped and drawn out in some places. It is most typically done on even-weave Hardanger cloth.

Pulled thread. A counted thread embroidery in which each stitch pulls threads of the fabric together, creating open, lace-like patterns.

Ribbon. An embroidery done with narrow ribbons.

Smocking. This type of embroidery decorates and gathers the fabric into small pleats. The pleating can be done prior to the decorative stitching or as part of making the stitches. It is usually worked on soft, lightweight fabrics with pearl cotton or embroidery floss.

Swedish weaving or huck weaving. An embroidery done specifically on huck toweling. Most designs are worked on the double floats (longer surface threads) across the width of the fabric. Embroidery floss and pearl cotton are the most commonly used threads.

Skill building

Start with small items and easily handled materials so members can experience the technique and complete several small projects. That way, they can receive feedback sooner and evaluate their work to see where they might improve. Look for designs that are simple and do not involve a lot of color changes. If charts are used, they should be easy to read. It is usually easier to start with outline stitches, progress to fill-in stitches, and then learn cutwork. Encourage members to try various types of embroidery to build their skills.

Within each stitch family or embroidery type, there is generally a progression from simple to similar but more involved stitches. It is best to master the basic stitch in a stitch family before trying the more advanced variations. The type of yarn, ribbon, or floss used also influences difficulty. Freehand machine embroidery requires more physical coordination.

Members may use kits, but as they progress, they can do more of the design work, from choosing colors and stitches to drawing or designing the entire pattern.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for embroidery”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

Members can embroider many kinds of decorative or wearable items. Beginning projects might include gift tags, card inserts, ornaments, and embellishments on pockets, collars, and pillows. Members can practice a variety of stitches by making samplers or wall hangings. Some types of embroidery suggest particular types of projects. Embroidery is an ideal medium to expand understanding of the elements and principles of design.

Members

As your skills progress, try using various fabrics, different types of threads, and more complex designs, and choose larger, more elaborate projects.

Members may find it interesting to investigate and share the different cultural backgrounds of embroidery.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their embroidery for the following characteristics.

- Transferred design is not visible on finished work.
- Stitches are even and correctly done.
- Thread or yarn is not too worn looking.
- Thread ends are fastened securely without the use of knots.
- There are no long carry-over threads on the back.
- No unintended loops or thread ends are visible on the front of the work.
- Stitches do not pull the base fabric out of square or cause puckers or wrinkles.
- Project is clean, unwrinkled, and has been finished appropriately.
- Basic elements and principles of design are pleasing.

4-H Project Leader

The goal is for members to develop an understanding of what makes good-quality work.

Resources for embroidery

You might find these books in local libraries or for sale in bookstores.

Reader's Digest Complete Guide to Needlework, Virginia Colton, editor, 1979, Reader's Digest Association (ISBN 0-89577-059-8). Includes complete discussion of different types of embroidery, tools and supplies,

and easy-to-follow drawings for making the hand stitches in each stitch family.

The Good Housekeeping Illustrated Book of Needlecrafts, Cecelia K. Toth, editor, 1994, Hearst Books (ISBN 0688126391). Good photographs of basic stitches and lots of examples of embroidered work.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials”
<http://oregon.4h.oregonstate.edu/resources/materials.html>

Websites

<http://www.stitchguide.com> At this site, find instructions with illustrations, videos, and in many cases, patterns to help you practice individual stitches.

Needlepoint

Needlepoint involves forming decorative stitches on special open-weave canvas. The stitches follow a pattern and can be formed either diagonally across the intersecting threads of the canvas or parallel to the threads of the canvas. Stitches cover the entire surface of a finished canvas.

Methods

Needlepoint stitches are worked vertically, horizontally, or diagonally using five stitch groups: diagonal, straight, crossing, composite, and pile. Either a sewing method or a stab method can be used to draw the yarn through the canvas.

Yarn varies according to the specific project and its intended use. The most typical fibers include Persian yarn, tapestry yarn, crewel yarn, embroidery floss, pearl cotton, matte embroidery cotton, metallic thread, and rug yarn.

The yarn is stitched using tapestry needles with large eyes and blunt points. Needle size is matched to the gauge of the canvas. The needle should be thin enough to pass through the holes of the canvas without distorting them.

