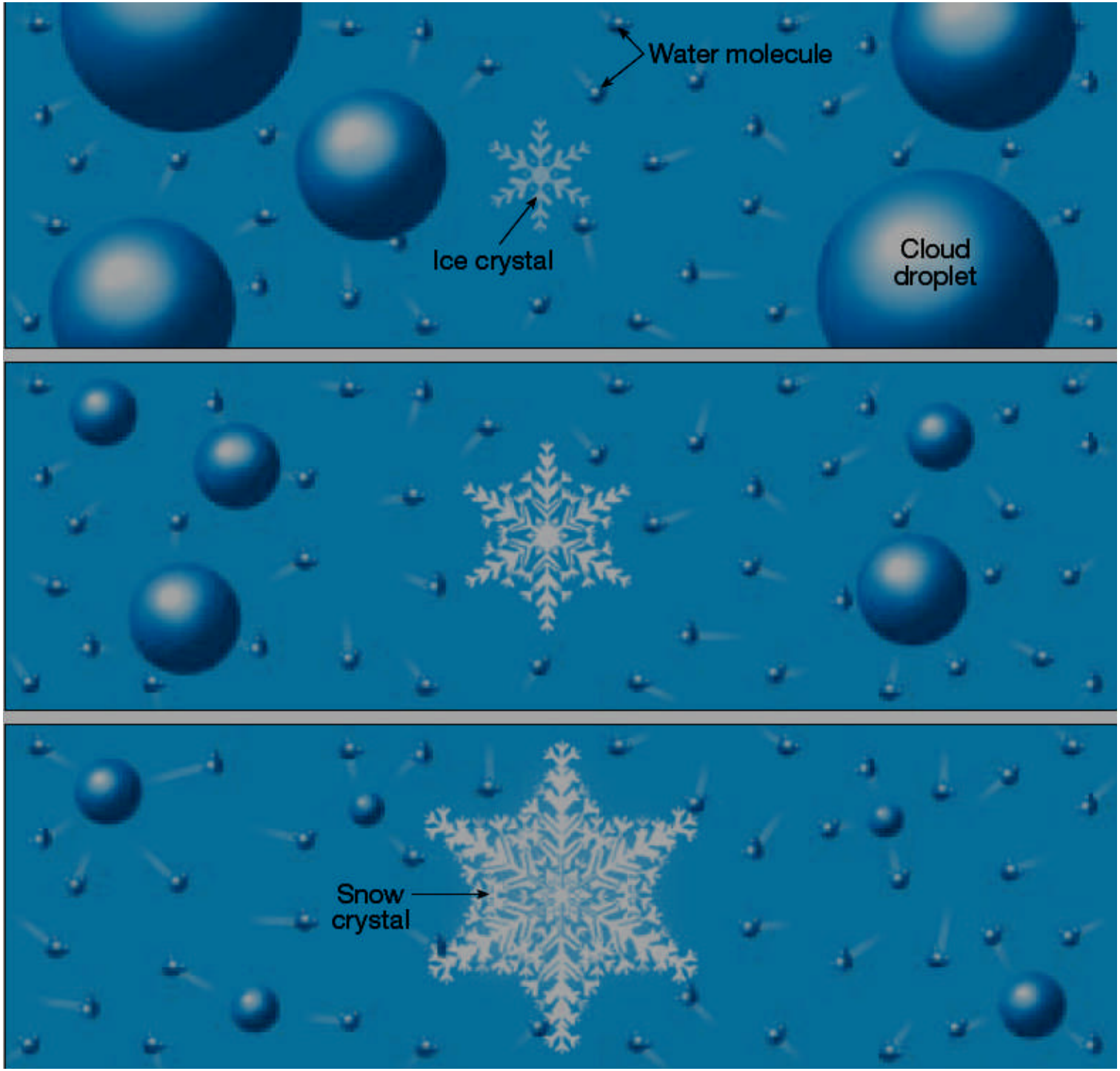
III. How Precipitation Forms

- Cloud droplets must grow by a million times.

