DICHA®

DROP SPINDLE

»MANUAL

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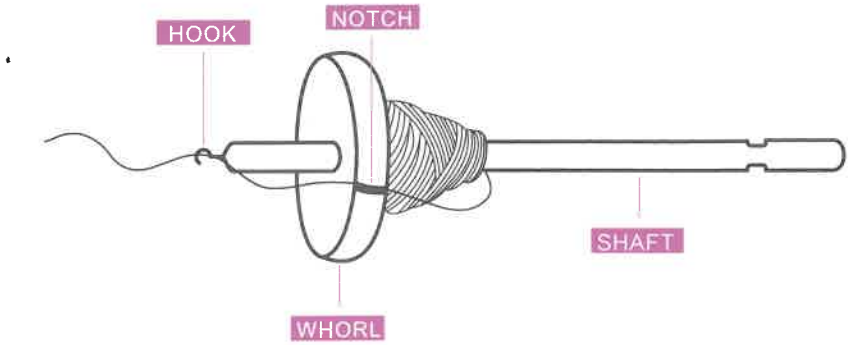


The focus of this manual is to provide a guide to a selection of resources available concerning hand-spindles (referred to as "spindles" hereafter). The manual is designed for spindle spinners of varying levels of skill, from beginner to advanced, and covers resources that include a mixture of historical and modern information concerning techniques and tools.

Entries in this manual are categorized both according to the key areas covered and by the user level that is most appropriate. For example, the first section of resources covers those relating more specifically to drop spindle spinning as this is often the first tool a spinner will try out. Each entry has key terms and recommended skill levels assigned, A glossary explaining some of the more technical words and spinning terminology is available in Appendix A.

We hope you enjoy your spinning journey—come tell us about it at dichauk@gmail.com.

Happy spinning.

There are many different techniques when it comes to using a Drop Spindle.This will cover just a few. It is highly recommended that the beginner seek out help from a fellow spindler, or look online for addtional assitance.

To assemble,Place the shaft through the hole on the whorl and push gently to secure.Attach the leader yarn to the shaft as shown. Or use the wool to create a leader.

CONENTS

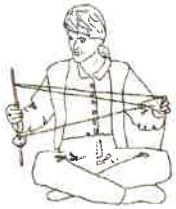
D I C H A

01/ BACKGROUND

» What is a spindle and how does it work?

The spindle is a tool used in the creation of thread or yarn by the process of twisting the strands of fiber together (this thread is generally referred to as a "singles"). Spindles vary in style, shape and size, but generally have the common basic components of a stick-like shaft and an attached whorl - a weight that prolongs the duration of a spindle's spin.

› Spindles in a historical context



The use of spindles is documented in a variety of historical sources from across the world. Spindles have been depicted in ancient artworks, such resources demonstrate that, in addition to being a task performed for many centuries, the use of spindles was a practice common to different cultures internationally. Spindles came about when animal fibers began to be used for ancient textiles, as up until that time plant fibers had been used that were easily twisted by hand. The shorter staple of wool and other animal fibers required more twist to be used in the creation of yarn than could be done by hand.

› Spindles in the modern world

Spindle spinning is far from a dying art. In some areas of the Peruvian Andes, alpaca, llama and sheep are herded by farmers and their fiber is spun up and used in textile making by Peruvian villagers of all ages . The Center for Traditional Textiles of Cusco was established to both maintain traditional skills and to enable the artisans to earn remuneration for their handiwork.

Large communities of spinners interact in online forums, Others gather at events and workshops held all over the world, such as the New York State Sheep and Wool Festival held annually in Rhinebeck, New York. Some makers are now using 3D printing technology to make their spindles. The blending of time- honoured skills and up-to-date technology is yet another way to keep hand spinning relevant.

What are Roving, Top,and Sliver?

It's common nowadays for a lot of folks in the fiber world to use the word "roving" to refer to any unspun fiber. This isn't really accurate and doesn't give a clear sense of what the preparation really is—and the preparation is relevant!

