



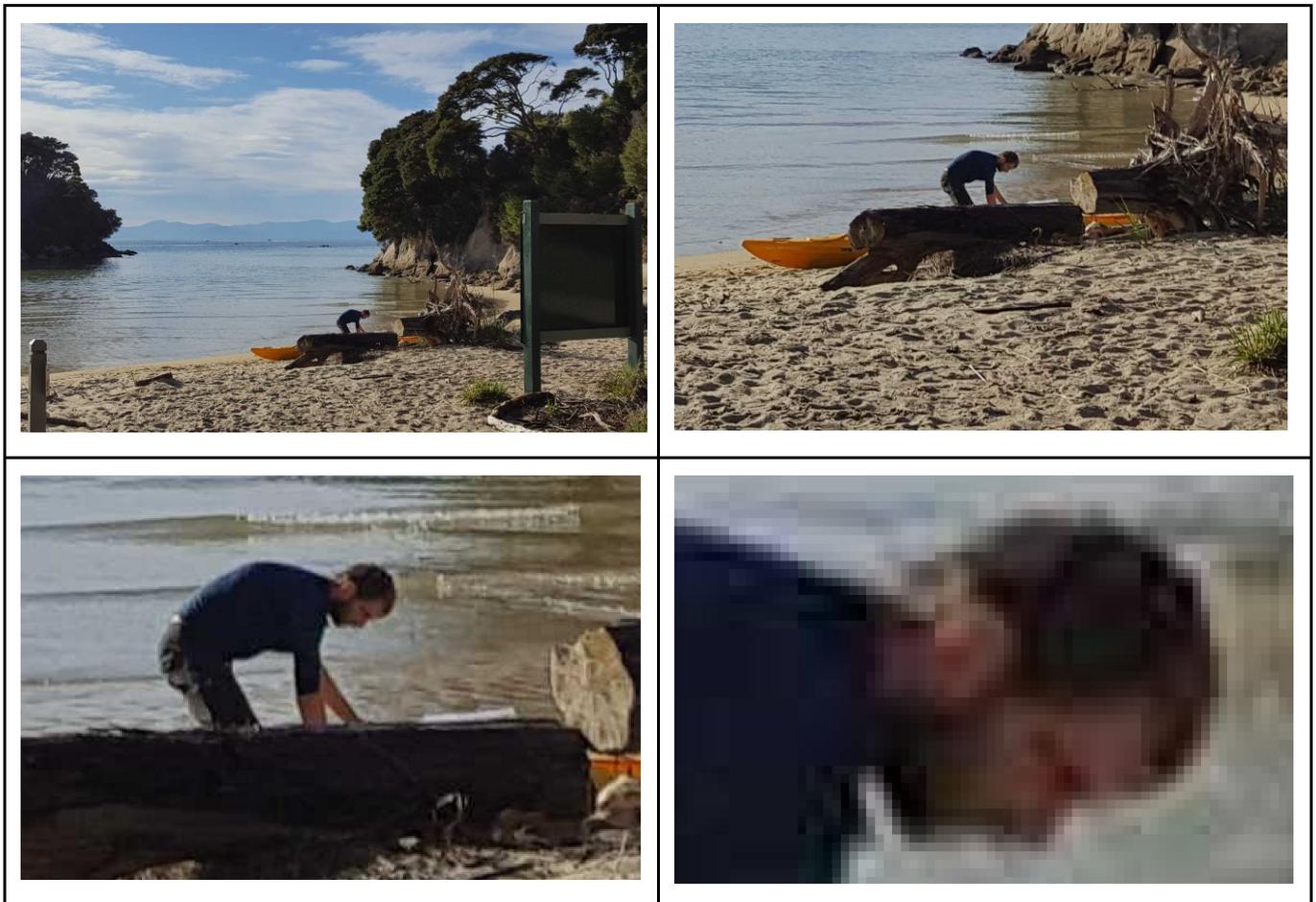
Bitmap vs Vector Images

Computer graphics such as photographs and digital drawings can be stored in two ways: as a bitmap or as a vector.

A bitmap image is stored as a series of individual squares. Bitmap images can be edited pixel by pixel and allow the computer to access the pixels as a grid. Vector images are stored as a series of lines, curves, and nodes.

