

Climates of the Past and Future

Day 1

1. CLIMATE OF A PLANET

8:00 BREAKFAST

8:30 Introductions, Pre-Test, & Assignment

8:50 ENGAGE: Heat Packs and the Conservation of Energy

9:00 EXPLORE: Rainbow Glasses, thermal IR camera, & EM spectrum

9:30 EXPLAIN: Energy and EM Radiation

10:00 EXTEND: People Power

10:30 BREAK

10:45 ENGAGE: Greenhouse molecule dancing

11:00 EXPLORE: UCAR Planet interactive

11:15 EXPLAIN: Earth's Energy Budget

11:45 EXTEND: Glass plates greenhouse model

12:15 LUNCH

2. CLIMATES OF THE PAST

1:00 ENGAGE: Molecules & Plate tectonics movies

1:10 EXPLORE: Arrhenius sensitivity calculation

1:30 EXPLAIN: Climate changes of the deep past

2:00 EXTEND: Sparkling water and the carbon cycle

2:30 EVALUATE: Discussion questions

2:45 BREAK

3:00 ENGAGE: Ice Core movie

3:05 EXPLORE: UCAR Tree ring builder

3:20 EXPLAIN: Ice ages and Holocene Climate

3:45 EXTEND: Last Millennium Calculators

4:00 EVALUATE: Discussion Questions

4:30 ADJOURN

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Day 2

3. CLIMATES OF THE FUTURE

8:00 BREAKFAST

8:30 ENGAGE: Video – “Carbon Crisis in 90 Seconds”

8:40 EXPLORE: Discovery of Global Warming

9:15 EXPLAIN: Climate Forcing, Response, Sensitivity, & Feedback

10:00 EXTEND: Observations of Modern Climate Change

10:15 EVALUATE: Discussion Questions

10:30 BREAK

10:45 ENGAGE: Personal Carbon Footprints

10:50 EXPLORE: Emissions & Climate Calculator

11:00 EXPLAIN: Perturbed Carbon Cycle

11:45 EXTEND: Carbon Cycle Models

12:00 LUNCH

1:00 ENGAGE: Video – Ostrich: “Warming Stopped in 1998”

1:05 EXPLORE: What is a Model?

1:30 EXPLAIN: Modern Climate Models, IPCC, and Future Climate

2:15 EXTEND: Earth:[Carbon] Calculator

2:30 BREAK

3:00 ENGAGE: Video -- Solar Power Revolution

3:10 EXPLORE: Climate Wedges website and game

3:30 EXPLAIN: Three S’s -- Simple, Serious, and Solvable

4:15 EVALUATE: Post-Test

4:30 ADJOURN