

Tutorial

Research goal

Create a thematic map that combines WIMD deprivation data with locations of GP surgeries, to visually explore whether more deprived neighbourhoods have poorer access to primary care

What datasets needed

- Administrative boundaries:
 - Wales LSOA boundaries (vector polygons).
- Socio-demographic data:
 - WIMD index scores and ranks by LSOA (overall or health domain).
(Welsh Index of Multiple Deprivation (WIMD) 2025 deep-rooted deprivation data by Lower layer Super Output Area (LSOA))
- Service locations:
 - Points for GP practices / primary care (NHS or OS “points of interest”).
- Optional context:
 - Local authority boundary for Swansea, or base map (OS, OSM).

Where to download data

- Get LSOA boundaries and WIMD data from Welsh Government or ONS open data portals (they provide shapefiles/GeoPackages and spreadsheets).
- Get GP locations from NHS Wales, NHS England open data, or OS Open UPRN/Points of Interest-type datasets.
- Administrative boundaries:
 - [UK Data Service Census Support](#)
 - <https://geoportal.statistics.gov.uk/>
- Socio-demographic data:
 - <https://stats.gov.wales/en-GB>
(Welsh Index of Multiple Deprivation (WIMD) 2025 deep-rooted deprivation data by Lower layer Super Output Area (LSOA))
- Service locations:
 - https://datamap.gov.wales/layers/geonode:gpmainsites_oql
- Optional context:
 - Local authority boundary for Swansea, or base map (OS, OSM).

Basic QGIS workflow

1. Create a new QGIS project

- Set project CRS to British National Grid (EPSG:27700) or the CRS of the downloaded data.

2. Load base layers

- Add LSOA boundaries (vector polygon).
- Add local authority boundary and zoom to Swansea.

3. Join WIMD data

- Load WIMD table (CSV/Excel) with LSOA codes.
- Use “Join” in Layer Properties to join WIMD to the LSOA layer by code.

4. First thematic map – deprivation choropleth

- Use “Graduated” symbology on the joined WIMD field.
- Classify into quantiles (e.g. 5 classes) and choose a single-hue colour ramp.
- Add a simple layout (title, legend, scale bar) – this directly supports “use appropriate layouts” in Task 2.

5. Add service locations

- Load the GP surgeries point layer.
- Style as simple circles; optionally categorise by type (GP, clinic, etc.).

6. Accessibility analysis (simple)

- Use “Vector → Geoprocessing Tools → Buffer” around GP points (e.g. 1 km or 10-minute walk).
- Use “Select by Location” to select LSOAs that are not intersected by any GP buffer.
- Save this selection as a new layer (e.g. “LSOAs with poor GP access”).

7. Second thematic map – deprivation + access

- Symbolise LSOAs by deprivation, then overlay GP buffers and non-served LSOAs.

Phase 2: Focus on Swansea + choropleth map

Right-click GP layer → Filter → "LocalAuthority" = 'Swansea' OR
"lhb_name" LIKE '%Swansea%' → OK (filter to Swansea GPs).

Right-click GP → Properties → Symbology → Simple Marker → Size 3px,
red → Apply.

View → Zoom to Selection (if needed).

Result: Deprivation choropleth with GP points overlaid .

Phase 3: Accessibility analysis

Processing → Toolbox → "Buffer" → Input: GP layer → Distance: 1000 (1km) → Output: gp_buffers.gpkg → Run.

Vector → Research Tools → Select by Location → Target: Isoa_swansea → By: Intersects → Source: gp_buffers → Select Features.

Right-click Isoa_swansea → Export → Save Selected Features As → poor_access_Isoas.gpkg.

Style poor_access_Isoas: Properties → Symbolology → Single Symbol → Bright yellow fill, thick black outline → Apply.

Result: Yellow LSOAs = poor access; check if they overlap high-deprivation reds.

Phase 4: Print layouts

Project → New Print Layout → Name "Swansea Deprivation GP Access".

Add Map → Drag to cover page.

Add Legend, Scale Bar, Label ("Deprivation hotspots vs GP access, Swansea").

Layout → Export as Image/PDF.

Extend this for your own assignments

My example is deprivation vs GP access in Swansea. You must pick your own case study but follow a similar structure.”

- Choose a topic and area (e.g. “COPD prevalence and deprivation in South Wales”).
- Identify 3–5 datasets (boundaries, socio-demographic data, relevant services or outcomes).
- Build the GIS (joins, projections, basic cleaning).
- Produce 2–3 thematic maps plus at least one spatial query/analysis.
- Use the maps and outputs as figures in their Task 2 report, with labelled screenshots and discussion.