



# Global warming

# Global warming: Causes and effects

Earth's temperature has risen about 1 degree Fahrenheit in the last century. The past 50 years of warming has been attributed to human activity.

Burning fuels such as coal, natural gas and oil produces greenhouse gases in excessive amounts.

Greenhouse gases are emissions that rise into the atmosphere and trap the sun's energy, keeping heat from escaping.

The United States was responsible for 20 percent of the global greenhouse gases emitted in 1997.

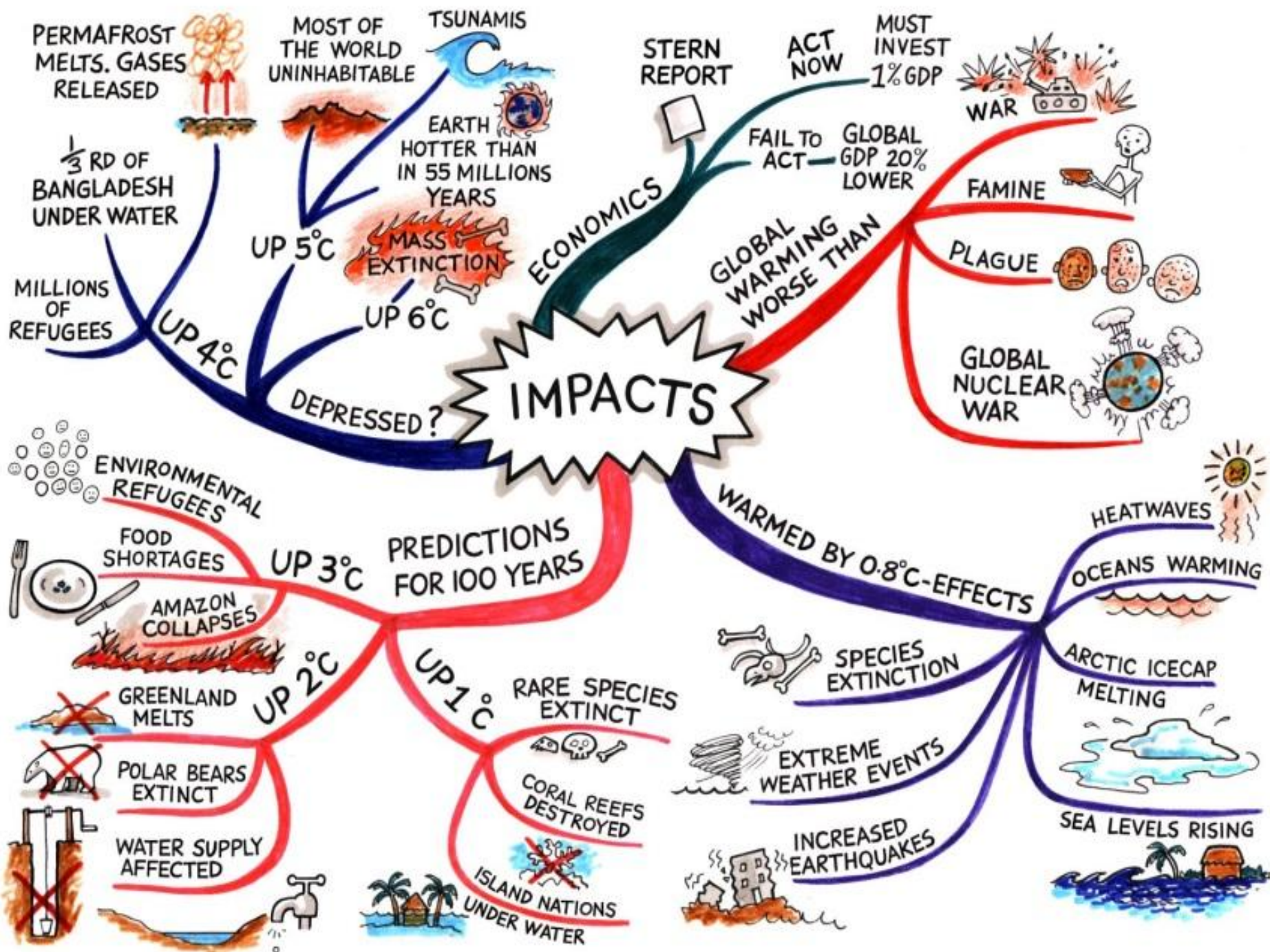
Most of the world's emissions are attributed to the United States' large-scale use of fuels in vehicles and factories.

