**“What’s the Matter Study Guide”**

1. The basic particle from which all ***elements*** are made is the \_\_\_\_\_\_\_. (6P21)
2. A pure substance that cannot be broken down into any other substance is an \_\_\_\_\_\_\_\_\_ (6P21)
3. Atoms of the same element have the \_\_\_\_\_\_\_\_ properties throughout. (6P21)
4. If atoms have the same atomic mass and the same atomic number then they are the same \_\_\_\_\_\_\_\_\_\_. (6P21)
5. If food coloring is dropped in a cup of cold water, a cup of room temperature water and a cup of hot water. The cold cup shows the **\_\_\_\_\_\_\_\_\_\_** movement of the food coloring? (6P21)
6. Do atoms speed up or slow down when they are heated? (6P22)
7. Do atoms speed up or slow down when they are cooled? (6P22)
8. Anything that has mass and takes up space is \_\_\_\_\_\_\_\_\_ (6P21)
9. Heat energy transferred by the ***actual movement*** of the heated material is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_. For example, as a pot of water is heated up the warmer water rises to the top of the pot. (6P22)
10. The transfer of energy through air and space by light waves is called \_\_\_\_\_\_\_\_\_\_\_\_\_. (6P22)
11. Any substance that flows is known as a \_\_\_\_\_\_\_\_\_\_. (6P22)
12. Heat energy is also known as \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_. (6P22)
13. Heat energy transferred by ***direct contact*** between 2 surfaces is called \_\_\_\_\_\_\_\_\_\_\_\_\_. (6P22)
14. The amount of space an object takes up is called \_\_\_\_\_\_\_\_\_\_. (6P23)
15. The ability of one substance to dissolve into another is \_\_\_\_\_\_\_\_\_\_\_. (6P23)
16. When a substance changes from a liquid to a solid, the molecule connect more \_\_\_\_\_\_\_\_ to one another. (6P23)
17. The atoms that comprise a \_\_\_\_\_\_\_\_\_\_ are packed close together and are not compressible. (6P23)
18. The phase change that occurs when a SOLID becomes a LIQUID is \_\_\_\_\_\_\_\_\_. (6P23) (incorporate the gain/loss of energy)
19. The phase change that occurs when a LIQUID becomes a SOLID is \_\_\_\_\_\_\_\_\_\_. (6P23)
20. The phase change that occurs when a liquid becomes a gas is \_\_\_\_\_\_\_\_\_\_\_\_\_\_. (6P23)
21. \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_ are two types of vaporization. (6P23)
22. Sublimation is a phase changes that goes directly from a \_\_\_\_\_\_\_\_ to a \_\_\_\_\_\_. (6P23)
23. For a specific substance, density, boiling point, melting point, and solubility \_\_\_\_ \_\_\_\_\_ depend on how much matter is present. (6P23)
24. Freezing is an example of a \_\_\_\_\_\_\_\_\_\_ in thermal energy compared to melting. (6P23)

**Catch a Wave Unit Study Guide Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Complete the following questions, using your notes. Answer on a separate sheet of notebook paper.**

**6. P.1.1 Compare the properties of waves to the wavelike property of energy in earthquakes, light, and sound.**

1. **\_\_\_\_\_\_\_\_\_\_\_\_\_ is transferred by waves. \_\_\_\_\_\_\_\_\_\_\_ is not transferred by waves.**
2. **Name, describe and label** the two types of mechanical waves. Include the following terms:

Compression, amplitude, crest, trough, wavelength, transverse wave, longitudinal wave, rarefaction, resting position.

1. Define frequency. How does this relate to waves?
2. Compare and contrast electromagnetic waves with mechanical waves.
3. **Compare and contrast** longitudinal and transverse waves. Gives example of each.

**6.P.1.3 Explain the relationship among the rate of vibration, the medium through which vibrations travel, sound, and hearing.**

1. Sound is a form of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ produced by the vibration of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Describe, in general, the speed of sound through liquids, solids and gases.
3. You are a sound wave. Explain the pathway you take through the ear. Make sure to include all necessary vocabulary.
4. Describe how energy can affect frequency and amplitude of a wave.
5. Explain how amplitude and frequency compares to loudness and pitch of sound waves.

***6.P.1.2 - Explain the relationship among visible light, the electromagnetic spectrum and sight.***

1. **Explain the relationship between light and the electromagnetic spectrum.**
2. Which type of radiation in the electromagnetic spectrum is related to colors such as red, green, and blue?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Explain the relationship between wavelength and visible light.
4. Describe what happens when light enters the eye.

