

Exercise walk-through

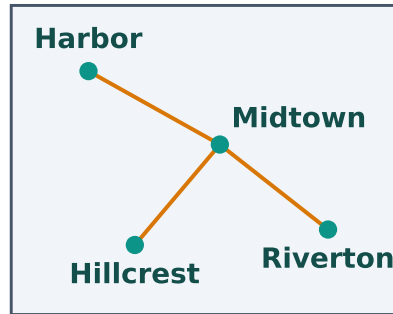
1.1

Introduction to Maps

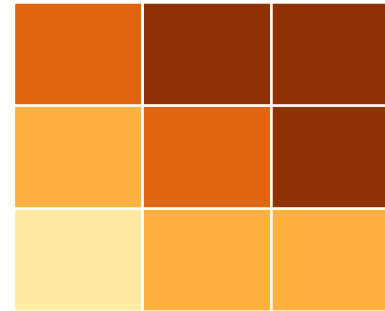
AP Human Geography

Reference and thematic maps

Reference map
(shows locations and features)



Thematic map
(illustrative relative density)



low high

Original schematics; density colours are illustrative.

These are original schematic examples. The colours illustrate relative density, not measured population values.

Choose a map for the question

Reference map

To find a road or locate a settlement, use a map of locations and features.

Thematic map

To compare a variable across space, use a thematic map. Read its legend and units.

A map selects information for a purpose. A photograph alone is not a thematic population map.

Projection: purpose and trade-off

Mercator projection

Preserves local angles and draws constant-bearing routes as straight lines, useful in navigation.

Area and distance

High-latitude areas are greatly enlarged. Distances are not uniformly preserved, and a straight route need not be shortest.

No flat projection preserves every spatial relationship. Choose for the question being asked.

Your turn: evaluate a projection

Original practice — attempt before the check

A student compares country areas using their apparent sizes on a world Mercator map. Explain a limitation and state what property a suitable alternative should preserve.

Check: the map's purpose matters

- 1 Mercator enlarges high-latitude areas, so apparent size is not a reliable comparison of actual country area.
- 2 An equal-area projection would preserve relative area for that purpose.
- 3 The alternative still has trade-offs; preserving area does not preserve every shape or distance.

Projection qualifications: USGS. Explain the property relevant to the task rather than saying every map distorts everything in the same way.

Exercises 2.1-2.2

2.1 State one difference between a reference map and a thematic map. [2]

2.2 Explain why a flat map of the whole world must distort the Earth. [2]

Exercises 2.1-2.2

2.1 State one difference between a reference map and a thematic map. [2]

2.1

- a reference map shows locations/features; a thematic map shows the pattern of one variable
-

2.2 Explain why a flat map of the whole world must distort the Earth. [2]

2.2

- the Earth is a sphere and a map is flat; flattening a curved surface must distort shape, area, distance, or direction

Exercise 2.3 (a)

2.3 The Mercator projection is common in classrooms and online maps.

(a) State the property the Mercator projection preserves.

[1]

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[1]

(a)

- direction / true shape locally

Exercise 2.3 (b)

2.3 The Mercator projection is common in classrooms and online maps.

(b) State the main distortion it introduces.

[1]

Exercise 2.3 (b)

2.3 The Mercator projection is common in classrooms and online maps.

(b) State the main distortion it introduces.

[1]

(b)

- it exaggerates area toward the poles (e.g. Greenland looks huge)

Exercise 3.1

3.1 A map showing the percentage of each country's population that is urban is best described as a [1]

☐

A reference map

B thematic map

C political map

D topographic map

Exercise 3.1

3.1 A map showing the percentage of each country's population that is urban is best described as a [1]

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A reference map

B thematic map

C political map

D topographic map

3.1 B

- it maps the spatial pattern of one variable, so it is a thematic map

Exercise 3.2

3.2 A geographer needs true compass bearings for ocean navigation. The best projection is [1]

☐

A Gall-Peters (equal-area)

B Mercator (conformal)

C an equal-area interrupted map

D a cartogram

Exercise 3.2

3.2 A geographer needs true compass bearings for ocean navigation. The best projection is [1]

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3.2 B

- Mercator preserves direction, which is why it was designed for navigation

Exercise 3.3 (a)

3.3 A city planner uses a street map of one neighbourhood; a student uses a map of the whole world.

(a) Which map is larger scale?

[1]

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3.3 A city planner uses a street map of one neighbourhood; a student uses a map of the whole world.

(a) Which map is larger scale?

[1]

(a)

- the neighbourhood street map

Exercise 3.3 (b)

3.3 A city planner uses a street map of one neighbourhood; a student uses a map of the whole world.

(b) State one thing the larger-scale map shows that the smaller-scale map cannot. [1]

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(b)

- fine local detail – individual streets/buildings