

Renewable Energy Lesson

- Lesson
- Hydroelectric Energy Reading
- NO PREP - Just download and Go!

8th - 10th Grade



SCROLL
to take a look inside!



HOW THIS LESSON HELPS YOU

- **Saves Prep Time** - Everything is pre-made, ready to go, and fully editable.
- **Provides Built-In Assessments** - The Reading and Video Worksheet lets you quickly check for understanding.
- **Provides Applicability** - the lesson includes multiple examples of real-life applications.

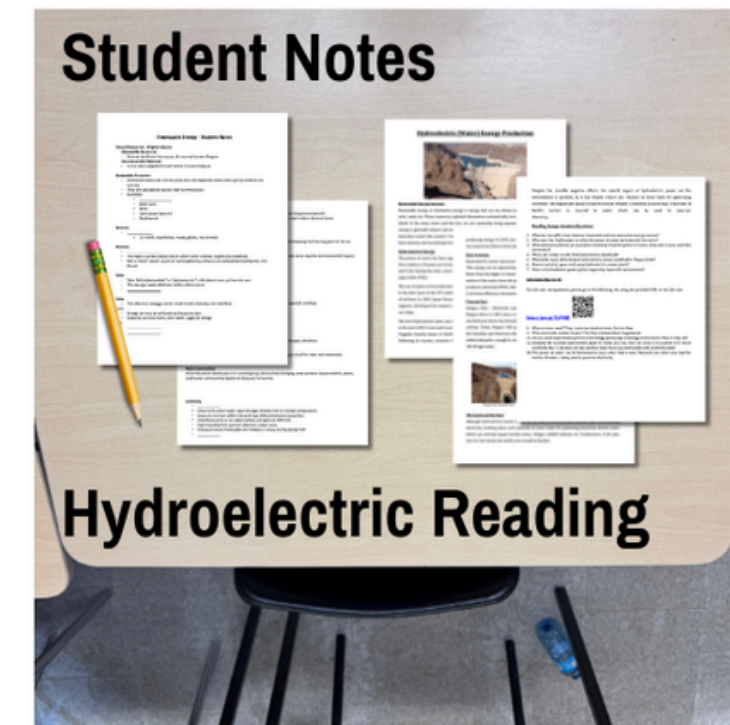
NO PREP

✓ **Simply Download and Teach/Upload** to your class site.

