**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**SAGE Review 🡪Physical Science**

1. A physical **property** is a characteristic of a substance that does not involve a chemical change.

List 3 examples.

2. A chemical **property** is a property of matter that describes a substance’s ability to participate in chemical reactions. List 3 examples.

3.A physical **change** is a change of matter from one form to another without a change in chemical properties.

List 3 examples.

4.A chemical **change** is a change that occurs when one or more substances change into entirely new substances with different properties. List 3 examples.

5. **Natural Resources** are materials, substances and components found in the natural environment. They can be living or non-living.

a. List 2 examples of a **renewable** resource.

a. List 2 examples of a **non-renewable** resource.

6. **Synthetic** **products** are man-made materials and substances. They DO NOT occur naturally in the environment. Natural Resources are changed chemically to make synthetic products. List the 3 types of synthetic products.

7. **Phase Changes**.

During the actual phase change the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DOES NOT change.

During the actual phase change the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­\_\_\_\_\_\_ DOES change.

8. What happens to the particles of a substance if you add or take away energy in a chemical reaction?

a. If you add energy to a substance the particles will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

b. If you take energy away the particles will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

9. What 3 types of energy might be given off or taken in during a chemical change?

10. The **law of conservation of mass** says that matter cannot be created or destroyed. The mass of the products

must equal the mass of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2 H2 + O2 🡪 2 H2O

Reactants (4 Hydrogen atoms and 2 Oxygen atoms = 6 total atoms)

Products (4 Hydrogen atoms and 2 Oxygen atoms = 6 total atoms)

**SAGE Review 🡪Physics**

1. **Newton’s 1st Law** states that an object at rest will stay \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and an abject in motion

will stay \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ unless otherwise acted on by another force.

1. **Newton’s 2nd Law** states that the force acting on an object is equal to the objects \_\_\_\_\_\_\_\_\_\_\_ times it’s

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. **Newton’s 3rd Law** states that for every action there is an equal and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ reaction.
2. **Potential Energy** is stored energy that could do work.

List 2 examples of **chemical potential** energy.

List 2 examples of **gravitation potential** energy

1. **Kinetic Energy** is energy that does the work.

**Mechanica**l energy is energy of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Sound** energy is energy moving through waves by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Heat** energy is energy moving through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. What type of **energy transfer** has occurred

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Example** |  | **Energy Type** |  | **Energy Type** |
| Blow Dryer | From |  | To |  |
| Car Engine | From |  | To |  |
| Firewood | From |  | To |  |

1. Draw and label a **transverse wave**: (wavelength, amplitude, crest, trough)
2. Draw and label a **longitudinal wave**: (compression, rarefaction, wavelength)
3. The **frequency** of a wave determines \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. The **amplitude** of a wave determines \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. **Analog signals** are continuous electrical pulses of varying amplitudes. (Transverse waves)

List 2 examples:

1. **Digital signals** translate information into binary format (0,1) where each bit represents two distinct amplitudes. (Square waves) List 2 examples:

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**SAGE Review 🡪 Life Science**

**1. Photosynthesis** is the process by which plants use energy from the sun to make their own food.

Write the equation for photosynthesis:

2. **Respiration** is the process that plants and animals use to break down their food into usable energy.

Write the equation for respiration:

3. Energy is transferred from the sun through the following pathway. Complete the **energy pathway**.

Sun 🡪 PHOTOSYNTHESIS 🡪 🡪 RESPIRATION 🡪 🡪 Heat energy

4. Create a simple **Food Chain.**

5.  **Symbiosis** is the interaction of 2 different organisms living together, where at least one benefits.

|  |  |  |
| --- | --- | --- |
| **Type** | **Relationship** | **Example** |
| Mutualism |  | Clown Fish and Anemone |
| Commensalism |  | Bison and Cowbird |
| Parasitism |  | Deer and Tick |
| Predation |  | Bear and Fish |

6. **Trophic Levels** tell us the position an organism occupies in a food chain (who eats who).

|  |  |  |
| --- | --- | --- |
| **Type** | **Definition** | **Example** |
|  | Organism that makes its own food. | Plants |
|  | Organism that obtains food by eating other organisms. | Hawk, cow, humans |
|  | Organism that eats only dead organisms. | Vulture, raccoon, crow |
|  | Organism that breaks down remains of dead organisms. | Bacteria, worms, maggots |

7.  **Carbon** is a key element in all living things. It needs to be cycled through the environment in living and non-livings things.

Living = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Non-living = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. **Environmental Issues** are some examples of how humans effect their environment. List 4 different issues.

9. What is the difference between **Inference** and **Evidence**?

**SAGE Review** 🡪 **Geology**

1. How are minerals and rocks related?
2. List the 5 properties of a **mineral**.
3. **Sedimentary** rocks are formed from pieces of other rocks or the remains of once-living things. How can you tell if you’re looking at a sedimentary rock?
4. **Igneous** rocks form from molten magma or lava. How can you tell you that you are looking at an igneous rock.
5. **Metamorphic** rocks form when existing rocks are changed by heat and/or pressure. How can you tell you that you are looking at a metamorphic rock?
6. **Weathering** is the breaking down of rocks and other materials.

List 3 types of chemical weathering.

List 3 types of mechanical weathering.

1. **Erosion** is the physical movement of weathered material from one place to another.

List the 5 types of erosion.

1. **Deposition** is when weathered material carried by erosion is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in new places.
2. What can we learn about the Earth’s history from:
   1. Rock layers:
   2. Folds & faults:
   3. Fossils:
   4. Layers can tell us about…
3. **Fossils** are the remains or traces of organisms that lived long ago.

List the 4 types of fossils.

1. **Volcanoes** form when tectonic plates move and magma is squeezed out.

List the 3 types of volcanoes and how they erupt.

1. An **earthquake** is the shaking of the earth’s surface from sudden movements of the earth’s crust.

The point beneath the earth’s surface where the breaking occurred is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The point on the earth’s surface directly above the break is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.