UNDERSTANDING STORMS

ANSWER KEY

Tornadoes, cyclones, typhoons, and hurricanes are all powerful atmospheric phenomena, but they differ significantly in their formation, size, duration, and impact. A tornado is a rapidly rotating column of air connected to a cumulonimbus cloud, typically forming under severe thunderstorms. They are narrow and short-lived but can produce the most intense winds on Earth, causing localised and severe damage.

A cyclone refers to any spinning storm system around a low-pressure centre and includes hurricanes and typhoons based on their location and strength. Cyclones form over warm ocean waters from the heat released when moist air rises and condenses. These storms are larger and longer-lasting than tornadoes and can cause extensive damage through high winds, heavy rain, and flooding, especially in coastal areas.

A hurricane is a type of tropical cyclone that forms over the Atlantic Ocean or eastern Pacific Ocean. In contrast, a typhoon is essentially the same type of storm but occurs in the western Pacific Ocean. Both hurricanes and typhoons have a minimum wind speed of 74 miles per hour to qualify as such and can have devastating impacts on extensive areas due to their size and power.

1. What is the primary condition necessary for the formation of a tornado?

Tornadoes primarily form under severe thunderstorms when warm, moist air rises and interacts with colder air above, often aided by wind shear.

2. How do cyclones differ from tornadoes in terms of their formation?

Unlike tornadoes, which form under severe thunderstorms and are land-based, cyclones form over warm ocean waters from the heat released when moist air rises and condenses.

3. What common feature defines hurricanes and typhoons?

Both hurricanes and typhoons are types of tropical cyclones and are defined by having minimum sustained winds of 74 miles per hour.

4. Which type of storm is associated with the highest wind speeds?

Tornadoes are associated with the highest wind speeds of any storm type, with speeds exceeding 300 mph in the most extreme cases.

5. Why are coastal areas particularly vulnerable during cyclones?

Coastal areas are particularly vulnerable during cyclones due to high winds, heavy rainfall, and flooding, including storm surges brought on by the cyclone's strong winds pushing ocean water onto land.

Uses comprehension strategies to expand content knowledge.