

PREPARING A SCREEN FILE IN PHOTOSHOP

PREPARING THE DESIGN

Make sure the size of your design is as desired, and change the resolution to **720 ppi**: Image -> Image Size, Tick Resample

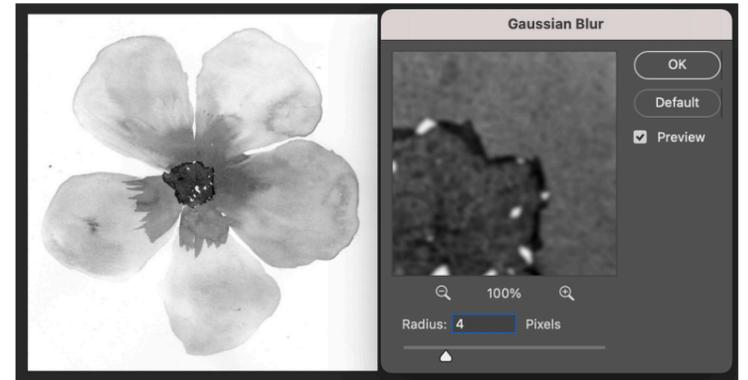
Change the colour mode to Grayscale: **Image -> Mode -> Grayscale**

Cleaning the design:

Texture of a sketching paper etc could be smoothed by blurring:
Filter -> Blur -> Surface, Smart or Gaussian Blur (1-4 px)

Some filters might also help, try e.g. Filter -> Filter Gallery -> Sketch:
Graphic/Stamp or Artistic: Watercolor/Dry Brush/Cutout

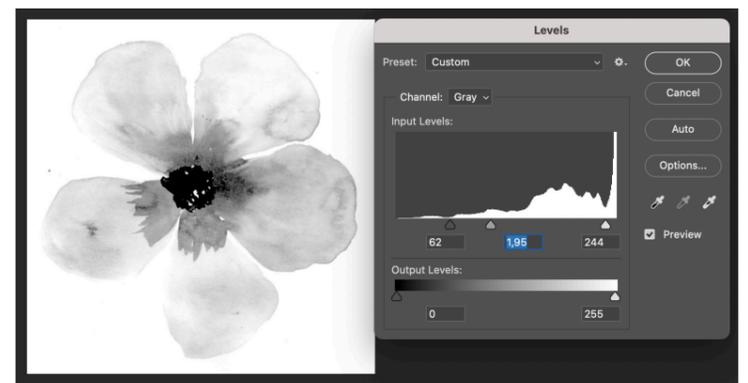
For cleaning small pixels, try e.g. Filter -> Noise -> Dust & Scratches



Whitening the design and increasing contrast:

Use **Image -> Adjustments -> Levels**

Especially raster screen file should contain some areas of solid colour (black) and some areas without any colour (white), because printing with a screen full of raster would easily result in smudgy print. Drag the black slider right to blacken the darkest areas in the design, and drag the white slider left to whiten the lightest areas. (The highest peak on the right is usually the white paper or background, and can be removed entirely)



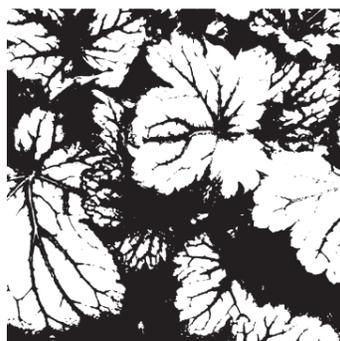
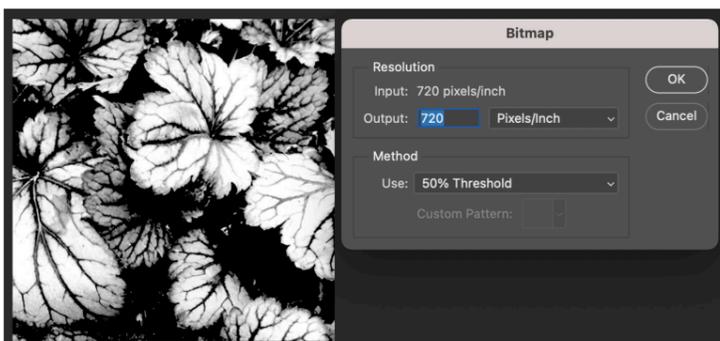
Print dye droplets spread a little while printing, and thus the print result will look darker than the screen file. To avoid too dark results, lighten middle tones = drag the grey slider left.

A good screen file looks lighter than the desired end result, but has some areas of full black and pure white.

