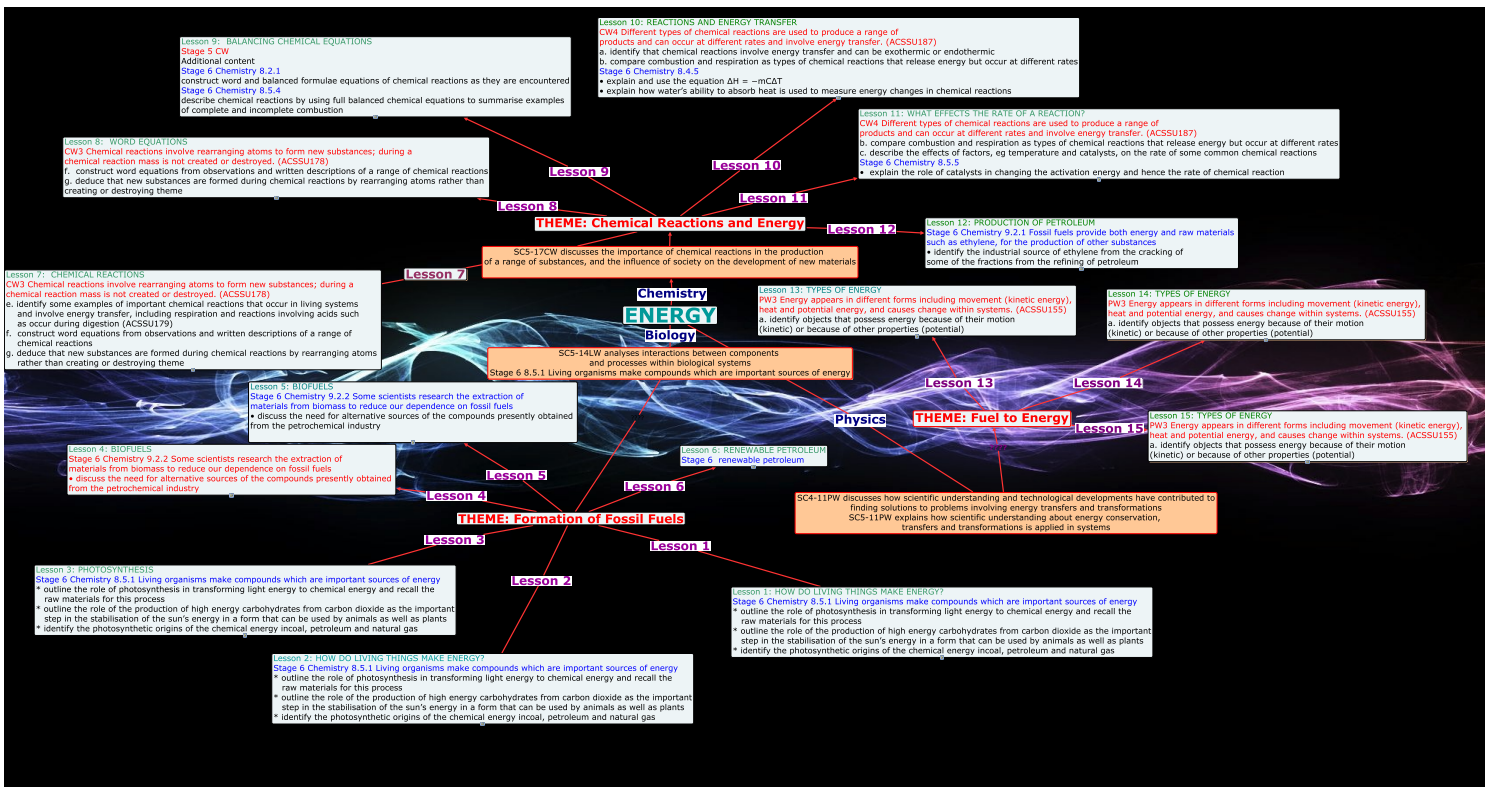
ENERGY
Chemistry
Biology
Physics
THEME: Chemical Reactions and Energy
SC5-17CW discusses the importance of chemical reactions in the production of a range of substances, and the influence of society on the development of new materials
Lesson 7
Lesson 8
Lesson 9
Lesson 10
Lesson 11
Lesson 12
Lesson 7: CHEMICAL REACTIONS
CW3 Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed. (ACSSU178)
e. identify some examples of important chemical reactions that occur in living systems and involve energy transfer, including respiration and reactions involving acids such as occur during digestion (ACSSU179)
f. construct word equations from observations and written descriptions of a range of chemical reactions
g. deduce that new substances are formed during chemical reactions by rearranging atoms rather than creating or destroying theme
Lesson 8: WORD EQUATIONS
CW3 Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed. (ACSSU178)
f. construct word equations from observations and written descriptions of a range of chemical reactions
g. deduce that new substances are formed during chemical reactions by rearranging atoms rather than creating or destroying theme
Lesson 9: BALANCING CHEMICAL EQUATIONS
Stage 5 CW
Additional content
Stage 6 Chemistry 8.2.1
construct word and balanced formulae equations of chemical reactions as they are encountered
Stage 6 Chemistry 8.5.4
describe chemical reactions by using full balanced chemical equations to summarise examples of complete and incomplete combustion
Lesson 10: REACTIONS AND ENERGY TRANSFER
CW4 Different types of chemical reactions are used to produce a range of products and can occur at different rates and involve energy transfer. (ACSSU187)
a. identify that chemical reactions involve energy transfer and can be exothermic or endothermic
b. compare combustion and respiration as types of chemical reactions that release energy but occur at different rates
Stage 6 Chemistry 8.4.5
• explain and use the equation ΔH = −mCΔT
• explain how water's ability to absorb heat is used to measure energy changes in chemical reactions
Lesson 11: WHAT EFFECTS THE RATE OF A REACTION?
CW4 Different types of chemical reactions are used to produce a range of products and can occur at different rates and involve energy transfer. (ACSSU187)
b. compare combustion and respiration as types of chemical reactions that release energy but occur at different rates
c. describe the effects of factors, eg temperature and catalysts, on the rate of some common chemical reactions
Stage 6 Chemistry 8.5.5
• explain the role of catalysts in changing the activation energy and hence the rate of chemical reaction
Lesson 12: PRODUCTION OF PETROLEUM
