

NON - RENEWABLE RESOURCES

RESOURCES THAT ARE REPLENISHED AT A
LOWER RATE THAN CONSUMPTION

NON - RENEWABLE RESOURCES



How Fossil Fuels Produce Electricity

Coal is crushed to a fine dust and burnt. Oil and gas can be burnt directly.

Burn fuel > heat water to make steam > steam turns turbine > turbine turns generator > electrical power sent around the country

Three teams, the “C team” (Carbon, fossil fuels), the “G team”(Green, anti-fossil fuels) and the “J team”(judges). Gather 5 arguments against (G team) and in favor (C team) of exploiting and using fossil fuels. Present them one by one to the judges. Judges will classify the strength of your argument from 0 (very weak) to 5 (very strong). After 5 rounds, the team with more points wins the game.

Repeat but this time for wind energy. Gather 5 arguments against (C team) and in favor (G team) of wind energy production.

Class objectives: critical thinking, team work, research information, stimulate debate

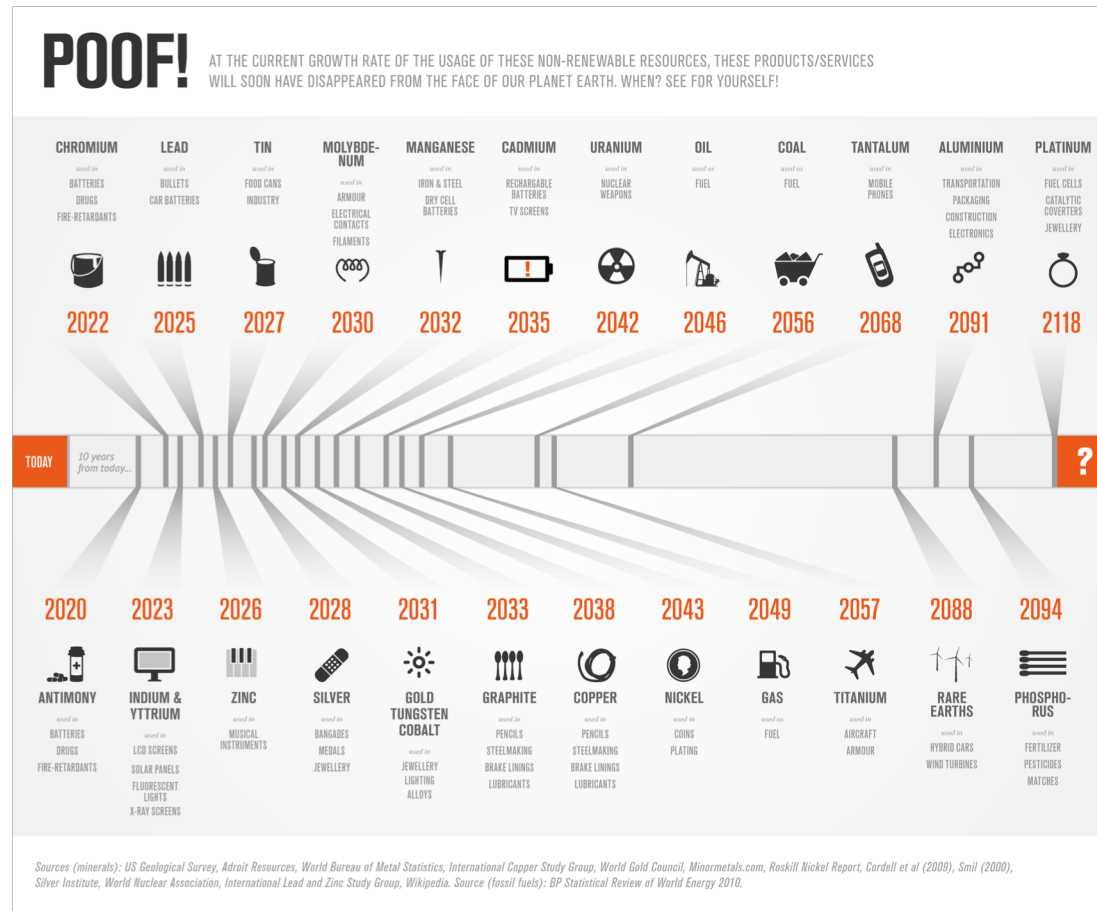
Note: other energy sources (e.g. nuclear energy, solar) can be used.

