

CLEAN Short Demonstration/Experiment Review Form - 1st review

RC Initial Review - Short demonstration/experiment

- This review is part of the third review round starting in spring 2011

Scientific Accuracy

Is an attribution provided that represents a credible source such as a university or government agency?

- yes
 no

Resource is free of scientifically out-of-date material.

- 4 definitely
 3 somewhat
 2 a little
 1 no

Does the resource clearly present valid/accurate concepts, models, and skills?

- 4 definitely
 3 somewhat
 2 a little
 1 no

Does the resource effectively address common preconceptions/misconceptions?

- 4 definitely
 3 somewhat
 2 a little
 1 no
 not applicable

Are links to the original data sources provided?

- 4 definitely
- 3 somewhat
- 2 a little
- 1 no
- not applicable

Where appropriate, are references, bibliographies and other supporting material provided?

- yes
- no

Draft Science Annotation - please include strengths and concerns (content to be used for catalog record):



Overall Rating of Scientific Accuracy

- Meets highest scientific standards, up-to-date e.g. IPCC 4th report
- Scientifically sound but does not meet highest standards
- Minor scientific short-comings that can be addressed in annotations
- Has major scientific short-comings or even conveys misconceptions
- Can't answer this

Pedagogic effectiveness

Is/Are learning objective(s) clearly stated?

- yes
- no

Do the instructional strategies build toward mastering the learning objective(s)?

- 4 definitely
- 3 somewhat
- 2 a little
- 1 no
- not applicable

Which of the following learning styles is addressed by this resource? (check all that apply)

- auditory
- visual
- kinesthetic
- tactile

Is the resource free from material that might interfere with effective use by a wide range of learners (e.g. negative stereotypes or insensitive treatment of sensitive subjects)?

- 4 yes
- 1 no
- can not answer

Comments

Is the resource engaging and motivating for students?

- 4 definitely
- 3 somewhat
- 2 a little
- 1 no

Are students engaged in inquiry, independent thinking or problem solving through this resource?

- 4 definitely
- 3 somewhat
- 2 a little
- 1 no
- not applicable

Does the resource provide a vehicle for asking questions or seeking further information beyond the activity?

- 4 definitely
- 3 somewhat

- 2 a little
- 1 no

Draft Pedagogy Annotation - please include strengths and concerns (content to be used for catalog record):



Overall Rating of Pedagogic Effectiveness

- Pedagogically very effective and carefully designed, suitable target audience
- Pedagogic design is good and resource is useful as a learning tool for target audience, minor pedagogic short-comings
- Pedagogical design does meet basic standards but has considerable shortcomings
- Poor pedagogical design, not recommended as a learning tool for target audience
- Can't answer this

Ease of use & technical quality

Is the resource free of distracting or off-topic advertising?

- yes
- no

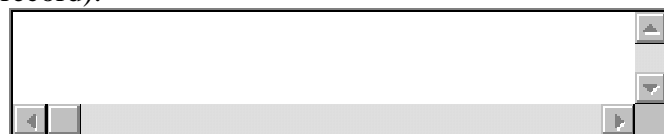
Is the resource complete in scope and ready for use?

- yes
- no

Are the materials used in the resource commonly found in science classrooms?

- yes
- no
- not applicable

List uncommon materials or computer access needs here (content will be used for catalog record):



Will students be able to complete this activity without excessive additional instruction or technical support from the teacher?

- 4 definitely
- 3 somewhat
- 2 a little
- 1 no

Draft annotation about Technical Quality and Ease of Use - please include strengths and concerns (content to be used for catalog record):



Overall Rating of Technical Quality

- Technically robust and adequate for use in typical educational environment
- Technically good, minor shortcomings in technical aspects when used in typical educational environment
- Technically weak, minor problems when used in typical educational environment
- Technically weak, major problems when used in typical educational environment
- Not Applicable
- Can't answer this

Overall Rating of Ease of Use

- Very easy and intuitive to use for students and teachers, grade-level appropriate design
- Fairly easy to use for students and teachers
- Careful guidance of students through material needed
- Easy to get lost in material, counter-intuitive and/or not grade-level-appropriate
- Can't answer this

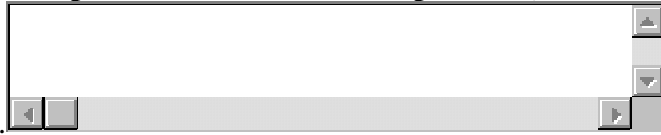
Teaching Tips

Teaching Tips (content will be used for catalog record):



Amount of time required for this activity (content will be used for catalog record - format

example "half a 45 min lesson periods"):



If the resource is part of a larger collection and there is a relevant parent URL please copy the URL here (format [URL]- content will be used for catalog record):

Essential Principles of Climate and Energy Literacy

Select the primary principle(s) that are addressed by the resource.

