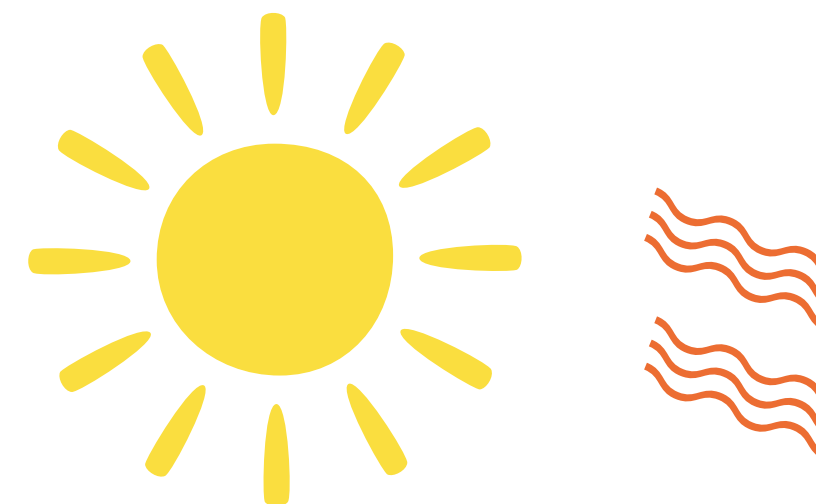




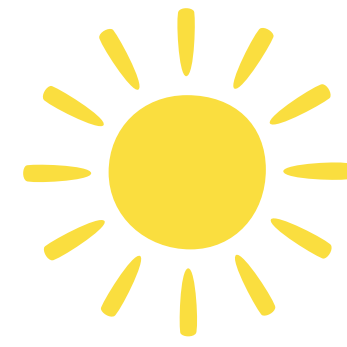
Interactive Escape Rooms for Climate Crisis Awareness and Civic Engagement in School Education

Module 1: Why is Our Climate in Crisis?

