Question Bank: Wind and Storm

Chapter: Wind and Storm
Class: 6 | Science | Oxford Curriculum
Total Questions: 25
Mapped with Bloom's Taxonomy
Competitive Exam Tags: NTSE, NSO, NSTSE

Section A: Remembering & Understanding (1 Mark Each)

1. What is wind?
   Answer: Wind is the movement of air from high pressure to low pressure areas.
   Tag: NSO

2. What causes air movement?
   Answer: Differences in air pressure caused by uneven heating.
   Tag: NSTSE

3. Define storm.
   Answer: A storm is a violent disturbance in the atmosphere with strong winds and often rain, thunder, or lightning.
   Tag: NTSE

4. Name the instrument used to measure wind speed.
   Answer: Anemometer.
   Tag: NSO

5. What is a cyclone?
   Answer: A cyclone is a large, violent storm system with strong winds rotating around a low-pressure center.
   Tag: NTSE

6. What is a tornado?
   Answer: A tornado is a rapidly rotating column of air that extends from a thunderstorm to the ground.
   Tag: NSO

7. Why do storms often bring rain?
   Answer: Storms form in moist air, causing clouds to condense and fall as rain.
   Tag: NSTSE

8. What is a thunderstorm?
   Answer: A storm with lightning, thunder, rain, and sometimes hail.
   Tag: NSO

9. Define wind current.
   Answer: Continuous movement of air in a particular direction.
   Tag: NTSE

10. What is meant by high and low air pressure?
    Answer: High pressure means denser air, low pressure means lighter air; wind moves from high to low.
    Tag: NSO

Section B: Applying & Analyzing (Long Answer)

1. Why do winds move from sea to land during the day?
   Answer: During the daytime, the land heats up faster than the sea. The air above the land becomes warm, expands, and rises, creating a low-pressure area. Meanwhile, the sea remains cooler, and the air above it is cooler and denser, creating a high-pressure area. The air moves from the high-pressure area over the sea to the low-pressure area over the land, resulting in a sea breeze. This movement of air helps balance temperature differences and creates a cooling effect on the coastal land.
   Tag: NTSE

2. How does uneven heating affect air movement?
   Answer: Uneven heating of the Earth's surface occurs due to differences in geography, water bodies, vegetation, and exposure to sunlight. For example, land heats up faster than water during the day. This causes warm air to rise over the land, creating a low-pressure area, while the air over water remains cooler and forms a high-pressure area. The air moves from high to low pressure, resulting in wind. This mechanism is responsible for phenomena like sea and land breezes, monsoons, and global wind patterns.
   Tag: NSTSE

3. List two safety measures during a storm.
   Answer: (i) Stay indoors: During thunderstorms or strong winds, it is safest to remain indoors to avoid getting hit by flying debris or lightning. (ii) Avoid electrical appliances: Disconnect electronic gadgets and avoid touching electrical switches, as lightning strikes can cause power surges. Additional measures include securing loose outdoor items, keeping emergency kits ready, and staying updated through weather bulletins.
   Tag: NSO

4. What role do pressure and temperature play in cyclone formation?
   Answer: Cyclones form when warm, moist air over the ocean rises, leading to a drop in pressure below. This low-pressure area pulls in more warm air, which also rises and cools, causing water vapor to condense and release heat. This heat further warms the air, reducing pressure more and drawing in more air. As the air moves toward the center, the Earth's rotation causes it to spin, forming a cyclone. Thus, high temperature and low pressure are crucial in sustaining and intensifying cyclones.
   Tag: NTSE

5. Why is wind considered a form of energy?
   Answer: Wind possesses kinetic energy due to the motion of air particles. This energy can be harnessed using wind turbines to generate electricity, pump water, or grind grains. Wind energy is renewable, clean, and sustainable. It plays a major role in the global shift towards green energy. Countries invest in wind farms to reduce dependency on fossil fuels and decrease carbon emissions. Hence, wind is not just a weather element, but a valuable source of mechanical and electrical energy.
   Tag: NSO

Section C: Evaluating & Creating (3–5 Marks Each)

1. Describe an experiment to show that air exerts pressure.
   Answer: Fill a glass with water up to the brim. Cover the mouth of the glass with a stiff piece of cardboard. Hold the cardboard in place with your hand and invert the glass. Now slowly remove your hand while keeping the glass inverted. The cardboard does not fall and the water stays in the glass. This happens because the air pressure from below the cardboard is greater than the pressure of water above it, proving that air exerts pressure. This simple experiment visually demonstrates an important property of air.
   Tag: NSO

