Beka's Fold & Go Loom

- Weaving Terms and Tips –

Weaving Terms:

Whether you're a novice or an experienced weaver, it can be helpful to review "standard" weaving terms, which are often used in different ways by different people. We include the following terms and definitions for your convenience. Reviewing them before you start the step-by-step weaving instructions for Beka's Fold & Go Loom may be helpful.

Apron Rod: An apron rod may be used to connect warp ends (individual warp threads or bundles of warp threads) to the loom's warp beam; and similarly to connect warp ends and thus woven fabric to the loom's fabric beam. Beka's Fold and Go Loom comes with two apron rods.

Back Beam: A Back Beam (a fixed wood piece) is a cross bar that helps create a rigid frame for a loom; it is located at the back of a loom (above the warp beam). It provides a uniform position for warp yarns, which helps maintain a uniform shed during weaving.

Balanced Weave: The term Balanced Weave refers to fabric woven with a fairly equal number of warp threads and weft threads per inch of fabric. In "Balanced Weave" fabrics, both the warp yarn and the weft yarn are visible.

Dent: Dent (also called EPI) refers to the number of warp threads per inch in a rigid heddle when both holes and slots are counted. For example - An 8 dent heddle provides uniform spacing for 8 warp threads per inch when each hole and slot is used for a single warp thread.

Ends per Inch: Ends per inch (EPI) refers to the number of warp threads per inch across the width of a project. When describing a rigid heddle, EPI (also called dent) indicates the number of holes and slots in one inch of the heddle.

Fabric Beam: The Fabric Beam is at the front of the loom. It is rotated to hold finished fabric once weaving is underway.

Front Beam: A Front Beam (a fixed wood piece) is a cross bar at the front of a loom (the end where the weaver sits) and above the fabric beam. It helps create a rigid frame and also provides a uniform position for woven fabric, helping create a uniform shed during the weaving process.

Loom Waste: Loom Waste refers to warp yarn needed for the warping process beyond that which will actually be used in the woven fabric. Loom Waste (warp yarn needed to "tie-on", etc) will vary depending on the technique used to warp (or thread) the loom.

Pick-up Stick: A Pick-up Stick is a narrow stick used to "pick" a desired pattern in warp threads. It can be turned on its edge to create a shed, or used along with the rigid heddle to create additional shed pattern options (e.g. heddle in an up position with a pick-up stick pulled up against the back of the heddle to raise "picked" warp threads that are in slots, etc). The use of a pickup stick helps a weaver create a wide range of patterns on their rigid heddle loom.

Plain Weave: Plain Weave is a basic weave in which weft yarn is passed over and under every adjacent warp thread. This weaving pattern is very common, partly because it allows for fast weaving. It is achieved by threading every hole and slot in a rigid heddle, then alternating heddle "up" and heddle "down" throughout the weaving process.

Rigid Heddle: A Rigid Heddle (often just called a "Heddle" and sometimes a "Reed") is made up of holes and slots that position individual warp threads across the width of a loom. It provides an easy way to create sheds needed for weaving and also acts as the loom's beater (used to press weft yarns into place when creating fabric). Rigid Heddles provide an extremely flexible weaving experience.

Shed: The word Shed refers to a separation of warp threads created when some threads are raised or lowered by a Rigid Heddle (or Pick-up Stick), while other threads (slot threads) remain in position (e.g. raising or lowering the rigid heddle will raise or lower warp threads in holes; slot threads will stay where they are). A shuttle with weft yarn is inserted through a shed to carry weft yarn back and forth across the warp. Changing the shed (e.g. moving from a heddle "up" to a heddle "down" position) locks the previous row of weft yarn in place and creates a new opening for the next row of weft yarn.

Shuttle: A Shuttle is a stick designed to hold weft yarn. It is used to carry weft yarn back and forth across the width of the warp in the weaving process.

Take-up: In the weaving process, yarns are interlocked by passing over and under adjacent strands of yarn. As a result, both warp and weft yarns actually travel roughly 10% farther than the width and length of a finished fabric. In practical terms, a 48" length of warp will yield something in the range of 43" of finished fabric. Planning for Take-up (which is also called **Shrinkage**) by planning enough yarn for your project is important if you want to end up with a specific amount of finished fabric.

