Raster Graphics is bitmap graphics (dot matrix data structure). With dot matrix structure, it’s advantageous to render complex graphics. Side effect is restricted resolution.

Vector Graphics is the use of geometrical primitives such as points, lines, curves, and shapes or polygon(s), which are all based on mathematical expressions, to represent images in computer graphics. Because geometrical primitives are based on mathematical expressions, magnifying a vector image will not cause the loss of its accuracy. It’s primarily suitable for simple patterns, which is side effect.

PNG and JPG are both Raster Graphics.

JPG uses lossy compression. PNG uses lossless compression.

JPEG (Joint Photographic Experts Group) format can produce a smaller file than PNG for photographic (and photo-like) images, since JPEG uses a lossy encoding method specifically designed for photographic image data, which is typically dominated by soft, low-contrast transitions, and an amount of noise or similar irregular structures. Using PNG instead of a high-quality JPEG for such images would result in a large increase in file size with negligible gain in quality. In contrast, when storing images that contain text, line art, or graphics – images with sharp transitions and large areas of solid color – the PNG format can compress image data more than JPEG can. Additionally, PNG is lossless, while JPEG produces noticeable visual artifacts around high-contrast areas. Where an image contains both sharp transitions and photographic parts, a choice must be made between the two effects. JPEG does not support transparency.

EPS and PDF (as well as DjVu and CDF) can store both raster and vector graphics.

EPS and PDF are more suitable for vector graphics.