



Project Planning 101

Elementary Math for Weavers



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Architecture

- Sett based on weave structure
- Yarn selection
i.e. wool
cotton
acrylic
- Desired drape or stiffness
- Different sizes of warp and weft



Graphic

- Stripes
- Plaids
- Solids



Colour

- Give yourself a palette of colours you love. You can't paint a colourful picture with a cone of white yarn.

**Yarn + Structure
= Your Canvas**

then add:
+ Graphic
+ Colour

Things to Think About



1. Sett (based on weave structure)
2. Finished Size
 - +a. add on's for width
 - ie. - draw in and shrinkage
 - +b add on's for length
 - ie. - take-up
 - shrinkage
 - hems and fringe
3. How many do you want to make?
4. What is your loom's loss?

Calculating Width and therefore Weft

Start with Finished Width of one item:

$$\begin{array}{r} \underline{\hspace{2cm}} \text{''} \\ + \underline{\hspace{2cm}} \text{''} \text{ draw-in} \\ + \underline{\hspace{2cm}} \text{''} \text{ shrinkage} \\ = \underline{\hspace{2cm}} \text{''} \text{ width in the} \\ \text{reed} \\ \times \underline{\hspace{2cm}} \text{ EPI} \\ = \underline{\hspace{2cm}} \text{ total} \\ \text{number of warp threads} \end{array}$$

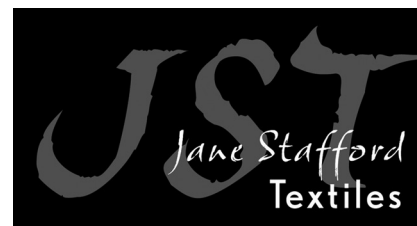
Multiply your total number of warp ends by the length of your warp and you will have the number of yards of yarn you need to make the warp. I cheat and just double it so I have enough for my weft.

Calculating Warp Length Start with the Finished length of one item:

$$\begin{array}{r} \underline{\hspace{2cm}} \text{''} \\ + \underline{\hspace{2cm}} \text{''} \text{ take-up} \\ + \underline{\hspace{2cm}} \text{''} \text{ shrinkage} \\ + \underline{\hspace{2cm}} \text{''} \text{ hems/fringe} \\ = \underline{\hspace{2cm}} \text{''} \text{ length of one} \\ \text{item} \\ \times \underline{\hspace{2cm}} \text{ number of} \\ \text{items to be} \\ \text{made} \\ = \underline{\hspace{2cm}} \text{''} \\ + \underline{\hspace{2cm}} \text{''} \text{ loom loss} \\ = \underline{\hspace{2cm}} \text{''} \text{ length of} \\ \text{warp in inches} \\ \div \underline{\hspace{2cm}} 36 \\ = \underline{\hspace{2cm}} \text{ length of} \\ \text{warp in yards} \end{array}$$

It's better to round up than round down

Planning Your Requirements



How much do I buy?

$$\begin{aligned} & \text{epi} \\ & \times \text{width in reed} \\ & = \text{total \# of warp ends} \\ & \times \text{length of warp} \\ & = \text{total yardage required for warp!} \end{aligned}$$

If you are weaving a balanced piece of cloth you will need:

$$\begin{aligned} & \text{ppi} \\ & \times \text{width of warp (in inches)} \\ & \times \text{length of warp (in inches)} \\ & = \text{total \# of inches} \\ & \div 36 \\ & = \text{total number of yards} \end{aligned}$$



ie. For a blankie:

$$\begin{aligned} & \mathbf{6} \text{ epi} \\ & \times \mathbf{45''} \text{ wide} \\ & = \mathbf{270} \text{ of warp ends} \\ & \times \mathbf{3} \text{ yards long} \\ & = \mathbf{810} \text{ yards of warp yarn required} \\ & \text{for warp!} \end{aligned}$$

Weft #1

$$\begin{aligned} & \mathbf{6} \text{ ppi} \\ & \times \mathbf{45''} \text{ wide} \\ & \mathbf{270} \\ & \times \mathbf{80} \text{ inches long} \\ & \mathbf{21600} \\ & \div \mathbf{36} \\ & = \mathbf{600} \text{ yards for weft} \end{aligned}$$

Weft #2

$$\begin{aligned} & \mathbf{6} \text{ ppi} \\ & \times \mathbf{45''} \text{ wide} \\ & \mathbf{270} \\ & \times \mathbf{2.5} \text{ yards long} \\ & = \mathbf{675} \text{ yards} \\ & \text{approximately} \end{aligned}$$

Always
Allow
More
Than
Less

Yards per Pound in the Count System



Wool (homespun)	300
Wool (worsted)	560
Linen	300
Cotton	840
Silk	840

$2/8$ $2 = 2$ ply,
 $8 =$ size of yarn

$\frac{\text{size} \times \text{Count}}{\text{ply}} = \text{per pound}$

$\frac{4 \times 8 \times 840}{2 \times 1} = 3360$ yards in a pound

How to figure out yards per 100 gr.