Warp: 1) The word "Warp" (as a noun) refers to yarn put on the loom at the beginning of a weaving project. It passes through the rigid heddle, is wound onto the back of the loom and is fastened to the front of the loom. Warp yarn needs to be sturdy, to hold up under tension during the weaving process. As weaving progresses, warp yarn is unwound from the back of the loom, while woven fabric is wound onto the front of the loom. 2) The word "Warp" and "Warping" (as verbs) refer to the process of threading a Rigid Heddle and winding Warp yarn onto a loom's warp beam before weaving is started.

Warp Beam: The Warp Beam is at the back of the loom. Warp yarn is attached to the Warp Beam, which is rotated so warp yarn is wound around it at the beginning of a weaving project. As weaving progresses, warp yarn is unwound from the warp beam.

Warping Board: A Warping Board is a wooden frame with posts that can be used to measure a uniform number of warp threads before putting the warp on a loom. Beka Warping Boards are especially useful when preparing long warps (1-1/2 yards and longer).

Warping Post: A Warping Post is typically a single post that may be used in the warping process. It is clamped to the edge of a table, and used to measure warp threads and provide tension to warp yarn as it is wound onto a loom during the warping process. They are especially useful for short warps (1-1/2 yards and shorter), and are a critical tool when using the "direct warp" technique (which is described in detail later in this information package).

Weaving: Weaving is the process of creating fabric by interlocking sets of threads traveling perpendicular to one another. Warp yarns run vertically from the front of the loom to its back; Weft yarns run horizontally back and forth across the warp. When these two sets of threads (yarns) are interlocked, weaving has taken place! The result is "Handwoven" fabric!!

Weft: "Weft" yarn passes back and forth across the width of a project, running perpendicular to the "warp". It is the process of interlocking warp and weft that creates fabric or a woven product. A wide variety of material may be used for "weft". Weft is not limited to yarn, as traditional fabric may not be the weaver's desired result.

- Preparing To Weave -

There are several popular methods weavers use to "warp" rigid heddle looms (threading and winding warp yarn onto the loom to begin a project). Books, blogs, videos and articles describe a range of techniques used to prepare a loom for weaving. Our message: There is no single "correct" method for warping your Beka Fold & Go Loom. We encourage individual weavers to explore alternatives and choose the method they prefer. Remember, the warping technique you choose may vary from project to project.

Before starting any weaving project you need to choose:
- the number of threads per inch (along with the type of yarns you plan to use, this will determine how much warp or weft will show in your finished fabric)
- the desired width of your finished fabric
- the desired length of your finished project
- the yarn(s) you will use for your warp
- the yarn(s) you will use for your weft

Your **Beka Fold and Go Loom** has a 20" weaving width and comes with an 8 dent heddle. You can weave fabric 20" wide or less, just be sure you center projects in the middle of your heddle. To illustrate the warping process, let's work through steps involved in planning and preparing to weave a scarf that is:
- 8 EPI (ends per inch) = one warp thread in each hole and slot of your 8 dent heddle)
- 10" wide (you will use the center 10" of your heddle)
- 1 yard long (aim for a 36" long finished scarf)
- use a strong cotton yarn for warp (e.g. 3/2 perle cotton)
- use a soft medium weight yarn for weft (e.g. a soft worsted weight knitting yarn)

Plan your Warp
The following formulas are used to calculate warp yarn needed for this project:
- Number of warp threads needed = EPI X width of finished project
- Length of warp threads = project length + approx. 10% take-up + 24" loom waste
- Amount of warp yarn needed = number of warp threads X length of each warp thread

<u>For this example:</u>
- Number of warp threads needed = 8 per inch X 10 inches wide = 80 warp threads
- Length of each warp thread = 36" + 4" take-up + 24" loom waste (note: with a scarf, loom waste may be used as fringe on each end) = 64"long. Each warp thread will need to be approx. 64" long or 1-3/4 yards (64" divided by 36 = 1-3/4 yards) to yield a 36" long scarf.

Yarn needed for warp: 1-3/4 yards X 80 threads = 140 yards of yarn will be needed for warp. For weft, assume a similar amount will be needed in a balanced weave or up to 4 times that amount for a tight weft-faced weave. For this project, let's assume a fairly loose weft-faced weave, so we'll plan on wanting approx. 280 yards of weft when shopping for yarn.