✓ **Hydroelectric Generation Reading + Video Worksheet**

✓ **Interactive & Video-Enhanced Lesson**

✓ **Google, Office, & PDF**

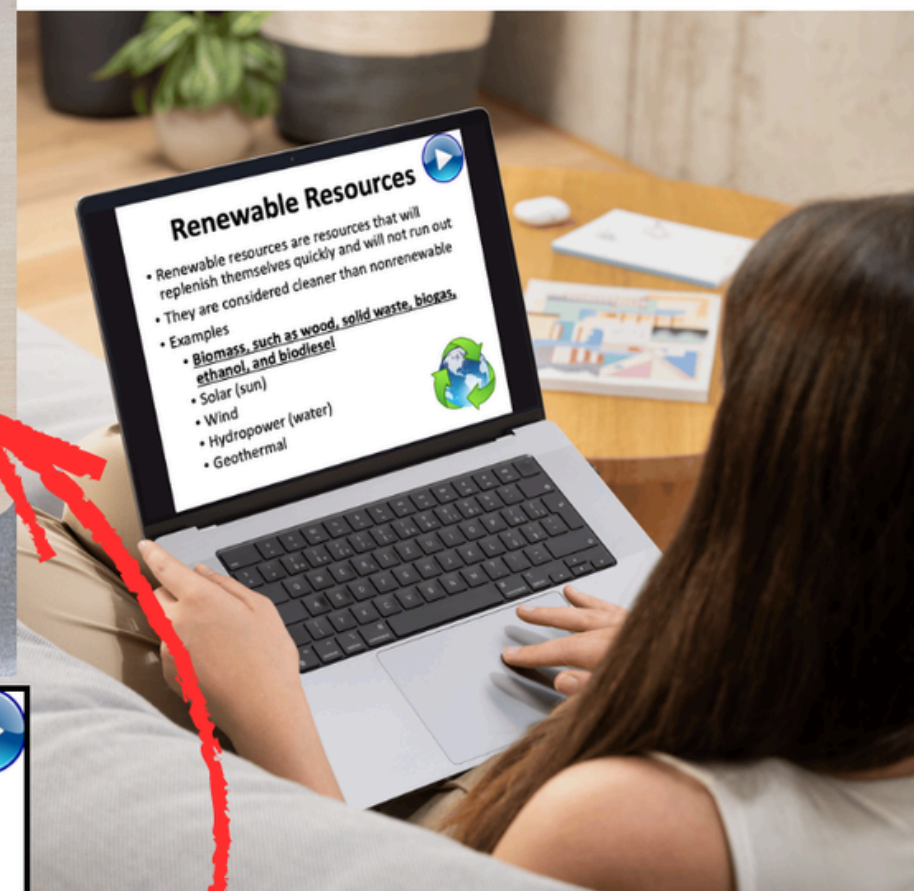
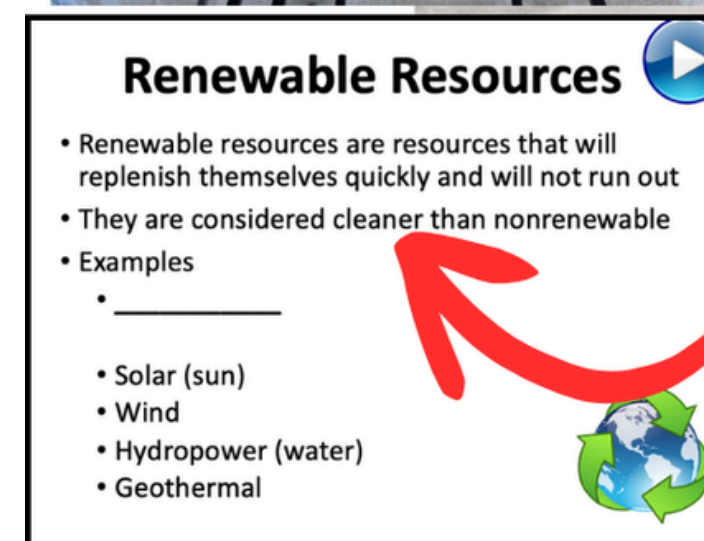
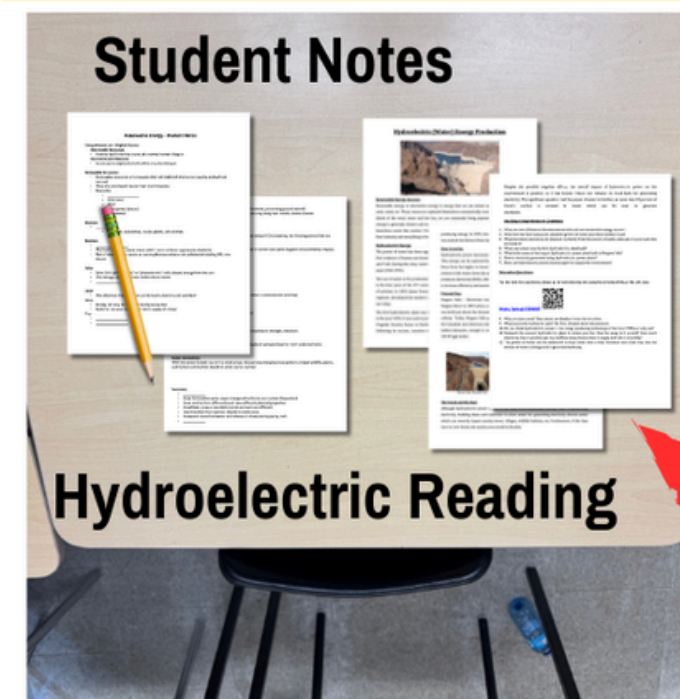


★ A Complete, Fully-Editable Lesson & Student Notes Teacher and Student Versions of your Lesson with Embedded Videos

★ Hydroelectric Energy Production Reading & How Can We Store Renewable Energy Video Worksheet

