Physical Science (Mrs. Franklin) Students

Answer questions on your own paper. Make sure to number each answer correctly. Write your name, date, and class period in the top right corner of your answer page. You may write as many answers on one page that will fit front and back.

Week 1, March 23

PHS.7.1 Using digital resources, explore forms of energy (e.g., potential and kinetic energy, mechanical, chemical, electrical, thermal, radiant, and nuclear energy).

1. Research the following and create a booklet: a. potential energy, b. kinetic energy, c. mechanical energy, d. chemical energy, e. electrical energy, f. thermal energy, g. radiant energy, and h. nuclear energy. Include labeled illustrations with explanations.

PHS.7.2 Use scientific investigations to explore the transformation of energy from one type to another (e.g., potential to kinetic energy, and mechanical, chemical, electrical, thermal, radiant, and nuclear energy interactions).

2. Design and conduct a scientific investigation to explore the transformation of energy from one type to another. Illustrate investigation and log procedures.

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Week 2, March 30

PHS.7.3 Using mathematical and computational analysis, calculate potential and kinetic energy based on given data. Use equations such as $PE=mgh$ and $KE=\frac{1}{2}mv2$.

3. Internet research mathematical and computational analysis that calculate energy. Record analysis and write a brief on analysis to present in front of class on day of return.

PHS.7.4 Conduct investigations to provide evidence of the conservation of energy as energy is converted from one form of energy to another (e.g., wind to electric, chemical to thermal, mechanical to thermal, and potential to kinetic).

4. Design a wind-farm that will be placed on a 20 acre plot. This will be wind to electric. Calculate the amount of electricity a 20 acre wind-farm can produce.

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Week 3, April 6

PHS.8.1 Compare and contrast temperature scales by converting between Celsius, Fahrenheit, and Kelvin.

5. Convert 70° F to Celsius.

6. Convert 27° C to Fahrenheit.

7. Convert 100 Kelvin to Celsius and Fahrenheit.

PHS.8.2 Apply particle theory to phase change and analyze freezing point, melting point, boiling point, vaporization, and condensation of different substances.

8. Explain what the particle theory states.

9. Apply particle theory to phase change and analyze freezing point, melting point, boiling point, vaporization, and condensation of water, salt water, and alcohol.

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Week 4, April 13

PHS.8.3 Relate thermal energy transfer to real world applications of conduction (e.g., quenching metals), convection (e.g., movement of air masses/weather/plate tectonics), and radiation (e.g., electromagnetic).

10. Identify the following: a. conduction, b. quenching metals, c. convection, d. air masses, e. plate tectonics, f. radiation, g. electromagnetic.

11. Illustrate electromagnetic spectrum WITH COLOR and label the wave lengths.

PHS.8.4 Enrichment: Use an engineering design process to construct a simulation of heat energy transfer between systems. Calculate the calories/joules of energy generated by burning food products. Communicate conclusions based on evidence from the simulation.*

12. Research how much energy is generated by burning food products: corn, wheat, butter.