



DISTANCE LEARNING PACKET

8TH GRADE

SCIENCE

8th Grade: Physical Science

Day 1: In your own words, explain the following terms used in the scientific method. Qualitative observation, quantitative observation, inferring, predicting, scientific inquiry, hypothesis, variable, Independent (Manipulated variable), Dependent (Responding) Variable, Control, data Scientific Law, Scientific Theory

Day 2: Explain what information would go in each step of the scientific method. If possible, use the above terms.

Question:

Background:

hypothesis:

Experiment:

Analyze & Conclude:

Day 3-4: Suppose you got up this morning and the lightbulb in your room wouldn't come on. Use the steps of the scientific method to explain how you would solve the problem and make the light work again.

Day 5: Design your own experiment and explain how you would use each step of the scientific method to solve your question.

Day 6: Using the included copy of the periodic table, label the rows and columns. Then explain how each would be helpful in finding information about the elements.

Day 7-8: Locate the following groups on the periodic table and color them accordingly.

2 elements are liquid at room temperature, Hg & Br. Outline them in blue

11 Elements are solid at room temperature—H, He, N, O, F, Ne, Cl, Ar, Kr, Xe, Rn—
outline them in red

Alkali metals: Color purple

Alkaline Earth Metals: Color Red

Transition Metals: Color Green

Chalogens: Color brown

Halogens: Color Blue

Noble Gases: Color yellow

Write the names of each group above the column.

With black, add the "stair step" pattern that starts under Boron and extend down to Po and At—Shade all elements touching this line—except aluminum—gray

Day 9: Explain each of the 3 particles in the atom. Draw a box on the periodic table. Label the name of each part of the box and what it tells you about the particles in each atom of that element. Then, draw a bohr model and lewis diagram of the element.

Day 10: What is the law of conservation of matter? Write a thorough explanation of how a chemical reaction may or may not demonstrate the law of conservation of matter and why.

Day 11: Explain the following forms of energy in your own words: Kinetic, Potential (Gravitational and Elastic), Mechanical, Electrical, Thermal, Electromagnetic, Nuclear, Chemical

Day 12: Using your definition of the above terms, find 5 examples of each in your everyday life and explain how you know what type of energy they are (Excluding Nuclear—for Nuclear, explain 2 examples).

Day 13. Define what an energy transformation is. Using the above examples, could you possibly find another type of energy for each one? Explain the energy transformation between each of your examples above.

Example: If you said a toaster for thermal...The toaster starts as electrical, transforms into electromagnetic in the light and thermal in the heat to cook your toast.

Day 14: Explain the particle arrangement in each state of matter (Solid, liquid, gas, plasma). Using what you know about thermal energy, explain how thermal energy is added or removed to establish a change in the state of matter. Explain how that affects the particles to cause the change.

Day 15: Explain what each of Newton's laws means and give 2 examples of each.

Day 16: Explain the differences between balanced and unbalanced forces and explain how you would determine the motion of an object using the force on the object.

Day 17: Explain the difference between a longitudinal wave and a transverse wave. What the trough, crest, compression and rarefaction of each wave is and how they relate to amplitude and wavelength. Explain how the descriptions relate to a light wave's brightness or a sound wave's loudness, intensity, pitch and the Doppler effect.

Day 18: Draw the electromagnetic spectrum & label it with the following waves: Radio, Micro, Infrared, Visible Light, Ultraviolet, X-ray, Gamma ray. Write a short summary of how to determine the frequency, wavelength, and amplitude of each wave in relation to the other waves.

Day 19-20: Design a device to illustrate practical applications of the electromagnetic spectrum (e.g., communication, medical, military). Draw an example of the device and write an essay explanation of how the device works using vocabulary from our "waves" unit.