In most European-derived spinning traditions, yarns are categorized as worsted or woolen; worsted yarns are tightly spun without air trapped between the fibers; they are spun from combed prep with all the fibers parallel, producing a smooth, long-wearing yarn. Woolen yarns are produced from carded prep using more hands-off techniques and resulting in a more heterogeneous fiber alignment with air trapped in the yarn. Woolen yarns are lofty; worsted yarns are dense. Traditionally, it is not possible to spin a true worsted yarn unless you use both worsted prep and worsted technique. Likewise, for a traditional woolen, you need woolen prep and woolen technique. However, I think of these categories as defining the ends of a spectrum of possibility and urge mixing and matching for results that traverse that spectrum.

There are also Andean, African, and other non-European textile traditions whose yarns don't exactly fit in that spectrum. Nonetheless, English speakers tend to discuss those techniques with terms from Western European traditions.

Another important thing to note about the types of fiber preparations available for handspinners today is that many of them are not prepared specifically for handspinners—they are intermediate stages in industrial processing, adapted (or adaptable) for handspinning.

The bottom line is that there are more preparations of fiber, done by hand or done by machine, available to the handspinner now than at any time before.

A true handcombed top is the only thing from which you can spin a traditional worsted yarn. For a worsted yarn, all the fibers are parallel, smoothed down into the yarn with the air squeezed out, and there is no twist in the drafting zone. This prep is really best suited to true worsted spinning, but can be spun semiworsted (using woolen technique).

A commercial top is a machine-produced variant of the above. The fibers are mostly all parallel, but whereas a true combed top will present them tip first every time, a commercial top does not. This causes commercial top to draft a little less smoothly than true handcombed top, a tendency that is heightened by the fact that commercial top will often become a little compacted in shipping and storage, while handcombed tops are usually very fresh. Once you're used to this prep, you can spin a pretty fair worsted yarn, a pretty fair woolen-ish yarn, or a range of yarns in between.

A rolag is made with handcards—it's a puffy roll of fiber. Traditionally, for woolen spinning, you spin a rolag from one end, and your fibers end up circling around a hollow core as you use a fast longdraw technique. You could spin this with worsted technique, but it would be slow. You'd still get fuzzy, not smooth yarn, but it would be stronger than a traditional woolen.

A batt is made on a drumcarder and is like a blanket of fibers, carded, but more aligned than you get in a rolag. You can strip these, predraft them, tear off chunks, or roll them up, and then spin them with what's considered either woolen or worsted technique; and you can pull them or tear them into rovings.

A roving is a carded preparation whether produced by hand or industrial equipment. It is commonly wrist-thick, though thickness can vary; one way or another, a roving is usually made from a batt, either pulled off the carding equipment in roving form, or in some cases, pulled later from a batt.

A sliver is a thinner variant of a roving. Sliver doesn't have any twist to it at all, while roving has a tiny bit of twist (not spinning twist, but a slight twist to the entire rope). Sliver is what mills generally call their intermediate stage. (Note: it's pronounced sly-ver).

Pin-drafted roving has been carefully drafted through a series of pins, producing an open, lofty roving with a more aligned prep than is typical of other rovings.

A puni is similar to a rolag, prepared on handcards, after which the fibers are rolled on a stick and compressed by rolling this stick on a flat surface.Punis are a common prep for cotton and other very fine fibers.

Hankies, caps, bells, and mawatas are common terms for silk preparations in which silk

cocoons are stretched out wide and layered together. These do look rather like a handkerchief, cap, or bell, depending on how large they are and what they have been stretched over. These are typically spun by loosening the fibers from the middle and drafting (or predrafting) from the inside out to the edges. These preparations don't lend themselves to spinning yarns that are as smooth as those from silk top or sliver would.

02/ TYPES OF SPINDLE

For thousands of years, handspinners have been using handspindles to twist fiber into yarn.

There are many finely crafted spindles available to the contemporary handspinner, and although the technology is basically the same as the ancient tools, it can be confusing to know where to begin. The following guide will familiarize you with some of your options so you can make the right choice for your spindle projects.

Rule of thumb: Use lighter spindles for thin yarns, heavier spindles for thick yarns.

