Fly Tying 101

OBJECTIVES

Participants will be able to:

- Listen and follow directions to complete complex tasks.
- Identify and name the basic parts of a fishing hook.
- Identify and name the basic tools used in fly tying.
- Identify and name the basic body parts of aquatic organisms (head, thorax, abdomen, legs, etc.).
- Identify and name some of the basic materials used in fly tying.
- Use demonstrated techniques to construct several basic fishing flies.
- Identify the type of organism a fly represents, and be able to suggest appropriate methods of fishing each fly.
- Identify and define "attractor" and "imposter" flies.
- Describe the differences between wet flies and dry flies and tell how they are fished differently.

Age/Stage

Fry, fingerling, young adult (patterns taught can be adapted to the age/maturity level of the participants), adult.

Subject Areas

Science, Art.

Correlations

Science:

Art:

Background

The art of lashing a few bits of feather and fur to a fishhook goes back many hundreds of years. Flies are not only practical, but many are attractive and can be appreciated as art! Flies are designed to look like something a fish wants to eat. Fly designs have evolved into two basic types: "imposters," which are tied to simulate an actual living organism (like a leech), and "attractors," which have a color or action that draws fish to them (like a streamer). In addition, flies can be divided further into "wet" flies, designed to be fished underwater, and "dry" flies that float on the surface.

There are as many fly patterns as there are things living in water. Participants can use observations of the organisms found in their local body of

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water to try to make flies that look like the organisms that the local fish are eating. Some fly patterns are unique in that they originated in the Great Lakes area, and are patterned after organisms found in our watersheds, e.g., Borchers Drake or Special, an Au Sable River dry fly, and the Red or Orange Pere Marquette Special, a famous steelhead streamer.

Thousands of techniques are used in fly tying. However, you only have to know a few to be able to enjoy this lifelong hobby.

Materials

Many of the following are available from Project F.I.S.H. at http://www.projectfish.org.

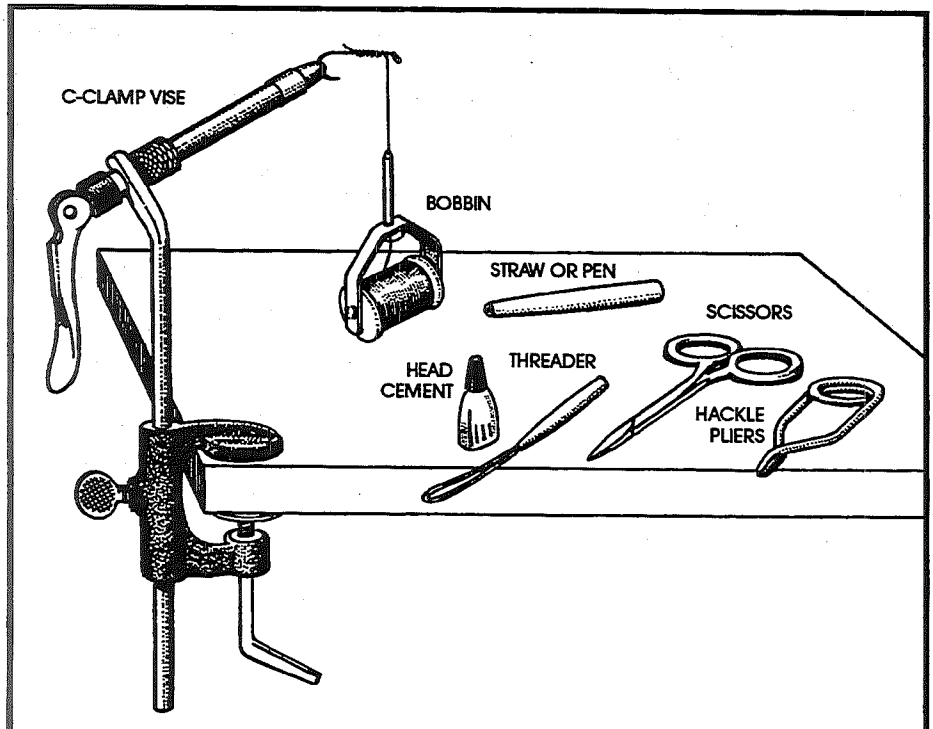
Tools

- A basic vise, used to hold the hook while tying (C-clamp type is adequate, although quality will lessen frustration)
- A bobbin to hold a spool of thread
- Fine-point scissors for clipping small fibers like thread, feather, hair, and rubber
- Hackle pliers to hold feathers (pliers with rubber grip and serrated brass grip are recommended)
- Half-hitch-knot–tying tool or whip finisher* (an empty pen tube, coffee stirrer, or small straw will work)
- Hair stacker,* used to make the hair tips even (an empty brass rifle cartridge or lipstick tube works)
- Head cement, used to seal finished knots (clear nail polish works as well as any commercial product)

Materials

This list includes all the materials used in this activity. Use what you have available and adjust the flies accordingly.

