Handmade earthing sandals for toddlers and small children

~ a stitch-by-stitch tutorial ~
by ForestCreekMeadows

pattern created by Roland Magyar
father, sustainable life designer, eco-minimalist, poet, reforester
You can lovingly handcraft these all-natural sandals for your child to enjoy warm temperatures and textures like never before. They are going to feel light like two feathers!

This is a unisex design further accentuated by the beige, natural look of the cordage itself. The sandals are entirely handmade of a single coiled piece of circular braided hemp rope each, sewn with unfinished, strong flax or hemp sewing thread. This makes for a very comfortable and soft sole that your child can either begin or continue soaking up the Earth’s subtle healing energies through, unhindered. They refer to this as earthing or grounding, but we could simply call it: connecting. Happy (re)connectedness to your child!

**Materials and tools needed** for a 3-year-old toddler’s 12.5 cm (5”) foot length (adjustable in length and width, proportionately, to fit any small foot size):

- cardboard to trace the feet on (this will be your work surface)
- two drawing instruments: a fine-tipped pencil and a soft lead pencil for tracing the feet
- approximately 8 m (26 ft) circular braided 0.5 cm (~ 1/4”) diameter hemp rope cut in two 4 m (13 ft) pieces
- a large bobbin of unfinished, unbleached strong flax or hemp sewing thread
- a hardwood twig (hawthorn, sloe, oak, ash) debarked and long enough to cut and carve two small oblong buttons from it
- a set of strong needles with large eyes to suit the sewing thread (depending on their quality you may go through quite a few, with their eyes breaking or the whole needle bending – keep that in mind when acquiring supplies)
- sharp pointy scissors
- small size needle-nose pliers
- thimble (optional)
Care of the one-rope earthing sandals:

These sandals are absolutely breathable. When they get wet, just put them in the sun’s direct light or next to an indoor heat source where they will dry fast. While they might feel slightly stiff at first, your earthing sandals will quickly break in again.
Cleaning can be done in warm soapy water with gentle brushing. Please use natural soap and a natural-bristle brush to keep the footwear as pure as possible.
At the end of their life (depending on the type of stains they would have gathered by then) the earthing sandals can potentially be composted or burned in a safe manner—nowadays not too many people can claim that about any of their footwear!
Oh, you may also notice tiny-tiny pieces of rocks that start filling some of the gaps in the stitching of the bottom of the sole (unless you decided to apply leather sole underneath the rope coil). Don’t get alarmed, those tough little rock crystals actually add to the durability of the footwear, making the soles more resistant to friction. When washing the sandals, don’t try to remove these inlays – some will fall out by themselves, while others will stay.

And now, getting started:

Have your child step on the cardboard with straight legs and without curling her/his toes. Holding each foot steady in place, trace the contour of the feet with a fine-tip pencil held vertically, following the individual foot’s shape. Do
so relatively tight against the foot without putting pressure on its soft parts - and a toddler’s feet are pretty soft all around. No two feet are the same, not even on the same person, so allow for individuality, because, after all, you are about to custom create. Don’t just mirror the first foot’s mark and expect a perfectly comfortable wear.
The principal of making this style sandal is the same for any young child’s feet, just increase the length of rope accordingly (it is always better to overestimate and use the leftover cordage, if there is, for other creative projects).

Trace the two feet far enough apart on the cardboard not to be in each other’s way (smearing the pencil marks while drawing or during the sewing work, when you’ll frequently be placing the partially sewn sole on the sketch, to match the outline as closely as possible), at the same time allowing yourself an easy visual comparison of the two. Now grab the soft pencil and, allowing for the child’s growth, “streamline” the footprints, making the soles’ outlines slightly larger than the strict outlines of the feet were. Add a little more leeway for growth in length, rather than in
width. We are talking a couple eighths of an inch, or a few millimeters, not more.
The key is to end up with footwear that is truly informed by your child’s feet. I would advise you not to compromise comfort for the sake of some forcible aesthetics, even if the two sandals end up slightly different from each other based on the character of the feet. This difference will hardly be noticeable by onlookers. They will be smitten by the sandals’ cuteness and natural appeal instead.
**The sandals will be eye-catching**, rest assured!

