HOW TO:

RESOLUTION AND RESIZING IN PHOTOSHOP
DIGITAL PHOTOS ARE BITMAP IMAGES IN CONTRAST TO VECTOR IMAGES
THEY ARE MADE UP OF PIXELS IN A GRID - DISPLAYED BY THE PIXELS OF YOUR MONITOR

THE NUMBER OF PIXELS YOUR SCREEN CAN DISPLAY IS IN PPI (PIXELS PER INCH) ALSO CALLED SCREEN RESOLUTION
WHAT IS RESOLUTION?

THE AMOUNT OF INFORMATION IN YOUR IMAGE
IN PRACTICAL TERMS

RESOLUTION =

THE NUMBER OF DOTS PER INCH IN YOUR IMAGE
RESOLUTION IS GIVEN IN DPI (DOTS PER INCH)

RELATED BUT NOT IDENTICAL: PPI (PIXELS PER INCH). SCREENS DISPLAY PIXELS (TINY SQUARES) AND PRINTERS PRINT TINY DOTS.
RESOLUTION TRANSLATES INTO IMAGE QUALITY AND IS CORRELATED WITH FILE SIZE
CORRECT RESOLUTION MAKES FOR A CLEAR, DETAILED IMAGE:
LOW RESOLUTION MAKES THINGS LOOK JAGGY OR ALIASED (YOU CAN SEE PIXELS ON THE EDGES).

LOW RESOLUTION CAN ALSO MAKE IMAGES LOOK BLURRY/ MUSHY.

this image also has some noise here
SO I’LL MAKE THE RESOLUTION REALLY BIG?

NO - VERY HIGH RESOLUTION ISN’T THE ANSWER. IF YOU HAVE MORE RESOLUTION THAN YOU NEED YOU WASTE DISK SPACE, PROCESSING TIME, AND LOADING TIME (IF IT’S A WEB PICTURE OR POWERPOINT SLIDE FOR INSTANCE). SOMETIMES IT MIGHT BE TOO BIG TO LOAD AT ALL.
RESOLUTION IS RELATED TO THE PHYSICAL SIZE OF YOUR IMAGE
RESOLUTION AND SIZE HAVE AN INVERSE RELATIONSHIP
WHEN YOU MAKE A CHANGE WITHOUT RESAMPLING SIZE GOES UP WHEN RESOLUTION GOES DOWN
THIS IMAGE IS 300 DPI WHEN IT IS A PHYSICAL SIZE OF 4” X 5”

TO OPEN THIS DIALOG BOX: IMAGE MENU > IMAGE SIZE or OPTION - COMMAND - I

SORT OF THE SIZE OF THE FILE ON YOUR HARD DRIVE (SEE SLIDES 33-38)
300 TINY SQUARES IN EACH INCH OF IMAGE
WHEN CHANGED TO 72 DPI THE PHYSICAL SIZE GETS BIGGER

MAKE SURE RESAMPLE BOX IS UNCHECKED IF YOU DON’T WANT TO GAIN OR LOSE INFORMATION.

NOTICE THE SIZE OF THE FILE DATA HASN’T CHANGED

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THE SAME NUMBER OF PIXELS ARE STRETCHED OUT TO 72 PIXELS PER INCH SO THE IMAGE GAINS SIZE

EACH PIXEL IS BIGGER - SO THE IMAGE IS BIGGER
PROPER RESOLUTION DIFFERS DEPENDING ON MODE OF DISPLAY: PRINT, PROJECTION, MOBILE DEVICE, WEB, ETC.
GENERALLY SPEAKING, THE FOLLOWING IMAGE RESOLUTIONS ARE STANDARD. (IF YOU ARE ASKED TO SUBMIT IMAGES, THESE ARE GENERALLY THE NUMBERS YOU WILL SEE.)

PRINT RESOLUTION = 300 DPI
SCREEN RESOLUTION = 72 DPI

IF YOU FOLLOW THIS RULE YOU’LL BE FINE.

BUT...
MORE DETAILED VERSION PART ONE:

> QUICK-LOADING WEB, STANDARD COMPUTER SCREENS, SD PROJECTORS, VIDEO = 72 DPI

> RETINA DISPLAY = 2X STANDARD DISPLAY = 150 DPI

> VIDEO STILL YOU WANT TO ZOOM IN ON = 72 DPI AT THE END OF THE ZOOM = EXTRA RESOLUTION DEPENDING ON HOW BIG IT WILL BE

> A SMALL SCANNED IMAGE YOU WANT TO SCALE UP = EXTRA RESOLUTION DEPENDING ON HOW BIG IT WILL BE

THESE ARE TIPS WITH RESULTS YOU WILL SEE
MORE DETAILED VERSION PART TWO:

PROVIDED YOUR ORIGINAL IMAGE HAS ENOUGH RESOLUTION TO DO SO, PRINTED IMAGES MAY LOOK BETTER WHEN PRINTED AT:

> THE NATIVE RESOLUTION OF THE PRINTER.