SUSPENDED (DROP) SPINDLES

High-whorl (top-whorl) spindles:

- Whorl at the top of the shaft; meticulous craftsmanship required
- Usually have a hook or groove at the top for securing yarn
- Operate in midair
- Yarn bears the weight of the spindle; spinner's hand bears the weight of spindle and yarn
- Yarn winds on below the whorl
- Suited for fibers with long or variable staple length (although used for spinning cotton in Africa)
- Historically used for yarns requiring less twist
- Less yarn capacity than low-whorl spindles

Low-whorl spindles:

- Whorl at the bottom of the shaft; easier than high-whorl spindles to keep balanced; easy to make
- May have a hook or groove at the end farthest from the whorl for securing yarn
- Operate in midair
- Yarn bears the weight of the spindle; spinner's hand bears the weight of spindleand yarn
- Yarn winds on above the whorl
- Good for fibers with a short staple length but have been used for all types of fiber
- Historically used for yarns requiring high twist
- Capacity for lots of yarn

Turkish spindles:

- Type of low-whorl spindle that consists of a shaft and two removable crossarms
- Often have a knob at the top of the shaft for securing the yarn
- Operate in midair
- Yarn bears the weight of the spindle; spinner's hand bears the weight of spindle and yarn
- A center-pull ball of yarn is created when the crossarms are removed

SUPPORTED SPINDLES

Supported spindles also have a variety of in dividual types, often taking their names from their area of origin: Tibetan, Russian, and Navajo, among others. Supported spindles also vary in size, again due to the type and quantity of fiber they are designed to spin.

Small supported spindles (such as tahkli):

- Tahklis originate from India
- Sharp point at one end used to spin the spindle
- Supported by a bowl or other surface
- Yarn does not bear all of the weight of the spindle
- Can spin fast or slow
- Appropriate for fibers with short staple lengths such as cotton or cashmere
- Suited for laceweight yarn; not for thick yarn

Supported spindles without separate whorl (Russian, French):

- Supported by a bowl or other surface
- Yarn does not bear all of the weight of the spindle
- Usually constructed without a whorl; if the spindle does have a whorl, it is intended for collecting yarn
- Spin slower than tahkli spindles
- Good for spinning fine singles yarn from down

Navajo spindles:

- Constructed from wood
- Long shaft and large whorl
- Supported by the spinner's body
- Capacity for lots of yarn
- Good for spinning thick, low-twist yarn

Tibetan spindles

Tibetan spindles have a large and heavy whorl and spin the slowest of the supported styles, which means they are excellent tools for teaching beginner supported spindle spinners.
As the name suggests, the style has developed based on spindles used in Tibet. Due to their relatively slow spin they are more suited to fibers with a medium to long staple, such as wool.

Bead spindles

Beads are common types of spindle whorl found at archaeological sites. The spinning speed of a bead spindle is somewhere between that of a Tibetan and a Russian spindle, depending on the weight of the whorl.

Phangs

The Phang style of supported spindle originates from Southeast Asia. In some cases, these are the simplest style of supported spindle as they are made of one piece of wood and sometimes with very little shaping except the pointed bottom and flicking tip. The cop is built around the center of the spindle to prevent the spindle becoming unbalanced, although as with all techniques, spinners tend to develop their own unique way of cop-winding.

Easing body movements during spinning

SUGGESSIONS FROM SPINNER

For spindle-spinning while standing, your stance will depend on which arm extends and to what degree. Try various positions and use what is comfortable. Always try for fluid movements that use the energy from gravity, up through the body and out to the arms and hands. Move as you work rather than stand rigidly. Work with your feet apart and toes pointing a little outward. The foot opposite the arm that extends should be slightly forward of the other foot—about half-a-foot length. Now you can use the energy from the bottom of your foot up to your hand as you spin. As the arm extends for drafting, the back foot pushes forward (the heel raises slightly off the ground) while the front foot lightly presses into the ground. As your hands return to the starting position, shift your weight toward your back foot.
Take frequent breaks from spindle-spinning to relax your shoulders and stretch your back, hands, and fingers.