2. How can cyclones be predicted and tracked?
   Answer: Cyclones are predicted using advanced technologies such as weather satellites, Doppler radars, and computer-based simulation models. These tools help in observing cloud patterns, measuring wind speeds, and detecting pressure changes. Meteorological departments collect real-time data and issue timely alerts. Once a cyclone is detected, its path, intensity, and landfall location are predicted. Government agencies then prepare for evacuations and issue warnings through media, mobile alerts, and sirens to minimize damage and save lives.
   Tag: NTSE

3. Compare and contrast a cyclone and a tornado.
   Answer: Cyclones and tornadoes are both intense weather phenomena but differ in several aspects. Cyclones are large systems that form over warm oceans and can cover hundreds of kilometers. They bring strong winds, heavy rainfall, and flooding. Tornadoes, on the other hand, are smaller, form over land, and have a narrow funnel-shaped column of rotating air. They are more intense in terms of wind speed but cover a smaller area. Both involve low-pressure centers and spiral winds, but their formation, scale, and duration differ significantly.
   Tag: NSTSE

4. Create a table showing different types of winds and their characteristics.
   Answer:

Type of Wind	Area Affected	Speed	Nature
Breeze	Coastal areas	Low	Regular, gentle wind
Gale	Inland/seas	Medium	Strong, steady wind

Type of Wind	Area Affected	Speed	Nature
Cyclone	Tropical oceans	High	Rotating, destructive
Tornado	Land areas	Very High	Spiraling, violent

Tag: NSO

1. Suggest ways communities can prepare for cyclones.
   Answer: Building strong, wind-resistant homes and cyclone shelters in vulnerable areas is essential. Early warning systems and disaster drills help people prepare and evacuate in time. Communities should maintain emergency kits with essentials like food, water, torches, and medicines. Schools and local bodies should conduct awareness programs. Planting trees near coastal areas can reduce wind speed. Collaboration with government agencies and training volunteers in disaster response can save lives and reduce property damage.
   Tag: NTSE

Section D: Case-Based HOTS Questions (4 Marks Each)

1. **Case Study:** In a coastal village, children noticed that wind always blew from the sea during the daytime. Their teacher explained it as sea breeze. One day, during their visit, the wind was extremely strong, and dark clouds started forming.

2. (a) What causes the sea breeze observed by the children?

3. (b) Why did the wind suddenly become strong and bring dark clouds?

Answer:
(a) The land heats faster than the sea during the day, creating low pressure on land and high pressure at sea. This causes cool sea air to flow towards land.
(b) The strong winds and clouds could signal an approaching storm or cyclone caused by rapid pressure changes and moisture in the atmosphere.
Tag: NTSE

1. **Case Study:** A city experienced a sudden tornado that damaged buildings and uprooted trees. Students were asked to find out how tornadoes form and why they are so destructive.

2. (a) How is a tornado formed?

3. (b) What makes tornadoes highly dangerous?

Answer:
(a) Tornadoes form when warm, moist air meets cold, dry air, creating instability. The warm air rises rapidly, forming a spinning funnel under thunderstorm clouds.
(b) Their rotating high-speed winds, low-pressure core, and ability to destroy structures in seconds make

them dangerous.
Tag: NSO

1. **Case Study:** A teacher plays a weather news clip showing cyclone warnings for coastal areas. Students are asked to prepare an emergency safety plan.

2. (a) What steps should the students include in the safety plan?

3. (b) Why are early warnings crucial during cyclones?

Answer:
(a) The plan should include evacuation guidelines, emergency contact numbers, assembling emergency kits, avoiding low-lying areas, and securing belongings.
(b) Early warnings help evacuate people safely and reduce casualties by giving time to prepare.
Tag: NTSE

1. **Case Study:** After a powerful thunderstorm, a science club decided to research how wind energy can be used positively.

2. (a) How can wind energy be harnessed?

3. (b) Why is wind energy considered sustainable?

Answer:
(a) Wind turbines convert kinetic energy of moving air into electricity. Wind farms are established in windy regions to generate power.
(b) It is renewable, doesn't pollute the environment, and reduces dependence on fossil fuels.
Tag: NSTSE

1. **Case Study:** A news report shows aerial views of cyclone-affected coastal towns. Students discuss why some areas were more damaged than others.

2. (a) What factors influence cyclone damage in a region?

3. (b) How can infrastructure be improved to reduce damage?

Answer:
(a) Proximity to the coast, quality of construction, vegetation, and early warning response influence damage levels.
(b) Stronger buildings, elevated shelters, better drainage, and community drills can help reduce destruction.
Tag: NTSE