- Thread (black "3/0" or "A" is best)
- Three-strand acrylic craft yarn in green, tan, red, black, and other colors.
- Medium chenille (olive, black, tan, yellow, etc.)
- Egg or glo-bug yarn (a light color like white, and a darker red or orange)
- Craft foam in assorted colors (1/16" closed cell foam)
- Gold/silver Mylar tinsel or other metallic braided material in assorted colors
- Marabou (assorted colors)
- Hackle feathers/schlappen (assorted colors)
- Rubber legs, jig-skirt material, old rubber bands, shock cording, or other rubber filament
- Pheasant tails**
- Assorted game bird feathers** (partridge, pheasant, woodcock, grouse, pigeon)
- Squirrel tails or buck tails** (natural and assorted dyed colors)
- Variety of fly hooks (see individual fly recipes)



Equipment Needed

Procedure

Before the Activity

1. Cover tables with a white or light-colored cloth or paper. White or light-colored tablecloths make it easier to see the various materials. Provide a container for the participants to take their flies home in (empty film containers, or Styrofoam cups work well).
2. Pre-thread the bobbins. (This always helps since threading is a bit tedious.)
3. Always "de-barb" the hooks with a pair of needlenose pliers to facilitate removal from clothes, hair, or skin.

*These items are optional, and not needed to tie basic flies.

**Be sure to purchase animal parts from a licensed sporting goods store or dealer, because it is unlawful to purchase feathers and skins from individuals. You may have them in your possession if they were lawfully obtained by an individual and given to you. Road-killed animals may be used if you have a license to hunt the animal to be taken and it is in season. Be sure to check your local game regulations.

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The Activity

1. Pass out vises and tools to participants. Limit beginners to five or six people or fewer at a time. It is very helpful to have the others watch, if you have a large group. If at all possible, try to have one instructor for every five or six students (one-on-one is ideal, but rarely practical). Tell the participants the name of each tool, and briefly describe what it is used for. (See "Tools" list for a brief description.) Quiz them by holding up a tool and asking its name and purpose.

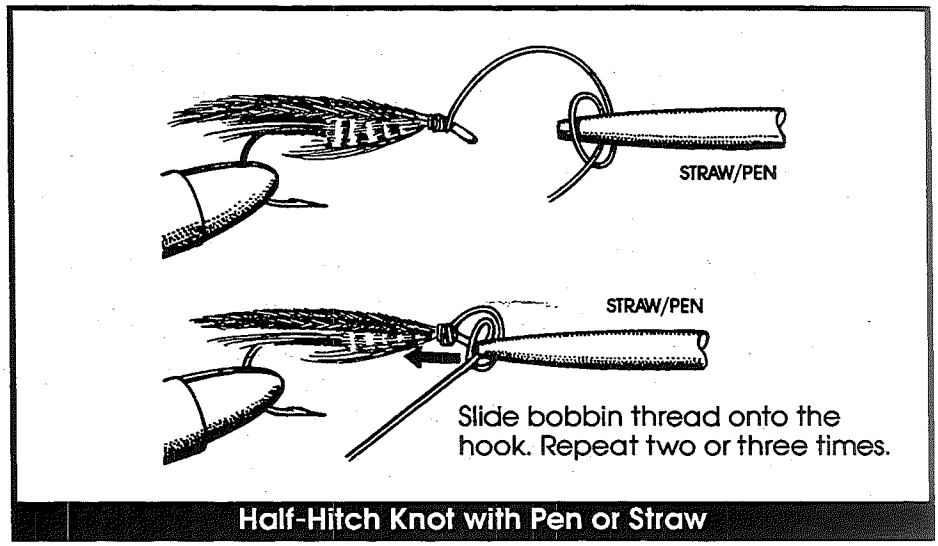
2. Demonstrate how to attach the vise to the table. For those who are left-handed, the vise will need to be positioned to make it easy for them to work. Be sure to point this out during the demonstration and have the participants follow along. Note: Younger participants will want to twist and turn all of the parts of the vise so be sure to explain that you will show them the parts that they can touch in due time.

3. Visit all of the participants while you pass out hooks for the first fly to check out the mounted vise, and reposition or correct if necessary.

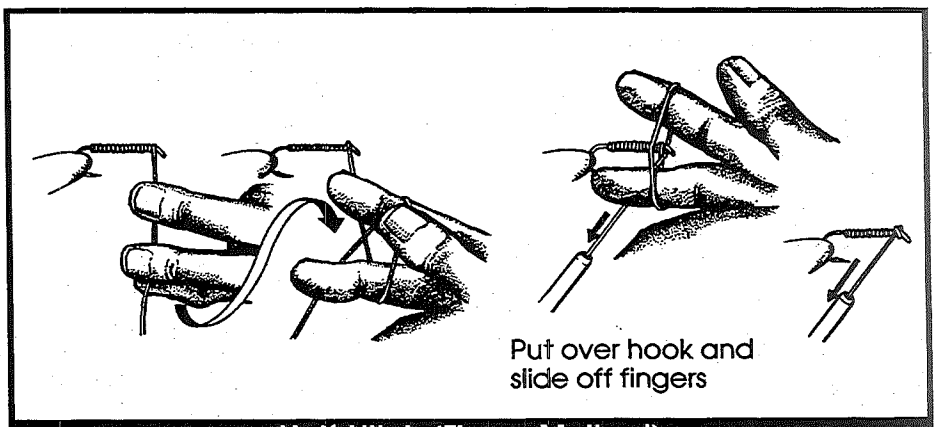
4. Review the parts of the hook with the participants. Have them point to the eye, shank, bend, and point. Show them how to mount the hook in the vise individually or as a group. Doing this step individually takes longer but is less confusing. This step usually leads to a little frustration when done as a group.

