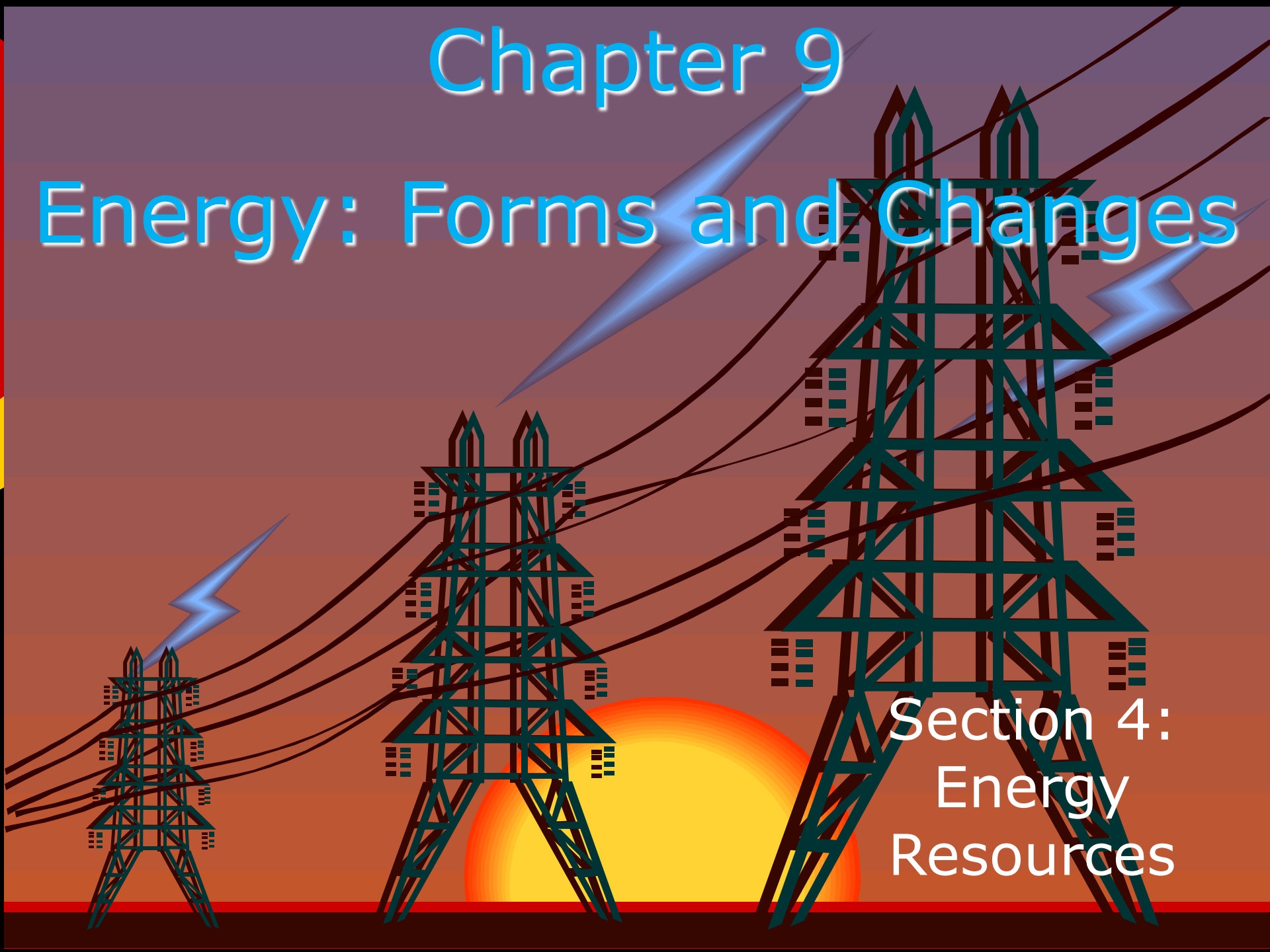


Chapter 9

Energy: Forms and Changes

Section 4:
Energy
Resources

The background of the slide features a stylized illustration of three high-voltage power transmission towers. The towers are depicted in a dark teal color with a lattice structure. They are arranged in a line from left to right, with the smallest tower on the left and the largest on the right. Black power lines stretch across the scene, connecting the towers. The background is a gradient of colors, transitioning from a dark purple at the top to a bright orange and yellow at the bottom, suggesting a sunset or sunrise. A large, glowing sun is visible behind the middle tower. Several blue lightning bolts are scattered across the sky, adding a dynamic element to the scene.