Draw the streamlined final edge around the outside of the footprints with a thicker, darker pencil mark, easier to follow visually. Don’t worry about this outline being slightly oversize, they simply prevent the feeling of tightness and assure a proper, comfortable fit in the end.
Besides, this safety measure, so to speak, is a good approximation for the work ahead, also necessary because the thickness of the rope dictates a certain roughness in following contours (it is not a mold for gypsum). But roughness being mentioned, it is still a rough guideline nonetheless, that will not replace frequent fittings to your child’s feet themselves.

The directionality of the work you are about to begin looks like this for the sole and the top, respectively:
Now, let’s get started!

For practicality’s sake, I cut out each sole’s outline from the cardboard with a margin, but you can leave them uncut, too. It all depends on how much room
you have on the table, desk, counter, your lap, and how portable you wish to make your project.

Introduction to your stitching:

Threading long strands of thread in the needle, double-fold, you will be securing the first stitch every single time not by tying the loose ends of the sewing thread into a knot, but by pushing the needle through the not-yet-sewn, therefore softer part of the rope, lengthwise, coming out with the needle at the point of the next stitch to be made. Practically, this will leave the tail ends of the thread loosely inside the rope, so put pressure on with your thumb to prevent them sliding out. These ends will now be sewn over, securing them in place by the relative tightness of your first few stitches. Make this hidden tail end reasonably long (about 3 cm, or 1”) for strength. We do so to prevent potential discomfort from unnecessary knots, plus we’ll end up with a more homogenous and esthetically pleasing matrix of stitches.

You’ll have to finish off the front end of the rope before starting the sole. This is to make sure it won’t fray right under the heel of your child. You do it by starting about 2-3 cm (1”) back from the cut end of the rope, with the stitch described above, moving towards the end, going in and out the rope in varied angles, always pulling the thread tight. About half a centimeter (a couple eighths of an inch) before the end of the rope you stop stitching and just wrap the thread tightly on the rope, like fishing line on a hook, a few times. Secure this by pushing the needle back and through the wrapping/stitching you just made – it’s a wee bit hard, this is where a thimble might come in handy, or a flat side of your pliers.

On a side note: throughout the work, I always finished a thread by pulling a simple knot tightly against the last stitch and leading the thread back through a portion of the rope before cutting it off.

Now you finished the rope’s front end. Cut the excess rope away – close, but not right against the tight thread wrapping.

One of my advices to you, for the entire sewing work, would be not to use a piece of thread past its obvious durability, meaning when you notice that its fibers are starting to fluff up and come apart,
typically where it hooks into the needle’s eye, cut that piece off or be finished with that thread altogether and continue with a new one. Don’t compromise the integrity of the sandals with weak threads.

Now imagine that all the rope it takes to cover the previously traced surface, is coiling tightly in a (thick and dense) plane, which has a top and a bottom side. Treat them both the same way and move along with sewing, alternating the sides one thread at a time. So, don’t get too far ahead on one side before you move to the other and try to overlap the threads of different “ages”: the freshly started ones on one side with the more weathered ends on the opposite side. Begin at the center of the heel by folding the finished end about 2.5 cm (one inch) over the rope, sew it on top and bottom...
and continue in an oval–spiral fashion until you are twice the rope’s thickness away from the drawn outline. Do not pull the stitches overly tight, because this will eventually take away from the sole’s flexibility and the idea is to allow the child’s feet stay as connected with the ground as possible, while allowing for those steps to roll freely.

At this point, turn the flat elliptic coil so that you can carry on working on the top (foot) side, towards the toes, first wrapping the rope around the oval piece and then coiling it over itself, right and left, always allowing for the two–rope–thick frame that the whole of this coiling will receive, yet being as space efficient as possible over the pencil–drawn template. Fill in the blanks as it is the most rational to do with the fewest or no necessary returns to the tight corners that inevitably form.