- ☒ Group
- ☐ Individual

Sustainable Development and Shared Renewable Resources: Environmental Education and Class Activities

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Time to depletion



Sustainable Development and Shared Renewable Resources: Environmental Education and Class Activities

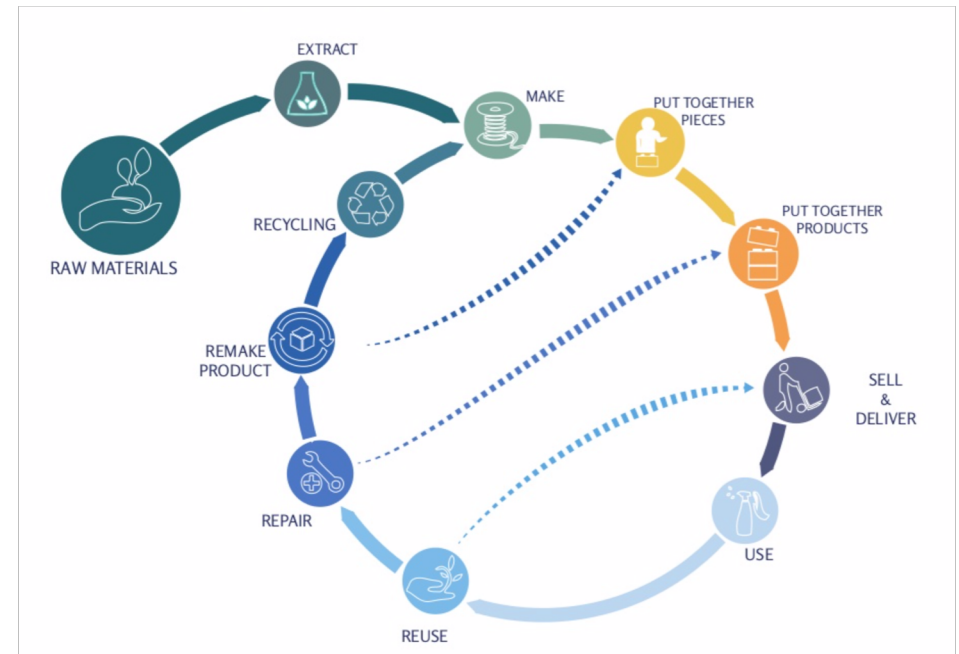
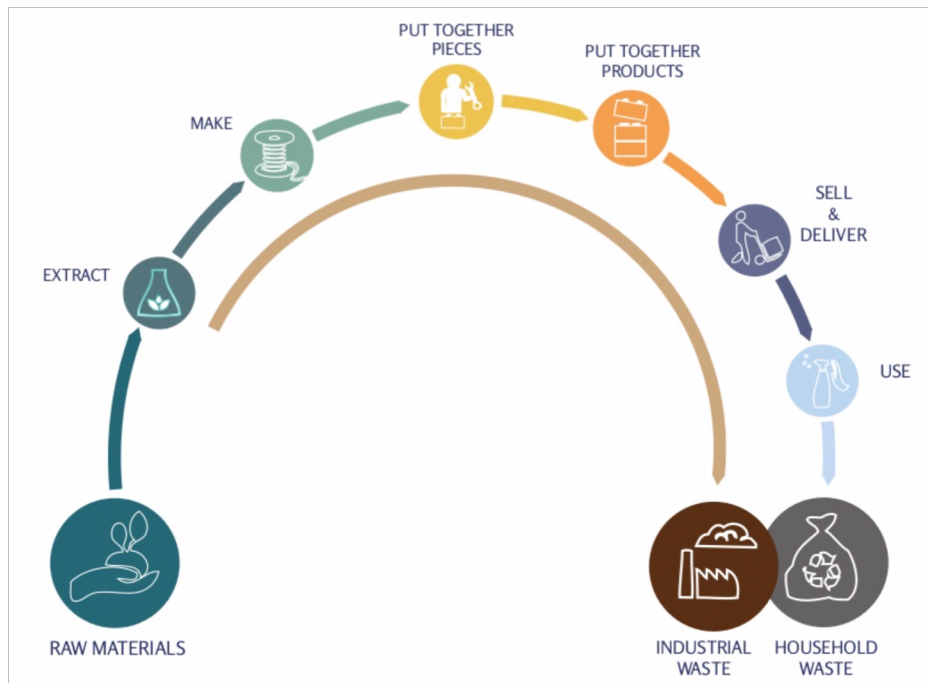
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Renewals dependency on non-renewal resources