5. Have the participants hold the bobbin in their right hand and the thread in their left (opposite for left-handed participants). Starting in the middle of the hook shank, demonstrate that they can use the bobbin to wrap thread around the hook in spirals towards the eye. (**Note:** the bobbin should go *away* from you as it passes *over* the hook and *towards* you as it comes *under*). When you reach the eye of the hook, continue wrapping in the other direction (towards the bend) until you reach a point over the barb or the hook. You will have to angle the bobbin to avoid cutting the thread on the barb. This is the starting point for most flies. (Refer to the **"Recipes"** section for detailed instructions for each individual fly.)

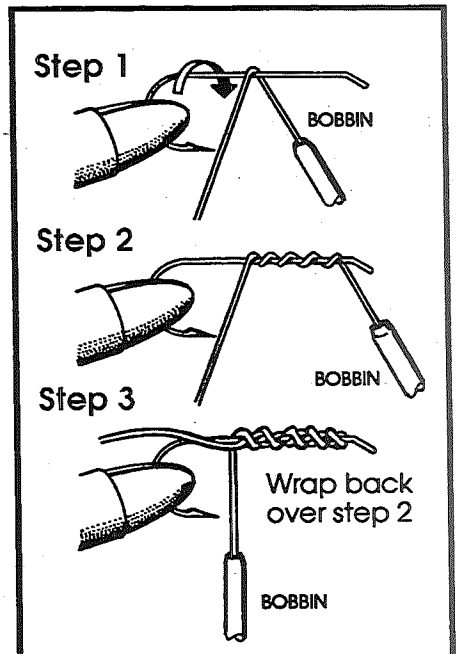
6. Assist each participant as they start the thread on their own hook.



Half-Hitch Knot with Pen or Straw



Half-Hitch (Finger Method)



Starting the Line

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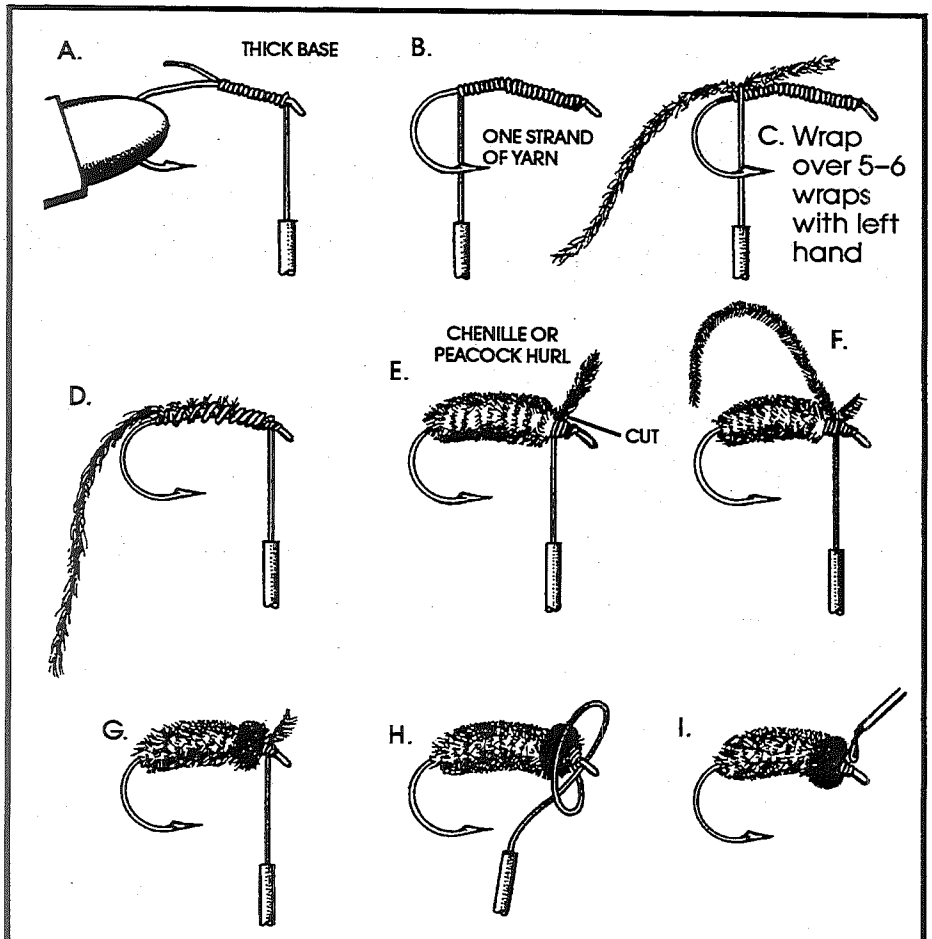
7. Demonstrate each step of the fly for the participants, then assist them as they copy you with their own fly. You can tell them about the materials, the kinds of animals/birds they come from or any other interesting facts you know. Make sure to tell them what part of the finished fly the piece they are working with will become (head, thorax/legs/wings, abdomen, tail, etc.).