What You Get

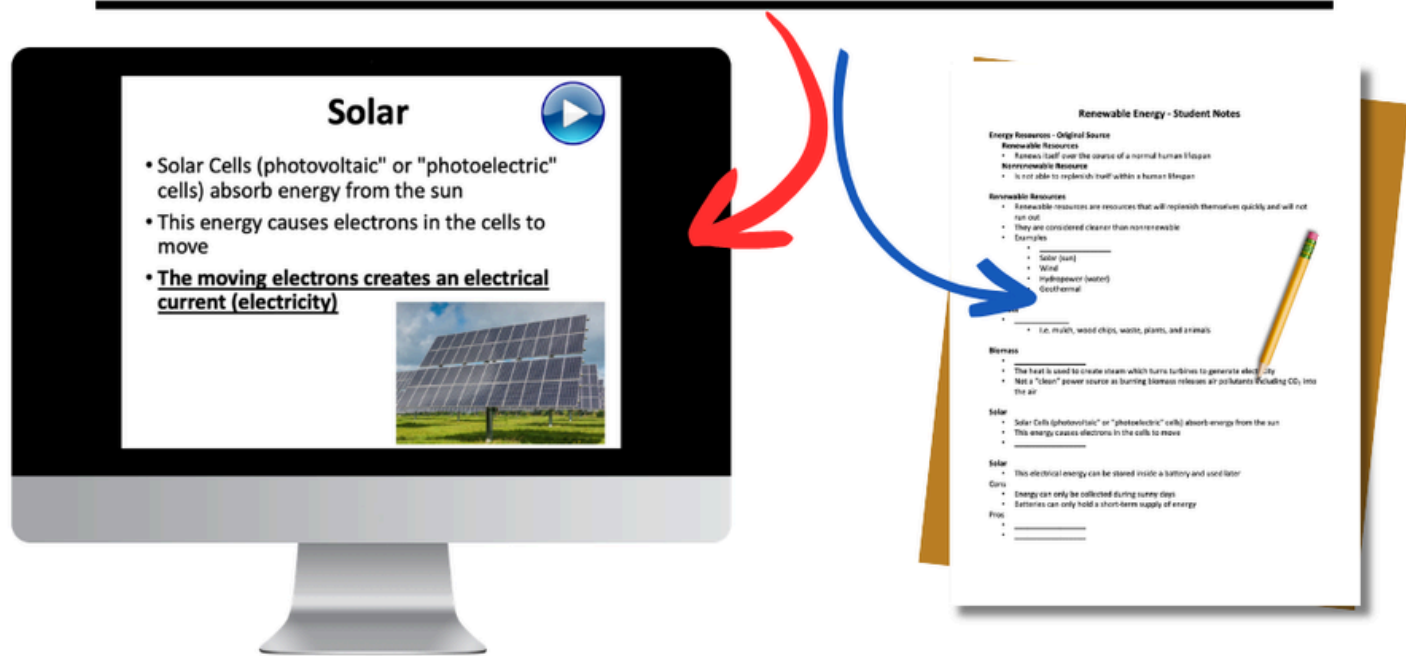
RENEWABLE RESOURCES
TEACHER & STUDENT VERSION



Student version of the lesson includes blanks to fill in.

What Will Your Students Learn?

Videos Embedded & Student Notes



Hydroelectric Reading + Video Worksheet

Office, Google, and PDF Versions



✓ Energy Resources
✓ Renewable Energy Resources

✓ Biomass

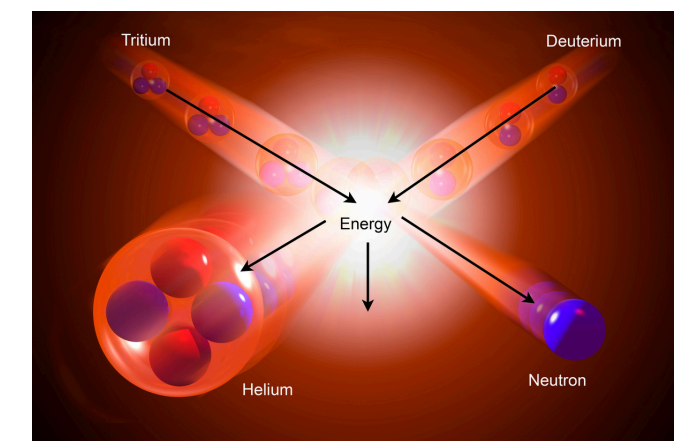
✓ Solar

✓ Wind

✓ Hydroelectric

✓ Tidal

✓ Nuclear Fusion



Renewable Energy

- Energy Resources
- Renewable Energy Resources
- Biomass
- Solar
- Wind
- Hydroelectric
- Tidal
- Nuclear Fusion



