

P3, Presentation

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Topic - Mother Nature

Types of pollution affecting Nature

Air pollution

Water pollution

Thermal pollution

Radioactive pollution

Noise pollution

Light pollution



Air Pollution

Leading to Global warming

Sources and Causes of Environmental Pollution

- Industrial activities
- Dumping solid waste
- Vehicles
- Rapid Urbanization and Industrialization
- Population Overgrowth
- Combustion of fossil fuels
- Agricultural waste
- Volcano eruption



Increase of Carbon Dioxide - 410 ppm(parts per million)

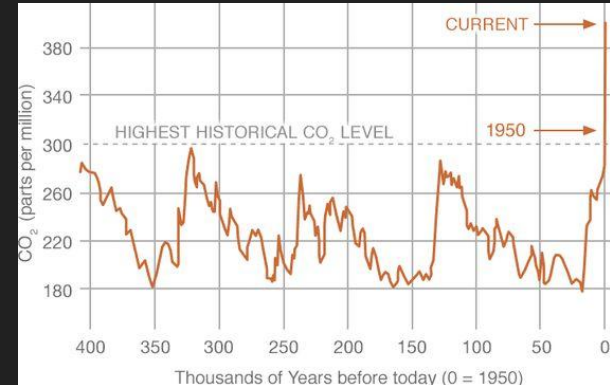
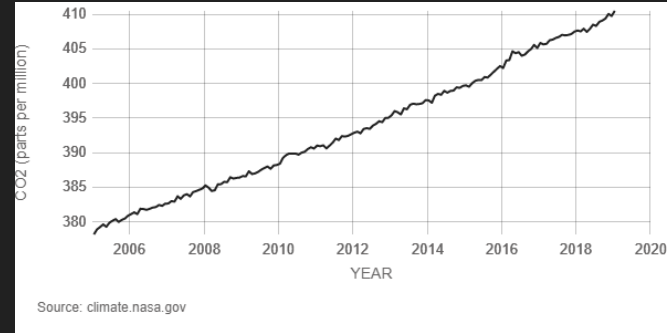
Carbon dioxide is an important heat-trapping(greenhouse gas)

Realised through human activities

The first graph shows atmospheric **CO₂ level measured** at Mauna Loa Observatory.

The secondary shows CO₂ level during the **last three glacial cycle**

Life span of CO₂ is approx 100 years in the atmosphere.

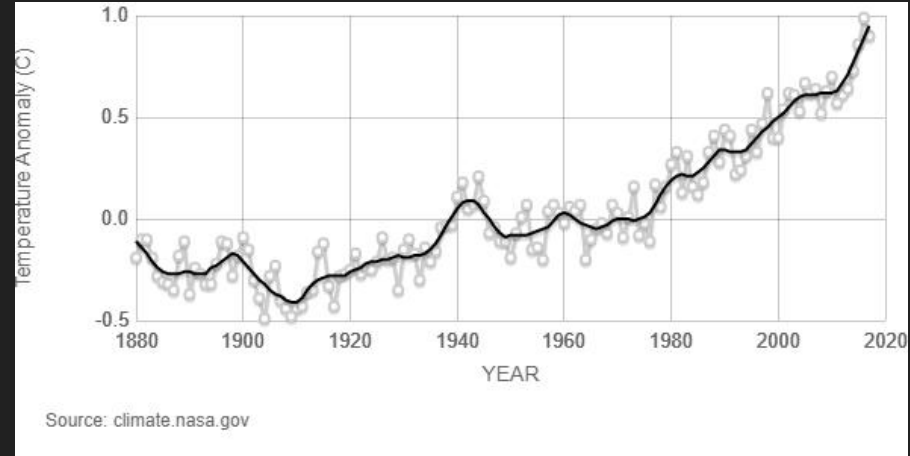


Global Temperature - 0.9°C ↑

The graph illustrates the change in global surface temperature.