8. When the fly is complete, demonstrate how to finish the fly with three half-hitch knots using the pen, stir-stick, or straw. (See diagram of knot.) Help each participant finish his or her fly. Add a drop of head cement, snip off the bobbin thread, and remove the fly from the vise. Place the fly in a safe place while the participant ties another one. (They *will* want to tie another.)

9. Continue this **show-help-watch** cycle for each fly you want to tie. Encourage the participants to experiment with colors, materials, and techniques to develop a fly that they think will fool fish. Be sure to encourage your participants' patience and creativity. Remember, it is impossible to tie a fly too ugly to catch a fish!

10. Follow the suggested order that the "recipes" appear in this activity. The skills learned for each fly will help in tying the next fly.



Green Caddis Fly Larvae

Recipes

Green Caddis Fly Larvae

(From Ron Angove, Michigan Fly Fishing Club)

This pattern imitates the "green rock worm" (caddis fly larvae) found in most Michigan streams.

- **Hook:** Nymph hook size 6–14
- **Thread:** Black 3/0 or 6/0
- **Abdomen:** Acrylic sparkle yarn, green yarn or green dental floss
- **Thorax:** Fine chenille (black) or peacock hurl

Tying Procedure

1. Start thread on hook, and create a thread base back to a point over the barb of the hook.

2. Cut a piece of yarn about 4 inches long. Separate the three strands.

3. Lay one strand of the yarn on top of the hook so that one end covers about ⅔ of the shank and the remainder extends beyond the bend of the hook.

4. Bind the yarn onto the hook using the bobbin thread. Then wrap the thread up toward the eye and let the bobbin hang. The hook should now have a long yarn tail.

5. Twist the yarn until it is a tight "rope."

6. Wind the yarn around the hook shank, working your way forward, in tight spirals, until you reach a point ¾ of the way to the eye of the hook. This creates the abdomen region of the bug.

7. Tie off the yarn with the bobbin thread. Do this by holding the yarn with your right hand above and toward the eye of the hook and wrap with your left hand over the yarn to tighten and

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hold it in place. Trim away the waste yarn.

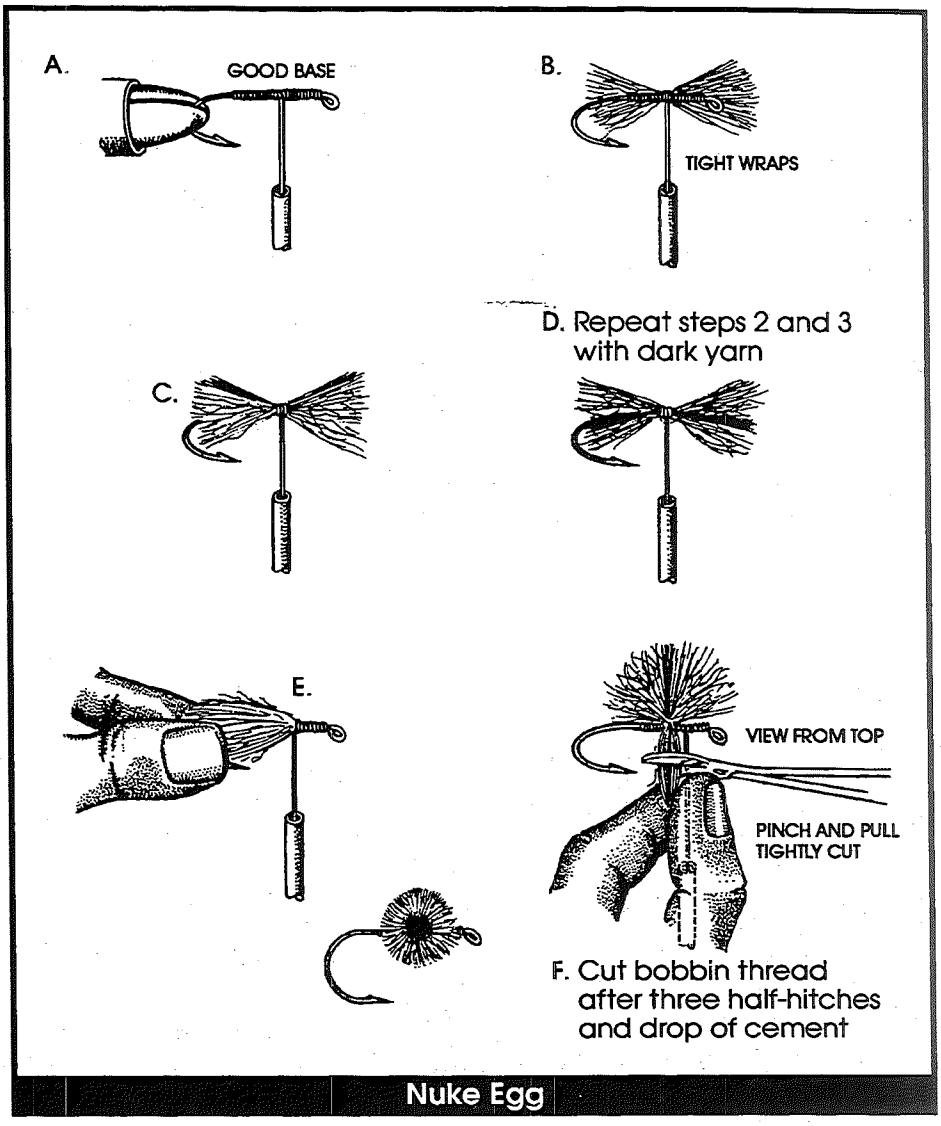
8. Tie in some black chenille or peacock hurl. Do this in the same way you started the yarn. Wind forward a couple of turns (just as you did for the abdomen) and tie off just behind the eye. This creates the thorax.