There are many ways to Measure Warp Yarn for a project and various techniques to Thread (or Warp) your Fold & Go Loom. We will describe two popular methods here:

A) Direct Warping with a Single Warping Post
&
B) Indirect Warping using a Warping Board

A) Direct Warping with a Single Warping Post

This technique is convenient when weaving short projects (2 yards or less), as you will need easy access to a table or counter top the length of your desired warp.

- Position your Fold & Go Loom so its foot dowels are over the edge of a table or counter-top. Position a Warping Post at the other end (or edge) of the table – so the distance between the post and your loom's back beam is the distance your project requires (64" in this example).
- Place your heddle in deep slots in the loom's shed blocks. Mark the heddle where the warp needs be positioned so your project is in the center of the heddle (for our 10" scarf example, use the center 10" of a 20" heddle, so mark a spot 5" in from each edge of the heddle with a small piece of yarn).
- Tie an apron rod to the warp beam with cord passing **over** the back beam before attaching to the warp beam (so warp will travel over the back beam, then down to the rotating warp beam).
- Place warp yarn (a cone or ball of yarn) in a bowl on the floor near your loom's warp beam; or position a Beka yarn swift with a skein of yarn near the back of your loom.
- Pull the end of your warp yarn up and over the back beam; tie it to the apron rod at a point in line with one of the outside edges of your project.

You are ready to start threading your heddle (slots first)!

- Pull on the warp yarn so you actually pull a "loop" of yarn over the apron rod and through the slot marked as one edge of your project (use a threading hook to pull the yarn through the slot). Pull the loop until you can slip it over the Warping Post. The loop gives you what will be two threads going through that first slot.
- Move back to the back of your loom (near the apron rod) and pull another loop through the next slot in the heddle, this time going under the apron rod and then through the next **slot** in your heddle. Slip it over the Warping Post.
- Continue this process, alternating loops going over and under the apron rod and through adjacent slots across the heddle, until you reach the slot marked as the other outside edge of your project. At that point, cut the warp yarn from its source (cone or ball) and tie the cut end to the apron rod at a point in line with the outside marked edge of your project.

***Photos are for illustration only: warping post** **direct warping method**

Wind warp onto the loom - The next step can be done using the Warping Post to provide tension, but will be easier with the help of a friend.

- Begin winding warp yarn onto the warp beam, rotating the warp beam while maintaining tension on the warp yarn not yet wound onto the warp beam.
- After one full rotation of the warp beam, insert a layer of heavy paper between the layers of yarn to separate them. This will make it easier to maintain even tension across the width of your warp during the weaving process.

As warp is wound onto the warp beam, you will need to adjust the position of the loom to maintain even tension, slowly moving closer to the Warping Post as you "wind on". If you have

a friend helping, you can remove the yarn from the post and hold the warp under tension while your friend winds it onto the warp beam for you.

- Stop periodically to pull firmly on the warp, making sure it is wound tightly (and evenly) over the back beam and around the warp beam. It may be helpful to "comb" the warp yarn not yet wound with your fingers, working to maintain uniform tension across the width of your warp.
- Continue adding heavy paper as needed to separate layers of yarn wound onto the warp beam.
- Stop winding when the end of the warp is even with the loom's front beam (the front cross bar). Secure the warp beam by engaging the loom's pawls so the warp beam will not unwind when the warp is pulled toward the front of the loom.



** Before moving to the next step (threading heddle holes), we will describe an alternative warping technique. You may choose this warping technique, skip this section, or review it for use with longer warps.

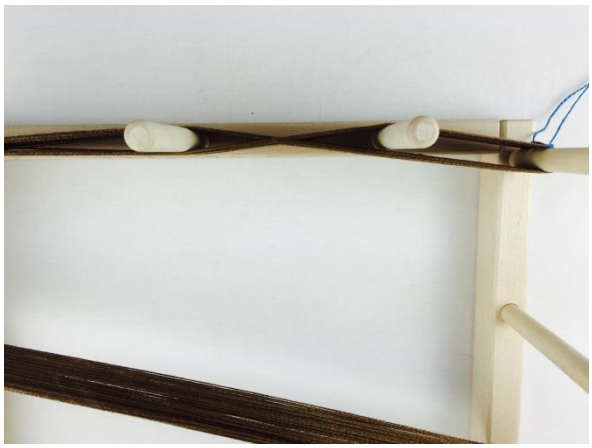
B) Indirect Warping using a Warping Board

This warping technique, often called the "indirect" method, requires the use of a Warping Board to prepare warp yarn before threading the loom. This technique is especially convenient for long projects (warps of 2 yards or more). This technique also works well with complex warp yarn patterns, where several different yarns or colors of yarn are used in one project. It is appropriate for both short and long warps.

