3. Weather and Climate Web Sites

3-ESS2-1: Represent data in table and graphical displays to describe typical weather conditions expected during a particular season.

NOAA's National Weather Service
Seasons
This website discusses why we have seasons and about the Equinox.
http://www.wrh.noaa.gov/fgz/science/season.php?wfo=fgz

Astronomy Education at the University of Nebraska-Lincoln
Motions of the Sun and Planet
Seasons and Ecliptic Simulator – This simulator shows how the sun impacts the planet during different seasons.
http://astro.unl.edu/naap/motion1/animations/seasons_ecliptic.html

Lawrence Hall of Science, University of California, Berkeley – SEPUP
Seasons Interactive
This simulation shows how the earth is tilted and where it is in location to the sun each month of the year. This display also shows the number of hours of daylight and temperature at different latitudes of the earth.
Click "Continue to Interactive"
http://www.sepuplhs.org/students/iaes/simulations/SEPUP_Seasons_Interactive.swf

SciJinks – Science HiJinks – NOAA/ NASA
Why does the Earth have seasons?
This is a fun website explaining why we have seasons.
http://scijinks.jpl.nasa.gov/earths-seasons/

NOAA's National Centers for Environmental Information
Meteorological Versus Astronomical Seasons
This website is a detailed explanation of the difference between an astronomical and a meteorological season. This is based upon the position of the Earth in relation to the Sun
https://www.ncdc.noaa.gov/news/meteorological-versus-astronomical-seasons

3-ESS2-2: Obtain and combine information to describe climates in different regions of the world.

NOAA's National Centers for Environmental Information
International Climate Information
Different resources for international climate databases
http://www.ncdc.noaa.gov/climate-information/international

NOAA's Climate.gov
Climate Literacy
Essential Principles of Climate Literacy for Teachers
https://www.climate.gov/teaching/essential-principles-climate-literacy/essential-principles-climate-literacy

Global Change.gov
Climate Literacy
The Essential Principles of Climate Science –
A Climate-Oriented Approach for Learners of All Ages
http://cpo.noaa.gov/sites/cpo/Documents/pdf/ClimateLiteracyPoster-8_5x11_Final4-11LR.pdf

SciJinks – Science HiJinks – NOAA/ NASA
Weather Vs. Climate –
This is a short article describing the difference between weather and climate.
http://scijinks.gov/weather-v-climate/

NOAA
Science on a Sphere – NOAA
Interactive NOAA Sphere – Get data across the world
http://sos.noaa.gov/SOS_Explorer/

THE GLOBE PROGRAM – A Worldwide Science and Education Program
Visualization tool-
Interactive Globe System
This program allows you to see data across the world
https://www.globe.gov/globe-data/visualize-and-retrieve-data

NOAA's National Centers for Environmental Information (NECI)
NCDC Summary of the Day (GSOD) – Order daily weather information online.
https://www7.ncdc.noaa.gov/CDO/cdoselect.cmd?datasetabbv=GSOD&countryabbv=&georegionabbv=

SciJinks – Science HiJinks – NOAA/ NASA
Kids Activity:
Write the Book on Weather Metrics
Tracking day to day weather
This exercise goes into detail on different variables meteorologists use and track on a daily basis.
See: Write the Book on Weather Metrics
http://scijinks.gov/classroom-activities/

3-ESS3-1: Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.

PBS Learning Media
Earth System: Drought and Air Quality –
A great short video discussing how drought can increase the chance for fires impacts air quality. A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.
https://ny.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.esdrought/earth-system-drought-and-air-quality/

3-ESS2-3: Plan and conduct an investigation to determine the connections between weather and water processes in Earth systems.

NOAA's National Ocean Service
Water Cycle Video
A great video discussing the water cycle
http://oceantoday.noaa.gov/watercycle/

NOAA
Water Cycle Intro
Basic introduction of the water cycle
http://www.noaa.gov/resource-collections/water-cycle

NOAA's National Ocean Service
Office of coastal management
A great kid friendly presentation on the water cycle
https://coast.noaa.gov/psc/sea/content/water-cycle.html

NOAA's National Weather Service
Southern Region National Weather Service
A great explanation on the Water Cycle and 3 learning exercises
http://www.srh.noaa.gov/jetstream/atmos/hydro.html

SciJinks – Science HiJinks – NOAA/ NASA
Kids Activity:
Water Works on a Blue Planet
A fun exercise that uses either a poster or a mural to show different ways water is transported through the water cycle.
See: Water Works on a Blue Planet at the bottom of the page
http://scijinks.gov/classroom-activities/