**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_**

**This packet contains the Earth Science practice and Part 1 of the Life Science. It also has the OGT Vocab 3. Answer the questions and label the diagrams for.**

Use the picture to answer the questions below. The model below shows the landmasses (Gondwanaland) as they started to break apart to form South America, Africa, Antarctica, India, and Australia.

1. What theory explains this movement of the continents?
2. If a paleontologist (someone who studies extinct animals) found fossils that were the same in West Africa and Eastern South America would that finding support or refute the idea of Gondwanaland? Explain your answer.
3. What part of the inner Earth causes the continents to move?
4. What part of the Earth provides the heat that is necessary for plate tectonics to occur?

**4**



**3**

**2**

**1**

1. Which number is the mantle of the Earth? \_\_\_\_\_\_\_\_\_\_\_
2. Which number is the outer core? \_\_\_\_\_\_\_\_\_\_\_\_
3. What is the process that causes the mantle to move and in turn move the continental plates?
4. What is the name of the layer that we are on? (The surface.)



1. What cycle is pictured here?
2. This diagram is missing some arrows. Explain why there are arrows missing and where some might go.

Using the chart above and pictures below, answer the questions.

1. Looking at the explanations above, which of the pictures below fits with:
	1. Divergent \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Convergent \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Transform \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Based on what you have here for information, define subduction in the context of plate boundaries.
3. Which of the pictures below describes the San Andreas Fault in California?

**B**

**A**

**C**



**Cell Theory**

Use the word bank to complete the following.

**DNA Eukaryotes**

**Existing Chloroplasts**

**Prokaryotes Mitochondria**

* 1. Bacteria have no true nucleus this makes them \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ conduct cellular respiration.
	3. Plant and animal cells are different, but they are both \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	4. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_contains chlorophyll which allows plants to conduct photosynthesis.
	5. All cells come from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells.
	6. One main difference between animal and plant cells is the existence of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in plant cells.
	7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be found within all cells.

**DNA**

Complete the following DNA chain by providing the matching letters.



**1**

1. **\_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_**



**2**

1. **\_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_**

**Genetics**

For each genotype, indicate whether it is heterozygous (HE) or homozygous dominant or recessive (HoD or HoR)

|  |  |  |  |
| --- | --- | --- | --- |
| AA \_\_\_\_Bb \_\_\_\_Cc \_\_\_\_Dd \_\_\_\_ | Ee \_\_\_\_ff \_\_\_\_GG \_\_\_\_ HH \_\_\_\_ | Qq \_\_\_\_Jj \_\_\_\_kk \_\_\_\_Ll \_\_\_\_ | Mm \_\_\_\_nn \_\_\_\_RR \_\_\_\_Pp \_\_\_\_ |

2. For each of the genotypes below, determine the **phenotype** (physical appearance).

|  |  |
| --- | --- |
| *Purple flowers are dominant to white flowers*PP \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Pp \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_pp \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  | *Brown eyes are dominant to blue eyes*BB \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Bb \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_bb \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| *Round seeds are dominant to wrinkled*RR \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Rr \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_rr \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | *Bobtails are recessive (long tails dominant)*TT \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Tt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_tt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

3. For each phenotype, list the genotypes. Remember to use the letter of the dominant trait. **(Example: Brown fur is dominant to gray fur: B = Brown fur; b = gray fur)**

|  |  |
| --- | --- |
| *Straight hair is dominant to curly.*\_\_\_\_\_\_\_\_\_\_\_\_ straight\_\_\_\_\_\_\_\_\_\_\_\_ straight\_\_\_\_\_\_\_\_\_\_\_\_ curly | *Pointed heads are dominant to round heads.*\_\_\_\_\_\_\_\_\_\_\_\_ pointed\_\_\_\_\_\_\_\_\_\_\_\_ pointed\_\_\_\_\_\_\_\_\_\_\_\_ round |

4. Set up the square for each of the crosses listed below. The trait being studied is round seeds (dominant) and wrinkled seeds (recessive)

**Rr x rr**



What percentage of the offspring will be round? \_\_\_\_\_\_\_\_\_\_\_

**Rr x R r**



What percentage of the offspring will be round? \_\_\_\_\_\_\_\_\_\_\_

**RR x Rr**



What percentage of the offspring will be round? \_\_\_\_\_\_\_\_\_\_\_

**Practice with Crosses in the space top the right of the problems. Show all work!**

1. A TT (tall) plant is crossed with a tt (short plant).
What percentage of the offspring will be tall? \_\_\_\_\_\_\_\_\_\_\_
2. A Tt plant is crossed with a Tt plant. What percentage
of the offspring will be short? \_\_\_\_\_\_
3. A heterozygous round seeded plant (Rr) is crossed with a
homozygous round seeded plant (RR). What percentage of
the offspring will be homozygous (RR)? \_\_\_\_\_\_\_\_\_\_\_\_
4. A homozygous round seeded plant is crossed with a homozygous
wrinkled seeded plant. What are the genotypes of the parents?
\_\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_

What percentage of the offspring will also be homozygous? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. In pea plants purple flowers are dominant to white flowers.
If two white flowered plants are cross, what percentage of their
offspring will be white flowered? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. A white flowered plant is crossed with a plant that is
heterozygous for the trait. What percentage of the
offspring will have purple flowers? \_\_\_\_\_\_\_\_\_\_\_\_\_