
Renewable
Energy

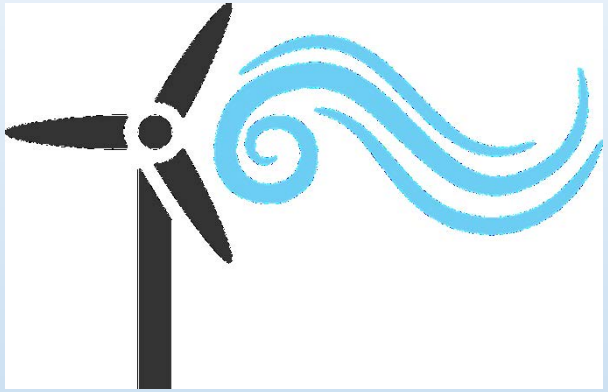
What is renewable energy?

- Renewable energy is made from resources Mother Nature can replace, like wind, water and sunshine.

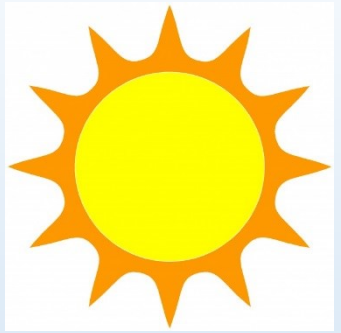
- Renewable energy is also called "clean energy" or "green power" because it doesn't pollute the air or the water.

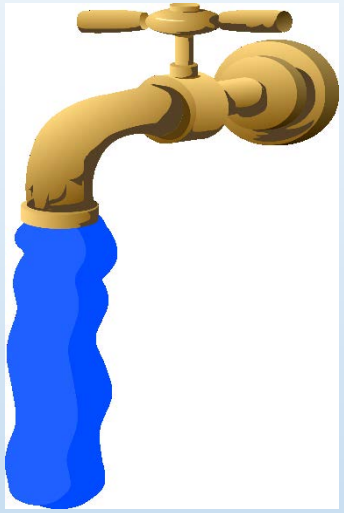
- Renewable energy comes from natural processes that are replenished at a rate that is equal or faster than the rate at which they are consumed.

What is an example of a renewable energy source?



- Solar
- Wind
- Water (Hydro)
- Biomass
- Geothermal





Solar

Wind

Water (Hydro)