Essential Questions

- What are some energy resources?
- How is the sun the source of most energy on Earth?
- What are the advantages and the disadvantages of using various energy resources?



Energy resources

- Energy resources are natural resources that can be converted into other forms of energy to do work.
- Non-renewable resources cannot be replaced or can only be replaced very slowly.



Fossil Fuels

- Fossil fuels – energy resources formed from buried plant and animal remains millions of years old.
- Nonrenewable resources: petroleum (gasoline, plastics, etc); natural gas; coal



Electrical Energy from Fossil Fuels

- Fossil fuels are the main source of electrical energy in the U.S.
- Electrical generators convert a fossil fuels' chemical energy into electrical energy
- Fossil fuels are burned, thermal energy turns water to steam, steam converts to kinetic energy by powering a turbine, creating electricity



Nuclear Energy

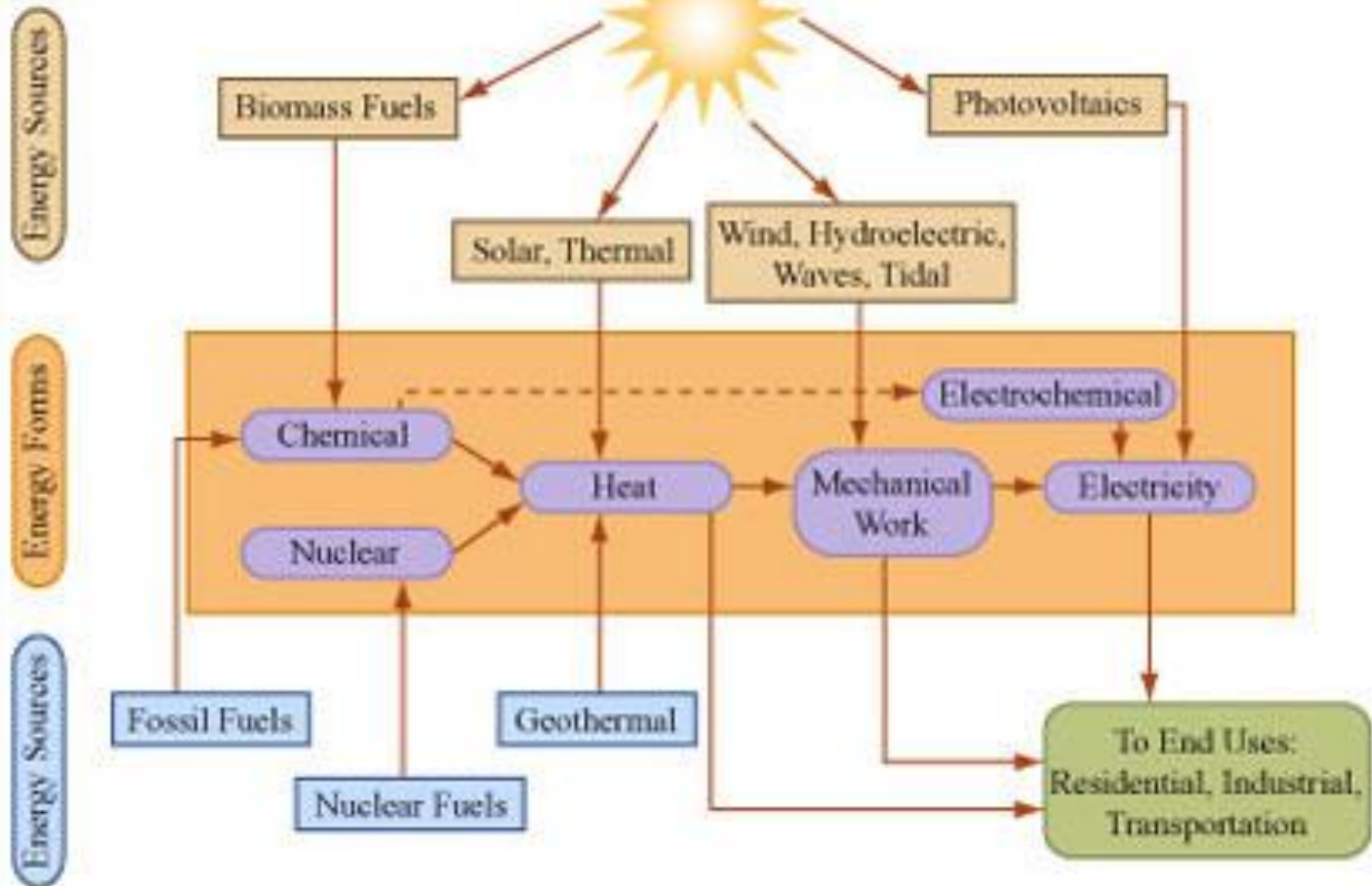
- Like fossil fuel power plants, nuclear power plants use thermal energy, using steam
- Nuclear energy is generated from radioactive elements
- Nuclear fission occurs when nuclei of atoms are split into smaller nuclei, releasing nuclear energy
- Non-renewable resource



