

Geography Resource List

TROP ICSU

Feb, 2023

Lesson Plans

#	Lesson Plan Title	Disciplines	Key Topics	Link
1	Lesson Plan: Desertification and Sustainable Land Management	Geography, Environmental Sciences	Lithosphere, Disasters and Hazards, Ecosystems	https://tropicsu.org/desertification-and-sustainable-land-management/
2	Lesson Plan: Anthropogenic Environmental Changes and Climate	Geography, Humanities, Social Sciences	Ecology	https://tropicsu.org/anthropogenic-environmental-changes-and-climate/
3	Lesson Plan: Teach the Earth's Climate System Through Simulations (Earth-Like)	Earth Sciences, Environmental Sciences, Geography	Climate Change Overview, Planetary Climate, Earth's Climate System, Earth's Climate, Earth's Layers, Atmosphere, Biosphere, Hydrosphere, Lithosphere, Cryosphere	https://tropicsu.org/teach-the-earths-climate-system-through-simulations-earth-like/
4	Lesson Plan: The Water Cycle in a Sustainable World	Geography, Earth Sciences, Chemistry	Environmental Chemistry, Water Cycle, Biogeochemical Cycles	https://tropicsu.org/the-water-cycle-in-a-sustainable-world/
5	Lesson Plan: Teach the Earth's Climate System Through Simulations (Build Your Own Earth)	Earth Sciences, Environmental Sciences, Geography	Climate Change Overview, Earth's Climate, Planetary Climate, Earth's Climate System, Earth's Layers, Atmosphere, Biosphere, Hydrosphere, Lithosphere, Cryosphere	https://tropicsu.org/teach-the-earths-climate-system-through-simulations-build-your-own-earth/
6	Lesson Plan: Major Landforms: Mountains and Climate	Geography, Earth Science	Earth's Layers, Earth's Climate System, Lithosphere	https://tropicsu.org/major-landforms-mountains-and-climate/
7	Lesson Plan: Major River Systems: Climate Change and the River Nile	Geography, Earth Science, Environmental Sciences	Climate Change Overview, Recent Climate Change, Hydrosphere, Earth's Layers, Food Security, Agriculture, Disasters and Hazards, Climate Change and Food, Water Resources and Climate Change, El Nino Southern Oscillation	https://tropicsu.org/major-river-systems-climate-change-and-the-river-nile/

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8	Lesson Plan: Himalayan Glaciers and Climate Change in Bhutan	Geography, Earth Science, Environmental Sciences	Glaciers, Earth's Layers, Cryosphere, Lithosphere, Hydrosphere, Disasters and Hazards, Water Resources and Climate Change, Water Security	https://tropicsu.org/himalayan-glaciers-climate-change-in-bhutan/
9	Lesson Plan: Permafrost and Climate Change	Geography, Environmental Sciences, Earth Sciences	Cryosphere, Greenhouse Effect, Carbon Emissions	https://tropicsu.org/permafrost-and-climate-change/
10	Lesson Plan: Heat Transport in the Atmosphere, Hadley Circulation and Climate (Global Precipitation Patterns and Distribution of Deserts)	Geography, Earth Sciences, Physics	Hadley Circulation, Atmospheric Physics, Heat Transport, Coriolis Force	https://tropicsu.org/heat-transport-in-the-atmosphere-hadley-circulation-and-climate-global-precipitation-patterns-and-distribution-of-deserts/
11	Lesson Plan: Teaching about Hazards and Disasters through Climate-related Examples (Sea-Level Rise and Flooding due to Melting of Polar Ice)	Geography, Earth Science, Environmental Sciences	Earth's Layers, Cryosphere, Hydrosphere, Disasters and Hazards, Sea Level Rise, Glaciers, Environmental Migration	https://tropicsu.org/teaching-about-hazards-and-disasters-through-climate-related-examples-sea-level-rise-and-flooding-due-to-melting-of-polar-ice/
12	Lesson Plan: Analyzing Trends and Calculating Uncertainty using Hurricane Data Records	Mathematics and Statistics, Geography, Earth Sciences	Hydrosphere, Atmosphere, Recent Climate Change, Disasters and Hazards, Confidence Interval, Trend Analysis, Standard Deviation	https://tropicsu.org/analyzing-trends-and-calculating-uncertainty-using-hurricane-data-records-2/
13	Lesson Plan: Teaching Glaciology, Glaciers and Glacial Retreat, and the Cryosphere–Climate Relationship	Geography, Earth Science	Glaciers, Cryosphere, Earth's Layers	https://tropicsu.org/teaching-glaciology-glaciers-and-glacial-retreat-and-the-cryosphereclimate-relationship/
14	The Greenhouse Effect	Earth Sciences, Geography, Environmental Sciences, Chemistry	Climate Change Overview, Greenhouse Effect, Greenhouse Gases, Fossil Fuels, Atmosphere, Greenhouse Gas Emissions, Carbon Chemistry, Atmosphere, Greenhouse Effect, The Electromagnetic Spectrum	https://tropicsu.org/the-greenhouse-effect-lp/