Stage 6 Chemistry 9.2.1 Fossil fuels provide both energy and raw materials such as ethylene, for the production of other substances
• identify the industrial source of ethylene from the cracking of some of the fractions from the refining of petroleum
Lesson 13
Lesson 14
Lesson 15
THEME: Fuel to Energy
Lesson 13: TYPES OF ENERGY
PW3 Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems. (ACSSU155)
a. identify objects that possess energy because of their motion (kinetic) or because of other properties (potential)
Lesson 14: TYPES OF ENERGY
PW3 Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems. (ACSSU155)
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Lesson 15: TYPES OF ENERGY
PW3 Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems. (ACSSU155)
a. identify objects that possess energy because of their motion (kinetic) or because of other properties (potential)
SC5-14LW analyses interactions between components and processes within biological systems
Stage 6 8.5.1 Living organisms make compounds which are important sources of energy
SC4-11PW discusses how scientific understanding and technological developments have contributed to finding solutions to problems involving energy transfers and transformations
SC5-11PW explains how scientific understanding about energy conservation, transfers and transformations is applied in systems
Lesson 5: BIOFUELS
Stage 6 Chemistry 9.2.2 Some scientists research the extraction of materials from biomass to reduce our dependence on fossil fuels
• discuss the need for alternative sources of the compounds presently obtained from the petrochemical industry
Lesson 4: BIOFUELS
Stage 6 Chemistry 9.2.2 Some scientists research the extraction of materials from biomass to reduce our dependence on fossil fuels
• discuss the need for alternative sources of the compounds presently obtained from the petrochemical industry
Lesson 6: RENEWABLE PETROLEUM
Stage 6 renewable petroleum
Lesson 4
Lesson 5
Lesson 6
THEME: Formation of Fossil Fuels
Lesson 1
Lesson 2
Lesson 3
Lesson 3: PHOTOSYNTHESIS
Stage 6 Chemistry 8.5.1 Living organisms make compounds which are important sources of energy
* outline the role of photosynthesis in transforming light energy to chemical energy and recall the raw materials for this process
* outline the role of the production of high energy carbohydrates from carbon dioxide as the important step in the stabilisation of the sun's energy in a form that can be used by animals as well as plants
* identify the photosynthetic origins of the chemical energy incoal, petroleum and natural gas
Lesson 2: HOW DO LIVING THINGS MAKE ENERGY?
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Lesson 1: HOW DO LIVING THINGS MAKE ENERGY?
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