



Fourth grade renewable resource words

Cross Grade Level content	Content Specific	Additional Content Vocabulary
Particle	Solar	inverter
Electric current	Wind	Transformed
Fuel	Biomass	Distributed
Generated	Bio gas	turbine
Recycle	Geothermal	
Watts	Conduction	
Kilowatts	Insulator	
Steam	Generator	
Hot spots (link to SC04-S6C2)	transformer	
Digestion	Rotor	
Bacteria	emissions	
Decomposition	Organic waste	
Renewable	methane	
Recycle	Green house gas	
Resource	Wind farms	
Natural resources		
Non-renewable		
Conservation		
Limited resources		



Cross Grade Level content	Content Specific	Additional Content Vocabulary
Natural gas		
Reusable		
Geysers (link to SC04-S6C2)		
Fumaroles (link to SC04-S6C2)		
Mud pots (link to SC04-S6C2)		

- Science vocabulary needs to be categorized into three levels:
 - Terms which permeate other content areas
 - Critical to understanding the Unit
 - Term is interesting but not critical

Cross Grade Level	Content Specific	Additional Content Vocabulary
Term permeates other content	Critical to understanding the Unit	Term is interesting but not critical
Observe	Lava	Intrusive/extrusive
environment		



Sixth grade Renewable Resource Words

Cross Grade Level content	Content Specific	Additional Content Vocabulary
particle	Solar	Photovoltaic Solar Power
Electric current	Wind	Parabolic Trough Solar Power System
Fuel	Biomass	Parabolic mirrors
Generated	Bio gas	Under burns
Transformed	Geothermal	Gasification
distributed	silicon	Pyrolysis
Recycle	Inverter	
Watts	Direct current	
Kilowatts	Alternating current	
Vapor	transformer	
Wells	Cooling tower	
Reservoirs	Heat exchange	
digestion	geothermal	
Bacteria	Conduction	
decomposition	Rotor	
	Generator	
	emissions	
	Fermentation	



Cross Grade Level content	Content Specific	Additional Content Vocabulary
	Hydrogen	
	Organic waste	
	methane	
	Green house gas	

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Term permeates other content	Critical to understanding the Unit	Term is interesting but not critical
observe	Lava	Intrusive/extrusive
environment		

High School renewable resource words



Cross Grade Level content	Content Specific	Additional Content Vocabulary
Particle	Photovoltaic	
Electric current	Thermal	
Fuel	Solar arrays	
Generator	Inverter	
Recycle	Transformer	
Watts	Collector field	
Kilowatts	Turbine	
Digestion (as it relates to biomass)	Cooling Tower	
Bacteria	*P.V.	
Decomposition	Single Axis	
Renewable	High Concentration	
Solar	Tilted Tracker Single Axis	
Wind	Fixed Photovoltaic Panels	
Biomass	Parabolic trough	
Bio gas	Synthetic oil	
Geothermal	MWh	
pressurized	Semiconductor	
reservoirs	Actuator	
Limited resources	Azimuth	
Natural gas	Tower	
Reusable	Rotor	



Cross Grade Level content	Content Specific	Additional Content Vocabulary
Geysers	Nacelle	
Fumaroles	Gasification	
Mud pots	Pyrolysis	
Hydraulic	Solid fuel combustion	
Anaerobic	Biofuels	
Carbon dioxide	Biodiesel	
Fermentation(as it relates to biomass)	Peat	
	Syngas	
	Char	
	Fluidized Bed Gasifier	

*students need to recognize acronyms



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Term permeates other content	Critical to understanding the Unit	Term is interesting but not critical
observe	Lava	Intrusive/extrusive
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APS RENEWABLE ENERGY SOURCES PRESENTATION
ARIZONA STATE BOARD OF EDUCATION STANDARDS ADDRESSED
FOR FOURTH TO NINTH GRADE STUDENTS

SCIENCE

Fourth Grade

SC04-S3C1 PO1 Describe how natural events and human activities have positive and negative impacts on environments (e.g., fire, floods, pollution, dams).

SC04-S3C1 PO2 Evaluate consequences of environmental occurrences that happen either rapidly (e.g., fire, flood, tornado) or over a long period of time (e.g., drought, melting ice caps, the green-house effect, erosion).

SC04-S3C2 PO1 Describe how science and technology (e.g., Computers, air conditioning, medicine) have improved the lives of many people.

SC04-S3C2 PO1 Describe benefits (e.g., easy communications, rapid transportation) and risks (e.g., pollution, destruction of natural resources) related to the use of technology

SC04-S4C3 PO1 Describe ways various resources (e.g., air, water, plants, animals, soil) are utilized to meet the needs of a population.

SC04-S4C3 PO2 Differentiate renewable resources from nonrenewable resources.

SC04-S403 PO4 Describe ways in which resources can be conserved (e.g., by reducing, reusing, recycling, finding substitutes).