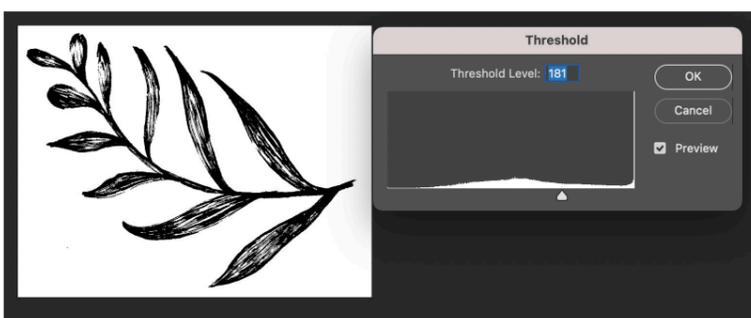
COLOUR SEPARATION - REDUCING THE COLOURS INTO ONLY BLACK AND WHITE

OPTION 1 - THRESHOLD

Converts the design into only black and white pixels. For automatic conversion do **Image -> Mode -> Bitmap -> Method: 50% Threshold**



OR, to better control the end result, do first **Image -> Adjustment -> Threshold**, and only after it convert the design into bitmap - mode.



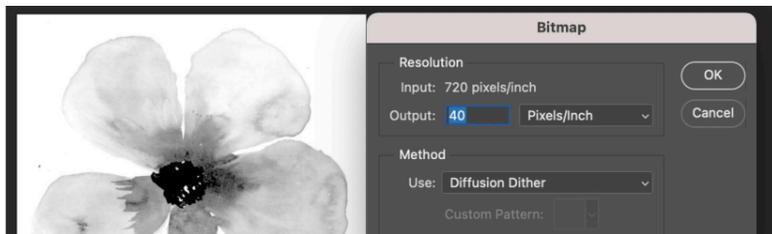
OPTION 2 - RASTER

2A - DIFFUSION DITHER ("PIXELATED" OUTCOME)

Do **Image** → **Mode** → **Bitmap** → **Method: Diffusion Dither**

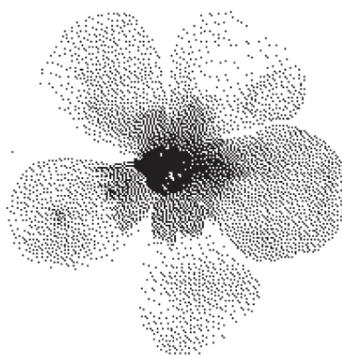
The size of the raster depends on output resolution, for hand-printing use **40-80 ppi**.

Input = the image resolution (720 ppi), Output – the size and density of pixel dots (40–80 ppi)

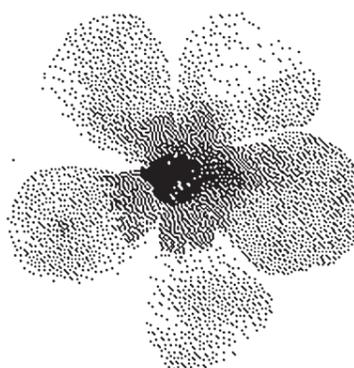
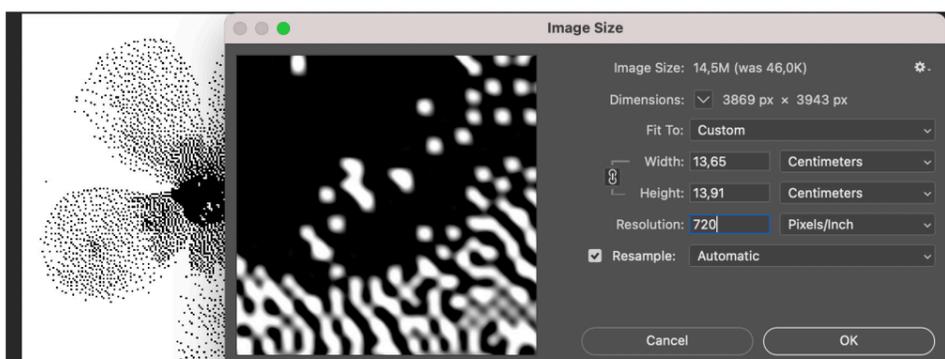


Rasterized image has to be scaled back up to resolution **720 ppi**:

This can be done in bitmap-mode (square-shaped pixel dots in the final outcome): **Image** → **Image Size**, Tick **Resample: Automatic**