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15	Civilizations and Climate Vulnerability: The Khmer Empire	Social Sciences, Humanities	Anthropology, History, Heritage Studies, Water Security, Disasters and Hazards	https://tropicsu.org/civilizations-and-climate-vulnerability-the-khmer-empire/
16	Teaching the Carbon Cycle through Climate-related Examples	Chemistry, Earth Sciences, Environmental Sciences, Geography	Environmental Chemistry, Carbon Cycle, Biogeochemical Cycles, Chemical Weathering, The Urey Reaction, Atmosphere, Lithosphere, Biosphere, The Silicate Thermostat, Carbon Emissions, Fossil Fuels, Earth's Climate System	https://tropicsu.org/teaching-the-carbon-cycle-through-climate-related-examples/

Teaching Tools

#	Teaching Tool Title	Disciplines	Key Topics	Link
1	Video: Climate Change in the Geography Classroom	Geography	Climate Change Overview	https://tropicsu.org/climate-change-in-the-geography-classroom/
2	Reading: What is the Atmosphere?	Earth Sciences, Geography	Climate Change Overview, Atmosphere	https://tropicsu.org/what-is-the-atmosphere-2/
3	Reading: What is the Cryosphere?	Earth Sciences, Geography	Climate Change Overview, Cryosphere	https://tropicsu.org/what-is-the-cryosphere/
4	Reading: What is the Lithosphere?	Earth Sciences, Geography	Climate Change Overview, Lithosphere	https://tropicsu.org/what-is-the-lithosphere/
5	Reading: What is the Hydrosphere?	Earth Sciences, Geography	Climate Change Overview, Hydrosphere	https://tropicsu.org/what-is-the-hydrosphere/
6	Reading: Climate and the Hydrosphere	Earth Sciences, Geography	Climate Change Overview, Hydrosphere	https://tropicsu.org/climate-and-the-hydrosphere/
7	Reading: Climate Change and Natural Disasters	Earth Sciences, Environmental Sciences, Geography	Climate Change Overview, Disasters and Hazards	https://tropicsu.org/climate-change-and-natural-disasters/
8	Reading: Climate Disasters: An Overview	Earth Sciences, Environmental Sciences, Geography	Climate Change Overview, Disasters and Hazards	https://tropicsu.org/climate-disasters-an-overview/

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9	Video: Climate Change and the Lithosphere	Earth Sciences, Geography	Climate Change Overview, Lithosphere	https://tropicsu.org/climate-change-and-the-lithosphere/
10	Video: Upwelling	Physics, Earth Sciences, Geography	Coriolis Force, Climate Physics, Atmospheric Physics	https://tropicsu.org/upwelling/
11	E-learning Course/Reading: 'The Discovery of Global Warming'	Physics, Earth Sciences, Environmental Sciences, Geography	Climate Change Overview, Greenhouse Effect, Global Warming, Climate Physics, Earth System, Earth's Climate System, Earth's Climate	https://tropicsu.org/the-discovery-of-global-warming/
12	Visualization: Show Your Stripes: Changes in Temperature	Geography, Earth Sciences, Environmental Sciences	Earth's Climate, Recent Climate Change, Climate History, Atmosphere	https://tropicsu.org/show-your-stripes-changes-in-temperature/
13	Video: Permafrost and Climate Change	Geography, Environmental Sciences, Earth Sciences	Greenhouse Effect	https://tropicsu.org/permafrost-and-climate-change-2/
14	Classroom/Laboratory Activity: Climate Change, the Cryosphere, and Rising Sea Levels	Geography, Earth Sciences	Cryosphere, Sea Level Rise, Hydrosphere, Glaciers, Disasters and Hazards	https://tropicsu.org/climate-change-the-cryosphere-and-rising-sea-levels/
15	Classroom/Laboratory Activity: Glacial Retreat in Glacier National Park	Geography, Earth Sciences	Glaciers, Cryosphere, Sea Level Rise, Disasters and Hazards	https://tropicsu.org/glacial-retreat-in-glacier-national-park/
16	Visualization: Melting Ice Sheets and Sea Level	Geography, Earth Sciences	Sea Level Rise, Hydrosphere	https://tropicsu.org/melting-ice-sheets-and-sea-level/
17	Reading: Glaciers as Indicators of Climate Change	Geography, Earth Sciences	Glaciers, Cryosphere, Earth's Climate, Sea Level Rise, Glaciers, Disasters and Hazards	https://tropicsu.org/glaciers-as-indicators-of-climate-change/

