



CLIMATE CHAOS

An iPad Application to Enhance Climate Change Education

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“Climate is the result of energy transfer among interactions of the atmosphere, hydrosphere, geosphere, and biosphere.”
- CDE Earth Systems Science Standard 4

“There are costs, benefits, and consequences of exploration, development, and consumption of renewable and nonrenewable resources”
- CDE Earth Systems Science Standard 5

“Natural Hazards have local, national and global impacts such as volcanoes, earthquakes, tsunamis, hurricanes, and thunderstorms.”
- CDE Earth Systems Science Standard 7

EDUCATIONAL PRINCIPLES

ENGAGING
CAPTURE THE STUDENT’S ATTENTION
USER INTERACTION ALLOWED BY THE IPAD AND IMPLEMENTED IN THE GAME, HELPS ENGAGE THE USER FROM THE OPENING SCREEN THROUGHOUT.

RELEVANT
CONNECT TO THE STUDENT’S WORLD
THE USER HAS MUCH MORE INFLUENCE ON **CLIMATE CHAOS**’S WORLD THAN THEIR OWN WORLD, HELPING DEVELOP A SENSE OF EMPOWERMENT AROUND THE TOPIC OF CLIMATE CHANGE.
THE USER’S SUCCESS IS DIRECTLY RELATED TO THE WELL-BEING OF THE FAMILY THAT THEY CHOOSE TO PLAY AS, HELPING TO CREATE A CONNECTION BETWEEN THE ABSTRACT CONCEPT OF CLIMATE CHANGE AND THE VERY REAL EFFECTS IT HAS ON PEOPLE.

FUN
MAKE THE STUDENT WANT TO PLAY
THE GAME-LIKE FORMAT OF **CLIMATE CHAOS** CREATES AN ATTAINABLE CHALLENGE. IT’S NOT IMPOSSIBLE TO SAVE THE WORLD AND LIVE THROUGH THE 21ST CENTURY, BUT IT ISN’T EASY EITHER. THE FUN LIES WITHIN THE CHALLENGE OF LIVING AND DEVELOPING YOUR WORLD DESPITE THE CONSTANT THREAT OF DEADLY CLIMATE EVENTS
THE USER IS EMPOWERED BY THE CONTROL THEY HAVE OVER THE CLIMATE OF THEIR WORLD. THE USER’S DECISIONS HAVE A DIRECT AND TANGIBLE INFLUENCE ON THE WELL-BEING OF THEIR FAMILY AND THEIR EVENTUAL SUCCESS OR FAILURE IN THE GAME.

ACCURATE
TEACH THE STUDENT ACCURATE MATERIAL
LEARNING IN **CLIMATE CHAOS** IS IMPLICIT, AS THE USER GAINS CONCEPTS AND UNDERSTANDING OF KEY CLIMATE CHANGE ISSUES OUTLINED UNDER “BASIC CONCEPTS”. THESE CONCEPTS ARE LEARNED SIMPLY BY PLAYING.

BASIC CONCEPTS

PEOPLE USE EARTH’S NATURAL RESOURCES TO SURVIVE.
A) **ENERGY** – COAL, SOLAR PANELS, & WIND TURBINES
B) **FOOD** – PRODUCED ON FARMS
C) **WATER** – TAKEN FROM LAKES, STREAMS & AQUIFERS

THERE ARE ANTHROPOGENIC SOURCES OF CO₂.
A) **EMISSIONS** – FROM BURNING COAL & OTHER FOSSIL FUELS
B) **LAND USE** – DEFORESTATION & REFORESTATION EFFECTS

CO₂ IMPACTS CLIMATE IN PREDICTABLE WAYS.
A) **TEMPERATURE** – CO₂ HAS A RADIATIVE FORCING OF APPROXIMATELY THREE DEGREES PER DOUBLING IN CONCENTRATION.
B) **PRECIPITATION** – PREDICTED BY GLOBAL CLIMATE MODELS BASED ON HOW TEMPERATURES IMPACT THE GLOBAL CLIMATE SYSTEM. (A2, A1B, & B2 SCENARIOS ARE INCLUDED IN **CLIMATE CHAOS**.)

CLIMATE CHANGE HAS SERIOUS IMPLICATIONS FOR THE WAY THAT HUMANS LIVE.
A) **CLIMATE EVENTS** – HURRICANES, TORNADOS, DROUGHTS, FLOODS, SEA LEVEL RISE, TSUNAMIS, FOREST FIRES AND OTHER SEVERE WEATHER EVENTS ARE LINKED TO CLIMATE CHANGE

OUR CHOICES GOING FORWARD CAN HELP US DEAL WITH THE NEGATIVE IMPACTS OF CLIMATE CHANGE.
A) **REDUCE** – REDUCE OUR EMISSION OF FOSSIL FUELS AND HENCE OUR IMPACT ON THE CLIMATE SYSTEM
B) **ADAPT** – ADAPT TO CHANGING REGIONAL AND LOCAL CLIMATES TO MITIGATE NEGATIVE EFFECTS