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Answers

Quiz: Precipitation

This short quiz could be used as a brief introductory activity to begin discussion about types of precipitation and processes. It's designed to help students understand some features of different types of precipitation and formation processes. The correct answers are given below, along with some additional information.

1 The correct answer is D, Colombia, with 3,250 mm of rainfall per year. All the listed countries have over 2500mm per year and are equatorial. This contrasts with 1,220 mm for the UK (with considerable regional variation).

2 The correct answer is C, orographic precipitation or relief rainfall. This occurs when warm, moist air masses are forced up and over mountain ranges. The rising air cools, condenses and precipitation occurs. On the leeward side of the mountains there is descending air which warms and is 'dry' (the rain shadow). Frontal and cyclonic are synonyms for the same type of precipitation generated at warm and cold fronts.

3 The correct answer is A, fog. Both fog and mist are not considered precipitation because the water droplets are not falling: they are suspended in the air. Fog can become a water source using fog-catching nets:

www.youtube.com/watch?v=LtKXkCfWmyY

4 The correct answer is C, coalescence (or collision-coalescence). This process is crucial in the formation of rain as it allows water droplets to grow large enough to overcome air resistance and fall as rain.

5 The correct answer is B, 341.4 mm This was recorded in Honister Pass in the Lake District on 5 December 2015. It was a result of Storm Desmond. Around 5,000 homes in Lancashire, Cumbria and southern Scotland were flooded and economic losses totalled about £900 million. Answer C, 1,825 mm, is the world record 24-hour rainfall recorded on the Indian Ocean island of Réunion in 1966.

6 The correct answer is A, cloud condensation nuclei. These can be microscopic particles of soot, salt, dust, clay or sulphate about 0.2 micrometres in size. Very clean air, without these 'dirt' particles, inhibits the formation of rain.

7 The correct answer is B, silver iodide. In fact all of the other chemicals have been used for cloud seeding but silver iodide is the most widely used. It is usually dispersed from aircraft as a fine mist to encourage cloud formation.

www.youtube.com/watch?v=bU4z8ZiX_eA

8 The correct answer is C, wetter. This is called the urban precipitation anomaly. It is caused by the urban heat island effect, meaning cities generate more heat and more convection. Urban pollution may mean the number of potential cloud condensation nuclei is also higher.

For a summary of a recent scientific study see:

www.tinyurl.com/25pnjb42

9 The correct answer is B, a hailstone. Reputed to be the largest ever recorded. There have been many reports of it 'raining' frogs and fish over the last 150 years. The most probable explanation of this is tornado-like waterspouts forming over ponds, lakes and the sea depositing the hapless creatures nearby.

10 The correct answer is A, Calama in Chile in the Atacama Desert. It has average annual precipitation of 1.5 mm per year and records suggest it can go multiple decades with no precipitation at all. The Dry Valleys of Antarctica probably experience about 60 mm of precipitation per year, always snow, and temperatures are always below freezing. Luxor in Egypt gets 8–10 mm of precipitation per year on average. Dubai in the UAE averages around 80mm per year.

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