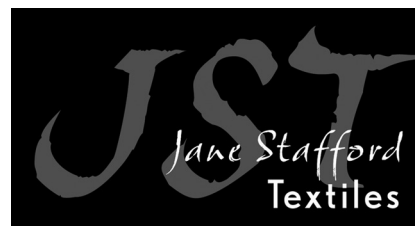
You need to have yds/pound
ie. Rayon Chenille has

(there are
2.2 pounds
in 1 kilo)

$$\begin{array}{r} 1300 \text{ yds/lb} \\ \times 2.2 \\ \hline 2860 \text{ yds in one kilogram} \\ \div 10 \\ = 286 \text{ yds/100 gr.} \end{array}$$

Table of Standard Sizes

- from *The Fundamentals of Weaving* by Mary Meigs Atwater
aka - Ancient History - however it is a good place to start



Kitchen

Tea Towels	- small	16" x 28"	Dish Cloths	15" x 15"
		17" x 31"	Pot Holders	6 3/4" x 6 3/4"
	- large	22" x 32"	Aprons	36" x 30"
		22" x 35"		
		24" x 35"		

Bathrooms

Shower Curtains	75" x 72"	Face Cloths	12" x 12"
Bath Mats	24" x 48"		13" x 13"
Cotton Towels		Linen Towels	
Finger Tip	11" x 20"	Guest Size	14 1/2" x 20 1/2"
Hand Towels	16" x 28"		16" x 21"
Bath Towels		Family Size	18 1/2" x 30 1/2"
- large	22" x 44"		
- larger	24" x 46"		
- largest	36" x 70"		

Dining Room

Banquet Cloths	72" x 72"	Napkins	22" x 22"
	72" x 90"		
	72" x 108"		
Dinette Cloths	60" x 90"	Napkins	16" x 16"
	63" x 102"		
Luncheon Cloths	45" x 45"	Napkins	12" x 12"
	50" x 66"		
	52" x 52"		
	52" x 70"		
Tea Cloths	35" x 35"	Napkins	10" x 10"
(card table size)			
Place Mats	12" x 18"		
	14" x 20"		

Bedroom

Blankets	60" x 84"	Bedspreads	
	72" x 84"	Double	86" x 105"
	72" x 90"		96" x 112"
Motor Rug	58" x 72"		98" x 110"
Afghan	43" x 60"	Single	72" x 105"
Crib	36" x 54"		

Standard Sizes Continued:

Living Room

Scatter Rugs	18" x 30"
	24" x 48"
	27" x 50"
	36" x 60"
	48" x 72"



Clothing

Tweeds	27" to 32"
Stoles	16 1/2" to 70"
	(including 6" fringe at each end)
Head Scarf	15" x 72"
	26" x 60"
Head Squares	27" x 27"
	32" x 32"
Silk Squares	18" x 18"
	32" x 32"
Men's Scarves	14" x 45"
Women's Scarves	
- small	10" x 42"
- large	15" x 45"

Table of Measurements

10 millimetres	= 1 centimetre
10 centimetres	= 1 decimetre
10 decimetres	= 1 metre
100 centimetres	= 1 metre

Table of Weights

1 ounce	= 28.35 grams
1 pound	= 453.59 grams
1 kilo (1000 grams)	= 2.20 lbs.
1 kilo	= 35.27 oz.
1 gram	= 0.0022 lbs
1 gram	= 0.035 oz

Table of Measures

1 inch	= 2.54 cm
1 foot	= 30.27 cm
1 yard	= 91.44 cm
1 cm	= 0.3937 inches
10 cm	= 3.937 inches
1 metre	= 39.37 inches

Designing Table Linens



Things to Consider:

1. Size:
 - to frame a place setting
 - to define an area on a table (runner)

2. Colour:
 - to match a piece of tableware
 - to compliment the décor of a room
 - symmetrical or asymmetrical use of colour

3. Overall Design:
 - weight of placemat
 - delicate, fine, heirloom
 - heavy and absorbent ie: repp weave

4. Structure:
 - many to choose from. Traditional linen weaves which are one shuttle balanced 50/50 weaves with a weft identical in size and type to the warp. The traditional linen weaves are M's and O's, Huck, Spot Bronson, Bronson Lace.

 - plain weave, twills, stripes, tartans, fine overshot, summer & winter, are all suitable as are the finger manipulated weaves such as leno, Brooks Bouquet, Spanish Lace, Danish Medallion, etc.

5. Design Proportions:
 - take a piece of paper and cut to the size you want.
 - It may help to use the Greek oblong which is a 2:3 ratio.
 - draw out your design
 - trust the Fibonacci numerical series $1+1=2$, $1+2=3$, $2+3=5$, $3+5=8$ etc.

6. Choosing Materials: -will depend on overall design ie: heavy, light, etc.

7. Care:
 - how often is this article to be used – occasionally or everyday?
 - how will it be laundered?

8. Hem Treatment: - fringe, double fringed, kotted, rolled, handstitched or machined stitched.