

# > image replication

## > objective(s):

Students will accurately trace a raster image using vectors, matching all contours, colors and stroke widths precisely in Adobe Illustrator.

## > curricular focus:

This lesson emphasizes use of the Pen tool, effective Layer management and setting up a Swatch palette.

## > specifications:

save as: Image Replication\_LastnameF.ai  
size: 8.5x11  
units: inches  
color mode: CMYK

## > instruction:

- introduction on how to place an image
  - go to File and select Place
  - select image then click anywhere to place the image in your file
  - select Embed in the control panel to make the image fully a part of your document  
if the Embed button say Unembed, then it automatically embedded properly
- review Pen tool
  - consult video tutorials for any questions  
*Pen Tool Beginner's Guide* (<https://www.youtube.com/watch?v=j69a3-shkGE>)  
*Pen Tool Tutorial* (<https://www.youtube.com/watch?v=dra7Hr35vo4>)
  - demonstrate how to remove "hiccups"  
remove curve by clicking on the anchor point with the Convert tool (just press Alt with Pen Tool)  
put back in using Convert Tool  
this allows you to recreate the curve more smoothly and symmetrically  
see Common Pitfalls on page 5
- review Stroke palette (see page 4 *Working With Stroke*)
  - changing Weight- determines the thickness of a line measured in points
  - changing Miter Limit- controls when stroke switches from mitered (pointed) joins to beveled (squared-off) joins
  - changing Caps- determines how the stroke appears at its ends  
Butt- squared ends that stop at the anchor point  
Round- semi-circular ends  
Projecting- squared ends that extend beyond the anchor point by half the line width value
  - changing Miter Join- determines how the stroke appears when it sharply changes directions  
Miter- sharp pointed corners  
Round- rounded corners  
Bevel- squared off corners
  - changing Alignment- determines whether a stroke aligns to the center, inside or outside of a path
- introduction to naming and color coding layers
  - double-click on a layer to rename and change the Layer color (which is the color you see when Paths are selected)
- introduction to how to use Live Paint Bucket
  - consult *How to Use the Live Paint Bucket Tool* (<https://www.youtube.com/watch?v=jBZqnBd2bkw&t=78s>)
  - select all lines then go to Object: Live Paint: Make
  - select the Live Paint tool ( ) then select the appropriate color using the Eyedropper then fill

*see Procedure on page 2*

# > image replication

## > procedure:

- select image to be replicated and approve with instructor or select from images provided
- place image (File: Place)
  - name layer "Original"
  - embed file (select image and go to Window: Links: Embed Image)
- scale image to fit large, but comfortably within top and bottom page frame
  - select image, hold down Shift and drag in from one corner to maintain proportions
  - center image on page using coordinates (Window: Transform) (x coordinate: 4.25 in; y coordinate: 5.5 in)
  - lock Original layer so you cannot accidentally select and move it
- create white background
  - create a new layer and name it Background
  - move underneath Original layer (so it appears at the bottom)
  - make a white rectangle (with NO stroke) the exact size of the document  
rectangle should be 11x8.5 (or 8.5x11) and must be centered exactly on the document
- recreate outlines
  - create a new layer and name it Outlines
  - move above Original layer (so it appears at the top)
  - trace all outlines to all areas of color perfectly with the Pen Tool  
this includes all areas defined by black lines as well as shaded/highlighted areas  
shaded/highlighted areas do not have visible strokes (black) so plan accordingly  
remember to use as few points as possible!  
the more points you use, the more opportunity you have to make mistakes  
use a bright color for lines so you can easily see them against the image  
do your best to make your path travel through the center of the image's black lines
- set strokes to match Original image (see page 4 *Working With Stroke*)
  - set all stroke to black  
except shadow/highlight patches which should be set to No Stroke
  - set the stroke to match the weight shown in the original artwork
  - set the ends of open strokes to the appropriate Stroke Cap (butt or rounded)
- recreate color fills
  - duplicate the layer and name it Color Fill then move it under Outlines layer
  - use Live Paint to fill in areas of color  
select all your paths  
go to Object: Live Paint: Make  
select the Live Paint tool from the toolbox  
begin filling in all colored areas  
make sure Live Paint tool is still selected  
sample the desired color from the original image  
move over the color you wish to sample from the original image then Alt + Click  
to switch to the Eyedropper tool and click to select that color  
move back over to your illustration and click to fill the desired area  
remove all strokes from the Color Fill layer  
select all (Ctrl + A) then select No Stroke
- verify strokes
  - make sure that black outlines match the original image  
match the thickness of the lines  
you may type in a specific value, including decimals  
match the stroke caps (rounded or butt)  
match the stroke joins (rounded or beveled)