9. Make a small head out of the bobbin thread by wrapping it quite a few times around the hook just behind the eye.

10. Finish with three half-hitches and a drop of head cement.

Variations

- By varying the size of the hook, and the yarn and head color, you can imitate a variety of caddis fly species.
- You can add a bead to the hook before tying. Push it up towards the eye, and use it instead of the chenille or peacock hurl.
- Some people use a turn or two of game bird feathers between the abdomen and thorax to simulate legs.
- Alternate thorax materials: Try rubber bands, clear vinyl ribbing, or copper wire.



Nuke Egg

Nuke Egg

This pattern, when wet, imitates a fish egg, complete with nucleus. It is a favorite for steelhead.

- **Hook:** Egg hook size 6–10
- **Thread:** Any color 3/0 or "G" (the stronger the better)
- **Body:** Light-colored (white, pink, peach) egg yarn or glo-bug yarn
- **Nucleus:** Dark colored (red or orange) egg yarn or glo-bug yarn.

Tying Instructions

1. Start the bobbin thread and lay down a base of thread on the hook. Leave the thread a little off center of the hook, about ¼ inch from the eye.

2. Cut a piece of light egg yarn about 2 inches long. Flatten it out to make a flat square.

3. Hold the yarn against the side of the hook farthest away from you and tie it tightly to the hook with two or three *strong* wraps of thread.

4. Cut a second piece the same size and hold it against the side of the hook facing you and tie it down with one or two *strong* wraps of thread.

5. Take a small piece of dark egg yarn and take out a few, 2-inch-long strands. Repeat steps 3 and 4 with the smaller, dark yarn on both sides. Try not to wrap too many times, *strong* wraps are essential to success.

6. Carefully pull all of the yarn that points towards the eye back toward the hook bend. Now you should be able to see the wrapped hook shank. Wrap the bobbin thread around the shank a few times and tie off with three half-hitches. You can touch this with head cement if you wish.

7. Next, pull all of the yarn ends from one side toward you with a bit of pressure, and with *sharp scissors* cut all of the