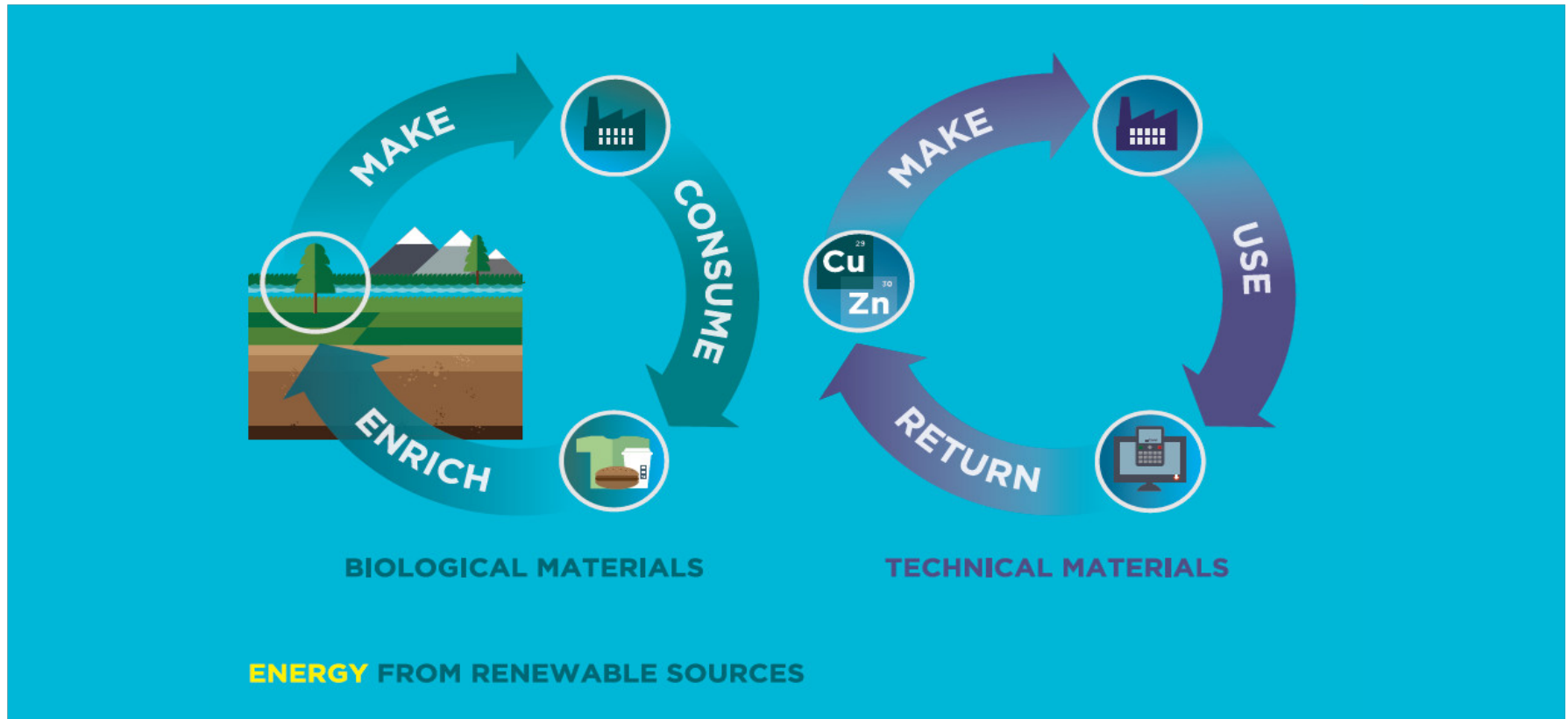
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Linear vs circular economy

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Linear vs circular economy

Pick up one of the three objects from the waste bag.