- GP Humans can take actions to reduce climate change and its impacts.**
- GP a Climate science improves informed policy and decision-making
- GP b Reducing human vulnerability to and impacts on climate requires multi-disciplinary, integrated understanding
- GP c Climate change affects global/national security
- GP d Greenhouse gas reduction and carbon dioxide sequestration to mitigate climate change
- GP e Strategies to reduce greenhouse gas emission (energy conservation, renewable energies, change in energy use)
- GP f Strategies of human adaptation to climate change
- GP g Actions taken by different levels of society can mitigate climate change and increase preparedness for current and future generations

- 1 The Sun is the primary source of energy for Earth's climate system**
- 1a Sunlight warms the planet
- 1 b Earth's Energy balance
- 1 c Axial tilt of Earth governs incoming sunlight and seasonality
- 1 d Milankovitch/orbital cycle
- 1 e Solar variability has no significant impact on Earth's current warming

- 2 Climate is regulated by complex interactions among components of the Earth system**
- 2 a World's climate definition
- 2 b Ocean as climate control, oceanic conveyor belt; abrupt changes in thermohaline circulation

- 2 c Greenhouse effect
- 2 d Biogeochemical cycles of greenhouse gases / Carbon cycle
- 2 e Role of aerosols in climate system
- 2 f Equilibrium and feedback loops in climate system

- 3 Life on Earth depends on, is shaped by, and affects climate**
- 3 a Climate's role in habitats ranges and adaptation of species to climate changes
- 3 b The Greenhouse effect supports the water cycle and makes life possible
- 3 c Climate impacts ecosystems and past species extinctions
- 3 d Holocene is unusually stable – human infrastructure vulnerable to change
- 3 e Biosphere drives the global carbon cycle

- 4 Climate varies over space and time through both natural and man-made processes**
- 4 a Definition of climate and climatic regions
- 4 b Climate is not the same thing as weather – defining difference
- 4 c Climate change vs. climate variability and patterns
- 4 d Changes in climate is normal but varies over times/ space
- 4 e Global warming and especially arctic warming is recorded in natural geological and historic records
- 4 f Evidence is that human impacts are playing an increasing role in climate change
- 4 g Natural processes of CO₂ removal from atmosphere is slow; Long residence time of some GHG

- 5 Our understanding of the climate system is improved through observations, theoretical studies, and modeling**
- 5 a Climate system is subject to the same physical laws as the rest of the Universe
- 5 b Observations are the foundation for understanding the climate system
- 5 c Observations, experiments, and theory are used to construct and refine computer models
- 5 d Meteorology and climatology are related but different sciences, and their processes are modeled and forecast differently
- 5 e Climate models are robust enough to be used for guiding decision and actions as response to climate change

- 6 Human activities are impacting the climate system**

- 6 a Global warming is "very likely" caused by human greenhouse gas emission
- 6 b Increased GHG concentrations in atmosphere will remain high for centuries and affect future climate
- 6 c Human activities have increased GHG levels and altered global climate patterns
- 6 d Evidence shows that human-caused global warming have impacted ecosystem resulting in reduced biodiversity and ecological resilience
- 6 e Negative impacts of global warming outweigh positive

- 7 Climate change will have consequences for the Earth system and human lives**
- 7 a Sea level rise and resulting impacts is due to melting ice and thermal expansion and increases the risk
- 7 b Effects of climate change on water cycle and freshwater availability
- 7 c Increased extreme weather events due to climate change
- 7 d Increased acidity of oceans and negative impacts on food chain due to increasing carbon dioxide levels
- 7 e Ecosystems on land and in the ocean have been and will continue to be disturbed by climate change
- 7 f Human health and well-being will be affected to different degrees from the impacts from climate change

- Addresses Energy Awareness**
- A. Energy drives the Earth System
- B. Primary sources of energy used by society are non-renewable and renewable sources
- C. Humans' use of energy has consequences on the environment
- D. Distribution of energy sources varies around the planet, resulting in distribution and transmission costs
- E. Human use of and access to energy result in social, political and equity issues
- F. Informed decision-making, technological and societal innovation and improved efficiency needed to reach sustainability

- Addresses CLEP/Energy Solutions (this is superceded by the energy terms above)

Audience Level

Please select the grade level for which this material is most appropriate (in your judgement)
Check all that apply.

- Primary (K-2) (note that this grade range is out of scope for CLEAN)
- Intermediate (3-5) (note that this grade range is out of scope for CLEAN)
- Middle (6-8)
- High School (9-12)
- College Lower (13-14)
- College Upper (15-16)
- Graduate or Professional
- Informal Education (museums, park displays)

Grade level notes (content will be used for catalog record):



Overall Rating of Relevance to CLEAN

- High Priority (Resource likely to be included in CLEAN collection of excellent resources)
- Medium Priority (Resource meets basic CLEAN standards)
- Low Priority (Resource meets basic CLEAN standards but is of lower priority)
- Hold for Later Review (Keep in pool for another review at later stage)
- Excellent but Incomplete (Excellent and relevant but needs improved activity sheet)
- Do Not Include (Resource doesn't meet basic CLEAN standards)
- Review in process (not yet complete)
- Unvetted (Review not yet complete)

Other Reviewer Comments (for internal use only - not used for catalog record)