Unit 1: The Earth's Energy Balance

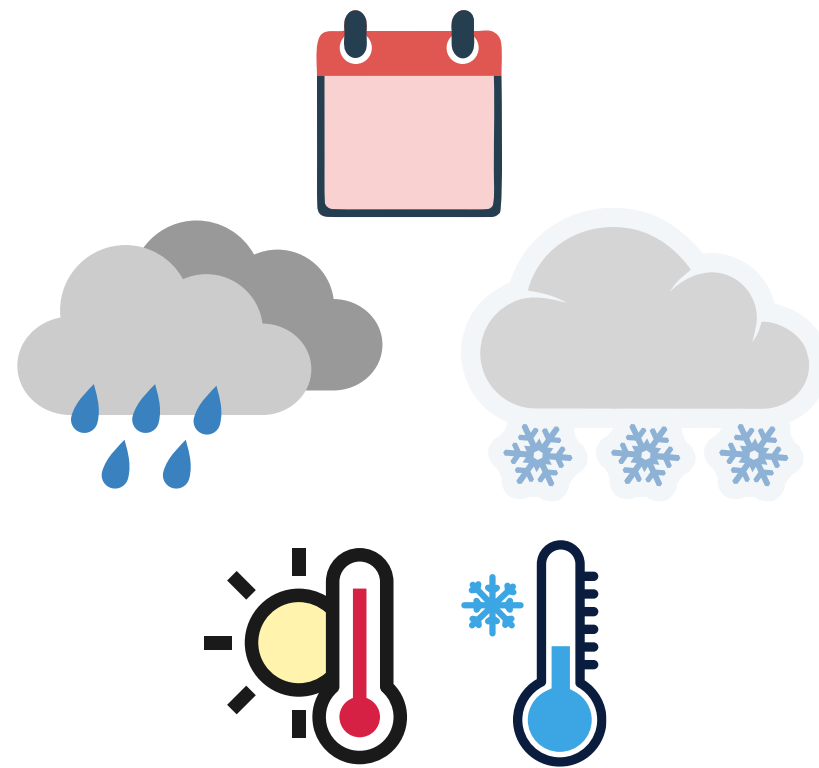


Weather vs Climate

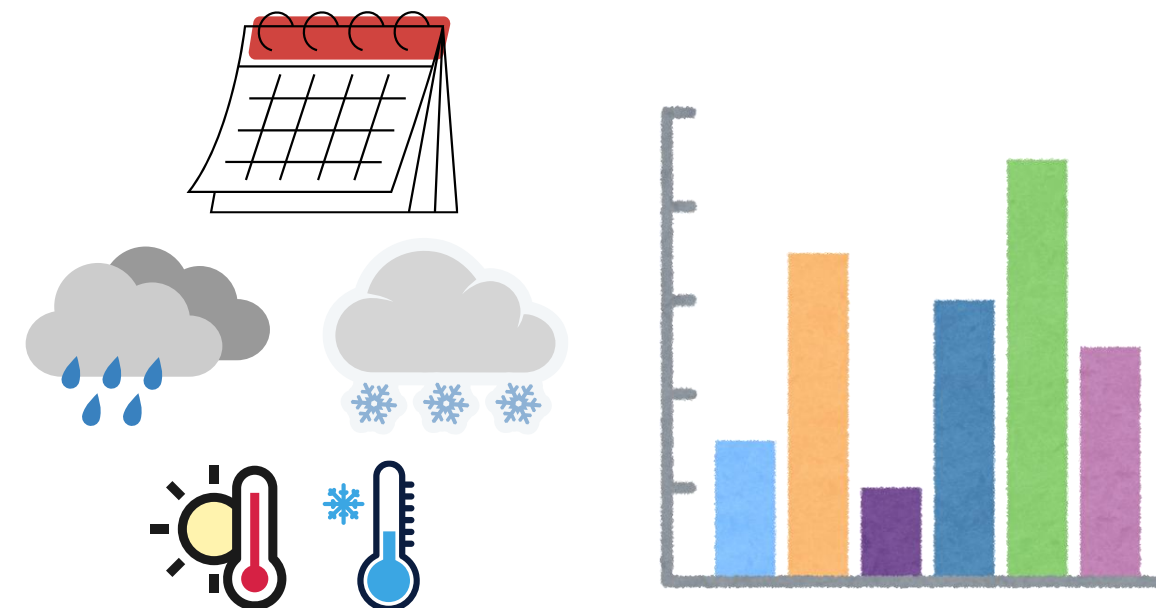


European Space Agency – Weather vs Climate

**Weather = what happens today
(rainy, sunny, hot)**



**Climate = average weather over many
years**



The Sun: Earth's Energy Source

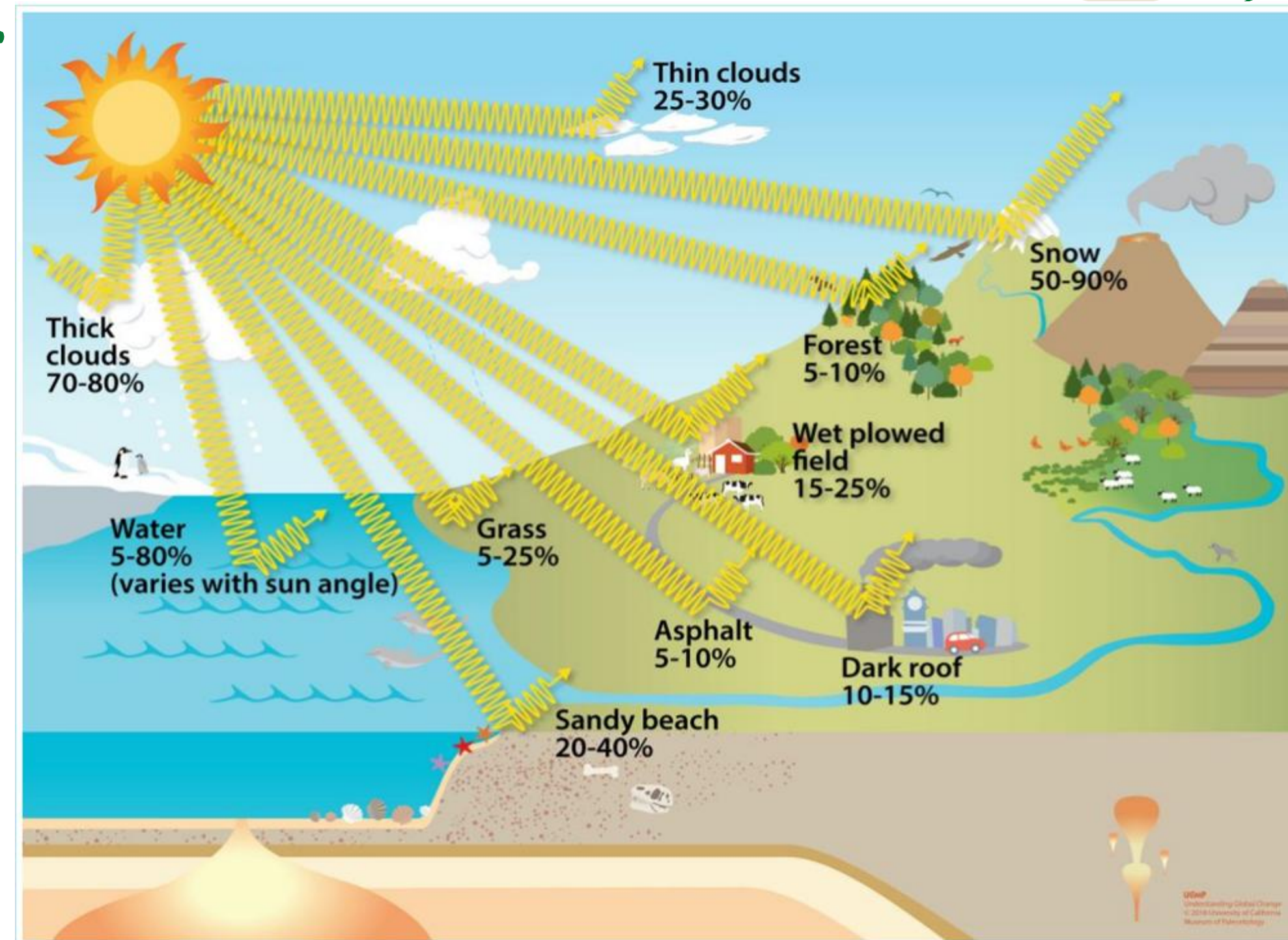


The Sun gives energy to Earth

- Some sunlight is reflected by clouds and ice
- Some sunlight is absorbed by land and oceans
- Absorbed energy is trapped within the atmosphere and warms the planet

How solar energy is reflected and absorbed

Source: [University of California Berkley](https://www.berkeley.edu/)



Let's Experiment



Heat Reflection vs Heat Absorption

Materials needed:

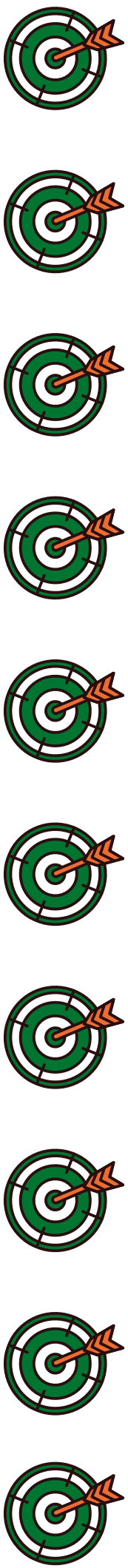
- 2 lamps
- 1 sheet of white paper
- 1 sheet of black paper

Instructions:

Place the black paper under one lamp and the white paper under the other. Then shine the lamps for 2 minutes.

Which paper is warmer?
Why?





Key takeaways



- Earth's climate stays stable when energy is balanced (the Sun radiates more or less the same amount of energy to Earth as the Earth radiates back into outerspace)
- Adding more energy (primarily heat) from sources within the planet can disturb this balance
- Small changes can have big effects:
 - If the Sun did not radiate the same energy it currently does, the Earth would be much cooler (and probably too cold to support most life - especially humans!)
 - If humans produce more heat than what can be radiated (exerted into outerspace) by the Earth, this heat becomes trapped and contributes to global warming and more severe climate fluxes





Thank you!

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