03/ SPINDLE TUTORIALS

SPINDLE SPINNING

01

Once you have chosen a spindle, take a piece of plied wool yarn about 18" long and tie it onto the spindle shaft (leader).

02

If you have a top-whorl spindle, tie the leader underneath the whorl, bring the leader up and over the whorl, and catch it with the hook. You can wrap the yarn around the hook once for security, if you like.

03

With a bottom-whorl spindle. tie the leader above the whorl and then spiral the yarn up the spindle shaft.

04

If your spindle has a hook (rather than a groove), catch the yarn with it and you are ready to go. If you have groove, you will have to make a half-hitch knot to hold the yarn to the spindle.

05

On bottom-whorl spindles, some spinners tie the leader above the whorl and bring the yarn down under the whorl, around the bottom of the shaft, and then back up to the top. Both ways work; see which one you like best.

06

Once the leader is on, start practicing with the spindle. Remember that most singles yarns are spun clock wise (to the right). Most spinners hold the fiber in the left hand and the spindle in the right hand, but try both ways and see which feels comfortable to you. Hold the leader in one hand and with the other hand, give the spindle a twist. Practice until you can get the spindle to turn smoothly. Periodically you will have to let the leader unwind so you don't accumulate too much twist.

Wool is the easiest fiber to spin; carded wool is much easier to spin than combed. A nice, clean, medium wool is lovely to work with. Before you use the spindle, practice drafting out the fibers. Take a handful of wool in one hand and with the other hand, gently pull some of the fibers away from the mass and then add some twist by twisting the fibers in one direction between your fingers.

That is what spinning is all about- drawing out the fibers and adding twist until you have created a stable yarn. Continue to pull out the fibers (drafting) and add more twist. If you don't have enough twist, the yarn will fall apart. If you have too much twist, you won't be able to draw out the fibers. Spend a few minutes drafting out the fibers and adding twist-you will need to be able to maintain a comfortable rhythm when you start spinning. Once you are comfortable drafting out the fibers and twisting the spindle, put these actions together. Start by sitting down, if you're not already, because your lap will be a valuable tool.

Before you start to spin, fluff out the end of the leader.

With one hand. hold a handful of fiber and the leader together.

With the other hand, twist the spindle clockwise. Watch the twist run up the leader and grab the fibers in your hand. You've just made a join.

After you have made the join, twist the spindle and then stop it in your lap so it can't go backward. Slide your twisting hand above the spindle, pinch the leader, and draft out some fibers.

Once the yarn is the right size, open up the pinching hand and let the twist run up and stabilize the fibers you have just drafted. Continue to twist the spindle, stop it in your lap by holding the shaft between your knees, pinch and draft.
You determine the size of the yarn by how much you pull the fibers out. few fibers make a fine yarn; many fibers add bulk. If too much twist gets into the fiber, slide your fiber hand back a little and then draft out those fibers.

When the yarn is longer than your arms, it's time to wind it onto the spindle. Keeping the yarn taut, wind it on the spindle clockwise and make a cone under the whorl on a top whorl and an upside-down cone on top of the bottom whorl. The neater you wind the yarn on, the easier it will be to remove from the spindle.

Pinching the yarn keeps the twist from running up into the fiber source. The twisting/ pinching hand keeps the twist under control while the fiber hand drafts out the fibers to the correct size.

After you feel comfortable spinning the spindle and stopping it on your lap, it is time to spin with the spindle suspended in the air. Continue to draft the fibers out the same way, but instead of stopping the spindle in your lap, let it keep spinning. When it stops of its own accord and starts to twist counterclockwise, add more clockwise twist. If the spindle keeps going back ward, the twist will come out of the yarn, turn it back into fluff, and the spindle will drop.

Soon you will have a spindle full of yarn.
Now you can wind the yarn off the spindle and into a skein. Use a shoe box with holes punched in either side to hold the spindle. Niddy-noddies (pictured here) work for making skeins, but so does a chair with straight back: Gently loop the yarn around and around the chair back until the spindle is empty.
Tie the two ends of yarn together and before you take the yarn off the chair or niddy-noddy, put a couple of figure-eight ties through the skein.

