1. Why is it possible for no rain to be falling from a cloud?
   (1) The water droplets are too small to fall.
   (2) The cloud is water vapor.
   (3) The dewpoint has not yet been reached in the cloud.
   (4) There are no condensation nuclei in the cloud.

2. Which statement best explains why a cloud is forming as shown in the diagram below?
   (1) Water vapor is condensing.
   (2) Moisture is evaporating.
   (3) Cold air rises and compresses.
   (4) Warm air sinks and expands.

3. Which event will most likely occur in rising air?
   (1) clearing skies
   (2) cloud formation
   (3) decreasing relative humidity
   (4) increasing temperature

4. Which event is a direct result of transpiration and evaporation?
   (1) The atmosphere warms.
   (2) Cloud cover decreases.
   (3) Moisture enters the atmosphere.
   (4) Moisture leaves the atmosphere.

5. Condensation will most likely occur in a given volume of air when the air is
   (1) saturated and contains no condensation nuclei
   (2) saturated and contains condensation nuclei
   (3) unsaturated and contains no condensation nuclei
   (4) unsaturated and contains condensation nuclei

6. The diagram below shows a sealed container holding liquid water and clean air saturated with water vapor. (Relative humidity is 100%). The container has been placed on a block of ice to cool.

Which statement best explains why a cloud has *not* formed in the sealed container?
   (1) The air in the container is above the freezing point.
   (2) The ice is cooling the water in the container.
   (3) The air in the container lacks condensation nuclei.
   (4) The water in the container is still evaporating.

7. Under which conditions is a cloud most likely to form at the Earth’s surface?
   (1) The air temperature is above the dewpoint, and no condensation nuclei are present.
   (2) The air temperature is at the dewpoint, and condensation nuclei are abundant.
   (3) The relative humidity is zero, and condensation nuclei are abundant.
   (4) The air temperature and air pressure are stable, and condensation nuclei are scarce.
8. The diagram below shows a cross section of a cold front.

The cloud formation and precipitation shown in the cross section are caused by the

1. rising of cold, moist air
2. sinking of cold, moist air
3. rising of warm, moist air
4. sinking of warm, moist air
9. The diagram below shows warm, moist air moving off the ocean and over a mountain, causing precipitation between points 1 and 2.

![Diagram of warm, moist air moving over a mountain](image)

Describe two changes that occur to the warm, moist air between points 1 and 2 that would cause cloud formation.

10. Base your answer to the following question on the diagram below, which represents water molecules attached to salt and dust particles within a cloud in the atmosphere.

![Diagram of water molecules, salt, and dust](image)

(Not drawn to scale)

<table>
<thead>
<tr>
<th>Key</th>
</tr>
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<tbody>
<tr>
<td>Water molecule</td>
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Explain why salt and dust particles are important in cloud formation.
1. 1
2. 1
3. 2
4. 3
5. 2
6. 3
7. 2
8. 3
9. Examples: Air rises; Air expands; Air cools; The temperature reaches the dewpoint; Water vapor condenses
10. Responses include, but are not limited to: Water droplets form on the surfaces provided by the salt and dust particles; Salt and dust particles are condensation nuclei, allowing the water vapor to change into liquid drops, forming clouds.