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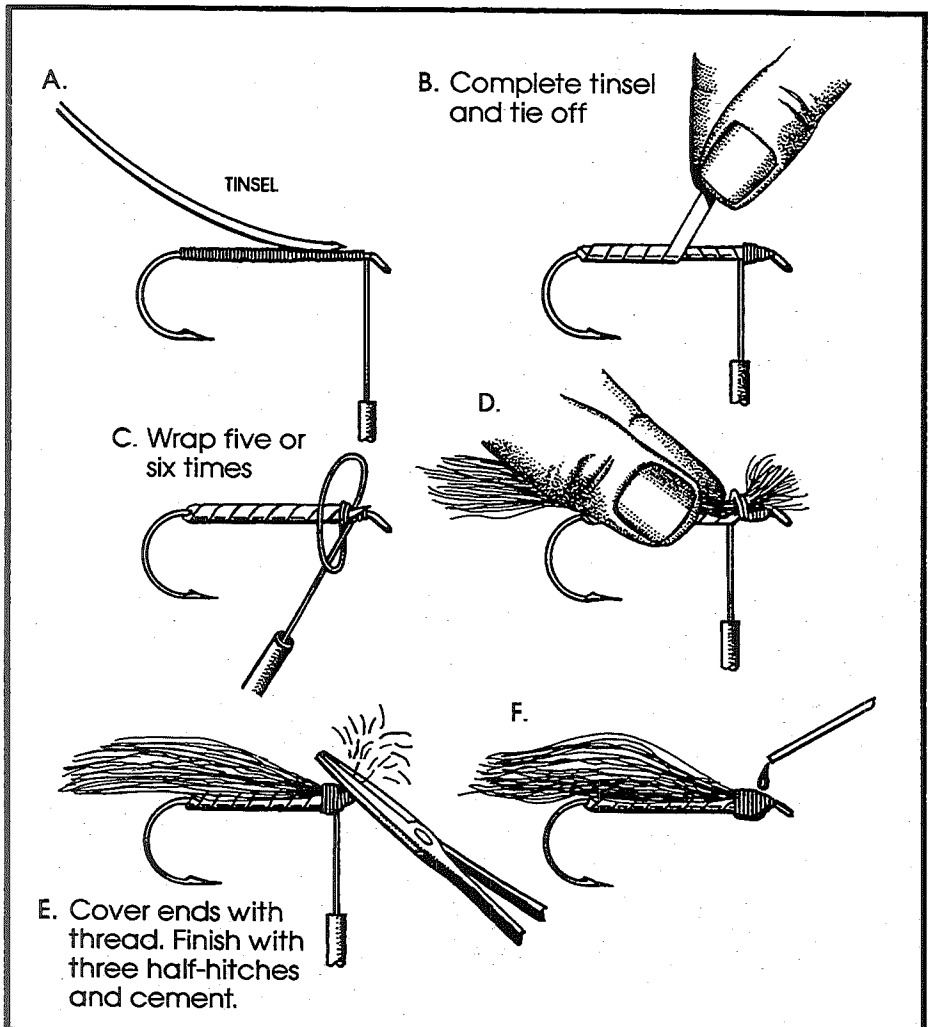

Squirrel Tail Streamer

yarn straight across about ¼ inch from the hook shank. The yarn should fluff up, creating half of a little egg ball with a dark center.

8. Repeat this step on the other side to create the second half of the little egg ball.

9. Try this with a variety of light and dark colors. Keep your scraps; they will come in handy as your skills increase.

Squirrel Tail Streamer

This pattern imitates a variety of minnows.

- **Hook:** Streamer hook 6–14
- **Thread:** Black 3/0, 6/0, or "G"
- **Body:** Gold Mylar tinsel or metallic braided thread, squirrel tail

Tying Instructions:

1. Start thread on hook, leave the thread behind the eye of the hook.

2. Cut a 4-inch piece of Mylar tinsel and taper one end to a point. Tie the tapered end on at the thread with several wraps.

3. Wrap the tinsel back to the bend of the hook touching itself but not overlapping, and return to the eye. Tie off as you did with the yarn in the caddis fly larvae and trim off excess.

4. Cut a bunch of hairs about as round as a matchstick from a squirrel tail and pinch them tightly between your thumb and index finger.

5. Position the bunch on the hook shank with the cut ends (butts) hanging over the eye. Tie on with 4 or 5 *strong* wraps of thread. Trim the butts with sharp scissors as close to the bobbin thread as possible. Be careful to not snip the thread, or things could get "hairy."

6. Cover the butts with more thread wraps.

7. Finish with three half-hitches and a drop of head cement. Some people add a drop of yellow nail polish to each side of the head for an eye.

Variations

- Hair from a deer's tail (buck tail) or calf's tail (kip tail) is often used. These materials are available in a dazzling array of colors. By using several small bunches of hair, many different styles of streamer flies can be created.
- Many different materials can be used to form the body, including, dental floss, yarn, chenille, braided cord, copper wire, etc. Experiment!
- Sometimes a small rib of a contrasting tinsel or wire is wound in open spirals over the body.
- Try substituting a couple of feathers for the squirrel tail in the wing.

Woolly Worm (Woolly Bugger)

(classic wet fly/streamer)

This pattern imitates minnows, leeches, hellgrammites, and a variety of large aquatic insects.

- **Hook:** Streamer hook 6–14
- **Thread:** Black 3/0 or 6/0
- **Tail:** Red yarn (woolly worm) or Marabou feather (woolly bugger)
- **Body:** Medium chenille