> A RESOLUTION THAT CAN DIVIDE EVENLY INTO THE NATIVE RESOLUTION OF THE PRINTER OR THE NUMBER OF SPRAY NOZZLES ON THE PRINT HEAD.

WHAT?? FOR EPSONS = 360 DPI OR 180 DPI
IMAGES PRINTED AT 180 DPI CAN LOOK BETTER THAN ONES PRINTED AT 250 DPI? YES!

THESE ARE TIPS WITH RESULTS YOU WILL SEE IF YOU ARE PICKY, YOUR PAPER AND COLOR PROFILES ARE ERROR FREE, AND YOUR IMAGE IS GOOD QUALITY (NO UPRES-ING IN PS)
IF YOU ARE PREPARING A PRINT, DON’T BELIEVE WHAT YOU SEE ON THE SCREEN

SCREEN RESOLUTION IS LOWER THAN PRINT, SO THINGS CAN LOOK CLEAN ON THE COMPUTER SCREEN

BUT WHEN YOU PRINT THEM OUT YOU CAN SEE THEY ARE NOISY, BLURRY, OR ALIASED.
WHY CAN’T I ALWAYS TELL IF MY IMAGE HAS PROPER RESOLUTION FROM LOOKING AT THE SCREEN?

THE SCREEN CAN’T SHOW YOU MORE RESOLUTION THAN IT IS TECHNICALLY CAPABLE OF DISPLAYING.
IF I CAN’T SEE IT
WHAT DO I DO??

1. GO BY THE NUMBERS
2. PRINT TEST STRIPS
AND EXPERIENCE THE VIRTUALITY!

COLOR DISPLAY IS GOING TO HAVE A SIMILAR QUANDARY
That image size dialog box we just looked at lets you change the resolution and the size together or separately.

To open this dialog box: image menu > image size or option - command - I.
SOMETIMES YOU WANT TO CHANGE THE RESOLUTION AND SIZE SEPARATELY

MAKE SURE RESAMPLE BOX IS UNCHECKED IF YOU DON'T WANT TO GAIN OR LOSE INFORMATION.

CHECK THE RESAMPLE BOX IF YOU WANT TO CHANGE THEM SEPARATELY.

DROPDOWN MENU OF OPTIONS FOR RESIZING
IN THAT CASE **RESAMPLE**
HERE RESAMPLE IS SELECTED AND RESOLUTION CHANGED FROM 300 TO 72 DPI

FILE SIZE IS SMALLER
NUMBER OF PIXELS MAKING UP THE IMAGE IS LOWER

NOTICE THE SIZE DIDN’T CHANGE - IT’S STILL 4x5.
IN OTHER WORDS WE JUST REDUCED THE AMOUNT OF INFO IN THE IMAGE AND IT IS LOWER QUALITY.

WHEN YOU DOWNSIZE, SAVE AS A COPY! DON’T OVERWRITE A HIGHER RES ORIGINAL.
IF YOU GO THE OTHER WAY (UP-RES) PROCEED WITH CAUTION
PHOTOSHOP DOESN’T DO A GREAT JOB OF MANUFACTURING (CALLED INTERPOLATING) NEW PIXELS TO MAKE YOUR IMAGE LARGER, UP-RES IN SMALL INCREMENTS ONLY OR PREPARE FOR BLURRY AND/OR JAGGY
A NOTE ON FILE SIZE

THERE ARE MULTIPLE PLACES YOU CAN LOOK TO SEE HOW BIG YOUR FILE IS IN TERMS OF DATA.

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IN PHOTOSHOP

> IMAGE MENU > IMAGE SIZE

HOLD THE PHONE...THIS MIGHT NOT BE RIGHT. IN FACT, IT’S PROBABLY NOT.
SAME FILE IN FINDER
EASIEST TO SEE WHEN 3 COLUMN VIEW IS ON IN FINDER

DIFFERENT NUMBER!!

NUMBER OF PIXELS IS THE SAME.
THE TIEBREAKER...SAME FILE IN “GET INFO” SELECT THE FILE IN THE LIST AND HIT COMMAND-I (OR RIGHT CLICK AND CHOOSE GET INFO FROM THE CONTEXTUAL MENU)

THE EXACT NUMBER OF BYTES (MAIN FINDER VIEW JUST ROUNDS IT OFF)
WHY? Photoshop tells you the file size if you saved your file as flattened .PSD. This image is a .JPG - a file format that saves less information about your image.
SHOULD I SAVE AS A .PSD? MAYBE. DEFINITELY YES IF YOU ARE WORKING ON A HIGH QUALITY PRINT. NOT IF YOU ARE GETTING IT READY FOR FACEBOOK. MORE INFO IN HOWTO_FILEFORMATS