The **canvas** is the background material covered by the stitches. Most canvases are made of cotton or linen threads as single mesh, mono canvas in either a plain or interlock weave or double mesh penelope canvas. Perforated paper or plastic canvas also is used for some projects.

The **gauge** of the canvas means how many threads there are per inch. The larger the gauge, the more threads per inch. The type of needlepoint refers to the gauge. Petitpoint is done on canvas that has 16 or more meshes to the inch. Grospoint is done on canvas that has fewer than 16 meshes per inch.

Bargello or Florentine is a popular type of needlepoint that uses straight stitches of varying lengths to create repeating zigzag rows. Stitches done in three or more colors create patterns of strong contrasts or harmonious blends.

Skill building

Start with larger mesh canvases and corresponding larger needle size and yarn. Basic tent stitches (half-cross, continental, and basketweave) are good starting stitches. To build skills, encourage members to try more complicated stitches that change direction and combination to make the pattern. Changing yarn color also increases complexity.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for needlepoint”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

Projects can include cards, ornaments, eyeglass cases, coasters, place mats, small boxes, doorstops, book covers, small pillows, purses, tote bags, wall hangings, and rugs. Members with more advanced skills may design their own patterns and choose their own colors and stitches to express their individual creativity.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their needlepoint projects for the following characteristics.

- Individual stitches are worked correctly and with appropriate tension.
- Proper yarn weight is used for the gauge of the canvas and the stitch.
- Background mesh does not show on the front side of the project.
- Yarn ends are secured without knots.
- Yarn does not appear overworked and frayed.

4-H Project Leader

The goal is for members to develop an understanding of what makes good-quality work.

- Project is clean and properly finished.
- Basic elements and principles of design are pleasing.

Resources for needlepoint

You might find many of these books in local libraries or for sale in bookstores.

Needlepoint from Start to Finish by Kim Cool and Iona Dettelbach, 1992, Fredericktown Press (ISBN 0963197606).

Includes explanations for all the tools and equipment plus both right- and left-handed stitch instructions.

Reader's Digest Complete Guide to Needlework, Virginia Colton, editor, 1979, Reader's Digest Association (ISBN 0-89577-059-8).

A needlepoint chapter discusses basic tools, equipment, and techniques. Excellent photographs and drawings of each stitch are included.

The Complete Needlepoint Guide by Susan Sturgeon-Roberts, 2000, Krause Publications (ISBN 0873417933).

Step-by-step instruction for over 400 needlepoint stitches with photos and drawings for each stitch.

The Good Housekeeping Illustrated Book of Needlecrafts, Cecelia K. Toth, editor, 1994, Hearst Books (ISBN 0688126391).

Contains a complete section including tools, materials, general techniques, specific stitches, and finishing.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Appliqué

Appliqué is the art of creating a design by applying cut-out shapes of fabric (cut-outs) to a base fabric. Historically, the cutouts were applied with hand stitching. A machine zigzag stitch also can be used. Fusible products are another modern method of placing and attaching fabrics. In the Oregon 4-H Fiber Arts project, the emphasis is on the use of fiber to attach the appliqué; so, although fusible products may be used, they should not be the only method holding the appliqué in place.

4-H Project Leader

The emphasis is on the use of fiber to attach the appliqué.

Methods

Members have a variety of methods to try. Types of stitches vary, as do the ways to transfer a shape and turn the raw edges. The most common hand stitches include tack stitch, blind stitch, ladder stitch, slip stitch, and running stitch. These are not intended to show on the surface of the appliqué. Sometimes, decorative stitches which do show on the surface are used. These might include blanket stitch, cross stitch, or other embroidery stitches. Machine stitches can include a straight stitch, satin stitch, blanket stitch, and a blind hem or catch stitch.

Most of the time, the raw edges of the appliqué pieces are turned under to form a smooth edge. Techniques for turning under the raw edges include cutting and stitching a little at a time, and variations of turning the edge over a paper pattern and pressing, basting, gluing, or fusing before stitching the piece to the background fabric. Some types of appliqué do not turn under the raw edges but either stabilize them with fusible material or apply additional fabric over the top. Which techniques to choose vary according to the desired appearance and use of the project.

Specific types of appliqué

Bias appliqué uses continuous strips of folded bias to create designs such as Celtic motifs, vines, or stems.

Broderie Perse originated in France.