SC04-S4C3 PO3 Analyze the effect that limited resources (e.g., natural gas, minerals) may have on an environment.



Fifth Grade

SC05-S3C1 PO3 Evaluate possible strengths and weaknesses of a proposed solution to a specific problem relevant to human, animal or habitat needs.

SC05-S3C2 PO1 Describe the relationship between science and technology.

SC05-S3C1 PO1 Explain the impacts of natural hazards on habitats (e.g., global warming, floods, asteroids or large meteor impacts).

Sixth Grade

SC06-S3C2 PO2 Compare possible solutions to best address an identified need or problem.

SC06-S4C3 PO2 Describe how the following environmental conditions affect the quality of life: water quality, climate, population density and smog.

SC06-S5C3 PO3 Compare the following ways energy may be transformed: mechanical to electrical and electrical to thermal.

SC06-S5C3 PO4 Explain how thermal energy (heat energy) can be transferred by conduction, convection and radiation.

SC06-S2C2 PO4 Describe a technological discovery that influences science.

SC06-S4C3 PO1 Explain that sunlight is the major source of energy for most ecosystems.

SC06-S5C3 PO1 Identify various ways in which electrical energy is generated using renewable resources.



Seventh Grade

SC07-S3C2 PO4 Describe a scientific discovery that influences technology.

SC07-S4C3 PO5 Predict how environmental factors (e.g., floods, droughts, temperature changes) affect survival rates in living organisms.

SC07-S4C3 PO4 Evaluate data associated with population growth (e.g., overgrazing, forest management and invasion of non-native species) and the possible solutions.

Eighth Grade

SC08-S3C1 PO1 Analyze the risk factors associated with the natural, human-induced and/or biological hazards, including waste disposal of industrial chemicals and greenhouse gases.

SC08-S3C102 Analyze possible solutions to address the environmental risks associated with chemicals and biological systems.

READING

Fourth Grade

R04-S1C4 PO1 Use the knowledge of root words and affixes to determine the meaning of unknown words.

R04-S1C4 PO2 Use context to determine the relevant meaning of a word.

R04-S1C1 PO1 Predict text content using prior knowledge and text features (e.g., illustrations, titles, topic sentences, key words).

R04-S1C6 PO6 Use reading strategies (e.g., drawing conclusions, determining cause and effect, making inferences, sequencing) to comprehend text.



R04-S3C PO1 Identify the main idea and supporting details in an expository text.

R04-S3C1 PO4 Locate specific information by using organizational features (e.g., table of contents, headings, captions, bold print, glossaries, indices, key words, topic sentences, concluding sentences) of an expository text.

Fifth Grade

R05-S1C4 PO2 Use context to determine the relevant meaning of a word or the intended meaning of a word with multiple meanings.

Sixth Grade

Seventh Grade

R07-S1C6 PO6 Apply knowledge of organizational structures (e.g., chronological order, compare and contrast, cause and effect relationships, logical order) of text to aid comprehension.

R07-S1C4 PO1 Determine the meaning of vocabulary using the linguistic roots and affixes (e.g., Greek, Anglo Saxon and Latin).

R7-S3C1 PO1 Restate the main idea (explicit or implicit) and supporting details in an expository text.

R7-S3C1 PO8 Interpret graphic features (e.g., charts, graphs, diagrams, illustrations, tables, time lines) of an expository text.

Eighth Grade

R08-S1C4 PO1 Determine the meaning of vocabulary using the linguistic roots and affixes (e.g., Greek, Anglo Saxon, and Latin).



WRITING

Fourth Grade

W04-S3C2 PO1 Record information (e.g., observations, notes, lists, charts, map labels, and legends) related to the topic.

Seventh Grade

W07-S3C2 PO1 Record information (e.g., observations, notes, lists, charts, map labels and legends) related to the topic.

MATH

Fourth Grade

M04-S2C1 PO4 Answer questions based on graphical representations and data displays including single-bar graphs, circle graphs, two-set Venn diagrams, and line graphs that display continuous data.

M04-S2C1 PO6 Formulate predictions from a given set of data.

Fifth Grade

M05-S2C1 PO6 Formulate reasonable predictions from a given set of data.

Sixth Grade

M06-S2C1 PO3 Interpret simple displays of data including double bar graphs, tally charts, frequency tables, circle graphs, and line graphs.

Seventh Grade



M07-S2C1 PO5 Answer questions based on data displays including histograms, stem-and-leaf plots, circle graphs, and double line graphs.

M07-S2C1 PO7 Interpret trends from displayed data

M07-S2C1 PO4 Interpret data displays including histograms, stem-and-leaf plots, circle graphs and double line graphs.

Eighth Grade

M08-S2C1 PO7 Formulate reasonable predictions based on a given set of data.