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18	Classroom/Laboratory Activity: Permafrost and Climate Change	Geography, Environmental Sciences, Earth Sciences	Greenhouse Effect, Cryosphere, Glaciers	https://tropicsu.org/permafrost-and-climate-change-3/
19	Reading: Hurricanes and Climate Change	Geography, Earth Sciences	Disasters and Hazards, Hydrosphere, Atmosphere	https://tropicsu.org/hurricanes-and-climate-change/
20	Video: Sea Level Rise	Earth Sciences, Geography, Environmental Sciences	Sea Level Rise, Hydrosphere, Disasters and Hazards	https://tropicsu.org/sea-level-rise/
21	Visualisation: The Effects of Sea-level Rise on the Coast of California	Geography, Earth Sciences	Sea Level Rise, Disasters and Hazards, Hydrosphere,	https://tropicsu.org/the-effects-of-sea-level-rise-on-the-coast-of-california/
22	Classroom/Laboratory Activity: Climate Change and Food Security in Africa	Social Sciences, Environmental Sciences, Geography	Food Security, Agriculture	https://tropicsu.org/climate-change-and-food-security-in-africa/
23	Visualisation: If Global Temperature Rises by 4 C	Geography, Environmental Sciences	Sea Level Rise, Disasters and Hazards, Food Security, Agriculture, Urban Geography, Water Security, Ocean Acidification	https://tropicsu.org/if-global-temperature-rises-by-4-c/
24	E-learning Course: Impact of Climate Change on Cities	Geography, Social Sciences	Human Migration, Urban Geography, Environmental Migration	https://tropicsu.org/impact-of-climate-change-on-cities/
25	Visualisation: Glaciers and Climate Change	Geography, Earth Sciences	Glaciers, Cryosphere, Sea Level Rise	https://tropicsu.org/glaciers-and-climate-change/
26	Climate Change and Agriculture	Social Sciences, Environmental Sciences, Geography	Food Security, Agriculture	https://tropicsu.org/climate-change-and-agriculture/

#	Teaching Tool Title	Disciplines	Key Topics	Link
27	Visualisation, Classroom/Laboratory Activity: A Story Map on Climate Change and Human Migration	Social Sciences; Humanities; Geography; Environmental Sciences	Human Migration, Climate Refugee	https://tropicsu.org/a-story-map-on-climate-change-and-human-migration/
28	Reading: Climate Change-Related Human Migration in Bangladesh	Social Sciences, Humanities, Environmental Sciences, Geography	Human Migration, Climate Refugees	https://tropicsu.org/climate-change-related-human-migration-in-bangladesh/
29	E-learning Course: Climate Change Adaptation and Mitigation in African Cities	Geography, Environmental Sciences, Social Sciences	Urban Geography, Public Policy, Disasters and Hazards	https://tropicsu.org/climate-change-adaptation-and-mitigation-in-african-cities/
30	Coffee Production and Food Security	Social Sciences, Geography	Agriculture, Food Security, Security Studies, Coffee, Peace and Conflict Studies	https://tropicsu.org/coffee-production-and-food-security/
31	The Greenhouse Effect	Chemistry, Geography	Greenhouse Effect, Greenhouse Gases	https://tropicsu.org/the-greenhouse-effect-4/
32	Climate Solutions by Project Drawdown	Economics, Geography, Environmental Studies	Climate Change Economics, Carbon Emissions, Social Cost of Carbon, Economic Policy, Energy, Energy Security, Agriculture, Gender, Urban Geography, Land Use	https://tropicsu.org/climate-solutions-by-project-drawdown/
33	Climate Solutions for the Food Sector	Geography, Economics, Environmental Sciences	Food Security, Agriculture, Carbon Emissions, Economic Growth, Climate Change Economics	https://tropicsu.org/climate-solutions-for-the-food-sector/
34	Climate Risk and Megacities	Social Sciences, Geography, Environmental Sciences	Urban Geography, International Relations, Human Migration, Security Studies, Peace and Conflict Studies, Climate Refugees	https://tropicsu.org/climate-risk-and-mega-cities/