But don’t you worry too much over them, because in the end every such enclosure will be filled by applying the trick described below.
(It starts to look like a thick lacework, doesn’t it?)

These small gaps between the outsides of the folds, will be filled in by the first and second framing rope line. When done with the last fold, under the big toe, just carry on with the first framing line. It’s important, at this point, to begin framing towards the smaller toes for each foot, not around the big toe – you’ll understand why shortly.
You may notice that the rope, despite its cylindric braiding, has two flatter sides, like mine did. Keep folding the rope across the entire sole part with the flat sides onto each other to best “pack” the rope and prevent unnecessary twists, in other words, for the material to be relaxed.

And now the trick:

To fill those odd-shaped gaps with the first framing line, use the looseness of the braid to your advantage and squish it in a little, while attaching it to the coils and filling in the void corners at the same time. In the second round you won’t need this technique anymore.

By the time you reach the base of the big toe with the second framing rope line, you should have filled the pencil mark outline almost completely. You have probably fitted the sole to your child’s foot more than once already, but now it’s definitely good to see how well you have approximated the spread of her/his foot. Don’t panic, if the big toe comes a little too close to the edge,
since you can further enlarge the space inside the sandal with the “vertical” rimming that is about to rise from the plane of the sole. The beauty of a single continuous piece of rope.

Here you will proceed to gradually raise the frame line along the side of the sole and continue sewing its bottom edge (both inside and out now) to the top side of the sole plane. This makes sense structurally, to provide tall enough protecting rim around the toes within the upper part of the sandal, but also to prevent sliding of the feet, sideways out of the sandals. From now on, you’ll be taking advantage of the tall side of the rope to gain the most height with the fewest rows (keep in mind that rope still has weight to it).

With this first rim line you set the base for building the upper part of the sandal, but it also serves for streamlining the undulation of the sole, for rounding the “corners”. I recommend frequent fittings when you work on the toe part or the heel.
Getting back to the base of the big toe, where you raised the rope from the plane of the sole, completes the first rimming row. Go around once more, then start wrapping it around the toes for the third time. In the meanwhile you can still adjust for more toe room if needed, by gently pressing a row (the second and/or the third one) outward while sewing. It’s interesting, that the shape did end up the way I wanted the more I looked at it. As if my eyes formed it, not even my fingers. **So pay close attention!**

I recommend you to pull all stitches as tight as you can in the rim part, because this lends sturdiness to the footwear and has to withstand the pressure of the toes, of the twisting heel and has to be able to protect the toes when kicking or tripping on something. It won’t take away from the softness of the sole.

From the outside the sandal should start to look something like this, nice and rounded:
Now you have completed two full rows of the rim and are wrapping the rope past the smallest toe for the third time. Soon you’ll have to take a break, request another fitting...
and see for yourselves where it is best (most comfortable, not just cute looking) to cross over the top of the foot via an S curve. For physiological-ergonomic reasons it seems to me that a good place is about one third of the way from the base of the lower leg toward the baseline of the toes.
The S curve in plane view is both faithfully following the shape of the foot in three dimensions and is aesthetically pleasing.
Make sure you secure its end points to the rim extra strong, because, obviously, these points will have to bear a lot of pressure from the stepping foot. Plus they are the parts by the means of which the sandals actually stay on the feet. I recommend sizing it so that this strap is tighter rather than looser fitting, because due to the nature of most natural fibers, they will stretch a bit from wear, and washing softens them too.
The S should have a smaller curve closer to the small toes, where the top of the foot is lower, and a bigger arch above the big toe – you get the point. After jumping the rope onto the other side, lead it towards the heel, wrap this third rimming row around and past it, fairly close to the point where the S branches off. See what feels comfortable for your child and what looks well-proportioned in her/his size, because this is the place and time to create the raindrop shaped loop, serving as button hole.