Precipitation forms in two ways.

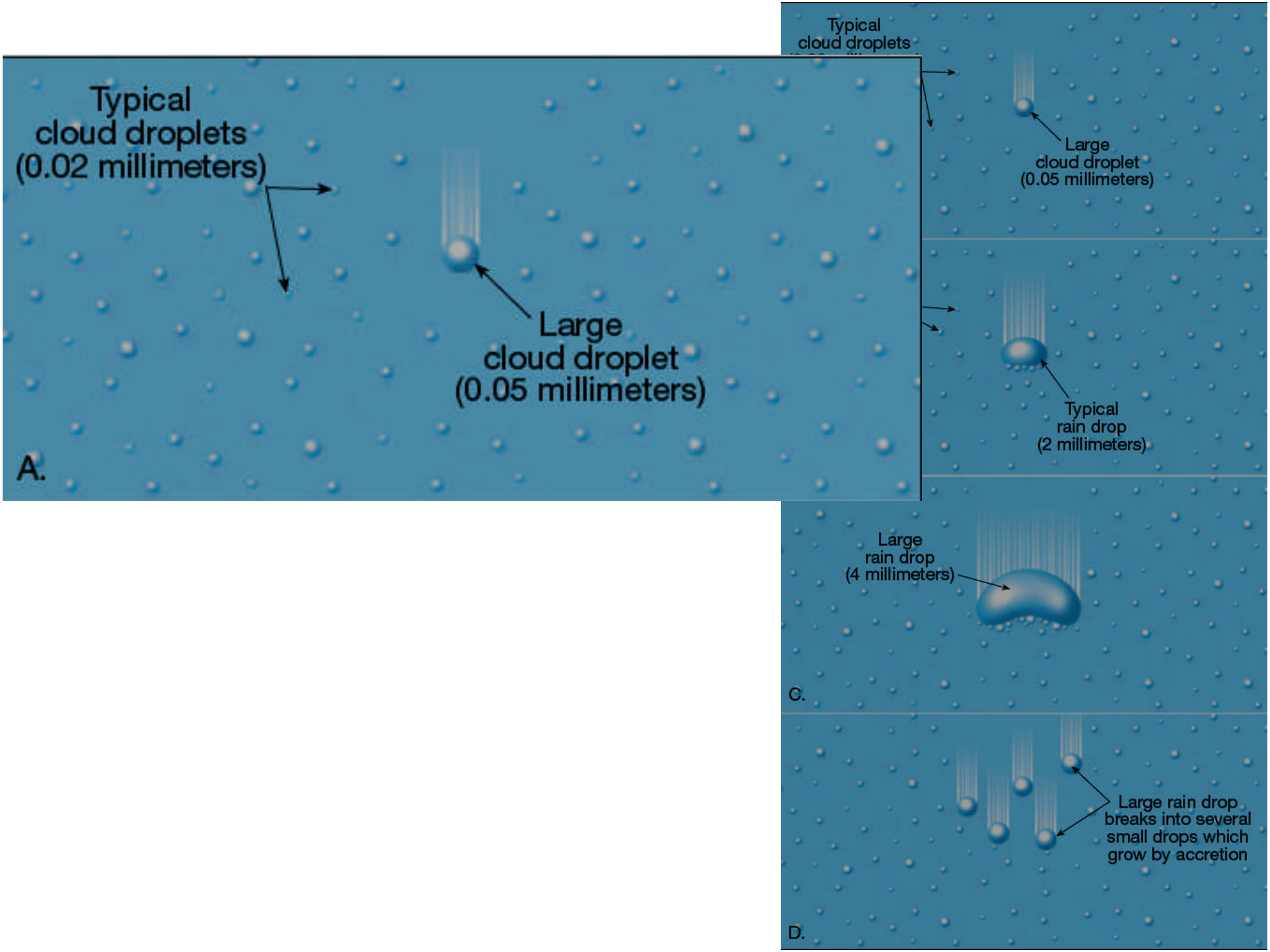
A. Cold Cloud Precipitation

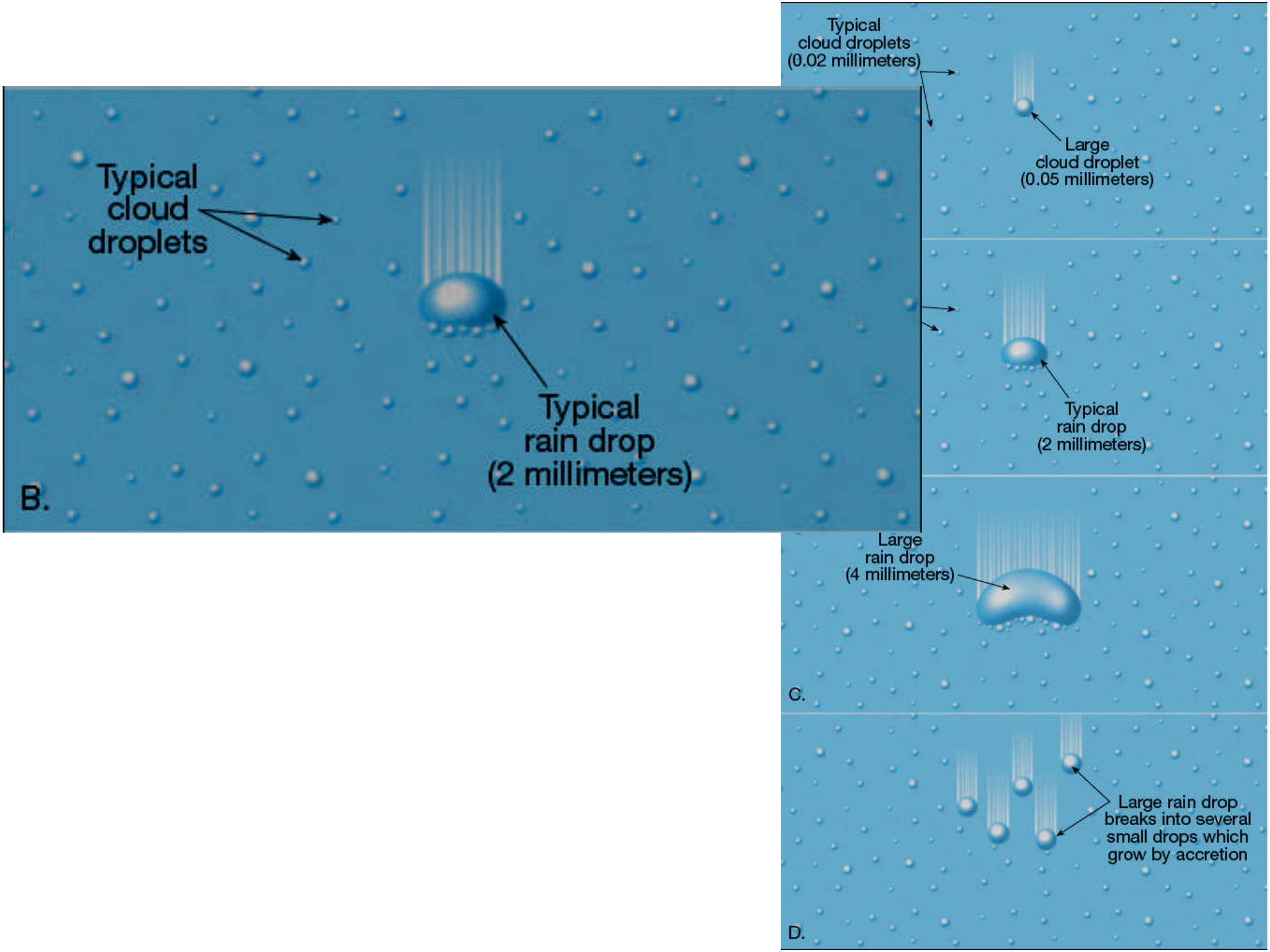
- **Bergeron Process**: Super-cooling and super-saturation
- Cloud droplets freeze at -40 ºC
- Water below 0 ºC is supercooled.
- Freezing nuclei are required (dust or smoke)
- Super saturated: Above 100% RH.