Biomass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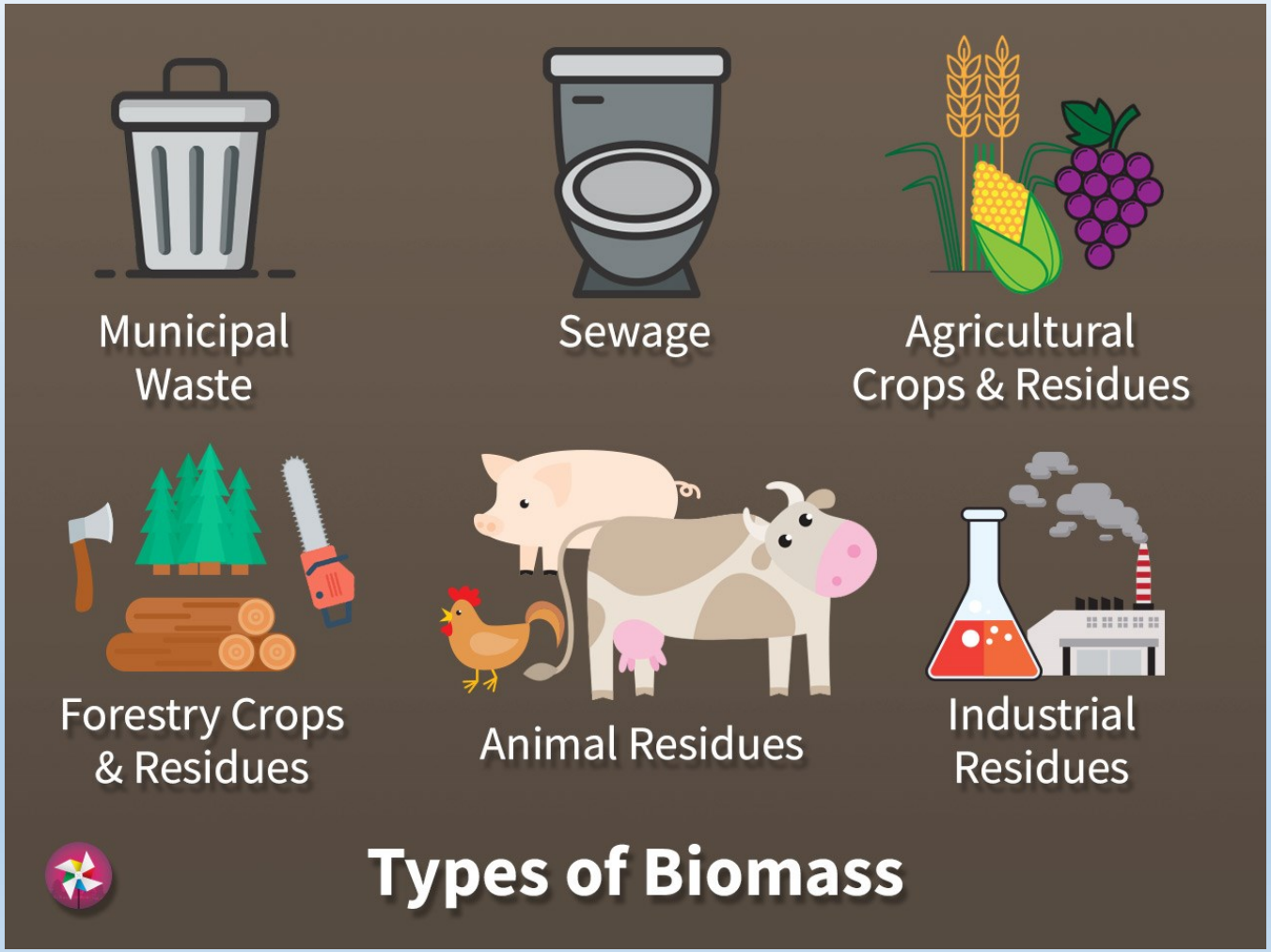
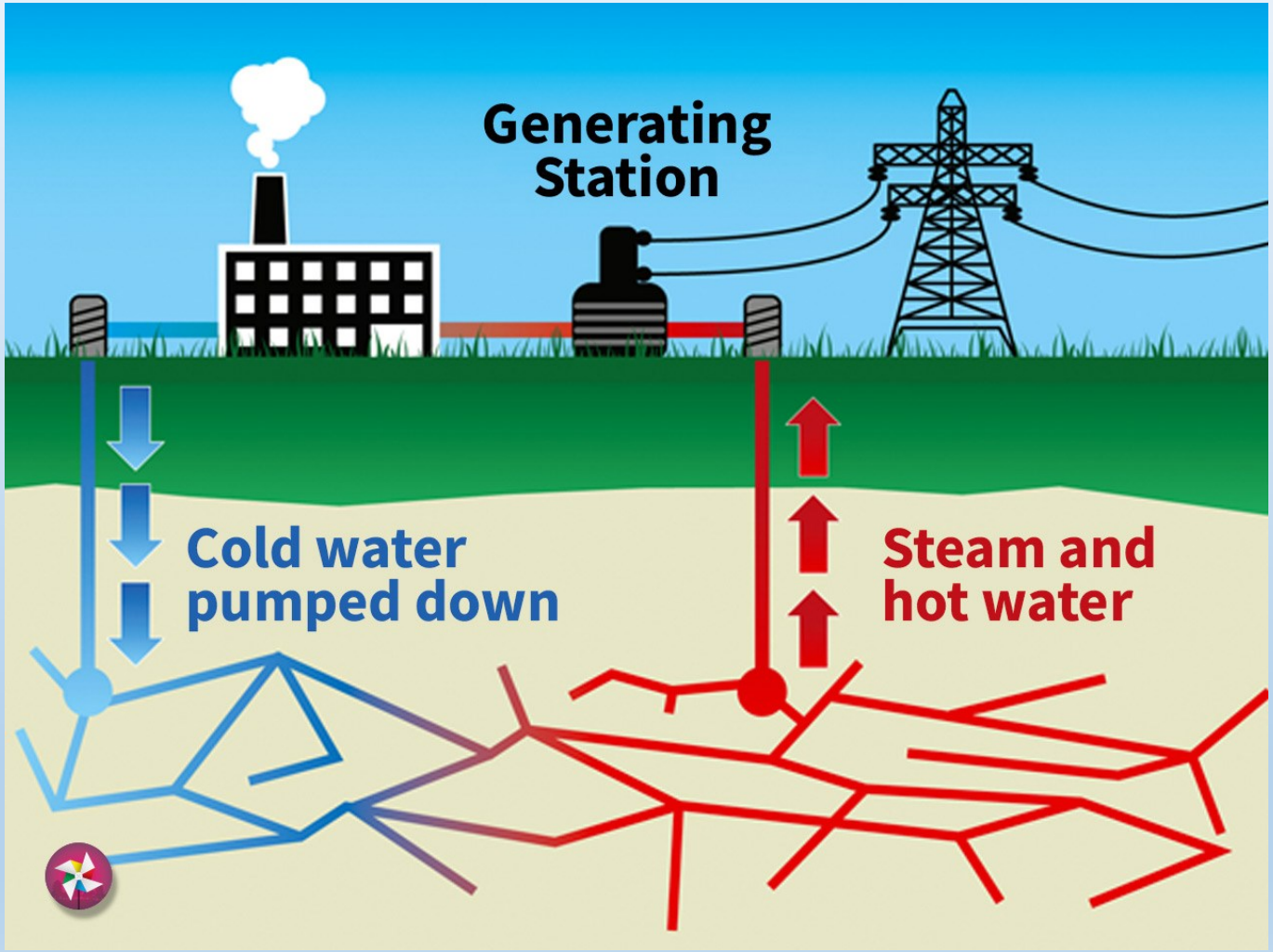
Biomass Energy