Solar

- Solar Cells (photovoltaic" or "photoelectric" cells) absorb energy from the sun
- This energy causes electrons in the cells to move
- **The moving electrons creates an electrical current (electricity)**



Energy Resources Original Source

Renewable Resources

- Renews itself over the course of a normal human lifespan

Nonrenewable Resource

- Is not able to replenish itself within a human lifespan



Renewable Resources

- Renewable resources are resources that will replenish themselves quickly and will not run out
- They are considered cleaner than nonrenewable
- Examples
 - **Biomass, such as wood, solid waste, biogas, ethanol, and biodiesel**
 - Solar (sun)
 - Wind
 - Hydropower (water)
 - Geothermal



Biomass

- **Biomass is biological material from living or previously living organisms**
- mulch, wood chips, waste, plants, and animals



Biomass

- **This material is usually burned to generate heat**
- The heat is used to create steam which turns turbines to generate electricity
- Not a “clean” power source as burning biomass releases air pollutants including CO₂ into the air



Solar

- This electrical energy can be stored inside a battery and used later
- Cons
- Energy can only be collected during sunny days
 - Batteries can only hold a short-term supply of energy



Pros

- **Energy is very clean**
- **Solar panels can be placed anywhere there is direct sunlight**

Wind

- The energy from the wind's motion can be transformed into mechanical energy as it spins the blades
- **This mechanical energy is converted into electrical energy is made inside the turbine structure**



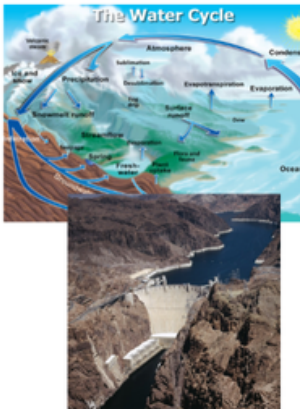
Wind

Windy plains and shallow water are excellent locations for wind turbines since flat open spaces offer little resistance to high-speed winds.



Hydroelectric Power

- The water cycle causes evaporation and rain to fall in high geographic areas
- The water then flows back to sea level
- The motion of water flowing down to sea level is converted to **electrical energy as it flows through turbines**

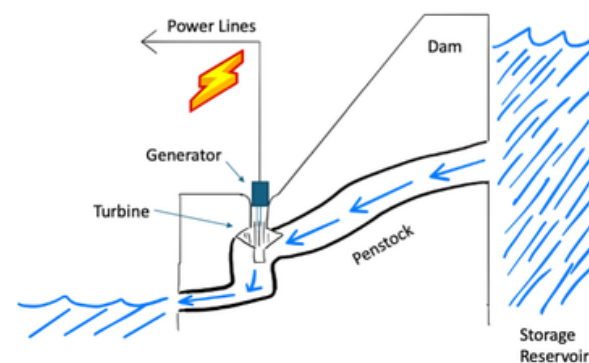


Hydroelectric Power

- A dam is built to trap water, usually in a valley where there is an existing lake
- Water is allowed to flow through tunnels in the dam, **to turn turbines and thus drive generators**

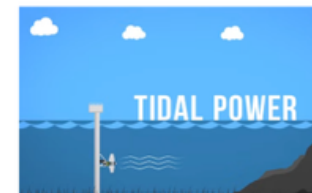


Hydroelectric Power



Tidal Energy

- **The motion of tides is harnessed**
- Similar to hydroelectric, but the cause of the water's rise is different
- Tides rise and fall due to Earth's position relative to the Moon and Sun



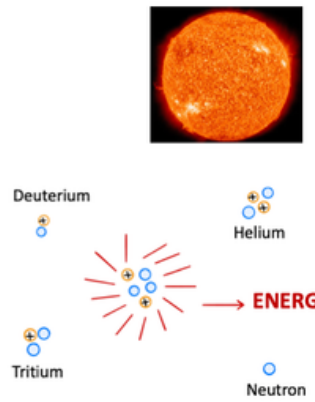
Geothermal

- Thermal (heat) energy from beneath the earth's crust is harnessed to produce electricity
- Water is pumped into the earth and converted to steam underground
- **This steam comes up and is used to drive turbines, which drive electric generators**



