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## Creative Earthlings

Inspiring Students to Study  
the Earth and Create a  
Better Future

CreativeEarthlings.co  
Brooklyn, NY

# Let's Talk Clouds Program Lesson Plan

## 1. Objectives

1. Learn cloud formation physics
2. Learn the importance of clouds in the Earth system and for the human, animal, and plant populations
3. Learn to observe and identify different cloud types
4. Estimate cloud cover by percentage and meteorological nomenclature
5. Learn how to work in collaborative scientific teams to conduct observations
6. Build observational skills using scientifically rigorous protocols
7. Learn how to collect, report, and analyze science data

## 2. Subject Matter

1. Topic: Cloud Formation Physics, Type, Cover, and Role in Ecosystem and Biosphere
2. Materials: PowerPoint Presentation, plastic bottles, baby powder, cloud poster, cloud charts, blue and white pieces of paper, glue sticks.

## 3. Procedure

1. Overview of Earth Satellite Image.
  1. Explore difference between observation and remote sensing.
2. Explore why scientists or anyone might study clouds
3. Explore clouds' purpose and effect on the planet. Discuss difference between weather and climate.
4. Explore cloud formation physics
  1. Conduct interactive "Cloud in a Bottle" activity
    1. Formation ingredients: water (vapor), dust (condensation nuclei), temperature change
5. Explore and identify ten different cloud types with the Cloud Triangle
  1. Main Cloud shapes and their identifying characteristics (shape, altitude, rain)
    1. Cirrus, Cumulus, Stratus
    2. High clouds (Cirrus, Cirrostratus, Cirrocumulus)
    3. Middle clouds (Altostratus, Altocumulus)
    4. Low clouds (Stratus, Stratocumulus, Cumulus)
    5. Rain clouds (Nimbostratus, Cumulonimbus)
  2. Interactive question and answer – student-generated discussion
  3. Cloud Game Show Quiz
6. Cloud Cover
  1. Nomenclature
    1. No clouds, Clear, Isolated, Scattered, Broken, Overcast
  2. Conduct interactive "Cloud Cover" activity
7. Outdoor Field Component
  1. Working in groups, like scientists, students use cloud charts observe and record Cloud type and cloud cover estimates.

## 4. Next Generation Science Standards

1. Earth's Place in the Universe
2. Weather and Climate
3. Waves and Their Applications in Technologies for Information Transfer
4. Earth's Systems
5. Structure and Properties of Matter
6. Matter and Its Interactions
7. Energy