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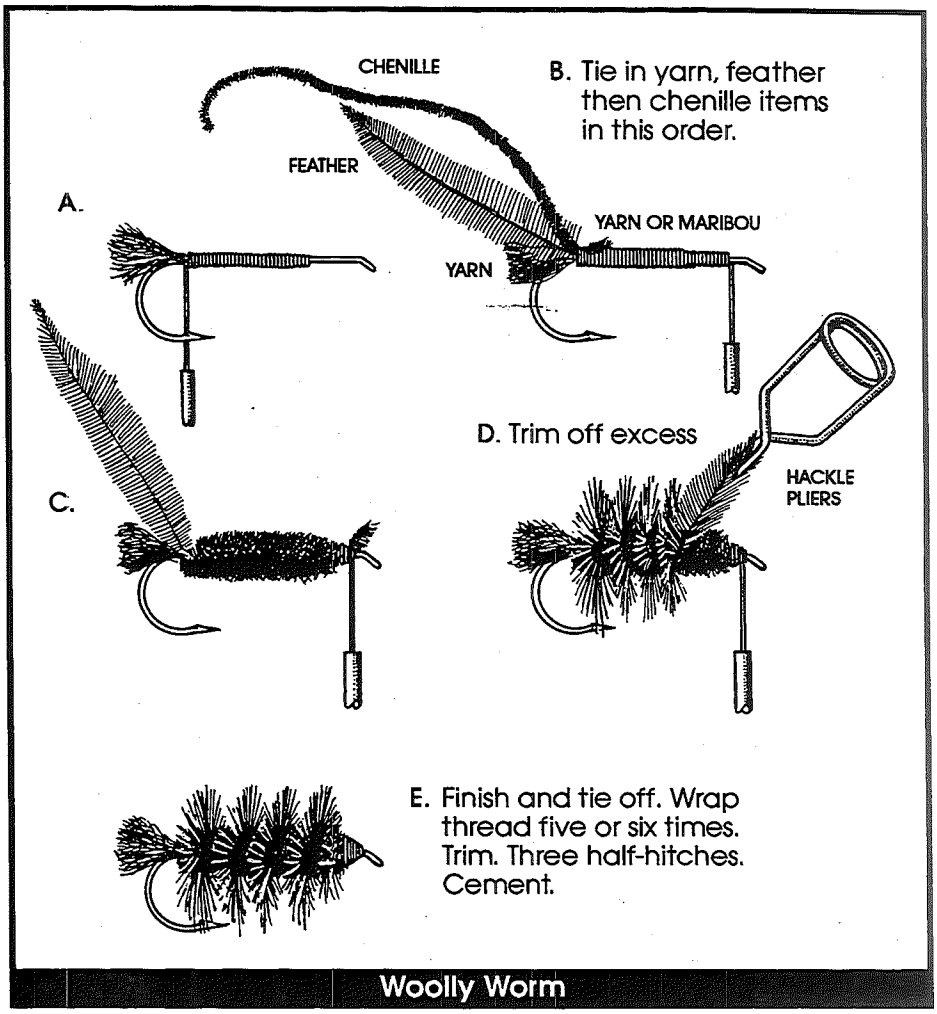
- **Legs:** Schlappen or hackle feathers.

Tying Instructions

1. Start the thread and leave near the bend.
2. Cut a piece of yarn about 2 inches long.
3. Tie the yarn on top of the hook so that about ¼ inch extends to the rear of the hook for a tail of a woolly worm. A woolly bugger uses fluffy pieces of marabou feather for the tail. These pieces can be cut and tied on instead of the yarn. Participants can choose which one they want or you can teach both, starting with the woolly worm.
4. Return the thread to the starting position.
5. Tie in the tip of a hackle feather or schlappen feather. Return the thread to the starting position.
6. Tie in a 4-inch piece of chenille. Wrap the bobbin thread to the eye of the hook, leaving about ⅛ inch from the eye. Wind the chenille forward to the head to form the body. Tie off and trim the excess. Remind everyone of the hand position (right hand on top, wrap with the left) as explained in the green caddis fly.
7. Grab the feather end (quill) with the hackle pliers. Wind the hackle feather forward in widely spaced loops to form a spiral of legs. Keep a constant tension on the pliers, as the feather will tend to unwrap. Tie off and trim off the excess.
8. Finish with three half-hitches and a drop of head cement.

Variations

Just about every conceivable color is used for this pattern. Natural colors of chenille and marabou like black, tan, olive, and green work well as "imposter" flies. Bright colors like pink, purple, hot orange, and white work as "attractors."



Woolly Worm

Basic Bluegill Bug

(From John P. Bayerl, Project F.I.S.H. Trainer)

This pattern imitates a spider, ant or beetle floating on the surface of the water.

- **Hook:** Dry Fly size 10–12
- **Thread:** Same color as body, 3/0 or "G"
- **Body:** ⅛-inch strips of 1/16-inch craft foam (closed cell)
- **Legs:** Round rubber legs, jig skirt pieces, shock cord strands, etc.

Tying Instructions

1. Start thread on hook and wrap backward to above the point of the hook.
2. Cut a ⅛-inch strip, 2 inches long, of craft foam and tie it on top of the hook shank with the majority of it hanging past the bend of the hook.
3. Completely cover the hook shank and foam on the shank with bobbin thread. Leave the thread in the middle of the shank.
4. Tie in two rubber legs, each at a 45 degree angle to the hook shank. Wrap the bobbin thread to the eye of the hook.
5. Pull the foam strip over the back to form the abdomen. Secure behind the eye with three wraps of thread. Make two wraps of thread between the foam and eye to stand the butt end up in the air.

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6. Trim the butt end 1/16-inch past the eye for the head.
7. Finish the fly with three half-hitches and a drop of head cement.

