Georgia Science

Meteorology

Adopted 2019

Obtain, evaluate, and communicate information about the structure and composition of Earth's atmosphere and the processes that cause weather. SM1	**a.** Construct an explanation for how atmospheric properties (i.e., temperature, density, chemical composition, pressure and moisture) influence its structure. SM1.A
	b. Develop a model that explains seasonal variations in insolation including length of daylight hours, angle of midday sun, and Earth's axial tilt. SM1.B
	c. Plan and carry out an investigation to explain how albedo and specific heat (land versus water surfaces) create differences in surface heating. SM1.C
Obtain, evaluate, and communicate information about energy transfer and its role in precipitation, cloud formation, and air mass formation. SM2	**a.** Ask questions to compare and contrast the relationships between air masses, source regions, fronts, and the changes associated with frontal passage (e.g., air density, temperature, dew point, wind direction, cloud types, precipitation.) SM2.A
	b. Ask questions to identify major types of clouds and weather associated with each type. SM2.B
	c. Construct an explanation of how clouds and different types of precipitation develop. SM2.C
	d. Develop and use models to construct an explanation of the role that pressure differences have on energy transfer and the development of wind systems (e.g., sea breeze, land breeze, Hadley cells, Ferrel cells, prevailing winds, jet stream, ENSO, global scale winds). SM2.D
Obtain, evaluate, and communicate information about the science of weather forecasting. SM3	**a.** Analyze and interpret data to create a surface map that includes, but is not limited to, high- and low-pressure systems, isobars, wind barbs, and fronts. SM3.A
	b. Construct an argument supported by evidence for the type of weather expected for a specific location using weather maps and knowledge of the movement of air masses, fronts, and weather systems. SM3.B
	c. Ask questions to develop predictions about the formation of meteorological events including severe thunderstorms, hurricanes, tornadoes, floods, droughts, and winter storms. SM3.C
	Ask questions to investigate and communicate the role of technology and public awareness on weather forecasting (e.g., NOAA/NWS observation data network,

Skip to main content

	instrumentation, satellites, radar, weather balloons, models, watch/warning criteria). SM3.D
	e. Construct an argument supported by observations to verify the forecast contained in a weather briefing for a specific location. SM3.E
Obtain, evaluate, and communicate information about the relationship between weather and society. SM4	a. Obtain and communicate information to relate the personal, local, national, and global implications of severe weather events. SM4.A
	b. Ask questions to identify the relationships between weather and society (e.g., urban heat island, smog formation, air quality, stratospheric ozone). SM4.B
	c. Obtain, evaluate, and communicate information about the potential individual and societal impacts of changing weather and climate conditions. (Clarification statement: Impacts such as economic, social, health (physical and emotional), political, ecological, etc. should be addressed.) SM4.C
	d. Design and defend a safety plan based on common weather events for your geographic location. SM4.D
Obtain, evaluate, and communicate information about climate and climate change. SM5	a. Analyze and interpret data to construct explanations for various global climate types based upon climatic characteristics such as latitudinal variations in insolation, distribution of land and water, prevailing winds, average temperature and precipitation, atmospheric circulation, physical geography, altitude, and ocean currents. SM5.A
	b. Ask questions and communicate information about factors impacting global climate change (e.g., Milankovitch and ENSO cycles, greenhouse gases, changes in physical geography). SM5.B
	c. Construct an argument from evidence about the potential implications of global climate change on weather. SM5.C