During the past 100 years global sea levels have risen 4 to 8 inches.

Some predictions for local changes include increasingly hot summers and intense thunderstorms.



Damaging storms, droughts and related weather phenomena cause an increase in economic and health problems. Warmer weather provides breeding grounds for insects such as malaria-carrying mosquitoes.



# SCIENCE OF GLOBAL WARMING

## 1750 INDUSTRIAL REVOLUTION

### GREENHOUSE GASES

- CO<sub>2</sub> (Most Abundant)
- CH<sub>4</sub> (Methane)
- N<sub>2</sub>O
- TRACE GASES
- CFC's

### CO<sub>2</sub>

MOST ABUNDANT

LASTS FOR DECADES TO CENTURIES

### METHANE

2ND MOST ABUNDANT

### MAN MADE CFC'S

LIFETIME 45-1,700 YEARS

1750

280 PARTS PER MILLION

380 PARTS PER MILLION

HIGHEST IN 650,000 YEARS

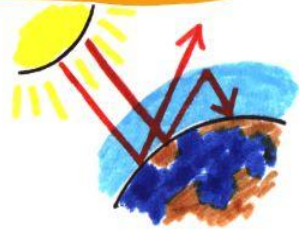
NOW



WATER ABSORBS 90%



ICE REFLECTS 90%



SOLAR RADIATION

## GREENHOUSE EFFECT

GREENHOUSE GASES

NATURAL TRAPHEAT

MANMADE TRAPHEAT

BEFORE



FINE BALANCE

14°C

10,000 years

SUSTAINED LIFE ON EARTH

AFTER



BALANCE DISRUPTED

14.7°C

BURNING FOSSIL FUELS

ENERGY

TRANSPORTATION

WASTE CO<sub>2</sub>



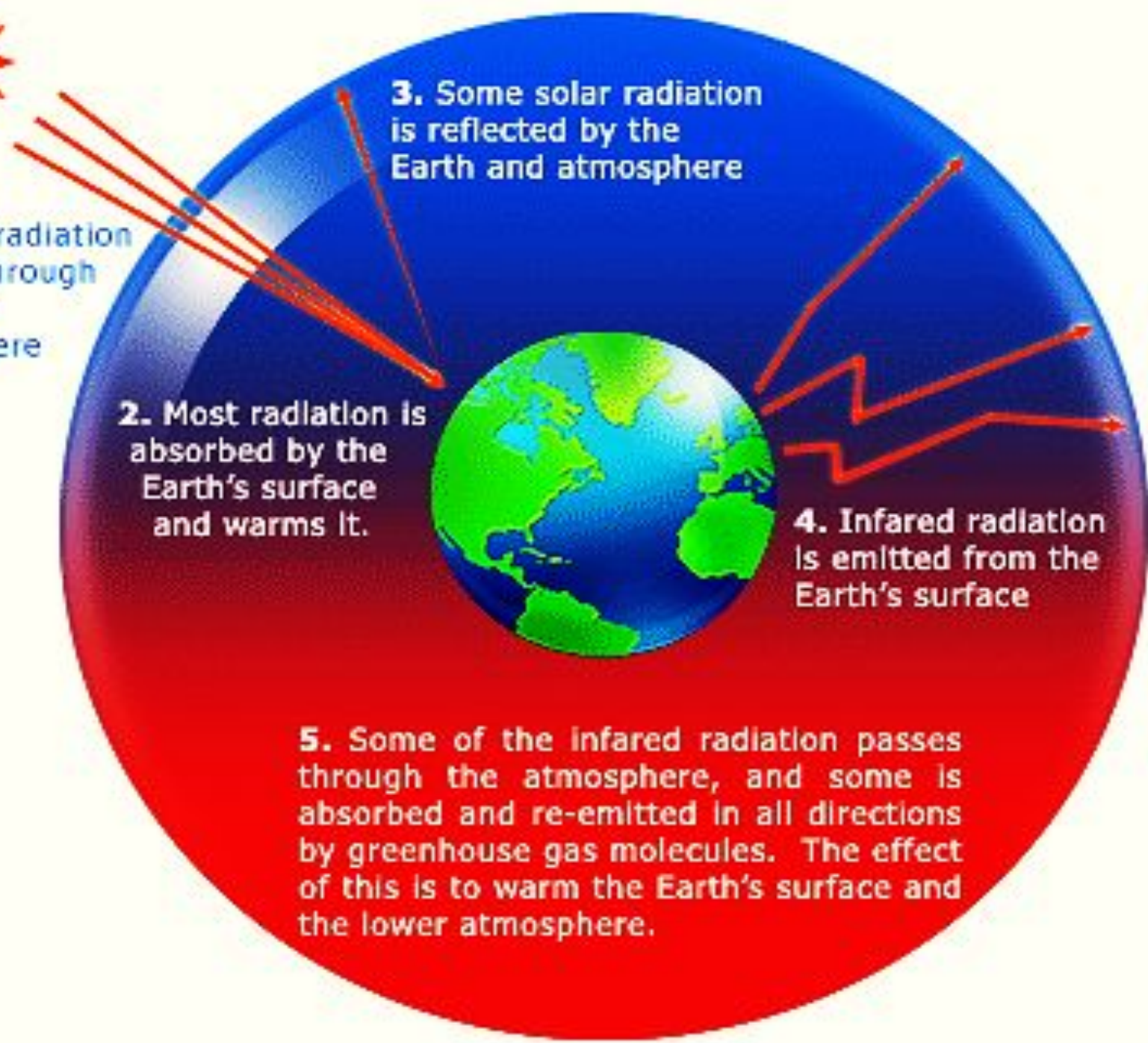
**1.** Solar radiation passes through the clear atmosphere