Municipal Waste
Sewage
Agricultural Crops & Residues
Forestry Crops & Residues
Animal Residues
Industrial Residues
Types of Biomass

Geothermal


Geothermal Energy


Generating Station
Cold water pumped down
Steam and hot water

Why don't we use renewable energy all the time?

Unlike natural gas and coal, we can't store up wind and sunshine to use whenever we need to make more electricity.

If the wind doesn't blow or the sun hides behind clouds, there wouldn't be enough power for everyone.

Why is renewable energy important?

Much of the world relies on non-renewable energy to heat their homes, power their electronic devices, and power their cars. Once these energy sources are used up, they will be gone forever.

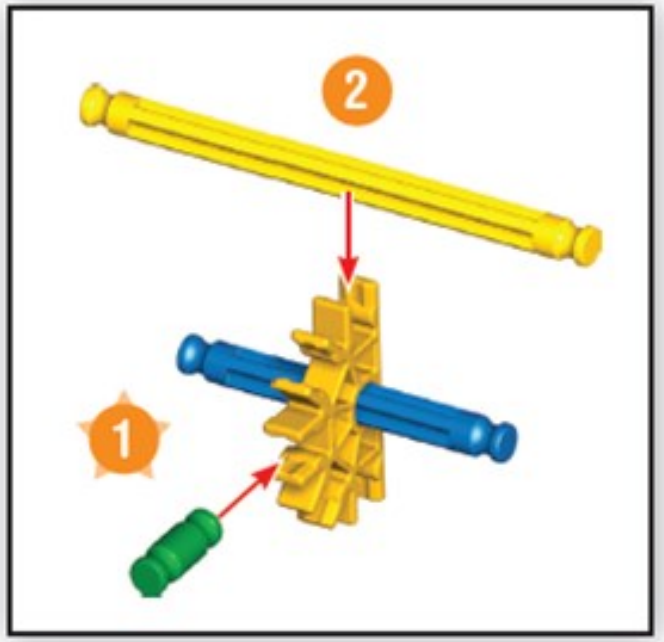
Developing technologies that can efficiently use renewable energy sources is critical to our future.

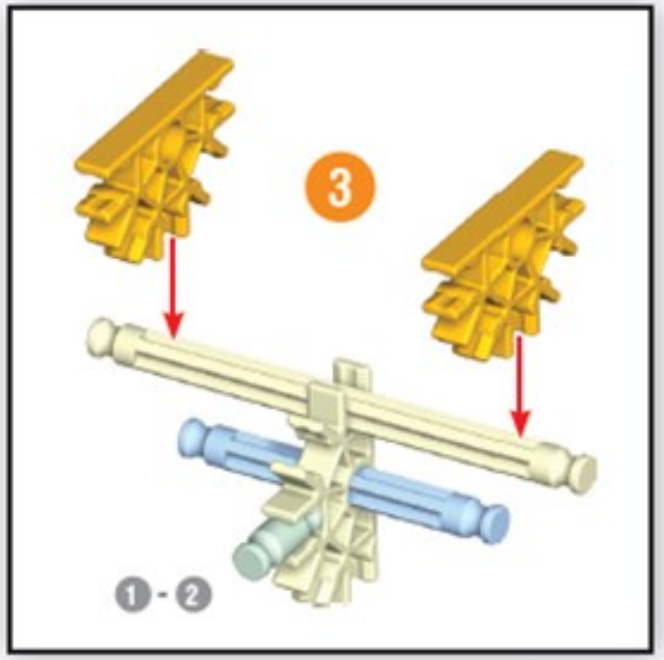
K'NEX Building Basics

Start Building

To begin your model, find the 1 and follow the numbers. Each piece has its own shape and color. Just look at the pictures, find the pieces in your set that match and then connect them together.

