Solutions

Each answer shows the steps, then the **result**.

2.1

- Weather is short-term conditions; climate is the long-term average

2.2

- Any two: rising temperatures, sea-level rise, extreme weather, shifting species

2.3

- It amplifies (increases) it

3.1 B

- absorb more sunlight

3.2

(a)

- Melting land ice and thermal expansion of warming seawater

(b)

- Thawing permafrost releases methane and CO_2, which cause more warming, which thaws more permafrost – a positive feedback

3.3

- Climate is a long-term average; a single cold day is weather, and short-term variation does not change the long-term warming trend

3.4

(a)

- for example: air bubbles trapped in ice cores record past CO_2 levels and temperatures; tree rings, sediment layers and fossil pollen also record past climates

(b)

- fresh water is less dense, so the cold salty water of the North Atlantic sinks less, slowing the current that carries warm water north
- for example: cooler winters in Western Europe, or changed rainfall patterns elsewhere

(c)

- for example: polar bears hunt seals from sea ice, so with less ice they cannot reach their food; walruses and seals use ice to rest and breed

(d)

- for example: higher temperatures and drought dry the soil, so it is more easily eroded; heavier rainfall washes topsoil away

3.5 A

- flooded shelves create new shallow areas that some marine species can colonize