18 warmest years in the 136-year recorded all have occurred since 2001.

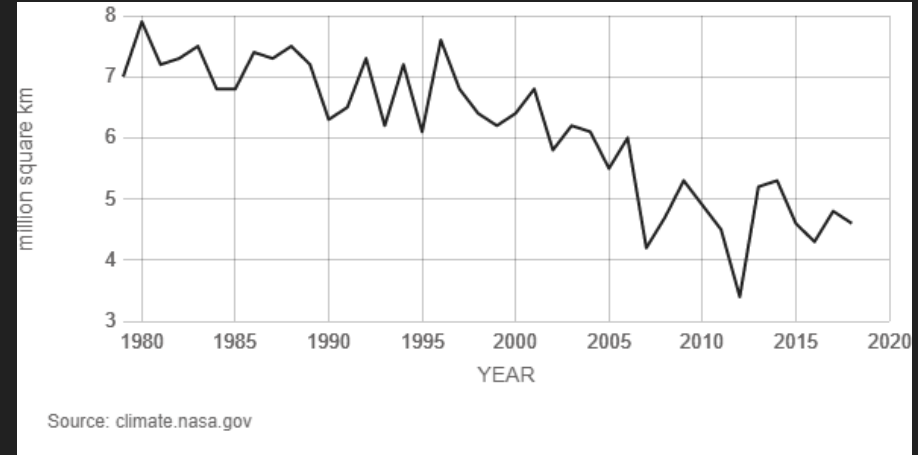
The year 2016 ranks as the warmest on record.



Arctic sea Ice Minimum - 12.8 % per decade

Arctic sea ice reaches its minimum each september.

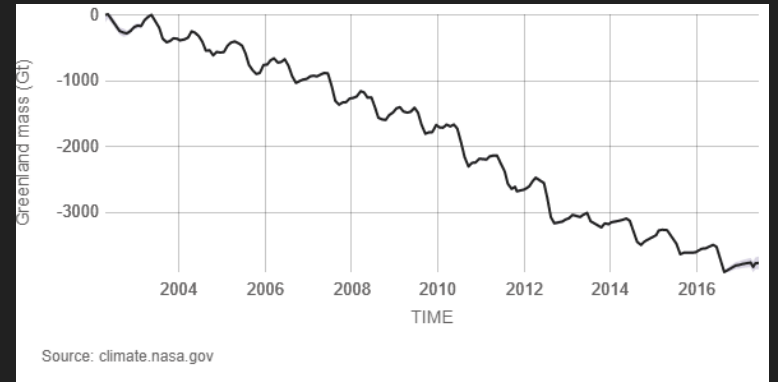
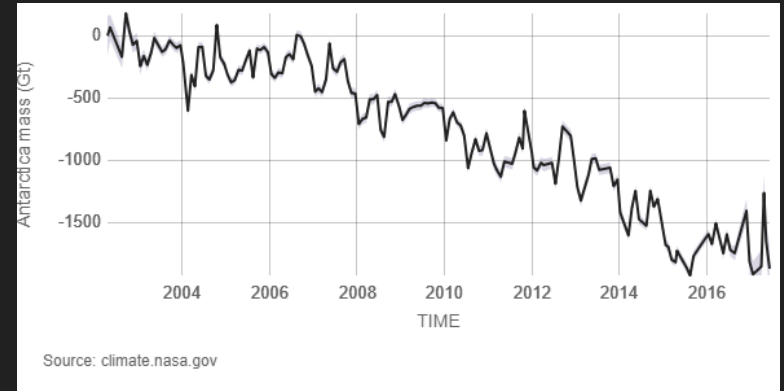
It is declining at the rate of 12.8 % per decade.



Ice Sheets - 127.0 ↓

Data from NASA's GRACE satellites shows that the land ice sheets in both Antarctica (Upper chart) and Greenland (Lower chart) have been losing mass since 2002.