Entire printed, realistic motifs such as a flower, leaf, or animal are cut out, arranged in a new design on a base fabric, and stitched in place.

Dimensional appliqué gives a three-dimensional appearance by filling or stuffing the appliquéd piece. This can be done either by filling the piece before it is entirely stitched in place or making a small slit in

the base fabric to add the filler after the appliqué is in place.

Hawaiian appliqué typically is done by natives of the Hawaiian Islands. They make two-color quilts with large but intricately shaped symbols appliquéd to the base fabric. Because of the tight turns and sharp points, a needle-turned technique often is used to attach the appliqué.

Layered scenic appliqué creates a landscape or scene design by combining various fabrics to represent the shapes and features of the landscape or scene.

Reverse appliqué uses a reverse layering of the fabric pieces. The design is cut in a continuous top fabric and the cut edges turned under and stitched to reveal the fabric underneath. South American Molas and Southeast Asian Pandau are examples of this technique.

Shadow appliqué uses an overlay of sheer fabric, such as organza or voile, to hold the design in place. Stitching is done through the sheer fabric and around the edge of each piece of the design underneath. The sheer fabric mutes or shadows the colored fabrics of the design.

Stained-glass appliqué simulates stained glass window designs. This technique also can incorporate folded bias strips to look like the leading of a stained glass window. In this case, the bias is attached over the edges of the colored design pieces much as leading would hold the glass pieces together in a window. Reverse appliqué also can be used to create a stained glass look.

Skill building

It is definitely easier to start with small projects and simple shapes—straight sides or gentle curves and pieces that are not too small. Stable, firmly woven fabrics that turn easily are simpler to work with than bulky, metallic, or loose fabrics. Some fabrics, such as felt or polar fleece, do not require the edges to be turned under.

Appliqué designs using overlapping pieces require more planning. Members must choose fabrics and determine in which order to apply the pieces to prevent color shadowing and bulky areas.

As members progress in the project, they might try both hand and machine stitching, more difficult specialty fabrics, smaller or more intricate shapes, larger projects, and specific types of appliqué (described above). They also could advance from using a pattern or kit to an original design using their own ideas. They can develop skills in basic design as they make choices about placement, balance, color, texture, and other design aspects.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for appliqué”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

Beginning projects could be card inserts, gift bags, pillows, pillowcases, towels, and patches for pockets or shirts. Members may choose to apply their appliquéd design to a ready-made garment or item, or they may wish to sew the item to which they will apply appliqué. Garments that may be appliquéd include sweatshirts, vests, and jackets.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their appliqué projects for the following characteristics.

4-H Project Leader

The goal is for members to develop an understanding of what makes good-quality work.

- Pieces lie smoothly, without tucks, puckers, or folds.
- Edges of chosen shapes are smooth and continuous. Corners and points are sharp.
- There are no raw edges of fabric showing unless intended.
- If edges are turned under, they have been handled in a manner that reduces bulk or pulling, especially in corners and along curved edges.
- Designs with multiple pieces are layered correctly using techniques to minimize bulk and unintended color show-through where they overlap.
- Stitching is even and spaced closely enough to hold pieces securely in place.
- Stitching is nearly invisible unless it is intended to be decorative.
- Stitches at corners and points hold without creating bulk.
- The project is clean and smooth or unwrinkled as appropriate for the materials used.

- Basic elements and principles of design are pleasing.

Resources for appliqué

You might find many of these books in local libraries or for sale in bookstores.

Appliqué 12 Easy Ways by Elly Sienkiewicz, 1991, C&T Publishing (ISBN 0-914881-42-6).

Particular emphasis is on techniques for preparing the appliqué for stitching. Includes both hand and machine stitching. Practice projects are included.

Mastering Machine Appliqué by Harriett Hargrave, 2nd edition, 2001, C&T Publishing (ISBN 1-57120-136-X).

This is a very complete guide to using a variety of stitches to appliqué by machine. Includes supplies, tools and equipment, machine adjustment and care, and specific stitching techniques.

Quilter's Complete Guide by Marianne Fons and Liz Porter, revised edition, 2000, Leisure Arts Presents (ISBN 0-8487-2466-6).

Includes basic appliqué techniques and a good discussion of more advanced appliqué. Lots of photographs illustrate different techniques.

