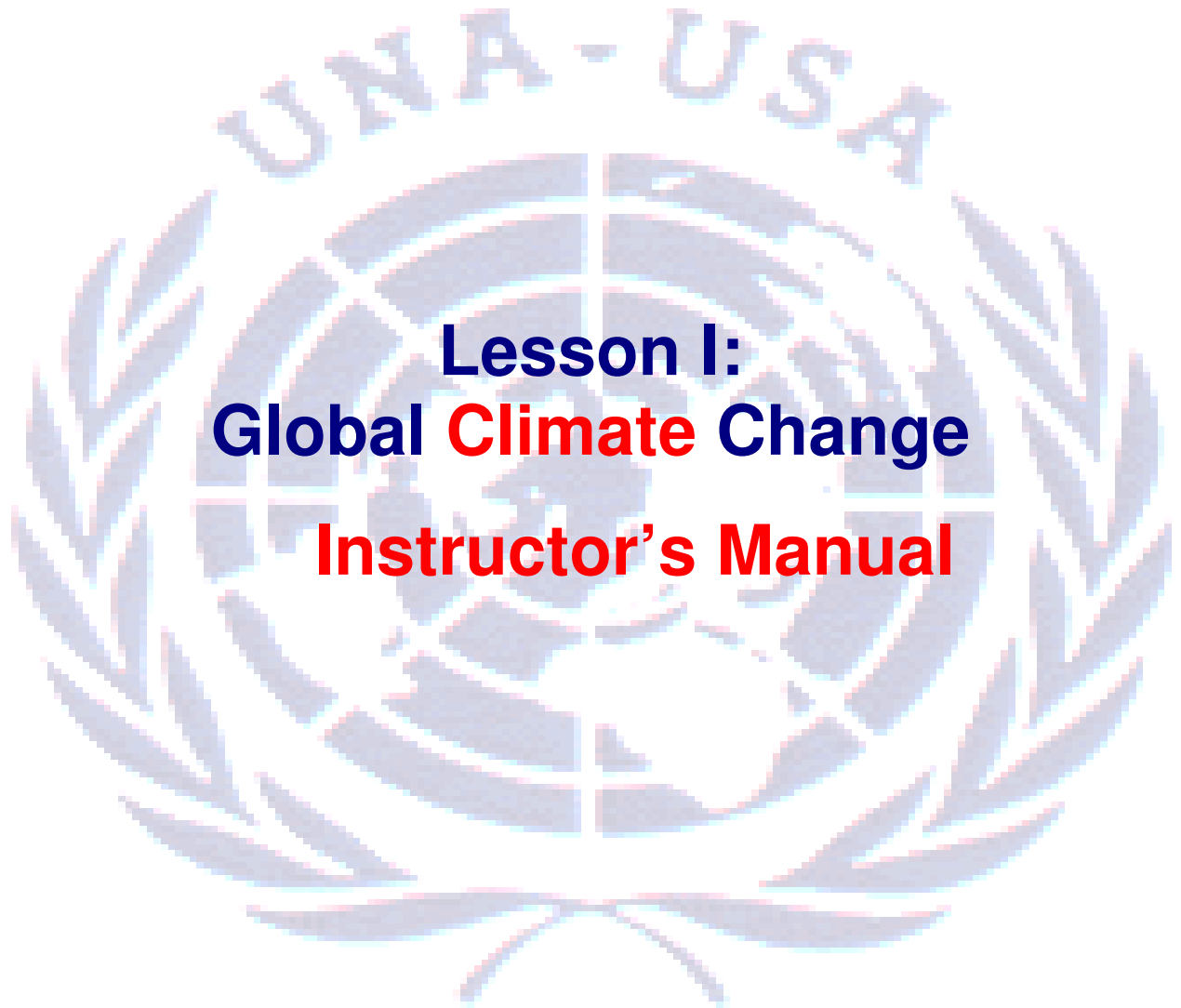


Climate **Change** Curriculum



Lesson I: Global **Climate** Change **Instructor's Manual**

United Nations Association of Southern Arizona,
a Chapter of the United Nations Association of the United States of America

Curriculum Framework

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Overview of Climate Change Unit

Lesson I. Global Climate Change

- I. Introduction to Key Concepts
- II. Changes in Climate and Its Effects
- III. Causes of Change
- IV Adaptation to Climate Change and Mitigation Options
- V. The Future of Climate Change

Lesson II. Climate Change in the North American Desert Biomes

- I. Desert Biome & Climate
- II. Environmental Pressures on People, Plants, and Animals
- III. Natural Resources

Lesson III. Desert Life & Renewable Energy

- I. Water
- II. Sustainable Development
- III. Renewable Energy

Curriculum Standards

Grade Level: High School [Grades 9-12]

Arizona Department of Education's Standards Based Teaching and Learning for High School Science are based on publicized standards as of 3.10.05. The table below states the strand, concepts and performance objectives for high school science students using the following abbreviation schema, SCHS [High School Level Science], S [Strand], C [Concept], O [Performance Objective].