**6.P.3.2 - Explain the effects of electromagnetic waves on various materials to include absorption, scattering, and change in temperature.**

1. Explain what can occur when light strikes an object.
2. A light colored object and a dark colored object are placed in the sun. What happens to the temperature of the objects?
3. White light shines on an object. What color do we see?
4. Mr. Boayue is wearing a blue sweater. He stands on stage in the auditorium to give his reenactment of the play *Julius Caesar*. The lights shining on his sweater make it appear black. What CANNOT be the color of light shining on his sweater? Explain your reasoning.

**6:P:3:1 - Conduction, Convection and Radiation are methods of energy (heat) transfer.  Heat energy will travel in the direction of high to low temperatures.**

1. If you placed a hot stone in a beaker of cold water, what would happen to stone and water after 10 minutes?
2. As you are cooking, you place a pot on a hot stove. Describes how the energy is moving as it is being conducted?
3. As you are cooking dinner, you boil water on a stove. Describe convection in this scenario.
4. Heating your lunch in the microwave is an example of which type of energy transfer?

**6.P.3.3 – Matter can expand and contract based on exposure to or removal from heat. Materials are chosen based on their response to heat and electrical energy.**

1. Copper is commonly used as a material in electrical wiring. Explain why.
2. Explain why cooking utensils are often made with a rubber or plastic handle?
3. Why are metals used for making pots and pans that are used for cooking? Explain your reasoning.

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd:\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Land Beneath Our Feet Study Guide**

1. The main layers of the earth (**starting at the top**) are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_. (6E21)
2. The Earth’s crust is made of **dry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, **\_\_\_\_\_\_\_\_\_\_\_\_ floor**, **\_\_\_\_\_\_\_\_\_\_\_\_\_**, and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**. (6E21)
3. The core is made up of the two metals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_ (6E21)
4. All three layers of Earth are different in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_. (6E21)
5. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the crust **and** uppermost part of the mantle; about 100 km thick (6E21)
6. The \_\_\_\_\_\_\_\_\_ is a layer of **\_\_\_\_\_\_\_\_\_ rock**; nearly 80% of the Earth's total volume. (6E21)
7. The dense ball of solid metal is \_\_\_\_\_\_ \_\_\_\_\_\_\_\_ of the Earth. (6E21)
8. The \_\_\_\_\_\_ \_\_\_\_\_\_\_ is a layer of **\_\_\_\_\_\_\_ metal** that surrounds the inner core. (6E21)

10. The \_\_\_\_\_\_\_\_\_\_ is the upper mantle just **below** the lithosphere. (6E21)



11. **Label the Diagram**: For the diagram, label each layer of the Earth.

6E21

(A.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(B.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(C.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (D.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. Vibrations that travel through Earth carrying energy from an earthquake are called\_\_\_\_\_\_\_ . (6E22)

13. The process which one edge of a crustal plate is forced below the edge of another is known as . (6E22)

14. Breaks in the Earth’s crust where rocks have slipped past each other are called (6E22)

15. The lithosphere is broken into separate sheets called \_\_\_\_\_\_\_\_\_. (6E22)

16. The theory of states that pieces of Earth’s lithosphere are in slow, constant motion, driven by currents in the mantle. (6E22) (have students focus on what allows movement – currents)

17. A is a line where the edges of Earth’s plates meet. (6E22)

18. A boundary is where two tectonic plates move apart from one another. (6E22)

19. A boundary is where two tectonic plates move toward one another. (6E22)

20. A boundary is where two tectonic plates slide past each other. (6E22)

21. The is the point Earth’s surface where rock breaks under stress and triggers an earthquake. (6E22)

22. Volcanic belts form along the of Earth’s . (6E22)

 23. Before lava reaches the surface, the molten material is called . (6E22

24. is name of a supercontinent that existed millions of years ago.(6E22)

25. Seismic waves carry the energy of an earthquake from the . (6E22)

26. Soil is a mixture of particles, , decayed matter, and : (6E23)

27. The breaking up of rocks from wind, water, and ice is . (6E23

28. is the nutrient that turns the soil dark brown or black. (6E23)

29. is smaller pieces of rock that have settled in air or water. (6E23).

**30.** Label the soil profile below with the correct layers. **Word Bank**: (Parent Material, Subsoil, Topsoil, Litter, Bedrock) focus on parent material)

6E23

A\_\_\_\_\_\_\_\_\_\_\_\_\_

B\_\_\_\_\_\_\_\_\_\_\_\_\_

C\_\_\_\_\_\_\_\_\_\_\_\_\_

D\_\_\_\_\_\_\_\_\_\_\_\_\_

E\_\_\_\_\_\_\_\_\_\_\_\_\_\_

31. The is defined as the rigid outer part of the earth, consisting of the crust and upper mantle: (6E24)

32. is the responsible planning and management of resources. (6E24)

33. are responsible for monitoring and maintaining soil quality? (6E24)

34. Erosion by and can cause the loss of soil that is not protected by plant cover. (6E24)

35. is a valuable resource because it is important to all living things. (6E24)

**Space Invaders End of Year Study guide**

Be able to label this diagarm with the correct position of earth for winter, spring, summer, fall in the northern or southern hemisphere.