Wind your Warp: To determine specific posts and a winding pattern to use on your warping board, cut a piece of string (or yarn) the length of your desired warp (64" in our example). Tie one end of the string to the top corner post of your warping board (next to the two posts that are positioned to make a cross). Create a winding pattern with the string, going back and forth across the warping board until the other end reaches a post you can tie to – your "end" post (see your warping board's instructions for a more detailed description of this process).

Tie your warp yarn to that "end" post to secure it. Wind the warp in a continuous series of long loops back and forth, following your established winding pattern. Form a figure-eight at the top or end of your pattern, creating a warp cross around two posts at the top of your Beka warping board. The "warp cross" helps keep threads in the order in which they were wound, which will help avoid tangles when you start threading warp yarn through your rigid heddle. Each complete figure-eight loop represents two (2) warp ends.

***Photos are for illustration only, they do not show a specific project!**



Continue winding warp yarn back and forth (be careful to not pull too tightly, most yarn will be damaged if stretched) and count as you go. When the desired number of ends has been wound (for this project – 80 threads means up and back 40 times), tie the yarn to the end post again and cut it off.

With a contrasting colored thread, tie a loop through the warp cross to hold it in place. Make another tie at the opposite end of the warp, again holding the layers of warp yarn in place. Optional: You can mark the warp loop ends where the cross terminates and reverses with a felt tip marker to help you identify the end of each loop for the next step. You can also add "choke ties" along the length of the warp (this will help prevent tangling) by wrapping a piece of string around the warp every 1 – 2 feet, tying a bow for easy removal later.

Warp your Loom (sometimes called "Dressing" the Loom)

Position the assembled loom flat on a table (foot pieces removed or over the edge of the table top). The loom should be placed near one side of the table (a corner), so you can easily reach across the loom while sitting or standing next to it.

Place the loom's rigid heddle upright in deep notches provided in the shed blocks. Find the starting and ending point in the heddle so your project will be centered (for this 10" project, you will start and end 5" from each end). Mark slots to identify the two outside edges of where

your “centered” warp will be threaded through your heddle. You are ready to begin threading warp loops through heddle slots.

Carefully lift the warp cross from the warping board and gently lay the warp bundle over the front beam (cross bar). You can even wrap the warp bundle around the front crossbar, leaving enough length so the looped ends you are holding will reach to within a few inches of the back beam (cross bar).

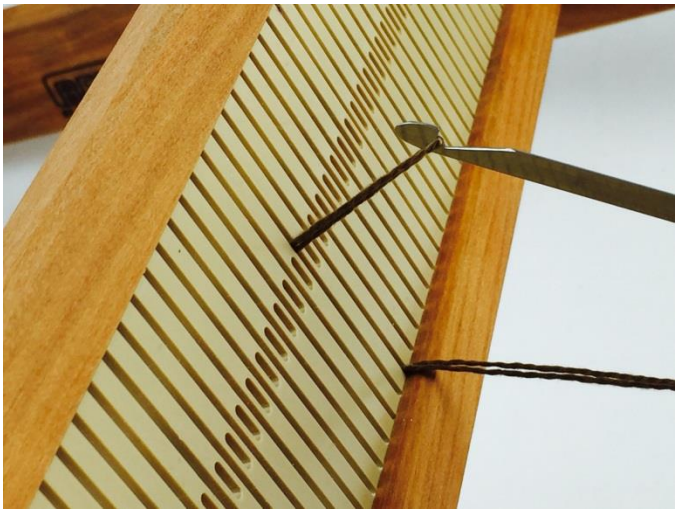
Thread heddle slots:

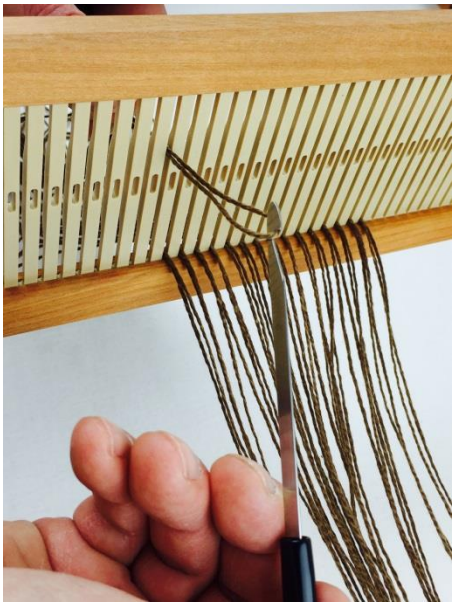
- Place the warp cross in the palm of your hand with your fingers and thumb in separate parts of the cross … keeping the cross intact.
- Lift the top loop up and away from the rest of the warp. Use a heddle hook (a crochet hook or another threading tool) to pull the first loop (front to back) through the slot that marks the far edge of your weaving project.
- Pull the loop as close to the back beam as is comfortable and slide an apron rod through the loop.
- Continue this process, lifting the next warp loop from your hand and pulling it through the next slot in the heddle, moving from the far side toward the near side of the loom. Each loop should be positioned (in order) around one end of the apron rod, which you can move as needed to accommodate the growing number of warp loops going around the rod.
- The last loop should be placed in the slot marked as the other outside edge of your project (this does not have to be perfect, but the closer the project is to being centered, the easier it will be to weave a straight (even) finished fabric once you start weaving).

Tie the apron rod holding all the warp loops to the warp beam with sturdy cord (make sure the cord goes over the back beam before attaching it to the warp beam). Use enough cord (one long length or several short pieces) to secure the apron rod in several places. The goal is to minimize bowing of the rod when tension is applied.

You can spread the tension across the length of the apron rod by tying multiple small ties every couple of inches and going through holes provided in the warp beam, or by threading a long length of cord back and forth around the apron rod and through the holes.

***Photos for illustration only**



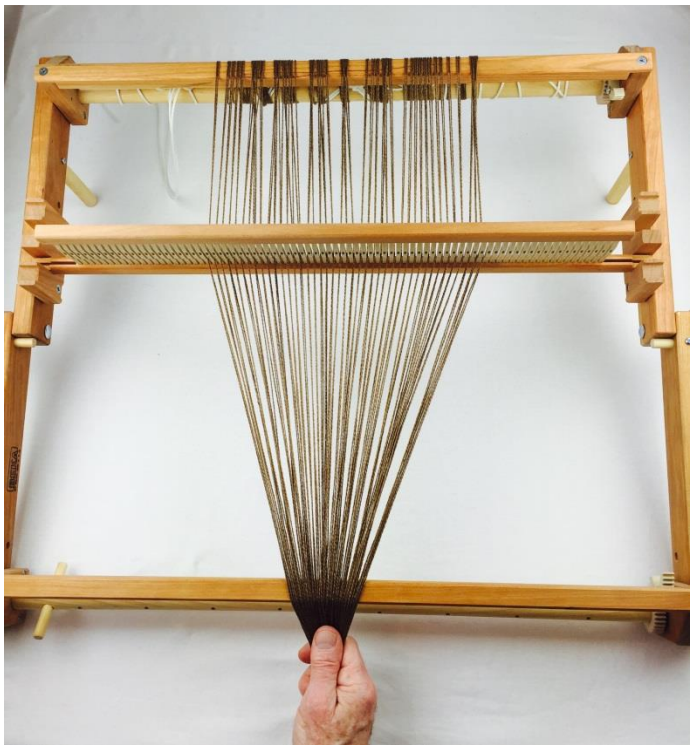


Wind warp onto your loom - We suggest doing this next step with the help of a friend. Begin winding warp onto the warp beam, one person rotating the warp beam while the other person maintains tension on the warp yarn being wound onto the beam (if you wrapped the warp around the front beam, you'll need to unwrap it first). After one full rotation of the warp beam, insert a layer of heavy paper between the layers of yarn to separate them. This will make it easier to maintain even tension across the width of your warp when weaving.