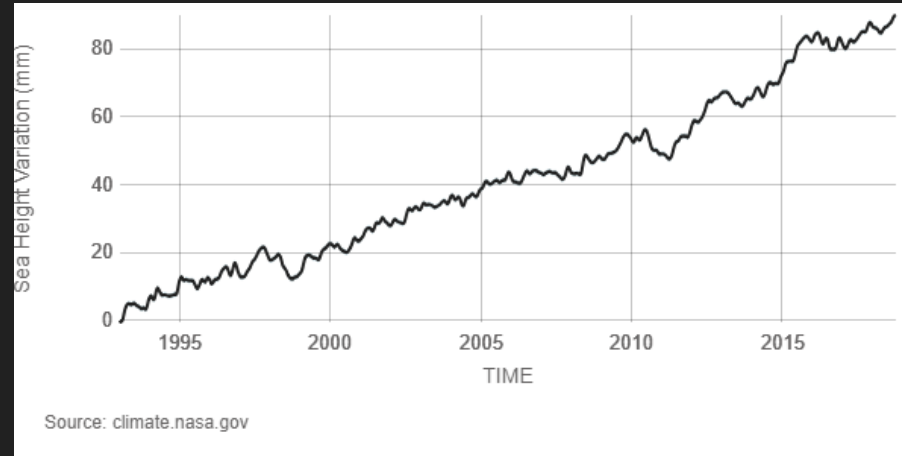
127.0 gigatonnes of ice declining per year.



Sea level : ↑ 3.2 Millimeters per year

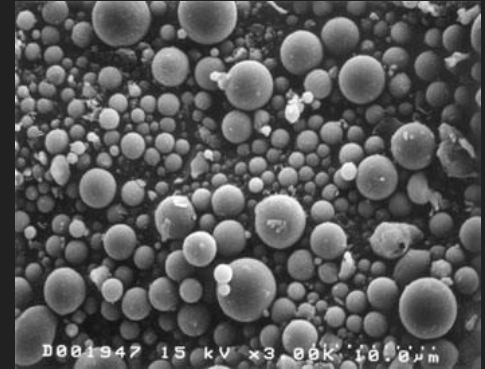
Sea level rise is caused by two factors related to Global warming: adding water from melting ice sheets.

The glaciers and the expansion of sea water as it warms.



AEROSOLS

- Atmospheric aerosols are tiny liquid droplets or solid particles suspended in the air.
- Aerosols can be natural or anthropogenic.
- Eg of Natural Aerosols : Fog, Dust, Sea salt, Biogenic vapour from trees.
- Eg of Anthropogenic Aerosols : Haze, Air pollutants, Smoke.
- The Gas to particles conversion in the atmosphere is called PARTICLE NUCLEATION.
- Most aerosols are brighter than land or ocean, and cool the earth by reflecting sunlight back to space.
- Dark aerosols (Black carbon) can absorb significant amount of light and produce warming effect and hastening the melting of ice especially in the arctic region.



Black Carbon

Black carbon consists of pure carbon, which is formed through the incomplete combustion of fossil fuels, biofuel, and biomass.

It is emitted in both anthropogenic and naturally occurring soot.

Black carbon is found worldwide, but its presence are particularly strong in Asia.

It is found that emissions of black carbon are the second-largest contributor to global warming after CO₂.

KEY FIGURES			
460-1,500x	4-12 days	6.6 million tonnes	58%
Black carbon has a warming impact on climate 460-1,500 times stronger than CO ₂ per unit of mass	The average atmospheric lifetime of black carbon particles is 4-12 days	About 6.6 million tonnes of black carbon were emitted in 2015	Household cooking and heating account for 58% of global black carbon emissions

Global warming

Global warming is nothing but rising of average temperature of earth atmosphere, this is mainly caused due to the following reasons.

Deforestation increases the carbon release which contribute rising of global temperature.

Greenhouse effect is due to the release of carbon dioxide, Methane, Nitrous oxide.