Sections from the Climate Change Curriculum Unit's Lesson I: Global Climate Change relevant to standards are listed in the table below. An asterisk * indicates a performance objective is partially but not fully fulfilled. Bolded strands and concepts indicate a change in the sequence of strands or concepts

High School Science Standards	Curriculum Section / Activity	High School Science Standards	Curriculum Section / Activity
SCHS-S1C1-01	5.2.1	SCHS-S1C3-01*	1.0
SCHS-S1C1-02	Activity II	SCHS-S1C3-02	N.A.
SCHS-S1C1-03	Activity I	SCHS-S1C3-03	Activity I
SCHS-S1C1-04	Activity I	SCHS-S1C3-04	Activity I
SCHS-S1C2-01	Activity I	SCHS-S1C3-05*	1.2, 2.1
SCHS-S1C2-02	Activity I	SCHS-S1C3-06*	1.1
SCHS-S1C2-03	Activity I	SCHS-S1C3-07	Activity II
SCHS-S1C2-04	Activity I	SCHS-S1C4-01	Activity I
SCHS-S1C2-05	Activity I	SCHS-S1C4-02	Activity I, II
		SCHS-S1C4-03	Activity I
		SCHS-S1C4-04	Activity I

High School Science Standards	Curriculum Section / Activity	High School Science Standards	Curriculum Section / Activity
SCHS-S2C2-01	Qualitative (3.1,5.0) Quantitative (1.1)	SCHS-S3C2-01*	3.21, 4.1,4.5 *
SCHS-S3C1-01	2.3, 2.2, 5.2.1, 5.2.3, 5.2.4	SCHS-S6C2-03	1.1
SCHS-S3C1-02	5.2.2, 5.2.5.	SCHS-S6C2-16	1.2, 3.2.1, 3.3
SCHS-S3C1-03	5.3, 5.4	SCHS-S6C2-17	Optional assignment

Background Information:

Basis for Scientific Evidence. Scientific information and opinion in this curriculum is taken primarily from summaries of scientific reports produced by over 3,000 scientists worldwide that were assessed by the Intergovernmental Panel on Climate Change, a Nobel Prize Winning agency created by the United Nations Environment Program (UNEP) and The World Meteorological Organization (WMO). UNEP and WMOP are institutions of the United Nations. Both *qualitative and quantitative* statements are used in describing the degree of certainty assigned to the findings in IPCC reports. Updated climate science reports from UNEP are also referenced in the text. For a brief explanation on the use of such terms and the values they represent, see: Appendix II: [IPCC Treatment of Uncertainty](#). Students are provided with a more brief explanation in the student handbook.

Major IPCC and UNEP sources used in this curriculum were: IPCC's Synthesis Report: 2007, UNEP's [Global Deserts Outlook: 2006](#), UNEP's [Global Environmental Outlook -4: 2007](#), UNEP/GRID Arendal's [CCC Kick the Habit : A UN Guide to Climate Neutrality](#), IPCC's Climate Change 2007: Mitigation of Climate Change; Working Group Three Contribution to the Forth Assessment, and Geo Year Book 2008, UNEP.

Climate Change Perception Poll, Who's Worried about Climate Change? is viewable in: Appendix III.

UN Education Policy Framework. The educational policy framework used for this curriculum is based on the UN Inter-Agency Committee, Decade of Education for Sustainable Development: Education Section, UNICEF; New York, Paris, France, July 3-4, 2008. (see: endnotes / bibliography for sources). All sources are attributed in the endnotes of each lesson of the curriculum unit. IPCC documents contain multiple references to previous assessment

reports in 1990, 1995, 2001, and 2007. Each assessment published results of a Working Group (WG), WG's were named in succession: I, II, III, and IV. The IPCC notation system of the assessment reporting on evidence is followed. e.g. {1,1} refers to the first assessment report (1990), Section 1... a common abbreviation used is TAR for the IPCC's Third Assessment Report.

Performance Objectives: Lesson I

1. Name the major source of and timeframe of occurrence for global warming.
2. Distinguish global climate change as from natural climate change and name three sources of evidence.
3. Identify changes in three natural systems: glaciers, the hydrological system, and the ecological cycle.
4. Identify two types of greenhouse gases that have grown as a result of human activities.
5. Identify three possible risks of extreme weather events related to the impacts of climate change.

Audio Visual Equipment

- DVD player with projection capability through a powerpoint projector or smart board for classroom use with audio projection.
- Stand alone Powerpoint projector with audio or with lap top for projection in classroom.

Audio Visual Materials

- Global Climate Change DVD - 23 Minutes (Schlessinger Media: 2008)
- Powerpoint: _____minutes.

Printed Materials

Instructor's Version

- Curriculum Framework
- Student Handout
- Appendix I: Activity I – Greenhouse Gas Effect Experiment
- Appendix II: Activities II, III Carbon Calculators: Portrait & Panoramic
- Appendix III: IPCC Treatment of Uncertainty [student handout]
- Appendix IV: Climate Change Perception Poll
- Appendix V : Arizona HS Science Standards Applied in Lesson I

Student Version

- Student Handout
- Appendix III: IPCC Treatment of Uncertainty [student handout]
- Appendix V: Bibliography & Endnotes