Bitmap Images

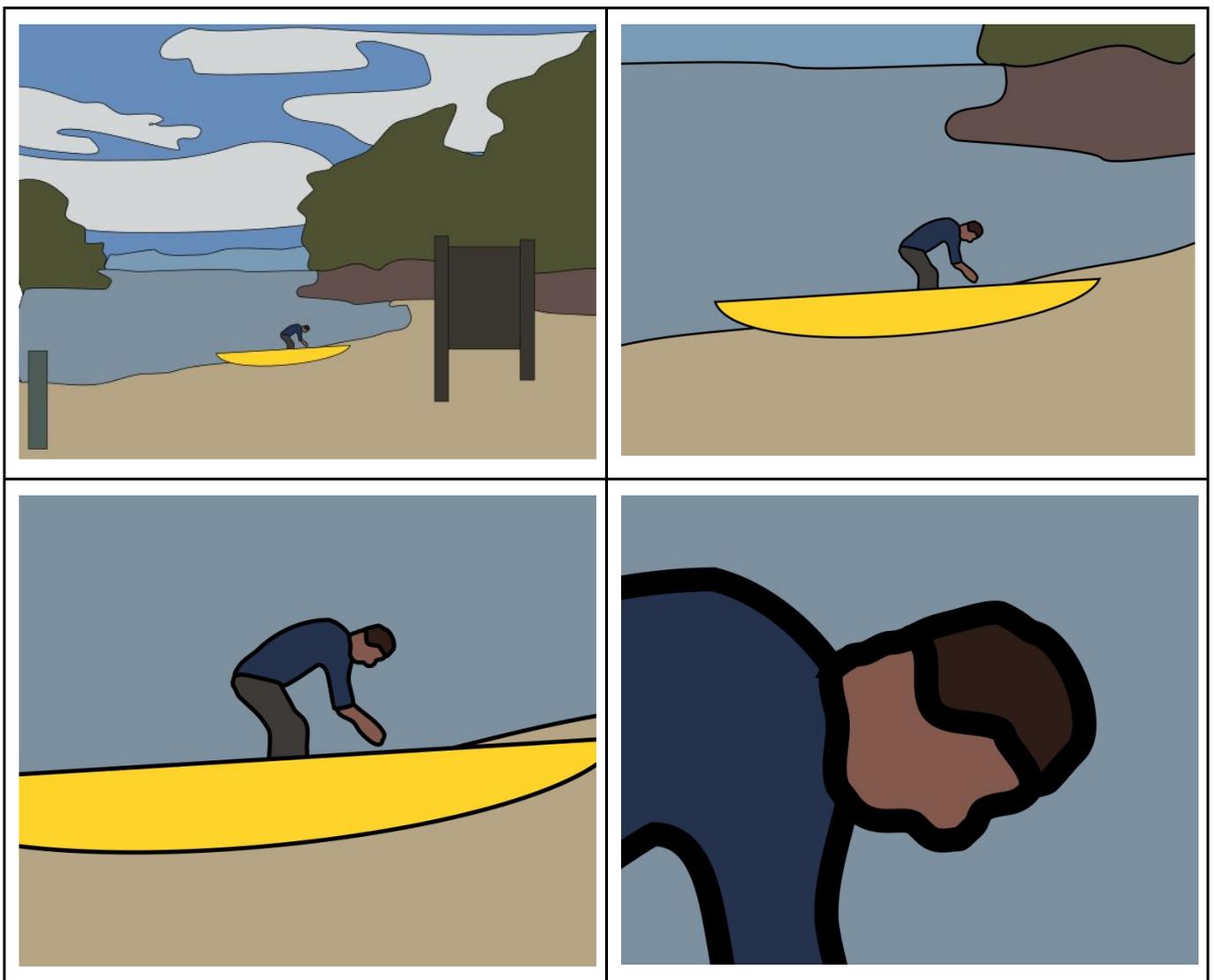
Digital photographs are stored as bitmaps. This allows the computer to store the image as a grid of differently coloured pixels. Take a look at the images below. This picture was taken using a smartphone camera with a resolution of 2988 x 5312 pixels. This means that the full sized image stored in the phone's memory is made up from a grid of 2988 x 5312 differently coloured squares. If we zoom in on the person in the image, we can start to see a reduction in image quality, and in the last image, we can see the individual pixels.



Vector Image

Vector images or vector graphics are images that are defined and stored using a series of lines and curves connecting nodes or corners. As the images are made from a series of lines, the images can be scaled up or down without any loss of quality.

Whilst vector graphics can store a higher quality image, this type of file is less versatile than a bitmap image. Photographs cannot be stored as a vector as it is not possible for a camera to capture and create all of the lines and curves present in the picture, nor store the gradient of colours. Vector images are also not suitable for programs that use a grid system such as Scratch, and often these programs will convert the image to a bitmap before use.



Bitmap vs Vector

Take a look at the example images below. Can you create your own bitmap and vector comparison images?

Original Image	Bitmap Image	Vector Image