Investigate what is needed to produce, transport and sell the object in Macao. Investigate what is the likely final destination of the object (landfill, incinerator, recycling, reuse) in Macao.

Rethink the object under a circular economy rationale.



Group



Individual

Class objectives: research information, raise environmental awareness

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Carbon markets

Method favored to reduce carbon emissions.

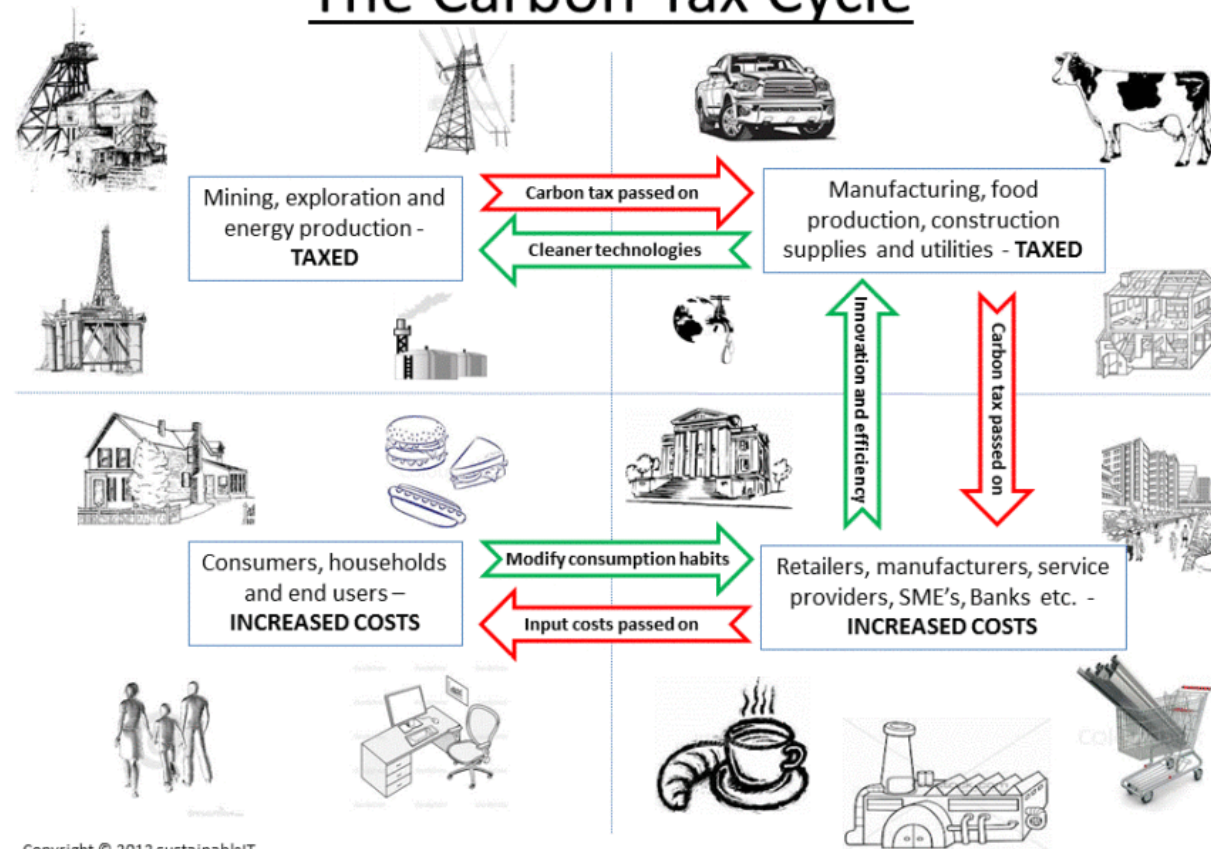
By placing a price on carbon emissions, a disincentive is created for emitters who respond by adopting production methods that reduce their emissions.