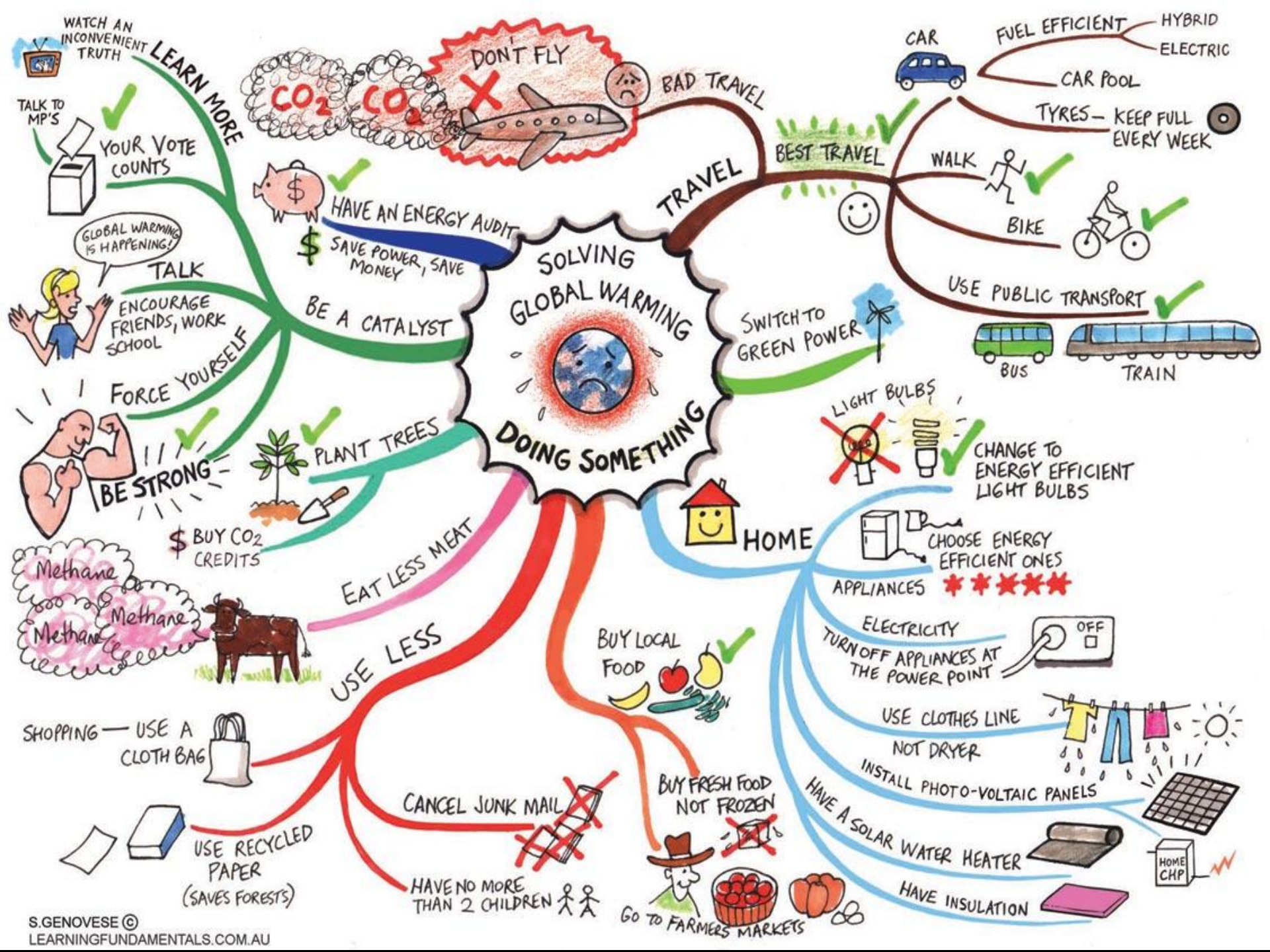
**2.** Most radiation is absorbed by the Earth's surface and warms it.