As warp is wound onto the warp beam, make sure it is lifted off the warping board smoothly, adjusting its position as needed (if you tied "choke" knots on your warp, you can completely remove it from the warping board). Remove ties along the warp as they approach the front of the rigid heddle.

Be sure to stop periodically to pull firmly on the warp, making sure it is wound tightly (and evenly) around the warp beam. It is helpful to "comb out" the warp with your fingers to remove tangles and identify individual threads that need to be adjusted; check that your tension is uniform across the entire width of your warp.

Continue adding paper as needed to separate layers of yarn from one another. Stop winding when the end of your warp is close to being even with the loom's front beam (front cross bar). Secure the warp beam by engaging the loom's pawl so the beam will not unwind if the warp yarn is pulled.



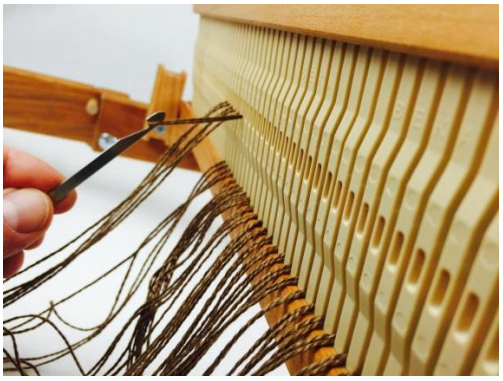
**** Regardless of which technique you use to measure warp, thread heddle slots and wind warp onto your loom (direct or indirect warping); you are now ready to thread your rigid heddle's holes!**

Thread heddle holes

The next step in the warping process requires cutting the end of the series of warp loops (if you haven't already done so). Cutting changes the continuous long "loop" of warp yarn into separate smaller loops or strands of yarn. Each of these smaller loops or strands represents two warp ends. As a result, you now have two warp ends in each **slot.**

Thread holes

- Start at one of the outside edges of your threaded heddle; leave one of the warp ends in the slot, and **carefully pull the other warp end out of that slot**.
- Use a threading tool (crochet hook, needle threader, etc) to pull the warp end you are holding **through the adjacent "hole" in the heddle**.
- Repeat this process across the width of your warp until you have one thread in each slot and one thread in each adjacent hole across the width of your project. Tie bundles of warp ends representing approx. 1" of your project's width together to secure them.



Secure warp to the fabric beam

- Slide warp bundles onto the remaining apron rod.
- Comb out any tangles you see and re-tie bundles so the individual bundles are as uniform in length as you can get.

The next step is to fasten the apron rod to the fabric beam.

Tie a long cord to the apron rod and wind it back and forth from the apron rod, over the crossbar and through a hole in the fabric beam; back around the apron rod, then back to the fabric beam, etc … continuing across the width of the warp. End by tying the cord to the apron rod or fabric beam.

Position the heddle in an "up" position (on top of the shed blocks) and adjust the tension of your warp, shifting the cord as needed to spread tension uniformly across the warp. Work back and forth across the width of the project; you can re-tie individual bundles if needed.

** **An alternative to using an apron rod** is to use a long length of cord tied to the fabric beam, strung back and forth from the fabric beam, directly through a warp bundle, back through a hole in the fabric beam, then through the next warp bundle, etc. Tension across the warp is adjusted by shifting the cord through individual warp bundles across the width of the warp.