**The wooden buttons:**

As a relaxing activity after so much sewing, now you might want to grab the twigs you chose and carve two smooth buttons with rounded ends. They need not be thick if the twig is hardwood and it is great if you can find parts with gentle curve to them, to kind of hug the outside of the foot. The buttons you see in these images are made of witch hazel (Hamamelis virginiana). My daughter’s buttons are 1.5 cm (3/4”) long, but you could make them tiny bit
longer, too provided that they don’t touch the ground and are still comfortable to button with. I suggest you carve a shallow groove (so that this slimming does not jeopardize the strength of the buttons yet) into the middle of the buttons for a better gripping of the rope. It need not be as wide as the cordage.

Now, that you have the buttons, grab one, wrap the rope tightly around it just for trial and see what size buttonhole they still fit through with a little pushing. Finish the buttonhole by reinforcing the loop-closing stitch and move back around the heel – for the fourth time. Please note that with each row you have the opportunity to slightly modify the grip on the child’s heel. Give it some room for play, but not too much, and match up the profile curve of each heel bone (e.g. if you tighten the rim row too much, it pushes the whole foot forward, potentially making the sandal appear and feel too small).

At this point, you are almost ready for another fitting with your child, to define the place for the base of this new double strap. Once you found the spot
somewhere almost straight across from the buttonhole loop, reinforce its base stitch too, for sturdiness. By now, the sandal should look something like this:

Here comes an important step, when you need to determine the final length of the double strap.

Push the strap rope through the buttonhole, stick the button between the two rope layers of the strap and pull the loose end of the rope comfortably tight. Again, remember that with wear the strap will most likely loosen up some. I’m sure you would agree that it is really annoying and tiresome to try to keep a loose shoe or sandal on your foot.

So you got the desired length. Mark it somehow, even with another needle stuck through both layers of the double strap and proceed to attaching the button. For a comfortable holding start stitching about 2 cm (1”) away from the button and move towards it. Lead your last couple of stitches partially around the button and pull them really tight. Also, taking advantage of that
central groove, wrap the thread tightly around the button, leading it a couple of times, sequentially, through the inside of the rope.
Now repeat the stitching on the other side of the strap (back, if you started on the front) and stop at the same distance from the button.

The idea here is to combine airiness with strength, so we are going to leave the two ropes unattached to each other in the middle section, in front of the child’s leg, and continue with stitching a little further, by the inside ankle, to mirror what you have done on the button-end.
Now, continue sewing the fifth row of the rim around the heel a bit more. This is the last row, so your only chance left to modify the grip of the sandal on the heel – more like the Achilles tendon. Don’t get too far ahead of yourself at this point, because you will need to have the comfort of finishing the other end of this single long piece of rope. For aesthetic reasons, I recommend measuring the rope to end right at the base of the buttonhole. But remember not to cut the rope until you repeated the finishing stitches on it just like at the very beginning of the work. Cut the excess rope off close to the finishing wraps.

You are almost done! Just continue attaching this row all the way to the end of the rope both from inside and outside.

Awesome! Now, benefiting from your experience, repeat the same procedures, on the second sandal, respecting the individuality of the foot it is going to be made for.
A technical note: for practical reasons, especially while working on the heel part of the sandal rim, always be ahead with stitching on the interior, rather than the exterior side, to enable yourself to better fit into those tight spaces with the needle and pliers.

When stitching the interior, lead the needle through the top (loose) rope and outside, then to secure to the already solid rim underneath, bring the needle back inside from the exterior – otherwise the needle simply wouldn’t fit to make the move – you’ll see.

Congratulations! You are finished now!

The little sandals should look something like these from top down:
And their soles like these:
A true work of artisan art coming out of your own hands, proudly strapping them on your child’s feet. Cherish and watch be cherished!

You could choose to equip the bottoms of the soles with a layer of naturally tanned leather for abrasion protection. We are not sure yet about the extent this application would increase the durability of the sandals but, if cared for properly, they should last an entire summer season without leather too.

They are ready for wear and tear, for walks and climbs. Be careful with them on extremely smooth, polished tile surfaces, for here they will be slippery!