There are two ways of implementing carbon pricing

- Carbon tax
- Cap and trade

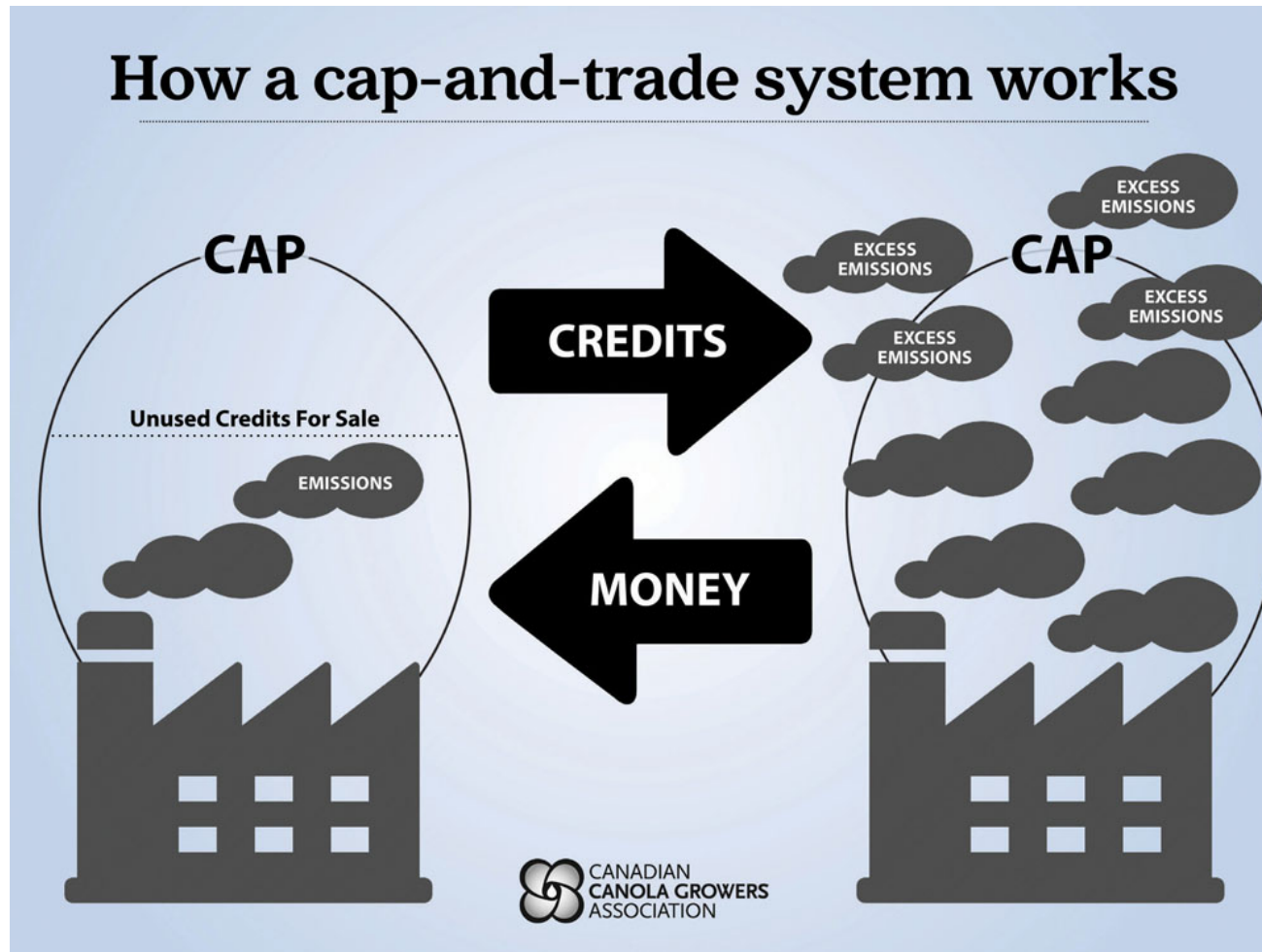
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The Carbon Tax Cycle



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The Environmental Trading Game

- ☒ Group
- ☐ Individual

Class objectives: understand incentive economics for environmental protection

THANK YOU!