

Storm Day I - Learning Goals

(LG: 1a-e)

By the end of this period, you should be able to:

- 1a) describe different types of lightning, and explain the sequence of events in a lightning strike
- 1b) explain lightning risk: dangerous times and places; how it affects people; and what you can do to stay safe.
- 1c) identify and describe typical components of a thunderstorm cloud, and describe the nature and evolution of cells in different types of thunderstorms
- 1d) identify atmospheric layers and explain how they relate to storms
- 1e) explain how solar energy can get into the atmosphere to power storms

Storm Day 2 - Learning Goals

(LG: 2a-e)

By the end of this period, you should be able to:

- 2a) list and describe the storm hazards and disaster scales covered in this course.
- 2b) name and describe the characteristics and hazards of squall lines and of the 3 main types of supercell thunderstorm.
- 2c) use images and videos from weather radars (reflectivity & Doppler velocity) and satellites (visible & infrared) to identify storm characteristics and anticipate storm changes.
- 2d) identify downbursts and gust fronts, describe how they form and look, and what their hazards are.
- 2e) explain how humidity, saturation, latent heat, advection, and adiabatic cooling affect storm energy.

Storm Day 3 - Learning Goals

(LG: 3a-e)

By the end of this period, you should be able to:

- 3a) describe tornado shapes, what makes them visible, and where they form relative to a thunderstorm.
- 3b) use photographs & videos to identify the tornado intensity on the enhanced Fujita scale.
- 3c) describe characteristics of tornado evolution, tornado outbreaks, and mesocyclones.
- 3d) explain tornado hazards and safety procedures, and times and locations of greatest risk.
- 3e) explain the difference between tornado watches and warnings, and appropriate safety responses.

Storm Day 4 - Learning Goals

(LG: 4a-e)

By the end of this period, you should be able to:

- 4a) identify mammatus clouds, cloud striations, haboobs, arc clouds, and wall clouds, and explain their significance
- 4b) explain how forces, acceleration, buoyancy, and pressure-gradients relate to winds
- 4c) describe how heat released in the atmosphere can create vertical and horizontal winds and atmospheric rivers
- 4d) explain how the continuity effect ties vertical and horizontal winds into circulations
- 4e) describe hail hazards, locations and times of greatest risk, and appropriate safety procedures

Hurricane = Typhoon = Tropical Cyclone

By the end of this period, you should be able to:

- 5a) describe the anatomy of a hurricane, and how it looks in weather radar and satellite images and videos
- 5b) explain how sea-surface temperature, winds, waves, condensation, and a "warm core" affect hurricanes
- 5c) describe the evolution and movement of hurricanes, and locate times and places of greatest risk
- 5d) explain the main hazards of a hurricane and appropriate safety procedures
- 5e) describe the nature and skill of hurricane forecasting, and explain why Canada has few hurricanes.