Water molecule
Ice crystal
Cloud
droplet
Snow
crystal

B. Warm Cloud Precipitation

- Collision-Coalescence


Typical
cloud droplets
(0.02 millimeters)
Large
cloud droplet
(0.05 millimeters)
A.
Typical
cloud droplets
Large
cloud droplet
(0.05 millimeters)
Typical
rain drop
(2 millimeters)
Large
rain drop
(4 millimeters)
C.
Large rain drop
breaks into several
small drops which
grow by accretion
D.


Typical
cloud
droplets
Typical
rain drop
(2 millimeters)
B.
Typical
cloud droplets
(0.02 millimeters)
Large
cloud droplet
(0.05 millimeters)
Typical
rain drop
(2 millimeters)
Large
rain drop
(4 millimeters)
C.
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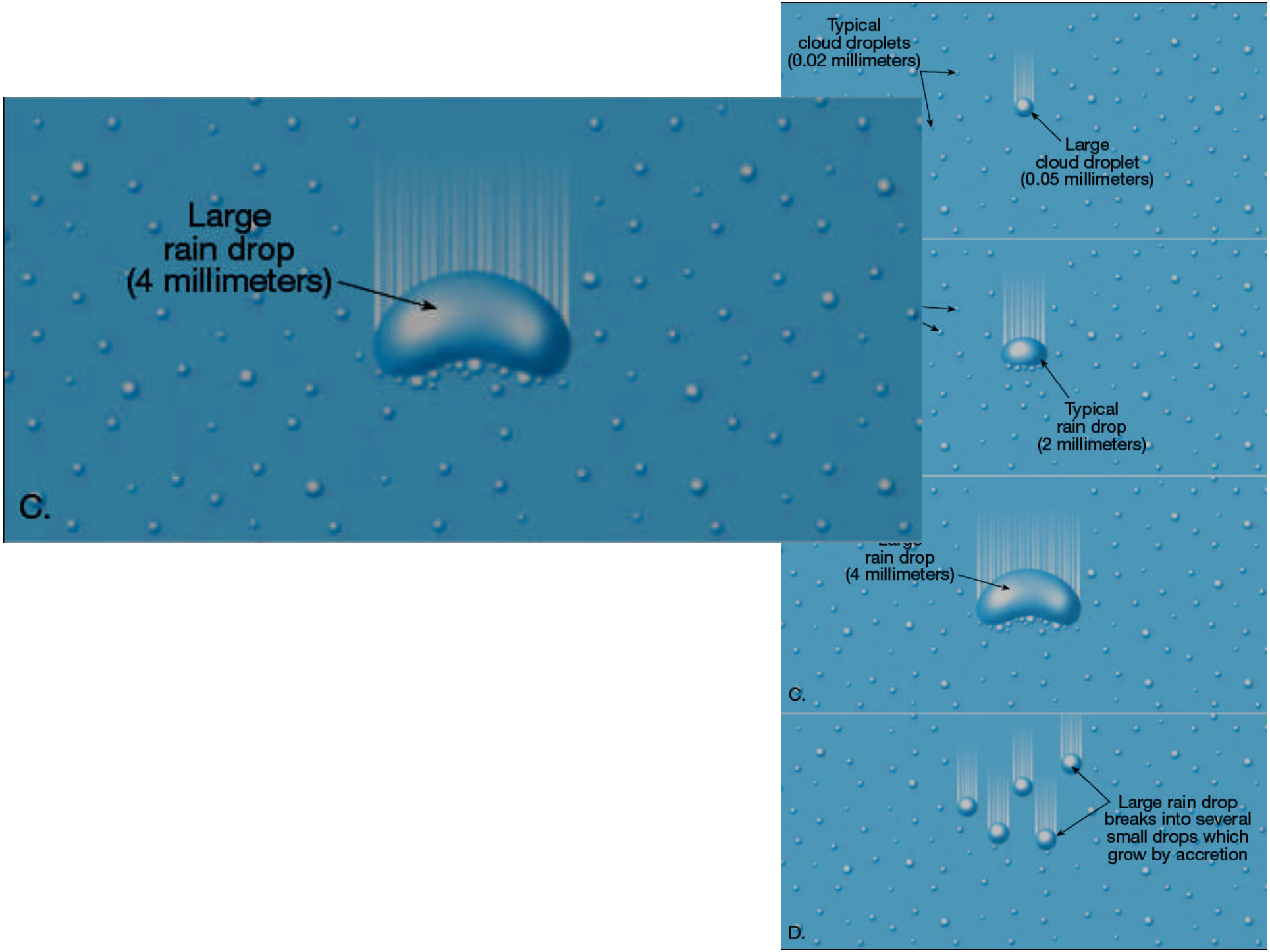
Large
rain drop
(4 millimeters)
C.
Typical
cloud droplets
(0.02 millimeters)
Large
cloud droplet
(0.05 millimeters)
Typical
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(2 millimeters)