Variations:

By varying the number and shape of body segments, you can build a beetle, wasp, ant, spider, caterpillar, or any other terrestrial (land-dwelling) insect.

Tips for Success

- Safety first! Hooks have sharp points and barbs, and many fly-tying tools are sharp and pointed.
- Participants should use caution in handling all materials and tools.
- Some participants will watch you once and be able to duplicate the skills. Others will need lots of one-on-one assistance. Have the more proficient participants mentor those that need a little help.
- Make sure to praise every effort and tell them "Yup, that'll catch a lot of fish!"

Adaptation

Included are several beginner-level patterns that simulate a wide variety of aquatic food, and that require only simple skills. There are millions of fly patterns—experiment and find ones that work for you. (One warning: traditional hackle dry flies require dry fly hackle, which can cost upwards of $50.)

Extensions/ Additional Resources

Many clubs and organizations are available to help learn about fly tying. Almost every sportsmen's club teaches fly tying or can refer you to someone who does. Most tackle shops or fly fishing retailers will have information as well.

- Trout Unlimited
- Federation of Fly Fishers
- Michigan Fly Fishing Club
- Fly Girls (dedicated to women in fly-fishing)
- Tribal Community Elders

Community Service

State fairs, craft shows, outdoor exhibits, and other outreach programs never have enough volunteers to teach fly tying. Participants who are willing to donate some of their time can usually gain free admission to these events as well as have the opportunity to serve their community.

Exhibits/Sharing

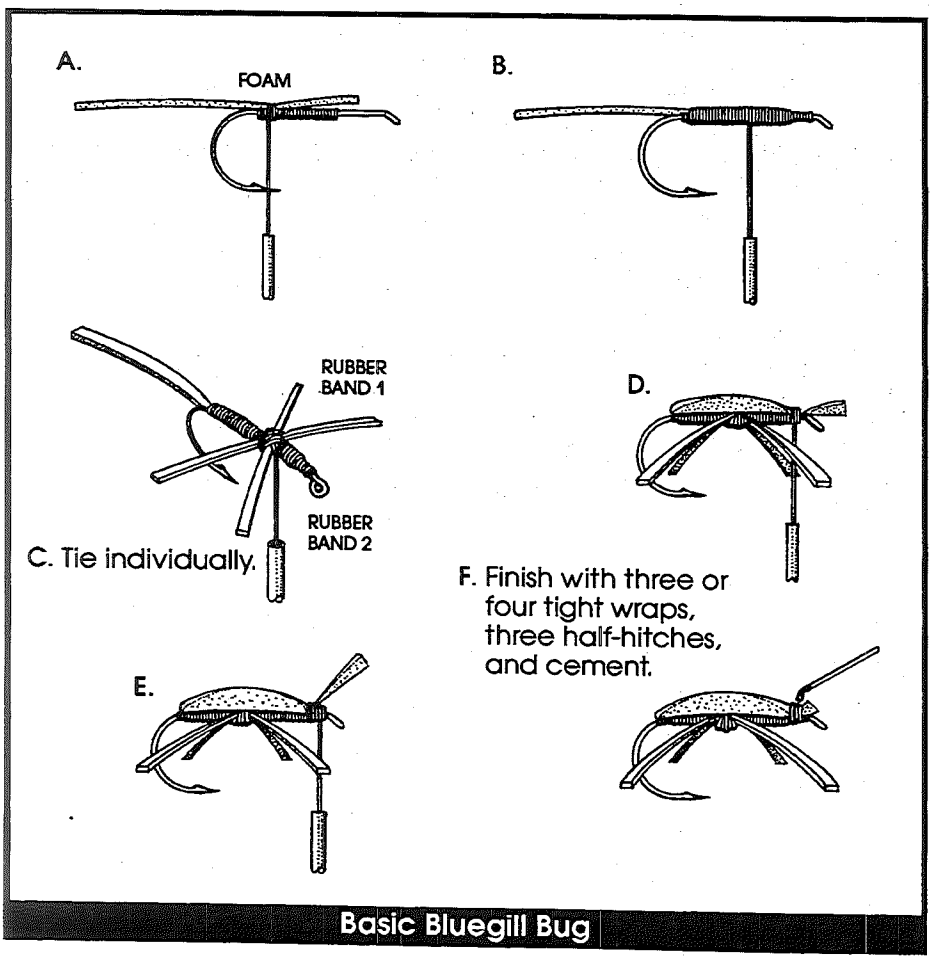
- Instead of doing a traditional insect collection, tie flies to represent the many things fish can eat.
- Explore traditional fly tying.
- Display the flies you tie. People, especially children, will always ask "how'd you make those?"
- Trade your flies with friends or start a local tying club.

Career Opportunities

Fisheries manager, aquatic entomologist, stream ecologist, biology teacher, fly tier, fishing guide.

Source

Adapted by Mark Stephens, MSU Department of Fisheries and Wildlife, and John P. Bayerl, biology teacher and Project F.I.S.H. trainer, Dearborn Fordson High School.



Basic Bluegill Bug

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