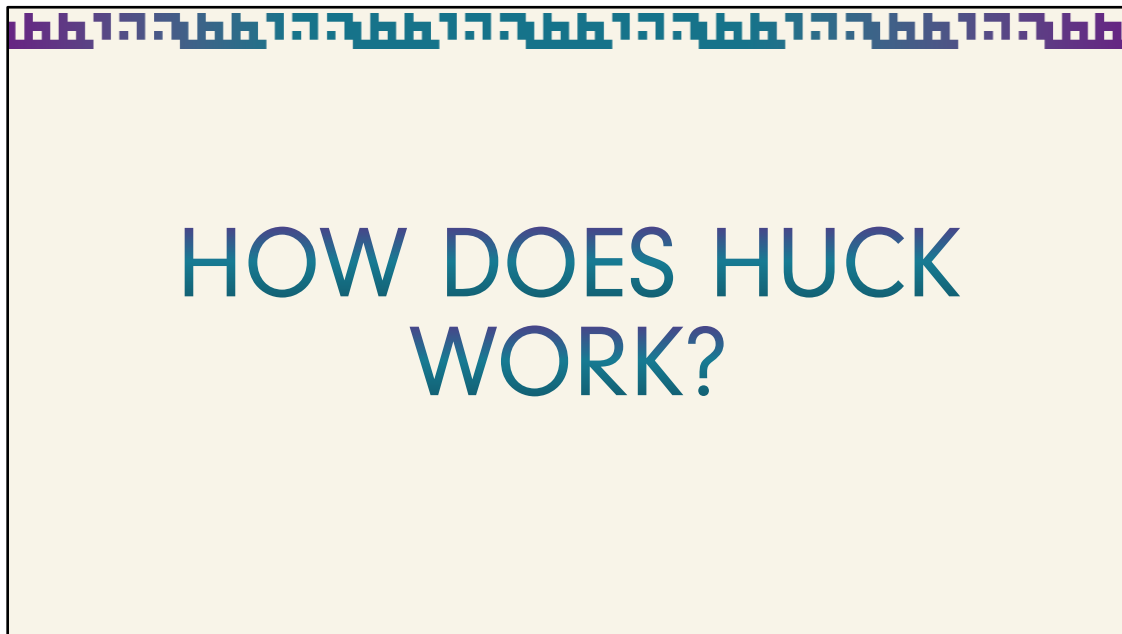


How does huck work?



Before we turn to our exploration of double huck, let's start by taking a look at one layer of four-shaft huck and getting a feel for how it works.

How does huck work?

In this lesson

- 1 Threading options
- 2 Huck terminology
- 3 The structure of huck

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In this video we'll take a look at two different threadings we can use for huck on four shafts and consider their pros and cons. We'll sort out some terminology to use in our discussion of huck and make a close examination of the structure and its characteristics.

How does huck work?

Threading 4-shaft huck

Option 1

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4				4	4									4	4	
3	3	3						3	3							
2	2	2	2					2	2	2						
1				1	1	1							1	1	1	

Huck is based on a pattern of small units, each of which contains an odd number of ends: usually three or five, sometimes seven. We are going to focus on five-end huck.

Each five-end unit is threaded on two shafts in an alternating sequence, so that it starts and ends on the same shaft. On four shafts there are two common threading options.

In the first option, we have one unit threaded on shafts 1 and 4, alternating 1-4-1-4-1, and a second unit threaded on shafts 2 and 3, alternating 2-3-2-3-2.

How does huck work?

Threading 4-shaft huck

Option 1

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The diagram illustrates the threading and weave pattern for a 4-shaft huck. It consists of three main parts:

- Top Row:** A row of 16 colored squares representing the shafts. Shaft 1 is blue, shaft 2 is magenta, shaft 3 is teal, and shaft 4 is light blue.
- Threading Grid:** A 4x16 grid of numbers representing the threading. The numbers are arranged in a repeating pattern of 4 shafts. Shaft 1 (blue) is in columns 1, 5, 9, 13. Shaft 2 (magenta) is in columns 2, 6, 10, 14. Shaft 3 (teal) is in columns 3, 7, 11, 15. Shaft 4 (light blue) is in columns 4, 8, 12, 16.
- Weave Pattern Grid:** A 4x16 grid of colored squares representing the weave pattern. The pattern is a regular plain weave rhythm where shafts 1 and 2 are the warp ends (blue and magenta) and shafts 3 and 4 are the weft ends (teal and light blue).
- Huck Pattern Grid:** A 4x4 grid of numbers representing the huck pattern. The numbers are arranged in a repeating pattern of 4 shafts. Shaft 1 (blue) is in columns 1, 3. Shaft 2 (magenta) is in columns 2, 4.