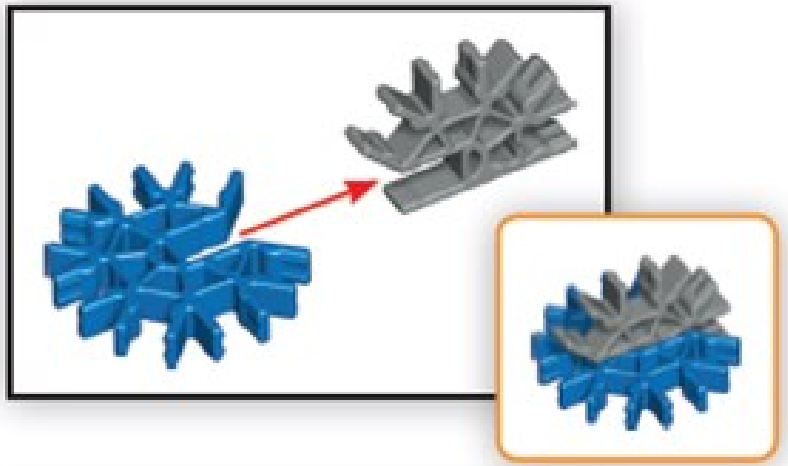
Try to face your model in the same direction as the instructions while you build. The arrows show you where the parts connect, but not all connection points have arrows. Faded colors show you this section is already built.

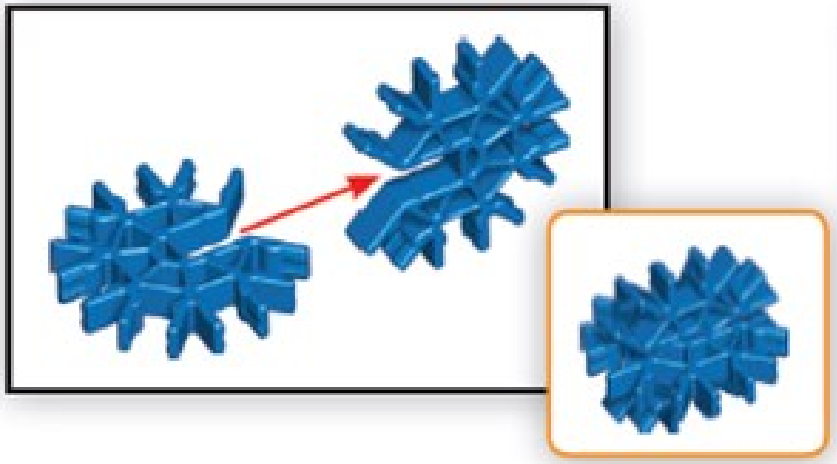


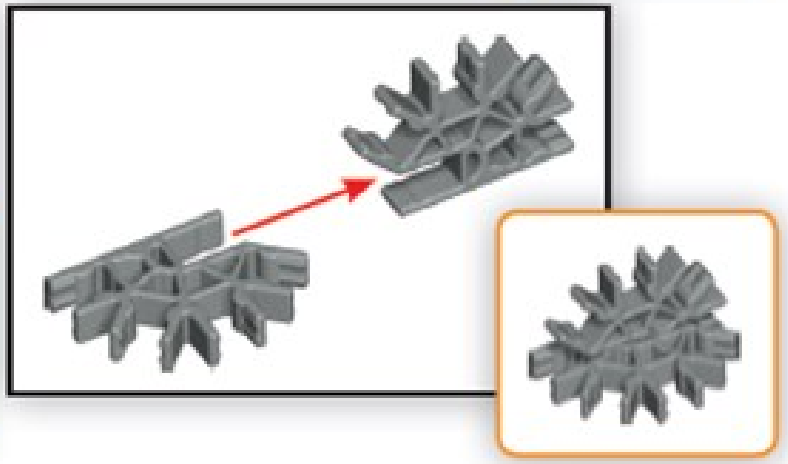


Connectors

You can slide these special connectors together. Push tightly until you hear a "click". Pay close attention to the instructions and position them horizontally or vertically exactly as they are shown.







Review Models

Guidelines:

- You are responsible for the pieces on your tray.
- Keep all pieces on the tray until they are being used.
- If a piece falls on the floor, pick it up immediately.
- Please handle the pieces with care.
- Raise your hand if your group needs help.

- **Safety Caution:**
- **Never place the solar panel closer than the length of one K'NEX gray rod (7.5 inches) from the light source at any time.**
- **Do not let the small green motors get wet.**
- **Keep blow dryer away from water.**

Presentation Questions

- Which renewable energy does your model use?
- Does your model work?
- What might make your model work faster? Slower?
- What would you change about your model?
- What might prevent this model from working in real life?

Clean Up

1. Carefully take your models apart and place the pieces back in the shoebox container.

2. When all of the pieces have been taken apart and are in the container, take a tray and a chart and match up the pieces to the images on the chart.

3. When all of your pieces are matched up, raise your hand and wait for an adult to check your work. The adult will carefully pour the pieces back into the Ziploc bag.