Holes in the Ozone layers due to Chlorofluorocarbons, allows the UV rays enter the surface of earth.

The estimate that by year 2050, more than 30% of plants and animals species could become extinct.

Endangered species due to Global warming



American Pika

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Polar Bear

22-31K



Snow leopard

3-7K



Muskox

0.8-1.2 Lakha



Narwhal

1.7 Lakhs



Elephant seal

1.5 Lakhs



Orange spotted filefish

-



Monarch butterfly

Down by 14.8%



Adelie Penguin

1-2.5 Million



Mountain gorilla

1-2 Lakhs



Atlantic Cod

-

Thermohaline Circulation

Gulf Streams

Character Exploration



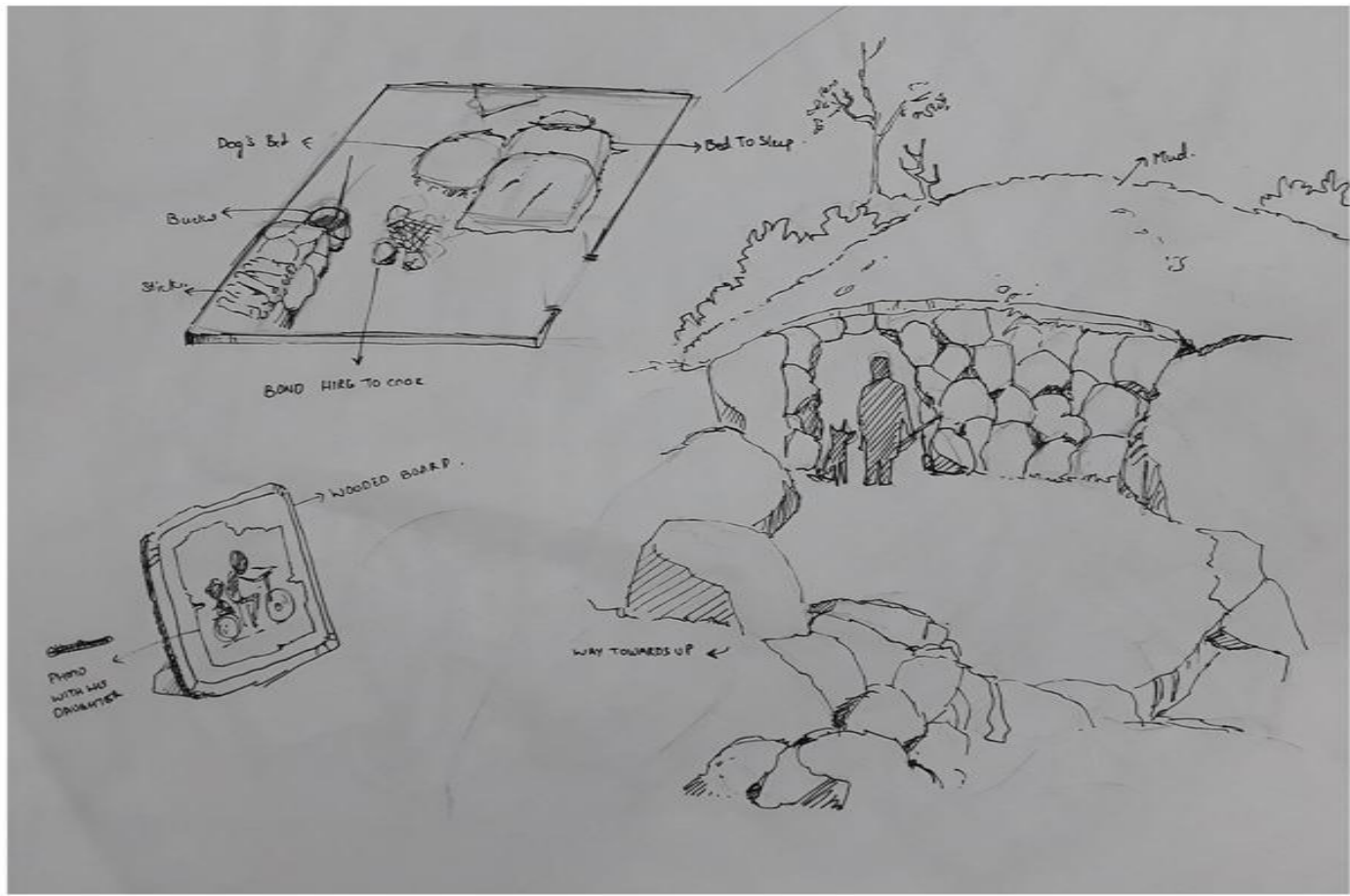




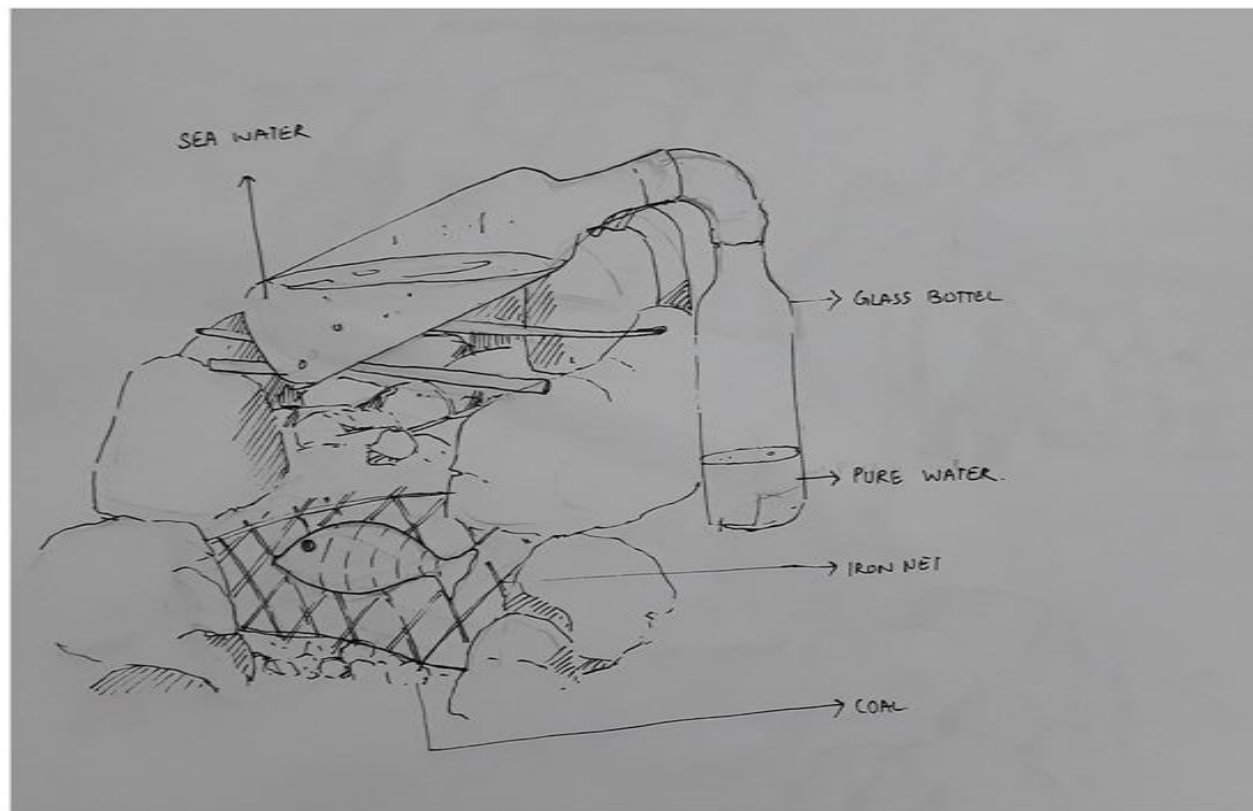




Previsualization

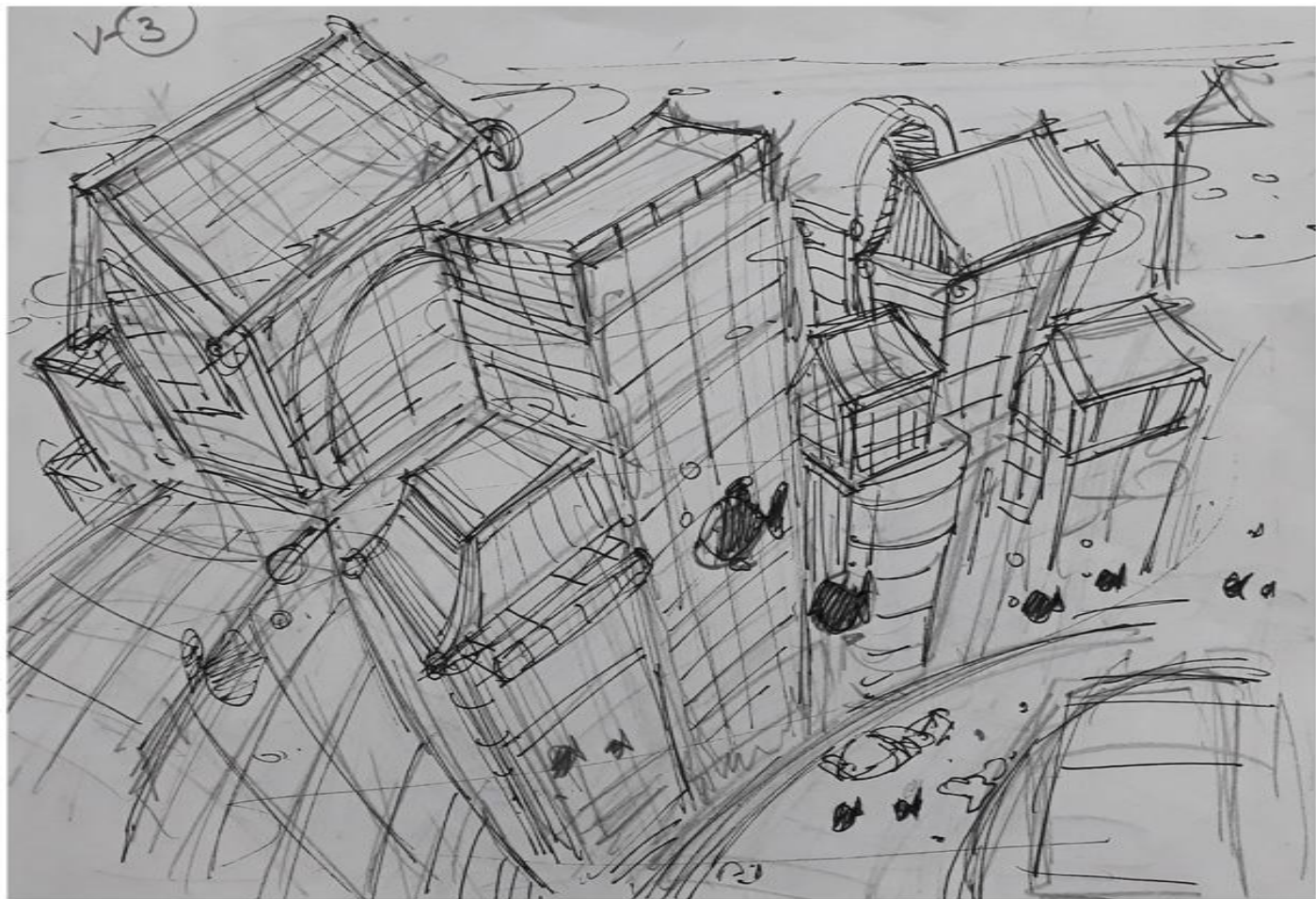