PLYING ON A SPINDLE

Plying on a spindle is easy! In fact, there are many ways to do it: Andean plying, multiple spindles, center-pull ball, etc. I've tried them all and find that I make my best yarn when I transfer the yarn from my spindle to a storage device before plying. Small balls and clay flowerpots work well; the balls hold the yarn and the pots hold the ball. You can also use weaving bobbins and a lazy kate to hold your singles, just as you would for plying on a wheel.
To transfer the yarn from my spindle, I use a shoe box with a hole punched in the side as a spindle holder. The box keeps my spindle steady so I have both hands for winding.

Flowerpot plying

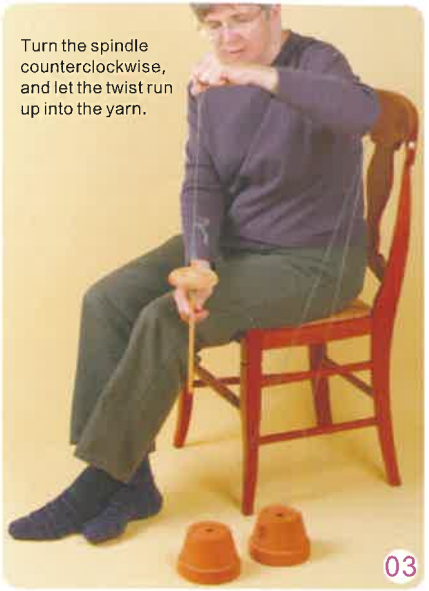
Wind the singles from your spindle firmly and evenly around small felt or rubber balls. Keeping the yarn under tension makes plying easier and helps even out the twist. Spin more yarn and wrap another ball. To keep the balls from running amuck, place each one under its own upside-down flowerpot. Thread the yarn through the drainage holes of the pots, and you are ready to ply.

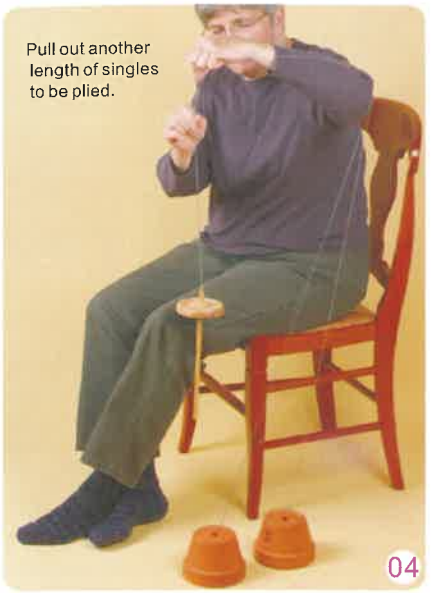
Plying with a lazy kate

If you are a weaver or have a friend who is— try this method. Put a boat shuttle bobbin on a bobbin winder and wind the singles from your spindle (secured in the shoe box) onto the bobbin just as if you were winding a bobbin for weaving. A smoothly wound bobbin makes plying a breeze. Fill a second bobbin, put the bobbins on a lazy kate, and you are ready to go.

Plying on your spindle

Tie your two singles to the leader of your spindle with an overhand knot. Hold the yarns in your fiber hand with a finger between them so they won't twist together until you are ready. With your twist hand, turn the spindle counter-clockwise or opposite to the direction your singles were spun. After the spindle starts turning, slide the twist hand up and pull down lengths of yarn, letting the plying twist run into this section. Make sure you keep the yarns tensioned evenly as you ply. When the yarn has enough twist, pull out another length of yarn and add more twist.
When your spindle reaches the floor, stop and wind the yarn onto the spindle shaft. I tend to spin the yarn at a 90-degree angle, but I ply holding my fiber hand halfway between my shoulder and waist and letting the spindle hang straight down.