**3.** Some solar radiation is reflected by the Earth and atmosphere

**4.** Infrared radiation is emitted from the Earth's surface

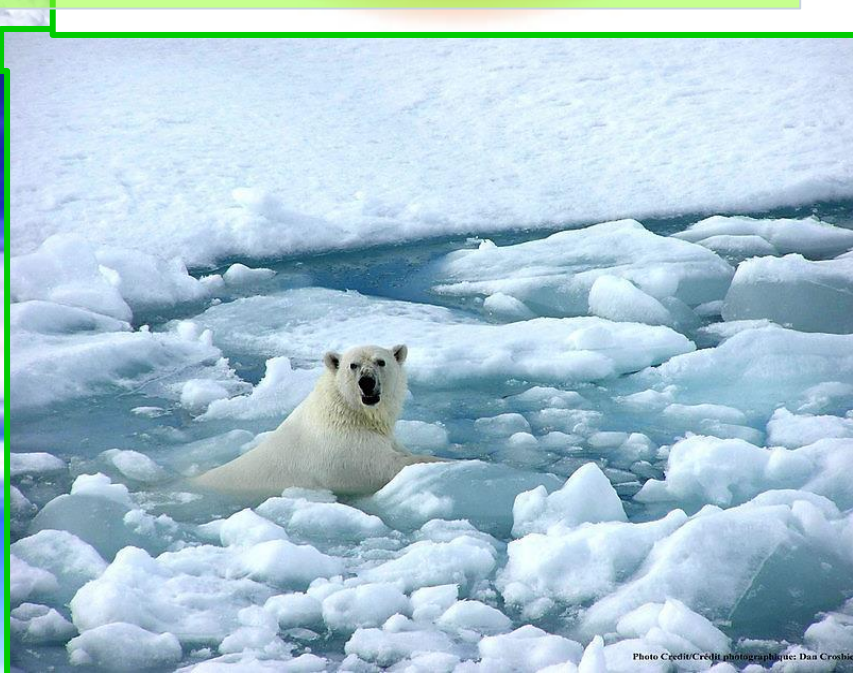
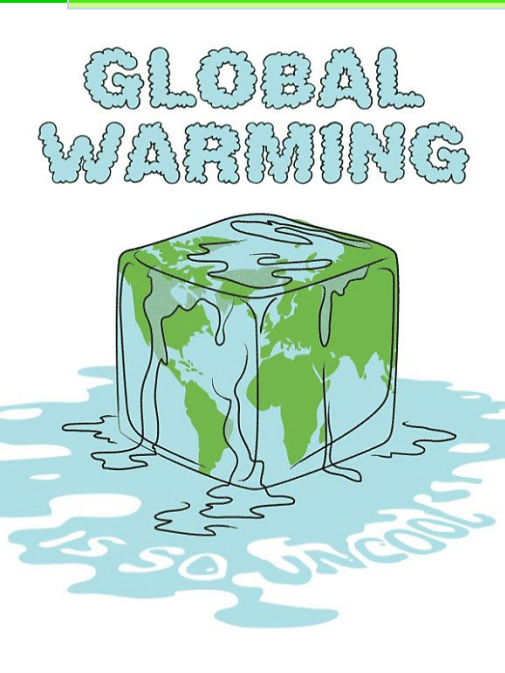
**5.** Some of the infrared radiation passes through the atmosphere, and some is absorbed and re-emitted in all directions by greenhouse gas molecules. The effect of this is to warm the Earth's surface and the lower atmosphere.







**Stop global warming before it stops you**



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