**GIS and mapping key words**

**GIS – Geographic Information System** – ‘An integrated collection of computer software and data used to view and manage information about geographic places, analyze spatial relationships, and model spatial processes. A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.’

<http://support.esri.com/en/knowledgebase/GISDictionary/term/GIS>

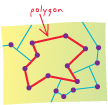
**Spatial analysis** – ‘The process of examining the locations, attributes, and relationships of features in spatial data through overlay and other analytical techniques in order to address a question or gain useful knowledge. Spatial analysis extracts or creates new information from spatial data.’

<http://support.esri.com/en/knowledgebase/GISDictionary/term/spatial%20analysis>

**Layer** – ‘The visual representation of a geographic dataset in any digital map environment. Conceptually, a layer is a slice or stratum of the geographic reality in a particular area, and is more or less equivalent to a legend item on a paper map. On a road map, for example, roads, national parks, political boundaries, and rivers might be considered different layers.’

<http://support.esri.com/en/knowledgebase/GISDictionary/term/layer>

**Point, line and polygon** – items on the map layer – a point usually signifies a single spot or place, a line signifies a line (e.g. a route), and a polygon signifies an area.

More technically, on a map, a polygon is a closed shape defined by a connected sequence of x,y coordinate pairs, where the first and last coordinate pair are the same and all other pairs are unique. 

**X,y co-ordinates** – usually longitude and latitude

**Geo-reference and ‘warp’** a map – ‘Aligning geographic data to a known coordinate system so it can be viewed, queried, and analyzed with other geographic data.’ – i.e. plotting a historic map on to fit a modern map by aligning the same geographic points on each map. ‘Warping’ may take place if the original map is inaccurate.

http://support.esri.com/en/knowledgebase/GISDictionary/term/georeferencing

**Common GIS applications**:

ArcGIS - <http://www.esri.com/software/arcgis> (available in the GIS lab on College Lane), and its open-source equivalent, QGIS - [www.qgis.org](http://www.qgis.org)

And to some extent, the new google maps - <https://www.google.co.uk/maps> and Google Earth - <http://earth.google.co.uk> allow you to layer maps, plot points, and draw lines and polygons.

Map warping tools - <http://maps.nypl.org/warper/> and <http://mapwarper.net/>

**Uses for the historian:**

* Easier to draw maps
* Easier to layer historical maps on to each other to see change over time – e.g. urban growth
* Able to plot spatial data – e.g. census data, businesses in a trade directory, etc – onto historic maps to visualise patterns and change over time
* New possibilities of new methodologies from geography – e.g. density, spatial syntax.