Reader's Digest Complete Guide to Needlework, Virginia Colton, editor, 1979, Readers Digest Association (ISBN 0-89577-059-8).

The appliqué section includes basic discussion of appliqué techniques and design. Drawings of techniques are helpful. Covers both hand and machine stitching with tips for curves and corners.

The Good Housekeeping Illustrated Book of Needlecrafts, Cecelia K. Toth, editor, 1994, Hearst Books (ISBN 0688126391).

A basic discussion of appliqué primarily as it relates to quilt making. Some information on machine appliqué is included.

The Quilter's Ultimate Visual Guide, Ellen Pahl, editor, 1997, Rodale Press (ISBN 0-87596-987-9).

A basic explanation of appliqué techniques is included, especially as it applies to quilts and quilting.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Websites

Use a web search engine with the term “appliqué” to connect to websites offering instruction, free patterns, and supplies for sale.

Patchwork

Sewing together small pieces of fabric to make a larger piece is called **patchwork** or **piecing**. There are many patterns for creating a patchwork design, or the pieces can be joined in a random order, often called crazy patch.

Methods

Choosing which patchwork method to use depends somewhat on the shapes of the pieces and the technique for accurately putting those pieces together. Sewing can be done by hand or machine. Seam allowances are narrow to reduce bulk; ¼ inch is the most common.

Originally, much of the cutting was done using templates or patterns for each individual piece. This may have been particularly true when the fabric came from scraps and useable pieces of worn-out clothes. Some designs still use this technique. Cutting and sewing must be very accurate to get desirable results.

Some shapes can be created by cutting strips of fabric, sewing them together in a variety of ways, and then recutting and sewing to form the desired pattern.

Paper piecing is actually a variation of foundation piecing, but the foundation is paper which is removed from the final product. In this method, an accurate diagram of the design pattern is transferred to paper or cloth. Pieces of the decorative fabric are positioned face down, sewn along one edge following the design lines, and turned over to enclose the seam. Not all designs can be foundation pieced. The individual pieces of the design must be sewn in a particular order to ensure success, but they do not require such exact cutting to shape prior to sewing.

Skill building

Success in creating good-quality work often depends on precise cutting and sewing. Matching members' skill levels with the difficulty level of the pattern design can

help them experience success and minimize frustration.

Simple strips, squares, and rectangles are usually the easiest, though keeping blocks or patches square is important. The more pieces in the design, the more places where seams must meet. Beginners should be careful of seams on a bias, though there are techniques to minimize the stretching of bias edges. Curved and multi-sided pieces are most difficult. Very small pieces also may be more difficult for beginners to handle, though a design can be scaled larger or smaller to meet the needs of the particular project.

Patchwork requires design decisions from the beginning, so it is a good opportunity for members to enhance their understanding of the elements and principles of design. Besides practicing the techniques involved in patchwork, members can develop basic design skills with color and scale as they choose the fabrics to combine in their creation.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see "Resources for patchwork") to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

People often think of patchwork quilts, but many other items can be made with patchwork. Start with small items to give members a chance to learn from their experience and evaluate their work to improve their skills and the final product. Possibilities include coasters, potholders, pillows, vests or parts of clothing (pockets, yokes, cuffs), table runners, place mats, bags or purses, toys or stuffed animals, wall hangings, and quilts of all sizes.

As members advance, they may choose to develop their own original designs.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their patchwork projects for the following characteristics.

- Stitching is regular and close enough to hold pieces together.
- Seams are smooth and lie flat without tucks or wrinkles.
- Corners and seams meet where intended.
- Block sizes are consistent and the intended size.
- Seam allowances have been pressed to one side, unless special circumstances (such as bulk) suggest otherwise.
- Seam allowances are not visible on the right side of the work.
- The project is clean and smooth or unwrinkled as appropriate for the materials used.
- Basic elements and principles of design are pleasing.

4-H Project Leader

The goal is for members to develop an understanding of what makes good-quality work.

Resources for patchwork

You might find many of these books in local libraries or for sale in bookstores.

Quilter's Complete Guide by Marianne Fons and Liz Porter, revised edition, 2000, Leisure Arts Presents (ISBN 0-8487-2466-6).

The book includes many techniques for piecing simple to advanced designs.

Reader's Digest Complete Guide to Needlework, Virginia Colton, editor, 1979, Readers Digest Association (ISBN 0-89577-059-8).