Know the difference between rotation and revolution. Know how long it takes the earth to rotate on its axis and how long it takes the earth to revolve around the sun. Know what causes day/night.

Know the reason for leap year, hint: this is related to how fast the earth revolves around the sun.

Know how many degrees the earth’s axis is tilted.

How many times does Earth rotate during one revolution of the Sun? \_\_\_\_\_\_\_\_

Know what two things cause the seasons on earth.

Know the difference between solstice and equinox and the seasons in which they occur.

Know about how long it takes the moon to revolve around the earth and how long it takes the moon to rotate on its axis. Know why the same side of the moon always faces earth.

Know what force holds objects together in space. Know what causes tides on earth.

Be able to list the inner planets (rocky planets) and the outer planets (gas giants) in order from their distance from the sun.

Create question focusing on habitability (Goldilocks Principle)

Be able to list planet, universe, galaxy and solar system in order from smallest to largest. Be able to name our galaxy.

Name the most massive body in our solar system.

What is the name of the first man-made satellite to orbit the earth? Name the first person to walk on the moon.

Be able to define a spin-off.

Be able to explain what space probes are designed to do.

Be able to define what NASA does and what the initials stand for.

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| **Growing and Flowing Study Guide** |
| 6L11 |  |  |  |  |  |  |  |
| 1 | Part of a plant that makes seeds and fruits is the  **.** |
|  |
| 2 | The  is the main part of a plant that holds it into the ground and absorbs water.  |
|  |
| 3 | The is the main part of a plant that allows gasses to enter and escape. |
|  |
| 4 | The  is where photosynthesis takes place in a plant cell. |
|  |
| 6L12 |  |  |  |  |  |  |  |  |  |
| 5 |  is what producers release as a result of photosynthesis. |
|  |
| 6 |  and  are the raw materials of photosynthesis are  |
|  |
| 7 | Photosynthesis in plants produces and **\_\_\_\_\_\_\_\_\_\_\_\_\_** |
|  |
| 8 | The process in which cells produce energy in order to survive is called **.** |
|  |
| 9 | The process of photosynthesis is started by **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** striking a plant's **\_\_\_\_\_\_\_\_\_\_\_\_** |
|  |
| 10 | The 3 main parts of a plant are **\_\_\_\_\_\_\_\_,** **\_\_\_\_\_\_\_\_\_** and **\_\_\_\_\_\_\_\_\_\_** |
|  |
| 11 | The process in which water is carried from the roots through the plant and released through tiny holes on the bottom of the leaves as water vapor is called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.** |
|  |  |  |  |  |  |  |  |  |  |
| 6L21 |  |  |  |  |  |  |  |  |  |
| 12 | The many overlapping food chains in an ecosystem make up a **\_\_\_\_\_\_\_\_** **\_\_\_\_\_\_\_\_\_\_\_.** |
|  |  |  |  |  |  |  |  |  |  |
| 13 | An **\_\_\_\_\_\_\_\_\_\_\_** **\_\_\_\_\_\_\_\_\_\_\_** is a diagram that shows the amount of energy that moves from one feeding level to another in a food web is  |
|  |
| 14 | The first organism in a food chain is always a **\_\_\_\_\_\_\_\_\_\_\_.** |
|  |
| 15 | In an energy pyramid, the **\_\_\_\_\_\_\_\_\_\_\_** **\_\_\_\_\_\_\_\_\_** has the most available energy. |
|  |
| 16 |  Consumers that eat both plants and animals are called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.** |
|  |
| 6L22 |  |  |  |  |  |  |  |  |  |
| 17 | When a seed falls from a tree in the fall the seed does not begin growing until warmer weather. The term for this is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
|  |
| 18 | When a plant moves its leaves towards the sunlight, this is called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.** |
|  |
| 6L23 |  |  |  |  |  |  |  |  |  |
| 19 | The non living parts of an ecosystem are called **\_\_\_\_\_\_\_\_\_\_\_** factors. |
|  |
| 20 | **\_\_\_\_\_\_\_\_\_\_** is a biotic factor in the prairie ecosystem, **\_\_\_\_\_\_\_\_\_** is an abiotic factor. |
|  |
| 21 | A group of land ecosystems with similar climates and organisms is called a **\_\_\_\_\_\_\_\_\_.** |