OR in grayscale-mode (pixel dots with rounded edges in the final outcome): Change the colour mode to Grayscale (size ratio 1). Scale the image: **Image** → **Image Size**, Tick **Resample: Bicubic**. After scaling, reduce the colours back to only black and white by returning to Bitmap mode: **Image** → **Mode** → **Bitmap** → **Method: 50% Threshold** (output 720 ppi)



2B - HALFTONE SCREEN (DOTTED RASTER IN DIAGONAL LINES)

Do **Image** → **Mode** → **Bitmap** → **Method: Halftone Screen**

Input = the image resolution (720 ppi), Output = use 720 ppi

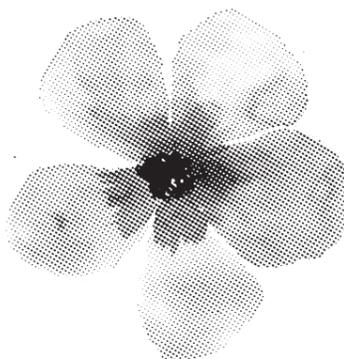
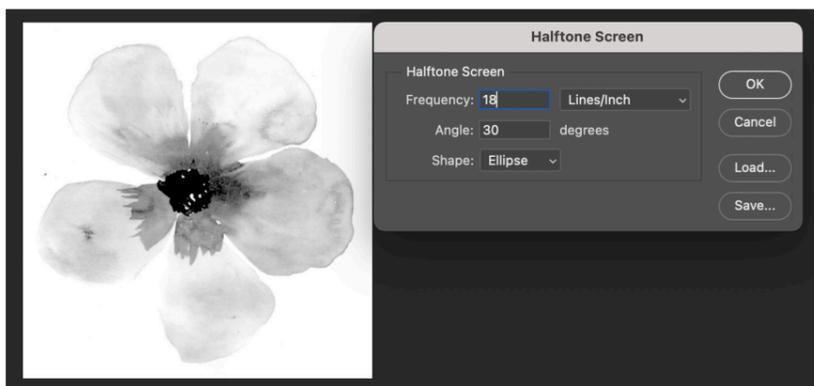
Frequency (lpi): the distance of lines in the raster. With hand-printing try **18-30 lpi**.

Use lpi value that divides evenly into the image resolution (e.g. with 720 ppi, use lpi 18/24/30...)

Angle: Use 30° for avoiding moiré-effect

(when printing several overlapping colours in one design, add 30° more for each screen, for example 30°, 60°, 90°...)

Shape: Different shapes can be used, but ellipse is often considered best for printing on textiles



FINAL STEPS

Check that resolution is **720 ppi** and the file contains only black (0,0,0) and white (255,255,255)

Save the file to **TIFF from Bitmap mode**, no layers.

OPTION 3 - INDEXED COLOR -FUNCTION (FOR MULTICOLORED DESIGNS)

This function can be used to reduce/separate colours from a multicolored design. Even with this function, begin by making sure that the size of your design is as desired, and change the resolution to **720 ppi**: Image -> Image Size, Tick Resample

Change the colour mode to RGB: **Image -> Mode -> RGB**

Change the color mode from RGB to Indexed Color:
Image -> Mode -> Indexed Color. A window opens:

- **Palette**: try any Local palette for different results
- **Colors**: choose the smallest amount of colors, where the image still looks good (usually less than 20). The amount of colors can be reduced even more later.
- Ticking **Transparency** makes a transparent background behind the image. This is usually not needed.
- **Dither**: noise or diffusion would make fine pixel mesh – kind of raster - in the edges of color areas (instead of neat and clean edges) This could cause problems in screen printing - to avoid it, select: **Dither: None**

After changing to indexed color mode, reduce the amount of colours further:
Image -> Mode -> Color Table

First change all really similar tones to one and continue until you've reached the desired amount of colours. Click a colour, and select new from the design or colour palette.

Change the image back to RGB: Image -> Mode -> RGB

Then change it back to Indexed Color -mode. Now the Palette should show as Exact and the correct number of colours.

SAVING THE SCREEN FILE(S)

Open **Color Table**, and change each color either **white (R:255, G:255, B:255)** or **opaque black (R:0, G:0, B:0)**

You might make two files to print multicolored images:

Or, rather in this course, just reduce the print colors to one:

Consider the appearance of screen files from the perspective of (hand) printing: fix e.g areas that would be too difficult to align by drawing or filling.

Check that resolution is 720 ppi and save the file to TIFF from Indexed Colors mode.

NOTE: Remember, that even the final *file* is black and white, the design is going to be coloured when printed with colours!