Good overview of the various forms of patchwork along with basic instructions, illustrations, and suggestions for making larger items such as quilts.

Rodale's Successful Quilting Library: Perfect Piecing, Karen Costello Soltys, editor, 1997, Rodale Press, Inc. (ISBN 0-87596-760-4).

Complete how-to steps with color photos make patchwork easy.

Includes fabric preparation, working with templates, rotary cutting, pressing, strip piecing, triangles, eight-seam joins, curved seams, foundation piecing, crazy piecing, string piecing, and more.

The Good Housekeeping Illustrated Book of Needlecrafts, Cecelia K. Toth, editor, 1994, Hearst Books (ISBN 0688126391).

Good basic descriptions and instructions for most types of piecing. Includes instructions for success with more advanced patterns involving curved seams, setting in, and eight-seam join.

The Quilter's Ultimate Visual Guide, Ellen Pahl, editor, 1997, Rodale Press (ISBN 0-87596-987-9).

Definitions and techniques for all types of piecing are included in an encyclopedia format for any topic related to quilting.

Very clear instructions, illustrations, and tips for success.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Quilting

Quilting is stitching through a top layer, middle layer, and backing in a planned design to add texture and hold layers together. It often is combined with patchwork or appliqué, but those are separate techniques from quilting. Some very beautiful quilting is done on one continuous piece of fabric of one color. The entire design is created by the quilting stitches.

Quilting doesn't always result in a piece of bedding. Clothes and other useful and decorative items use quilting in their design and construction.

Methods

Basic supplies for quilting include three layers of fabric, usually a means of holding the layers in position for stitching, and a pattern for the stitching. Other tools and supplies might be needed depending on the stitching method chosen.

Passing a length of thread or yarn through the layers so the two ends can be knotted is called **tying**. Tying usually is done on the front side of the quilt at regularly spaced intervals. Separate ties should be spaced closely enough to hold the layers in position, and the knots should be secure. Tied quilts can be thicker or puffier than those that are hand stitched. The knots usually form a square or diamond-shape grid over the surface.

Hand stitches are the traditional method of quilting, done with a running stitch of 6 to 10 or 12 stitches per inch. Very even stitching is more desirable than more stitches per inch if they are not of even length. A rocking motion is used to “stack” stitches on the needle before pulling the thread through all the layers. Coordinate the use of hand stitches and the intended use of the quilted item with the loft and quilting ease of the batting layer.

Machine stitches can be made with a home sewing machine. Some can be done as usual using the pressure foot and feed dogs to help move the fabric and determine the spacing of the stitches. An alternate method

is **free-motion quilting**. For this type of stitching, the feed dogs are disengaged and a special foot for darning or free motion allows the sewer to have complete control over stitch placement. The size of the quilting project often is limited by the size of the open area to the right of the needle. There are computerized long-arm quilting machines that can be used in either a machine-controlled, digitized pattern or in free motion controlled by the sewer. These are especially helpful for large quilting projects. If members use a long-arm quilting machine, it is important to keep in mind that they should be in control of the entire process.

Quilting styles

Overall design quilting is a specific pattern of stitching that does not follow the shape of any of the fabric pieces. It can be done on solid fabrics or those that have been pieced together. It can vary from simple fans and clamshells to intricate curls, flowers, feathers, and scrolls.

Continuous line designs are a type of overall quilting in which the stitches run from beginning to end without a stop to change position.

Outline quilting follows the shape of the design pieces in patchwork or applique. The stitching commonly is $\frac{1}{4}$ inch away from the design pieces.

Echo quilting uses multiple rows of stitching to “echo” or follow the shape of the design piece in radiating layers.

Crosshatch or **grid quilting** fills in open areas in a regular pattern of intersecting lines.

In-the-ditch quilting follows the shape of the design pieces with stitches in the ditch of the seam so they are less visible.

Stipple quilting and **meander quilting** are randomly curved lines of stitches. Stipple quilting is fairly close together, while meander quilting is spaced farther apart.

Skill building

Start with small items and easily handled materials so members can experience the technique and complete several small projects. That way, they can receive feedback sooner and evaluate their work to see where they might improve. Beginning designs should be somewhat simple.

