Photography basics & Photoshop
Camera Settings: ISO

- The ISO number corresponds with the gain of the photosensor -> the more gain, the „grainier“ the resulting picture will be.
- Double ISO roughly means double light sensitivity.
  E.g. if shutter speed is 1/30 s at ISO 200, it will have to be only 1/60 s at ISO 400.

ISO 200

ISO 1600

ISO 6400

ISO 26400
Aperture settings influence:

> How much light gets through the lens and onto the sensor:
  bigger aperture – smaller f-number – more light
> Depth of field:
  bigger aperture – smaller f-number – shallower depth of field

Or: smaller aperture – bigger f-number - less light – slower shutter speed or higher ISO
This picture was taken with an aperture setting of f/1.4 – which means wide open. Notice the shallow depth of field. This is a wonderful setting for portraits.
Here the aperture is stopped down to f/2.5: the area of sharpness has increased. Still good for isolating the subject but the surroundings start to play a part.
Camera Settings: Aperture

And finally f/9.0 : e.g. for landscape photography.
Jpeg or RAW?

> Jpeg: compressed destructively, small filesize. Widely used standard picture format.

> A RAW file contains all the uncompressed sensor data – more colour information, higher dynamic range. Good for difficult lighting situations. Filesize is much bigger than jpg. Needs to be post-processed in a RAW converter like Adobe Camera RAW.
to open ACR: mark the picture in Adobe Bridge (Filemanager) and press CTRL+R, or do like above.
Loss of detail in bright areas

Loss of detail in dark areas

Correct bright clipping with 'Recovery', dark clipping with 'Fill Light'. Caution: 'Fill Light' also increases the 'graininess' in dark areas!
If the picture is too dark you can use the 'Exposure'-slider to make it brighter, or vice-versa. Note that increasing exposure (especially in High-ISO images) makes grain more visible.
ACR – Contrast / Clarity

Contrast ‘pulls the histogram’ apart – the bright areas get brighter, the dark ones darker. Clarity adjusts the micro-contrast - lines and borders become more defined, but too much of it makes the picture look artificial.
Vibrance makes the picture ‘more colourful’, whereas Saturation increases the overall intensity of colours. It can also lead to unnatural looking colours, like in the leaf in the upper part.
As you can see in this magnified view our froggy is not really sharp. Let’s change that. Clicking on the tab with the 2 triangles will take you to the ‘Detail’ section.
ACR – Sharpen

The more sharpening you apply (-> Amount, Detail sliders) the grainier the picture gets. You can counteract with the Masking and Radius sliders. Very often it is difficult to find a satisfying setting.
ACR – Denoise

This is a magnified view of a High-ISO picture. You can (probably) see the purple/green grains. This is called noise.
Luminance blurs the noise pixels, making the picture look a little dull. With Luminance Detail and Luminance Contrast you can compensate for the lost sharpness.

Most noise comes from discoloured pixels. The Color-Slider removes them.
ACR – Lens Corrections

This picture was taken with a fisheye lens and shows heavy geometrical distortion (straight lines seem bent). Clicking on the marked tab opens the Lens Correction Section.
After playing around a little with these sliders you might get something like this... The grey area will be white if you save the picture like this, so let’s blow it up using the scale slider...
ACR – Lens Corrections

Close enough.
Lens Vignetting: the corners of a picture are darker than the center...
ACR – Lens Corrections

We can correct it with these sliders

When Amount is positive, the corners are brightened up.
Midpoint defines how far the vignetting reaches into the picture (negative = further)
ACR – Lens Corrections

We can also use it to concentrate the viewers attention on the frog. Turn the Amount-slider to a negative value and the corners will be darkened.
Sometimes it is a good idea to make your picture smaller, for example to put more emphasis on a certain object.

Click and hold the Crop icon to select free cropping (Normal) or predefined ratios of the selection rectangle.
These numbers show how big the remaining image will be. If you want to print the picture you should never go below 4 MegaPixels (MP).

Once you are satisfied with your selection, press Enter.
ACR – Saving

To save your image use this button. (Dialog) After that, press Done. All settings will be saved.

NOTE: Everything in ACR is non-destructive, which means the original image will not be overwritten.
Photoshop – Stitching Panoramas

- You can use Photoshop to make Panoramas out of multiple images which is very useful if you want to capture scenes that you can’t fit in one shot.
- There are some important things to consider before taking the pictures:
  > All of them should be shot with the same camera settings (aperture, shutter-speed, ISO, focus)
  > Do not use very-wide-angle lenses since they tend to distort geometry. Photoshop can not correct that automatically.
  > All pictures should have an overlap area of at least 20% with the previous and the next ones, somehow like this:
Photoshop – Stitching Panoramas

In Photoshop go to File > Automate > Photomerge
Photoshop – Stitching Panoramas

Click Browse to select your images.
IMPORTANT: Make sure they are in the right order (e.g. left to right)!
Select the stitching method on the left and eventual Auto-corrections at the bottom. Then click OK and have a coffee. This could take a while.
Photoshop – Stitching Panoramas

If everything went right the resulting picture should somehow look like this. Check for stitching errors (displacements, dark vertical bands, ...).
Almost all modern cameras write metadata into the image file. This data contains information about e.g. the shutter-speed, aperture used, ISO-settings, lens focal length or even GPS data.

You can find this easily in Adobe Bridge. (Tab: Metadata)
Photography is very much like science:
The better the measurement the better the result.
If you plan/visualize the picture before taking it you will not need much postprocessing or none at all.

But, you don’t need a fancy camera to take good pictures.
The person behind the camera takes the pictures, not the camera, if you know how to handle it.
One very last thing...

Thank you!