#	Teaching Tool Title	Disciplines	Key Topics	Link
35	Changes in Intensity and Frequency of Hurricanes	Changes in Intensity and Frequency of Hurricanes	Disasters and Hazards, Hydrosphere, Atmosphere	https://tropicsu.org/changes-in-intensity-and-frequency-of-hurricanes/
36	Agriculture, Gender and Climate Change	Social Sciences, Geography	Sociology, Public Policy, Gender, Gender Studies	https://tropicsu.org/agriculture-gender-and-climate-change/
37	Human Migration and Displacement	Social Sciences, Geography, Environmental Sciences	Human Migration, Environmental Migration, Climate Refugees, War, Peace and Conflict Studies, International Relations, Security Studies	https://tropicsu.org/human-migration-and-displacement/
38	Food Insecurity in Somalia	Social Sciences, Geography, Environmental Sciences	Food Security, Agriculture	https://tropicsu.org/food-insecurity-in-somalia/
39	Transport, Gender and Climate Change	Social Sciences, Geography	Gender, Gender Studies, Transport, Urban Planning, Mobility, Urban Geography, Sociology	https://tropicsu.org/transport-gender-and-climate-change/
40	Food Security	Environmental Science, Geography, Earth Sciences, Social Sciences	Food Security, Climate Change and Food, Agriculture	https://tropicsu.org/food-security-3/
41	How Yukon glaciers are responding to climate change	Geography, Earth Sciences, Environmental Sciences	Glaciers, Cryosphere	https://tropicsu.org/how-yukon-glaciers-are-responding-to-climate-change/

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42	The Water Cycle	Chemistry, Earth Sciences, Environmental Sciences, Geography	Hydrosphere, Environmental Chemistry, Water Cycle, Biogeochemical Cycles, Hydrological Cycle, Condensation, Evaporation	https://tropicsu.org/the-water-cycle/
43	Determining Coastal Vulnerability to Sea-Level Rise	Geography, Earth Sciences	Hydrosphere, Urban Geography, Sea Level Rise	https://tropicsu.org/determining-coastal-vulnerability-to-sea-level-rise/
44	Climate Refugees	Social Sciences, Humanities, Environmental Sciences, Geography	Climate Refugees, International Relations, Peace and Conflict Studies, Political Science, Human Rights Human Migration, Climate Justice	https://tropicsu.org/climate-refugees/
45	NASA's collection of climate games	Earth Sciences, Environmental Sciences, Geography	Introduction to Climate Change, Biodiversity, Coral Bleaching, Greenhouse Effect, Greenhouse Gases	https://tropicsu.org/nasas-collection-of-climate-games/
46	Hadley Circulation	Geography, Earth Sciences, Physics	Atmosphere, Atmospheric Physics, Hadley Cell, Hadley Circulation, Heat Transport, Convection	https://tropicsu.org/hadley-circulation-5/
47	Population Demographics In A Warming World	Social Sciences, Geography	Sociology, Demography, Urban Geography	https://tropicsu.org/population-demographics-in-a-warming-world/
48	Earth's Climate and the Cryosphere: An Overview	Earth Sciences, Geography	Earth's Climate, Climate Change Overview, Cryosphere, Glaciers, Albedo, Milankovitch Cycles	https://tropicsu.org/earths-climate-and-the-cryosphere-an-overview/

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49	Interactive Quiz on the Water Cycle	Chemistry, Earth Sciences, Environmental Sciences, Geography	Environmental Chemistry, Water Cycle, Biogeochemical Cycles, Hydrological Cycle, Condensation, Evaporation, Evapotranspiration	https://tropicsu.org/interactive-quiz-on-the-water-cycle/
50	NASA Climate Games	Earth Sciences, Environmental Sciences, Geography	Climate Change Overview, Biodiversity	https://tropicsu.org/nasa-climate-games/