It also sets us up with shafts 1 & 2 as our base shafts: these are the warp ends which will sustain the regular plain weave rhythm while the warp ends on 3 & 4 – highlighted here in magenta - do the pattern-making. This is a good starting place for huck on more than four shafts. It is easy to see how we can keep our weave anchored to shafts 1 & 2, while we add more patterning on shafts 5, 6 and above.

How does huck work?

Threading 4-shaft huck

Option 2

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4	4	4				4	4	4			
3	3	3				3	3				
2			2	2					2	2	
1			1	1	1				1	1	1

What about the other option? In this version we have one unit threaded on shafts 1 & 2, alternating 1-2-1-2-1, and the second threaded on shafts 3 & 4, alternating 4-3-4-3-4. As before, we can see that the ends alternate odd and even, so we can still make plain weave in the same way. However, our base shafts are now 1 and 4, while our pattern shafts are 2 & 3, and the second unit seems to be upside down compared with the first.

It is not so obvious to see how we would extend the single layer to more than four shafts, though of course we can do that, but it does offer us a different advantage. Each unit of five ends is now threaded on a pair of adjacent shafts, like a block threading, which is really helpful if you want to think about working with each unit independently - for instance, if you were going to weave two layers of huck.

We'll come back to that thought later. But for now let's examine this single layer structure more closely.

How does huck work?

Making patterns

Half-units in the liftplan

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The diagram illustrates the process of creating a huck pattern from a liftplan. At the top, a liftplan table shows the sequence of picks for four threads (1, 2, 3, 4) over 16 picks. Below it, a huck pattern is shown as a grid of squares, where the color of each square corresponds to the pick number from the liftplan. To the right, a pick order table shows the sequence of threads (1, 2, 3, 4) for each pick, with yellow arrows pointing to the corresponding squares in the huck pattern.

4	4	4	4					4	4	4					
3	3	3						3	3						
2				2	2						2	2			
1				1	1	1					1	1	1		

1	3		
2	3	4	
1	3		
2	3	4	
1	3		
2	3	4	
1	3		
2	3	4	
1	3		
2	3	4	

So how do we make patterns with it? We have already determined that odds versus evens will give us plain weave. When we are weaving huck, our lifting or treading rhythm is the same as our threading rhythm, in that it works in groups of five picks. The first group starts and ends with the odd plain weave pick, the second group starts and ends with the even plain weave pick. As with the threading, we need both half-units of weaving to complete the cycle.

How does huck work?

Making patterns

Identifying pattern picks

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The diagram illustrates the process of creating a huck pattern. It consists of three main parts:

- Top Grid:** A 4x14 grid of numbers. The top row contains 14 '4's. The second row has '3's in columns 2, 3, 10, and 11. The third row has '2's in columns 6, 7, 12, and 13. The bottom row has '1's in columns 4, 5, 8, 9, 14, 15, and 16.
- Checkerboard Pattern:** A 14x14 grid where cells are colored in a checkerboard pattern of light blue and dark blue.
- Bottom Grid:** A 4x4 grid of numbers with yellow arrows pointing to the second and fourth columns. The numbers are:

1	3		
2	3	4	
1	3		4
2	3	4	
1	3		4
2	3	4	
1	3		4
2	3	4	

And just as the second and fourth ends of each half-unit are our pattern ends, so the second and fourth picks of each half-unit are our pattern picks. These are where we make our variations.

How does huck work?