Nuclear Fusion

- Combining atoms to produce energy
- Nuclear fusion is the process that occurs within our sun as hydrogen nuclei combine to form helium
 - Note: Deuterium and Tritium are isotopes of hydrogen
- The “grail” of energy researchers
- **If nuclear fusion could be accomplished, it would solve all our energy needs**



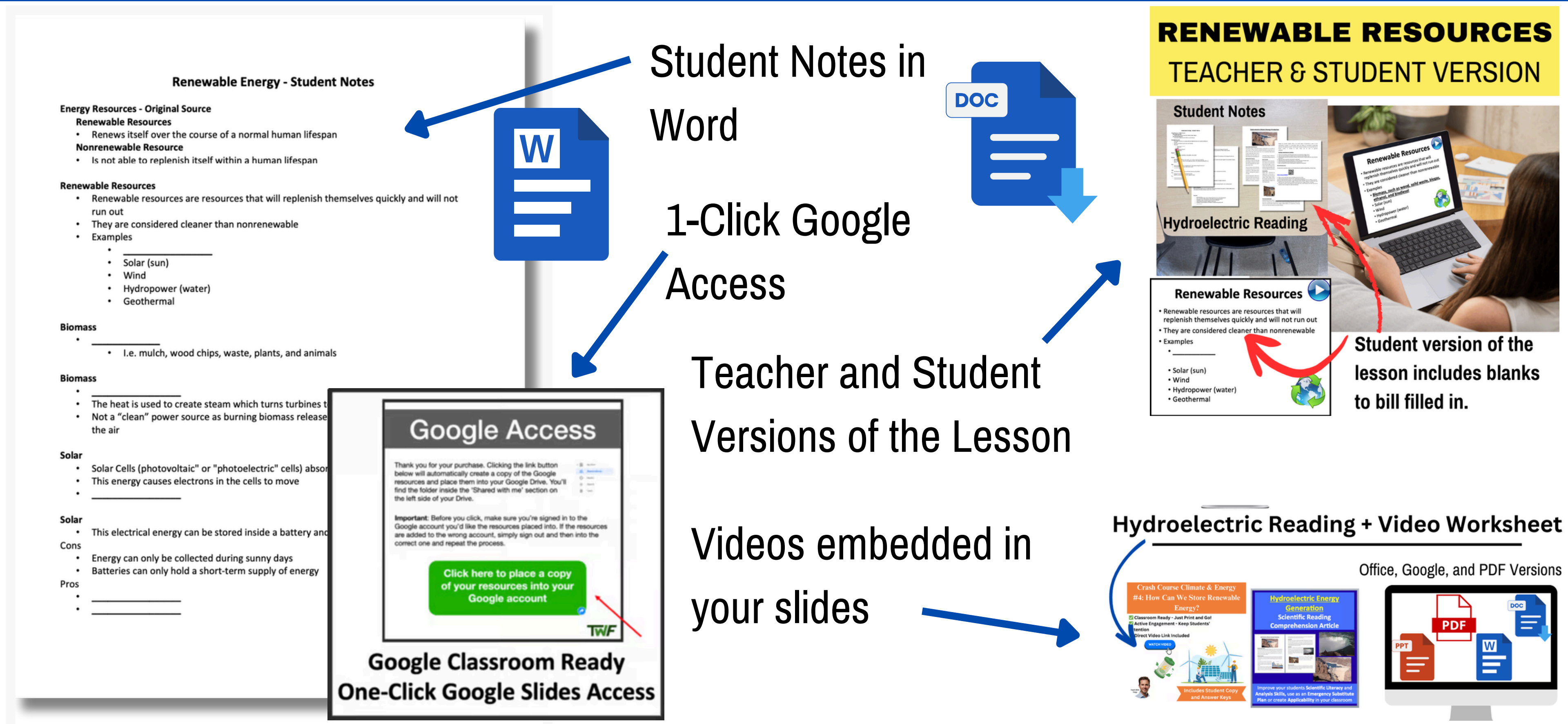
PPT



Your Lesson

PDF





Thanks
**for your interest
in this resource!**

I am a real person and if
you have any questions,
suggestions, or concerns,
please reach out.



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TWF

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*Let's
Connect!*