Renewable Resources

- Renewable resources are replaced faster than they are used.
 - Solar energy (solar cells)
 - Hydroelectric energy (water-produced)
 - Wind energy (wind turbines)
 - Geothermal energy (thermal energy caused by the heating of the Earth's crust)
 - Biomass (organic matter burned to release energy)

Energy Sources, Conversions and Use





Non-renewable vs. renewable

- Both have advantages and disadvantages
- Copy and study the table on page 262 of the classroom textbook.

ENERGY SAVING CLIMATE CHANGE TIPS FOR YOUR SCHOOL

CANTEEN

- CHOOSE FRIDGE WITH A GOOD ENERGY STAR RATING
- MEATLESS MONDAY!
- HAVE ONE DAY A WEEK THAT IS VEGETARIAN DAY
- USE LOCALLY GROWN PRODUCE

TRANSPORT

- WALK
- RIDE A BIKE
- TAKE THE BUS TO SCHOOL

WASTE

- REDUCE LUNCH TIME RUBBISH
- COMPOST
- RECYCLE
- WWW.WASTEWISE.WA.GOV.AU

LIGHTING

- AT RECESS/ LUNCH
- TURN OFF LIGHTS
- USE ENERGY EFFICIENT LIGHTS

AIR HEATING CONDITIONING

- INSULATE BUILDINGS
- ONLY USE HEATERS WHEN THE SPACE IS OCCUPIED
- KEEP DOORS AND WINDOWS CLOSED WHEN HEATING OR USING REFRIGERATIVE AIRCONDITIONING
- SET THERMOSTAT TO 18°C - 20°C IN WINTER AND 26°C IN SUMMER

OFFICE EQUIPMENT

- TURN OFF AT POWERPOINT
- TURN OFF AT POWERPOINT PHOTOCOPIERS, COMPUTER PRINTERS OUTSIDE SCHOOL HOURS

CHOOSING EQUIPMENT

- LOOK FOR A GOOD ENERGY STAR RATING

TURN OFF

- TURN COMPUTER OFF AT POWERPOINT WHEN NOT IN USE

WATER HEATING

- CONSIDER GOING SOLAR FOR WATER HEATING SYSTEMS
- PUT TIMERS ON URNS OR USE A KETTLE

ORGANISATIONS THAT CAN HELP

- WWW.SUSTAINABLESCHOOLS.WA.EDU.AU
- AUSSI
- SOLAR SCHOOLS PROGRAM (\$12,500 GRANT)
- WWW.SEDO.ENERGY.WA.GOV.AU

NOTE: SCREENSAVERS DO NOT SAVE ENERGY