Making patterns

Weft floats in A

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	4	4	4					4	4	4					
4		3	3						3	3					
3					2	2					2	2			
2															
1				1	1	1					1	1	1		

	1	3													
			4												
				4											
					4										
						4									
							4								
								4							
									4						
										4					
											4				
												4			

Let's zoom right in to the warp ends on shaft two and the first half-unit of our liftplan.

In the first pick, shaft two is down. If I want to keep making plain weave, I will need to raise it on pick two. But if I leave it down, it will float on the back of the cloth. When the warp is floating on the back, the weft must be floating on the front, since it has nothing to interlace with. In this half-unit I have a choice between plain weave and weft floats.

How does huck work?

Making patterns

Warp floats in A

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	4	4	4					4	4	4				
4		3	3						3	3				
3					2	2					2	2		
2														
1				1	1	1					1	1	1	

1		3												
			4											
1		3												
			4											
1		3												
		2	4											
1		2	3											
		2	4											
1		2	3											
		2	4											

In the second half-unit, shaft two is raised for the first pick. If I want to keep making plain weave, I will need to lower it on pick two. But if I keep it raised, it will float on the face of the cloth, while the weft floats across the back. In this half-unit I have a choice between plain weave and warp floats. Note that I cannot make weft floats on the face of the cloth in this half-unit because shaft two has to be raised on the plain weave picks.

How does huck work?

Making patterns

Warp and weft floats in B

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4	4	4	4					4	4	4				
3	3	3						3	3					
2				2	2					2	2			
1				1	1	1				1	1	1		

← Shaft 3

1	3		
	3	4	
1	3		
	3	4	
1	3		
	2	4	
1	2		
	2	4	
1	2		
	2	4	

However, I can make weft floats in half-unit B. Shaft three is the pattern end here. Because three is an odd-numbered shaft, it plays for the other team when making plain weave, and that means it produces the opposite effect: in the first half-unit I can leave shaft three raised to create warp floats on the face of the cloth; in the second, I can leave it down to have weft floats on the face of the cloth.

How does huck work?

Huck and huck lace

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4	4	4	4					4	4	4			
3	3	3						3	3				
2				2	2					2	2		
1				1	1	1				1	1	1	

1	3		
	3	4	
1	3		
	3	4	
1	3		
	2	4	
1	2		
	2	4	
1	2		
	2	4	

If I just choose to create floats in one half-unit and not in the other, then I create a textured effect which is what we would simply call huck. If I choose to make floats in both half-units then they will necessarily alternate warp floats and weft floats and that is what gives us huck lace.

The drawdown for huck lace is quite distinctive because the horizontal and vertical lines of the floats create the effect of hash symbols all stacked together in a grid. In practice, however, floats do not remain horizontal or vertical. If we make huck spots, then the floats will tend to curve. If we make huck lace, then they tend to collapse completely, opening up the holes in the fabric which are the defining characteristic of lace weaves.

How does huck work?

Making holes

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The diagram illustrates the 'making holes' process in a huck weave. It consists of three main parts:

- Top Grid:** A 4x12 grid representing the thread sequence. The rows are labeled 1, 2, 3, and 4. The sequence of threads in each row is: Row 4: 4, 4, 4, 4, 4, 4, 4; Row 3: 3, 3, 3, 3, 3, 3; Row 2: 2, 2, 2, 2; Row 1: 1, 1, 1, 1, 1, 1.
- Woven Fabric:** A 3D representation of the weave. A yellow circle highlights a hole where threads have escaped from their regular interlaced positions into the float areas.
- Bottom Grid:** A 6x4 grid showing the thread positions in the hole area. The rows are labeled 1, 2, 3, 4, 2, 1. The columns are labeled 1, 2, 3, 4.

The holes, however, are not created where the warp and weft are floating. They are created in the tiny plain weave interlacement between the half-units. Threads do not in general want to stay tightly interlaced, and given half a chance they will escape to a more spacious environment. These four threads will slide out of their plain weave confinement and into the gentler territory that the floats have created all around them, leaving this space empty.

How does huck work?



For our excursions into double huck, we are mainly going to focus on huck lace, as it is the combination of warp and weft floats which produces many of the benefits of double huck. Let's now get started on lesson one, where we are going to go through all the decision-making steps we need in order to set up the loom for weaving.