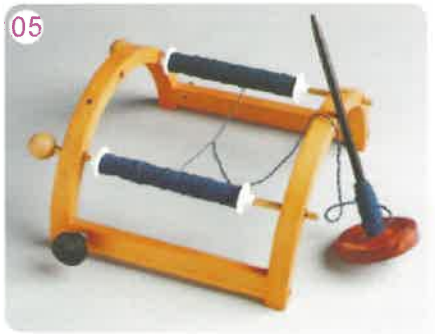




Helpful hints

- As you are spinning your singles, make a sample of balanced plied yarn by letting a length of your freshly spun yarn twist back on itself, and tie the ends together in a loop. Ply to match that sample.
- Let the yarn rest overnight to relax the twist plying.
- I find it helps to keep tension on the singles by having them come over my shoulder, but see what feels comfortable to you.

When your spindle is full, put it back in the shoe box and wind your yarn into a skein. Be sure to add some ties to keep it neat. Set the twist by washing the skein in warm, soapy water and then rinsing in clear, warm water. Snap the skein between your hands a couple of times to straighten it out and move the twist around a bit. Hang it to dry. Since you have removed some twist in plying, most skeins will not need weights when drying. While your yarn is drying—dream of all the wonderful ways you can use it!



If you have a bobbin winder (for weaving), wind your spindle yarn onto weaving bobbins to make plying more manageable.

ANDEAN PLYING

Named for the virtuoso spinners who spin and ply while tending their flocks and walking great distances in the Andes, Andean plying is an ingenious technique for plying a small amount of yarn from a spindle. Start with just a few yards to get the hang of this technique. You won't want to ply large amounts of yarn this way because it gets cumbersome and it is inconvenient to be, literally, tied up for large amounts of time—but for a short length of yarn, it's very handy.

1/Hold the yarn supply (either in a ball or on the spindle) in your right hand, and start with the back of your fiber hand facing you. Wind the end of the yarn once or twice around the thumb to hold it while you begin.

2/Guide the yarn across the back of your hand, between the ring and middle fingers, around the middle finger, between the middle and index fingers, and back down to the side of your hand.

3/As you turn your fiber hand so that its palm is facing you, guide the yarn across your wrist.

4/Reach behind your fiber hand and guide the yarn between the index and middle fingers

5/ Around the middle finger, between the middle and ring fingers, and back to the side of your wrist below the little finger. Guide the yarn across your wrist as you turn your fiber hand so that the palm is facing away from you again. You have now completed one round of the hand wrap.

6/ Continue to loosely wrap the yarn following the pattern you established on the first wrap. There should not be any yarn passing over your palm. The yarn should be on the back of your hand, looped around the middle finger, and passing over your wrist below the palm.

7/When you come to the end of the yarn, hold it against the palm of your orifice hand with just the ring and little fingers. Then use your free fingers to move the yarn that crosses over your wrist up to the middle of your palm to release the tension.

8/As you continue to hold the end of the yarn, pull the loops off your middle finger, keeping them intact, and move them to the back of your hand.

9/Move the big loop of yarn that is around your hand down to your wrist. Unwind the original end of yarn that is around your thumb and join it with the end that you are holding in your orifice hand.

Join the two ends to a leader and ply them. To keep even tension on the two yarns while plying them, I hold one between my thumb and index finger, and the other between my middle and index finger of my fiber hand. I use my orifice hand to draft the yarns from the bracelet out of my fiber hand and then to guide the plying twist back toward my fiber hand. If you have wound a large bracelet, sometimes the yarn does not unwind smoothly. You may have to wiggle your fiber hand a bit to keep the yarn flowing. If one yarn stops unwinding from the bracelet, stop treadling, pinch the plied yarn where the twist enters it, wiggle your fiber hand, gently pull until the yarn starts unwinding again, and resume treadling and plying.

When you ply from two bobbins, they usually do not have exactly matching lengths of singles. When one bobbin is empty, if you want to salvage the remaining singles that is left on the other bobbin, do not break off the yarn. Instead, wind the last few inches of the plied yarn around your fiber hand thumb and then wrap the yarn from the remaining bobbin around your hand as outlined above. Unwind the end of the plied yarn from your thumb and splice the end of the yarn from the last bobbin to the end of the yarn from the first bobbin and then continue plying.

