THE LOW DOWN ON ISO

ISO sensitivity expresses the speed of photographic negative materials. What ISO denotes is how sensitive the image sensor is to the amount of light present. The higher the ISO, the more sensitive the image sensor and therefore the possibility to take pictures in low-light situations.

ISO speed affects the shutter speed / aperture combinations you can use to obtain correct exposure.

Suppose your digital camera's light meter warns you there is not enough light to correctly expose a scene. You could use the on-board flash, but let's suppose again it's not allowed (like in a concert or indoors recital). You would then need to use a higher ISO. You can manually select the next higher ISO and see if the increased sensitivity allows you to obtain a correctly exposed picture. If it does, you can now take a correctly exposed picture.

Similarly, if you find the camera is using a shutter speed that is too slow (1/60 sec. and slower) to handhold the camera steady and shake-free (thus resulting in blurred pictures), and you cannot open up the aperture anymore, and you do not have a tripod or other means to hold the camera steady, and you want to capture the action, etc. etc. -- then you might select the next higher ISO which will then allow you to select a faster shutter speed.

However, all this increase in sensitivity does not come free. There is a price to pay and that begins with making your image appear more noisy.

See, when you boost the sensitivity of your image sensor by selecting a higher ISO, the image sensor is now able to record a fainter *light signal*. However, it is also true now that it will record fainter *noise*, where noise is any signal that is not attributed to the light from your subject. Remember that an image sensor is still an analog device and it generates its own noise, as well! The increased sensitivity allows the image sensor to record more light signal *and* more noise. The ratio of light signal to noise (S/N ratio) determines the "noise" in your resultant image.

An image sensor is usually calibrated so that it gives the best image quality (greatest S/N ratio) at its *lowest* possible ISO speed. For most consumer digital cameras, this value will be expressed as ISO 200. Unlike film, where graininess could sometimes contribute to the mood of the image, noise produced by an image sensor is undesirable and appears as a scattering of distracting colored dots on your image.

A little bit of noise may not be a problem depending on the size of your prints or images for display. There are also a number of noise reduction software (Noise Ninja, Neat Image) that you can use to clean up the noise, though there's quite a bit of post-processing work involved, and you might want to reserve this for the special pictures you want to print large format.

If it is a matter of choosing between not being able to take a picture and suffering a noisy image, I'd rather be able to take the picture at a high ISO and then try to clean up the noise afterwards in a noise reduction software.

Remember, you have an adjustable camera with many options to help you get the Image you want. As a photographer you are in control and must learn to make the necessary decisions to capture what you see. As a general rule, you should shoot the lowest ISO possible in order to capture the image. You may change ISO many times during a single shoot as the situation demands. ISO is not something you just set and forget. It is a tool in your camera bag as important as any lens or camera body.