Tying is by far the easiest technique, but the types of things that can be made this way are few. With hand stitching, straight lines with square corners are easier than curved lines. In tight curves especially, the number of stitches that can be stacked on the needle are fewer.

In hand quilting, it's best to start with a small item so that mastering the stitching technique is not overwhelming.

Machine quilting may be easier for members if they are already familiar with sewing. They can develop new skills in controlling the stitching on the multiple layers of fabric. Members could start with any of the quilting styles, but free-motion stitching may take more practice and physical coordination. Again, starting with small projects reduces frustration. Use of free-arm, digitized quilting machines may be limited by availability. If a member uses one of these, be sure he or she does all the work. Commercially quilted items do not fit in this project.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (See “Resources for quilting”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

Small beginning projects might include ornaments, potholders, coasters, pillows, table runners, placemats, and wall hangings. Clothing (vests, jackets) or accessories (bags, purses) may require a little more skill to incorporate fit with the design and control of bulk.

Quilting certainly lends itself to design combinations with piecing and appliqué.

By exploring the elements and principles of design in a quilting project, members can increase their understanding and expand their creative potential.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their quilting projects for the following characteristics.

- Stitches are even in length, evenly spaced, and have good tension.
- Stitches are spaced close enough to hold the layers together.
- There are no visible knots or loops of thread on the surface (except for tying).
- The fabric lies smooth with no excess fabric, folds, or puckers between stitching lines on either the top or backing layers.
- The quilting lines follow the intended pattern.
- Quilting guide marks do not show on the finished project.
- The fabric, batting, and thread suit each other and the use of the finished product.
- The project is clean and suitably finished.
- Basic elements and principles of design are pleasing.

4-H Project Leader

The goal is for members to develop an understanding of what makes good-quality work.

Resources for quilting

You might find many of these books in local libraries or for sale in bookstores or quilt shops.

Hand Quilting with Alex Anderson by Alex Anderson, 1998, C&T Publishing (ISBN 1-57120-039-8).

Photographs show the quilting stitch for right- and left-handed people using a variety of fingers and positions.

Quilter's Complete Guide by Marianne Fons and Liz Porter, revised edition, 2000, Leisure Arts Presents (ISBN 0-8487-2466-6).

In addition to complete and detailed

quilting information, this book includes guidelines for choosing between hand and machine quilting, types of quilting designs and placement, marking methods, and much more. It covers both machine quilting and hand quilting while focusing primarily on making quilts.

Reader's Digest Complete Guide to Needlework, Virginia Colton, editor, 1979, Readers Digest Association (ISBN 0-89577-059-8). This book includes complete coverage of quilting including tools, designing, basic techniques, alternative quilting techniques, and finishing alternatives.

That Perfect Stitch: The Secrets of Fine Hand Quilting by Roxanne McElroy, 1997, The Quilt Digest Press (ISBN 0844226521). Very complete and detailed information on hand quilting including fabrics, batting, threads, tools, designing, the quilting stitch, and care of quilts.

The Good Housekeeping Illustrated Book of Needlecrafts, Cecelia K. Toth, editor, 1994, Hearst Books (ISBN 0688126391). This book covers the simple basics of hand and machine quilting and includes tying and binding a quilt.

The Quilting Bible, Ellen Pahl, editor, Singer Sewing Reference Library, 1997, Cowles Creative Pub. (ISBN 0865732000). This basic guide to quilting includes detailed color photographs and many ideas for incorporating quilting patterns into sewing creations.

Oregon 4-H publications

Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Papermaking

Making paper by hand is an ancient art. It is a process of extracting the cellulose from fibrous material and forming it to make a sheet or other shape. Materials and techniques are relatively simple.

Methods

The very basic equipment for flat sheet papermaking is a container to hold water with fiber pulp and a two-piece frame called a **mold and deckle**. The screen on the bottom of the mold collects the fiber while letting the water pass through. The shape of the deckle controls the shape of the paper.

Members can get the fibrous materials for papermaking in a number of ways. Several types of pulp, such as cotton linters or abaca, can be bought in a dry form to soak and disperse in water. Paper can be recycled to pulp by soaking it in water and blending in a kitchen blender. Members can gather plant materials and convert them to fiber and pulp by pounding, cooking, and straining them.