04 APPENDIX A

A GLOSSARY OF RELEVANT TERMS

- **Art yarn** — yarn spun to be a unique work of art in its own right. Art yarn is spun in a nontraditional way to include interesting features such as deliberately over twisted sections and a mixture of fiber and colors.
- **Batts** — rolls or strips of carded fiber.
- **Braid** — combed top or sliver that has been braided using an enlarged version of the crochet chain stitch.
- **Carders** — brushes for teasing fiber apart. When wool is carded, the fiber do not lie parallel, meaning that it can create a fluffier yarn when spun as it captures more air in with the fiber. Carding is an especially good way to blend fiber with different staple lengths.
- **Chain ply** (see Navajo ply)
- **Comb** — fiber are combed when it is desirable that each strand lies parallel. Less air is able to be trapped in combed fiber when spun, meaning the thread it creates is durable.
- **Cop** — the spun singles or yarn wound onto the shaft of a spindle.
- **Crewel work** – a style of embroidery using yarn rather than silk thread
- **Distaff** — an item for holding unspun fiber while it is being spun. Common examples of a distaff often resemble a stick with the fiber strapped on to it.
- **Drafting** — the act of pulling a small portion of fiber out from a preparation to spin.
- **Drafting delta** – the triangular shape made between the fiber being drafted (base of the triangle) to where the fiber are twisted together as they join the spun singles (point of the triangle).
- **Fauxlags** — a slang term for improvised rolags made without the usual carding tools.
- **Fiber** — unspun wool, plant matter or hair.
- **Finishing** – methods of setting the twist into the yarn so that it does not unravel.
- **Fleece** — the coat of a sheep or goat.
- **Grist** — the density of a yarn in relation to its thickness. In New Zealand, we would calculate this by meters per kilogram.
- **Leader** — a thread attached to a spindle used to make it easier to start off a spinning project. The spinner adds twist to the leader then attaches it to the unspun fiber so that the twist is transferred into the fiber.
- **Navajo ply** – a method of "chaining" singles on itself to create a 3 ply from one thread.
- **Nep** — a lump or hard bit in the fiber. Often caused by uneven growth.
- **Notch** — a small channel or chunk carved out of a spindle whorl or shaft.

- **Ply** — the act of twisting two or more singles together in the opposite direction to their original spin in order to make a thicker and stronger yarn.
- **Pre-drafting** – the action of drafting out fiber for spinning prior to beginning a project.
- **Preparation (prep)** – a term used for the various ways in which fiber is prepared for spinning, such as carding, combing etc.
- **Punis** — very thin rolags of cotton.
- **Rolags** — cylindrical rolls of carded fiber.
- **Roving** — lengths of combed fiber.
- **Semi-woollen** (see woollen)
- **Semi-worsted** (see worsted)
- **Shaft** — the "stick" part of a spindle
- **Singles** — another name for a single ply of handspun thread. Singles is the singular.
- **Sliver** (see roving).
- **Slub** — a thick patch of singles. This is generally created when a spinner drafts out too much fiber.
- **Staple** — the length of a fiber strand, such as a lock of sheep wool.
- **Top** (see roving).
- **Twist** — this is what holds a thread of yarn together.
- **Weight** — in the context of yarn and singles, this relates to the thickness, usually measured by spinners in WPI (wraps per inch).
- **Whorl** — the weight on a spindle that keeps its momentum going once the spinner has flicked it.
- **Winding on/off** – the act of winding spun singles onto the cop or off onto bobbins or other storage.
- **Woollen** — woollen yarns are airier, fluffier, and softer but can wear out fairly quickly. Carded preparations are often used to create woollen yarns.
- **Worsted** — worsted yarns (named after a village in Norfolk, England) are smooth, durable and warm, but not as soft as woollen yarns. Combed preparations are often used to create worsted yarns.
- **WPI (Wraps per inch)** – a way of determining the thickness of a yarn: a thicker yarn has a lower WPI.