rain drop
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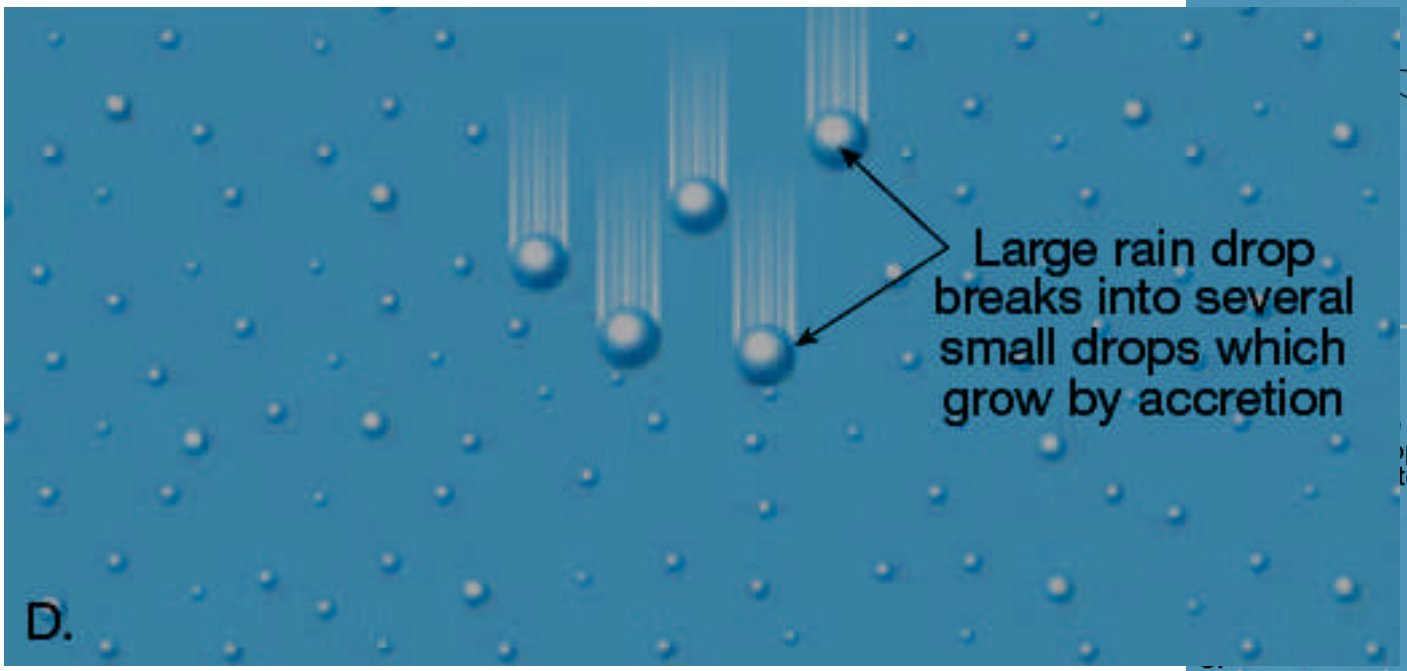
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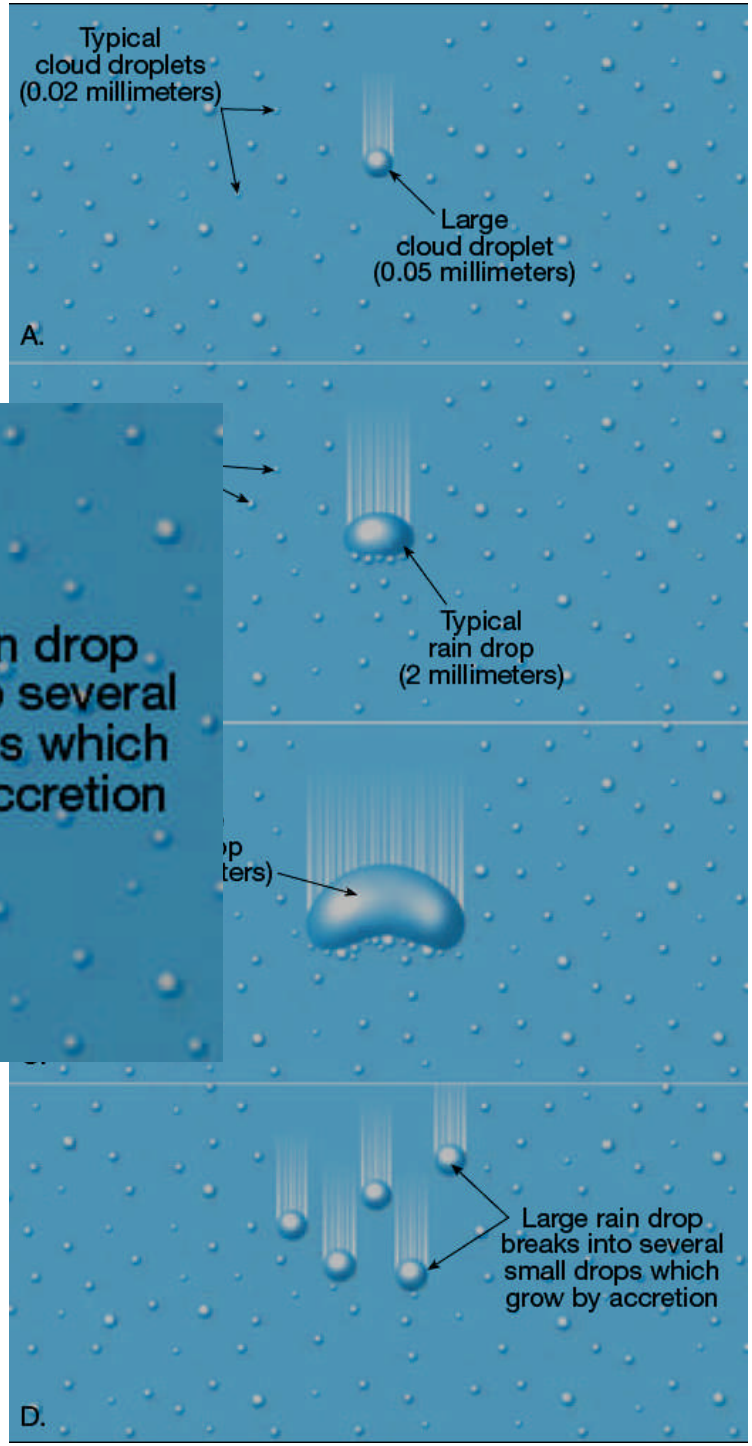
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D.

IV. Forms of Precipitation

- Rain, snow, sleet , glaze and hail.
- The type of precipitation depends on the temperature in the lowest few kilometers of the atmosphere.