Spatial association

Spatial association refers to the way features are similarly distributed. When describing a spatial association, you need to identify the degree of association. A strong degree of spatial association occurs when the distribution patterns for two features are similar. A weak association describes little similarity. No association occurs when there is no similarity between the two patterns. A detailed answer to a question about spatial association will describe the pattern, try and quantify or measure the pattern and note any exceptions to the pattern.

Below is a sample response to the task that follows: Describe the spatial association between the distribution of volcanoes and the Pacific Plate boundary from the map on page 16 of the Jacaranda Atlas Sixth Edition.

Sample response: There is a strong spatial association between the distribution of volcanoes and the boundary of the Pacific Plate. Over 90 per cent of the volcanoes are distributed along the western, northern and eastern boundaries of the plate. The exception is a small cluster of volcanoes in Hawaii which is located in the centre of the Pacific Plate, more than 4000 kilometres from the nearest boundary.

   (a) Look at the cross-section on page 65. What are the highest and lowest elevations shown on this cross-section?

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   (b) The cross-section is shown as a dotted line on the topographic map. Measure the distance along this line.

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   (c) List the vegetation types as you move from west to east across the cross-section diagram.

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   (d) What type of vegetation is spatially associated with land that is:

   i. over 100 metres above sea level

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   ii. between 10 and 50 metres above sea level

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   iii. at sea level

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   (e) From a close examination of the topographic map, how would you describe the following spatial associations? (Use the terms strong, weak, non-existent.)

   i. land less than 40 metres above sea level and built up areas

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   ii. mountainous regions and national parks

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   iii. mangroves and roads

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   iv. mangroves and land less than 1 kilometre from the coast

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   (f) Describe the spatial association between elevation and vegetation in the Daintree region.

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2. Turn to pages 78–9 of the atlas, which feature the Murray–Darling River Basin.
3. Use the data related to the Wangaratta floods (on pages 86–7 of the atlas) to assist you in completing the following tasks:

(a) Use the Victorian rainfall map on page 86 to describe the location of Wangaratta relative to Melbourne.

(b) Locate the region covered by the aerial photograph of Wangaratta on the topographic map and give the area reference for each of the four corners of the photograph. (Hint: the oval in the south-west corner of the photograph can be located at GR 369694.)

(c) Use the rainfall map and the map of the Ovens River catchment on page 86 to give two reasons why Wangaratta was so badly affected by flooding. Use figures in your answer.

(d) Examine the topographic map on page 87 and find evidence of a strong spatial association between areas prone to flooding and one other natural feature.

(e) Describe the association you identified in (d).