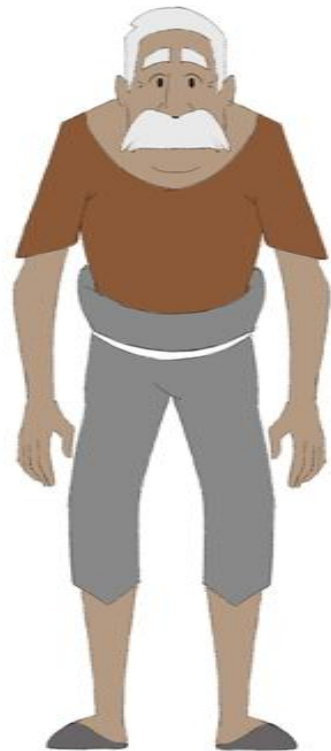


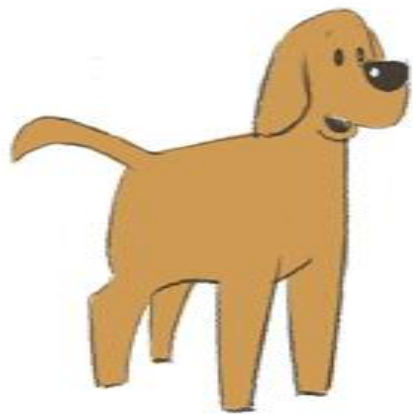
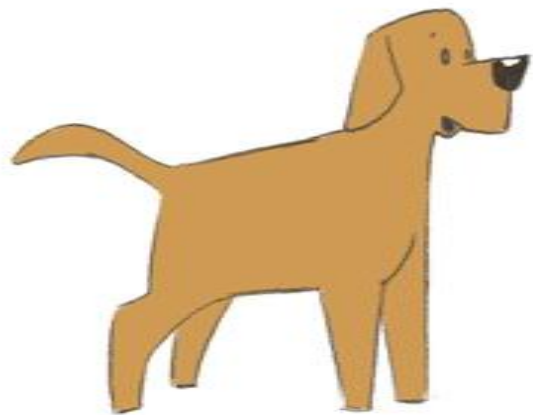


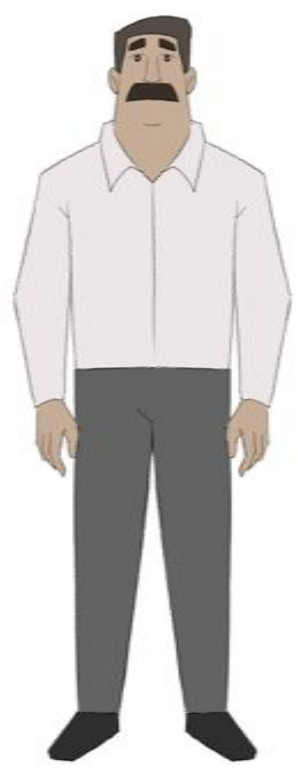
Concept Art



Character Design



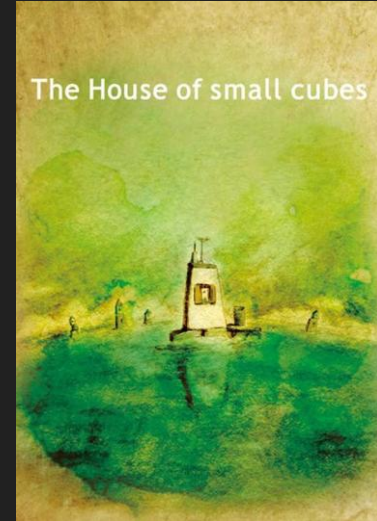








Inspirational films



Thank you