# > image replication

- corrections layer
  - get your work as accurate as possible
    - go through it closely and carefully and remove all obvious errors *before* you call me over
  - call me to do a Corrections layer for you
    - I will place red circles around the issues I find that will be deductions
    - I will only do this once; I will not recheck your work before submission
  - make corrections
    - you may not delete or alter any of the circles in any way
      - I may highlight things that I think are issues that are actually correct but leave them so it is easier for me to check
- create white background
  - you need a white background for when you generate your JPG
  - create a new layer named Background and move it to the bottom of the layer order
  - create a rectangle with white fill and no stroke the exact size and location of the document
    - turn on Smart Guides (Ctrl+U) for help snapping to the document edge
    - verify with coordinates using Transform (x and y coordinates as well as width and height)
- create Original and Artwork labels
  - create a new layer named Text and move it to the top of the layer order
  - create and place the label named Original
    - select the Type tool, move the cursor onto the document and simply click and let go to create a text entry
    - type the word Original in Myriad Pro Bold size 18
    - center align the text (select Center Align in the Control panel at the top to the right of Paragraph)

## > save files for submission

- hide Original and Corrections layers and save
- save PDF
  - go to File: Save As and save as PDF
- save JPG
  - go to File: Export and change Save As Type to JPG
  - change Quality to 10
  - change Color Model to RGB
  - change Resolution Depth to High

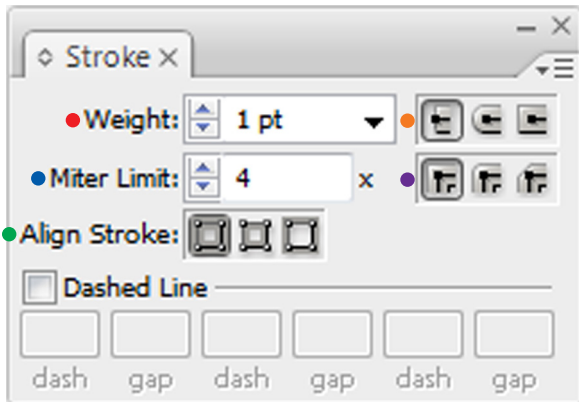
## > requirements:

- file specifications are adhered to
  - image fits properly within document frame and is centered using Transform coordinates
  - all layers are appropriately named
  - all three files (AI, PDF, JPG) are named and saved correctly
- created vector artwork must precisely match the original raster image (contours, strokes and colors)
  - vector tracing should lay directly on top of placed raster image ("Original" layer) for grading
  - there are no visible "hiccups"
    - location of anchor points are indeterminable; no unsmooth changes of direction)
  - color fills match precisely
  - stroke is set to appropriate weight, caps and joins

# > working with stroke

## > stroke palette

[you may first have to go to the pull-down menu on the far right and select Show Options]



- weight
  - determines the thickness of the stroke measured in points
  - can be changed via the pull down menu or typing in a value manually (can handle decimals)
- miter limit
  - controls when stroke switches from mitered (pointed) joins to beveled (squared-off) joins
  - example: the default setting is four, so when the length of the point is four times the stroke weight, it switches from a pointed join to a beveled one
- align stroke
  - determines whether a stroke aligns to the center, inside or outside of a closed path (shape)
  - does not work on open paths (lines)
- caps (top right)
  - determines how the stroke appears at its ends
  - Butt- squared ends that stop at the anchor point
  - Round- semi-circular ends
  - Projecting- squared ends that extend beyond the anchor point by half the line width value



- joins (bottom right buttons)
  - determines how the stroke appears when it sharply changes directions
  - Miter- sharp pointed corners
  - Round- rounded corners
  - Bevel- squared off corners

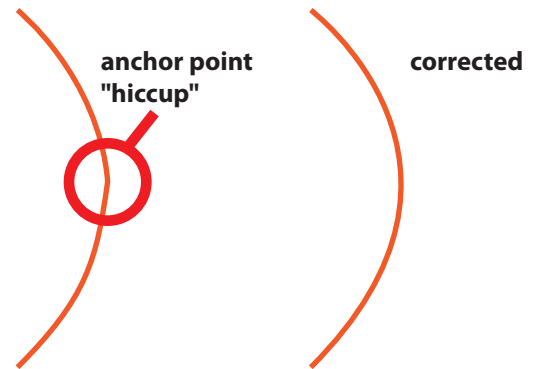


# > common pitfalls

## > anchor point "hiccups"

One of the most common deductions with this project are anchor points that create visible "pinches" on a line that should be smooth. These hiccups are created when the Bezier handles that create the curve are at different angles. They need to be corrected.

1. remove curve by clicking on the anchor point with the Convert tool (just press Alt with Pen Tool)
2. put curve back in using Convert Tool (this allows you to recreate the curve more smoothly and symmetrically)
3. do your best to keep your Bezier handles in line with each other
4. get it as close as you can, but if the curve is still off, think about adding a point to the path and nudging it into place with the keyboard cursors



## > double lines

Another common mistake occurs when two shapes share an edge. Do not ever try to create the same line by hand twice. It is impossible to do by hand, but there are two ways around the problem.

1. let one shape completely overlap the other
2. duplicate part of a path to create two separate shapes that share an edge
  - use the White Arrow (Direct Selection Tool); select the anchor points that create the shared part of the line
  - select Copy (Ctrl + C) and Paste in Front (Ctrl + F); this pastes the line segment exactly on top of itself
  - use the Pen Tool to finish creating the new shape
  - you now have two different shapes that perfectly share a line