The pulp is suspended in water and gathered into a sheet by either pulling a frame through the vat or adding the suspended pulp to a frame suspended in water. Next, the sheet is transferred to blotting material (couching) to remove excess water, usually with various amounts of added pressure, and then the paper is allowed to dry completely.

Pulp also may be cast into three-dimensional forms by pressing it into a mold. Soft cotton linters are often most successful, because they fill small indentations easily and show more detail.

The pulp fiber can be tinted or even have scent added.

A variation on the basic sheet is to laminate two or more sheets together. Members may add materials to one or more of the sheets that alter the color or texture of the paper, such as dried flower petals, leaves, seeds, threads, or glitter. Other techniques that alter the paper include masking part of the screen, embossing, and watermarks.

Skill building

Either casting or pulling flat sheets of paper is a fairly easy introduction to papermaking. Members can make pulp easily and cheaply from recycled, blended paper. They can make frames from simple stretcher bars or picture frames and screening. First efforts should concentrate on controlling the thickness and evenness of the paper.

Using additives or techniques such as multiple couching, embedding, laminating, and embossing requires more skill. Advanced papermakers may want to make original molds for casting or extract fibers from plant materials. The thickness of the paper and the surface finish also can be altered; these should correspond to the intended use of the final product.

Members

Use the 4-H *Fiber Arts Exhibit Explanation Card* (see “Resources for papermaking”) to describe the techniques you have used, skills you have improved, and new things you have learned.

Project ideas

Beginning items might be simple sheets, with emphasis on how thick and even the paper is for its intended use. Small, cast paper shapes from three-dimensional molds are also fairly easy starting projects. Hand-made paper can be used to make cards or invitations, simple boxes, hand-bound books, picture matting, wall hangings, or ornaments.

As members become more experienced, projects may use more involved techniques or become larger in size. Papermaking requires design decisions from the beginning, so it is a good opportunity for members to enhance their understanding of design elements and principles. Members may be interested in learning the history of and cultural influences on papermaking, and in sharing what they learn with others.

The goal is for members to develop an understanding of what makes good-quality work.

Standards for evaluating

The goal is for members to develop an understanding of what makes good-quality work. Members learn to evaluate their papermaking projects for the following characteristics.

- Cast surfaces are smooth and compact.
- Even distribution of the pulp forms a uniformly thick sheet that holds together.
- Thickness of the sheet is suitable for the intended purpose.
- Surface of the sheet is suitable for the intended purpose.
- Embedded materials are secure.
- Basic elements and principles of design are pleasing.

Resources for papermaking

You might find many of these books in local libraries or for sale in bookstores.

Grow Your Own Paper by Maureen Richardson, 1999, Quarto Publishing (ISBN 1-56477-280-2).

Simple and intermediate directions for making handmade paper. Includes many recipes for using natural fiber materials to make interesting paper.

Papermaking Techniques Book: Over 50 Techniques for Making and Embellishing Handmade Paper by John Plowman, 2001, North Light Books (ISBN 1581802099). A very complete reference including the basics for both sheet forming and casting. Additional techniques include laminating, embedding, embossing, coloring, collage,

watermarks, and pulp painting. Includes some project possibilities.

The Art and Craft of Paper-Making by Sophie Dawson, 1992, Lark Books (ISBN 1887374248).

Includes not only complete step-by-step instructions for sheet pulling, casting, and many variations, but also informative notes on the history of papermaking.

The Weekend Crafter: Papermaking by Claudia Lee, 2001, Lark Books (ISBN 1-57990-194-8).

Introductory papermaking directions with examples of useful and decorative items made from the paper.

Oregon 4-H publications

4-H Fiber Arts Exhibit Explanation Card—available on the Oregon 4-H website under “Expressive Arts Materials” <http://oregon.4h.oregonstate.edu/resources/materials.html>

Websites

<http://ipst.gatech.edu/amp/>

The Robert C. Williams American Museum of Papermaking is an internationally renowned resource on the history of paper and paper technology. The site includes a virtual tour of the museum.

<http://www.handpapermaking.org>

Hand Papermaking, Inc., is a nonprofit organization dedicated to advancing traditional and contemporary ideas in the art of hand papermaking through publications and other educational formats. Articles for beginning papermakers are posted on the website including sources of fiber and pulp, common additives, molds, methods of beating fiber, methods of drying paper, embossing, sizing, watermarks, dyes, and pigments.

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