Tie warp bundles

attach bundles to an apron rod

or

use cord only

Prepare to Weave

- Weave in a "header" with scrap yarn (toilet paper actually works well for this – no kidding). The "header" serves to spread warp threads out evenly, so your project will begin on an even, full width warp. Weave several rows back and forth with your header (or starter) yarn before pressing it into place. Make your header area large enough to create a uniform leading edge for your project. The header usually represents wasted warp yarn, so don't make it larger than is needed.
- Wind shuttle(s) with desired weft yarn.
- Sit with the front end of your loom held securely in your lap (the back of the loom braced against a table) or use a Beka Floor Stand to hold your Beka Fold & Go Loom.
- Lift the heddle and stand it on top of the shed blocks. An opening will be created between the hole threads (which will be up) and the slot threads (which will remain in place). This opening is an "up shed".
- Pass the shuttle through the shed. Unwind weft yarn as needed from the shuttle, so you can lay it at a 30 - 40 degree angle across the warp (or position the weft yarn in the shed as a shallow arch across the warp); leave 2" of yarn (a tail) sticking out on the side you started from.
- Put down the shuttle and grasp the heddle with both hands for even beating. Bring the heddle forward, pressing the weft yarn into place parallel to the front beam.
- Return the heddle to the shed blocks, positioning it with its end pieces below the shed blocks to form the lower or "down shed". Tension from the warp should hold the heddle in place where you position it (either above or below the shed blocks).
- Insert the shuttle with your weft yarn in the new shed created by the lowered heddle, moving the shuttle back across the warp in the opposite direction as the previous row. Leave the weft yarn at an angle (or arch) similar to the previous one (you can insert the "tail" from the first row into this shed to hide it in your project.)
- Repeat the beating motion, holding the heddle evenly and pressing the weft yarn into place.

- Repeat the process of alternately raising and lowering the heddle; passing weft yarn back and forth across the warp and pressing it in place after each row.

*** Note:** The angle (or arch) you use to position weft yarn in each shed will impact the edges of your project. Too steep an angle (too much yarn) will result in loose loops of yarn on your fabric's edges. Too shallow an angle (too little yarn) will cause the edges of the fabric to pull in. Experiment until you find the angle best suited to your project; uniform angles will help you maintain straight edges throughout the length of your woven fabric.

Advancing the Warp

As your fabric gets close to the heddle, the shed will become smaller. At some point, you will want to advance the warp for a larger shed, which makes weaving easier. To advance the warp:
- Release the pawl holding the warp beam in place and roll some yarn off the warp beam.
- Re-engage the pawl to prevent the beam from turning any further.
- Wind finished fabric onto the fabric beam. When your warp becomes taut, re-engage the pawl to prevent the fabric beam from turning.
- Repeat above steps as needed to position the edge of your woven fabric where you want it.

Ending - When your warp cannot be advanced further, you are near the end of your project. Weave as far as you can (or want). As at the beginning of your project, you can end your weaving leaving a short "tail" of weft yarn to one side. The tail can be taken around an outside edge warp thread and positioned back into the next shed to hide it and hold it in place.

Tying Off - To tie off your weaving, place the rigid heddle in deep slots in the shed blocks to hold it in place. Cut several adjacent warp ends behind the heddle, pull them through the heddle and tie 2 – 4 ends together in an over-hand knot against the edge of your finished fabric. Continue cutting and tying threads a few at a time, working back and forth from the left and then the right side of the project, until all warp ends are tied.

Unwind fabric from the fabric beam, lifting your finished weaving away from the loom. Remove any header material from the point where you started weaving. Untie the yarn bundles you used to attach the warp to the fabric beam initially. Tie small groups of 2 – 4 warp ends together against the edge of your finished fabric in the same way you tied warp ends at the other end of your woven fabric. Trim warp ends to create a uniform fringe.

Congratulations! You just completed a hand-woven scarf!!

A Few More Tips

Adding Weft Yarn - When yarn on a shuttle runs out, and you have wound more yarn onto it, start the "new" yarn by simply overlapping the end of the "new" yarn with the end of the "old" yarn in a single shed. Continue weaving.

Changing Colors - End one color by leaving a short "tail" of weft yarn (approx. 2") at the edge of your project (the selvedge). Change the position of your heddles and place the "tail" in the new shed (be sure the tail goes around the outside warp thread before it goes back into the new shed). Start the new color the same way you "add weft", overlapping the previous yarn's tail. You can also begin a new color by leaving a short tail outside the project's edge to be woven in on the next shed, just start from the side opposite the one where you ended the previous color.

Folding your Loom - To fold your Fold & Go Loom while it has a project on it, follow a **similar** process as that used to advance the warp.

- position heddle in deep slots in shed blocks or lay flat on the warp(a neutral position)
- make sure the **warp beam** is held securely in place with an engaged pawl
- **release tension on the fabric beam** by disengaging its pawl
- unwind enough fabric from the fabric beam to allow the loom to fold
- once folded, wind fabric back onto the fabric beam to eliminate excessive sagging of warp yarn
- reverse these steps to unfold your loom when you want to do more weaving