Kingsborough Community College
2100 Oriental Blvd.
Brooklyn, New York 11235

GED (High School Equivalency Prep) – Lesson # 5

Subject: Writing – Reading (104 - 105) Main Idea - Organize Ideas into Paragraphs (134 - 135)

African American Stories: "Quicksand" by Nella Larsen:https://babel.hathitrust.org/cgi/pt?id=mdp.39015054061430&view=1up&seq=1

Topic: Organizing Ideas into Paragraphs

Definition – A paragraph is a group of sentences that relate to a main idea, from the beginning to the end. Paragraphs help readers understand your story.

Rules that every paragraph should have:

* Unified – All sentences should be in a single paragraph related to a controlling idea. (The topic sentence.)
• Clarity – Paragraph should be clearly related to the central/thesis statement
•Coherent – logical order
•Well-developed – every idea should be explained and supported with evidence to work together to explain the main idea.

Important Note: Coherence is what matters, not how long the paragraph is.The unity and coherence of ideas presented in your paragraph is what makes a good paragraph.

Subject: Science (526 – 529)

Topic: Reproduction and Heredity 526 - 527

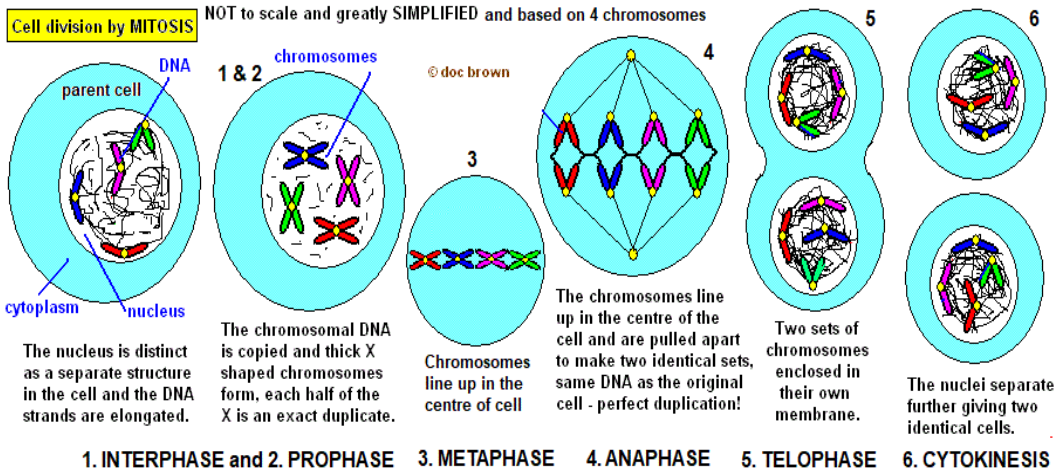
Definition – Is the process in making/developing new life. In humans/animals, plants is creating new life.

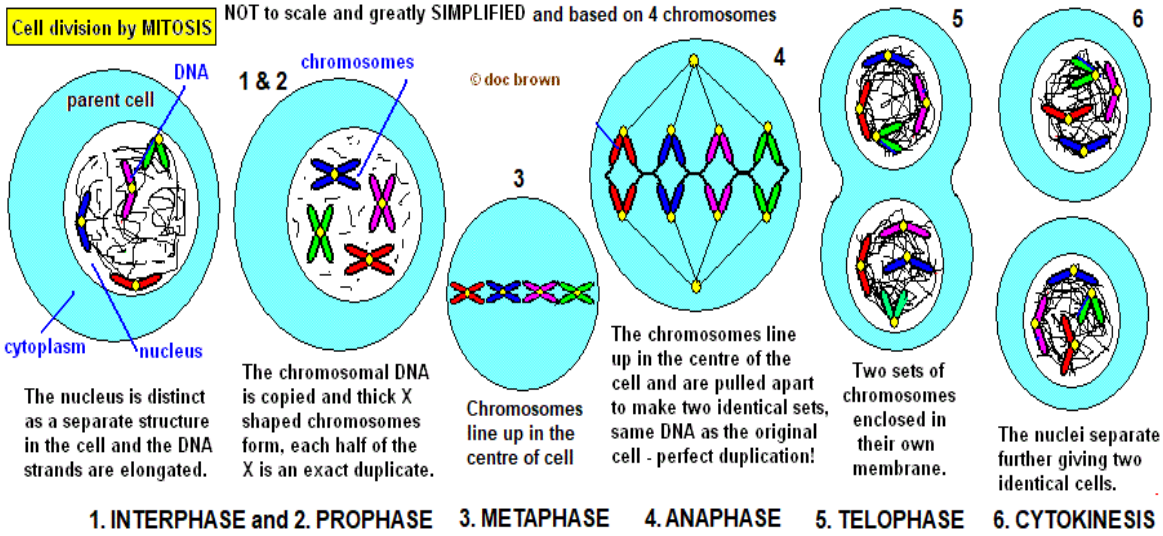
There are two types of reproduction:

•Asexual – reproduction of one identical parent. (1 one parent)
Example: Plants, vegetables, freshwater animals – hybrid (budding and regeneration)
•Sexual – Two sex cells (opposite sex/gender, combine to form a new life/offsrping.)
•The sex cells are the sperm and ovary.

Types of Asexual:
•binary fission – bacteria, fungi, protist
•fragmentation – regenerate and grow out of a piece of a broken part of plant
•budding – growth in plant
•spore formation – fungi forms spores (plant, carrots, etc)

•algae – example (mother of a thousands)





Traits – is the passing of physical features or characteristics from parents, which is later known as heredity.

Heredity – is the passing of traits from parents to the offspring from sexual reproduction.

The person who did study on heredity is known as Gregor Mendel. He is known as the "Father of Genetics." He was an austrian monk, who worked in the garden of a monastery. He did studies with peas, where he realized parents of the same trait/characteristics were ***purebred.*** He decided to cross the plants short and tall together, and realized that the offspring of the plants ¾ were tall and ¼ was short. He continued to repeat the experiment with other plants, for a period of ten years. He concluded that each parent inherited specific traits. It was later concluded that these traits in humans were known as ***genes.*** Different forms of genes are known as ***alleles.***

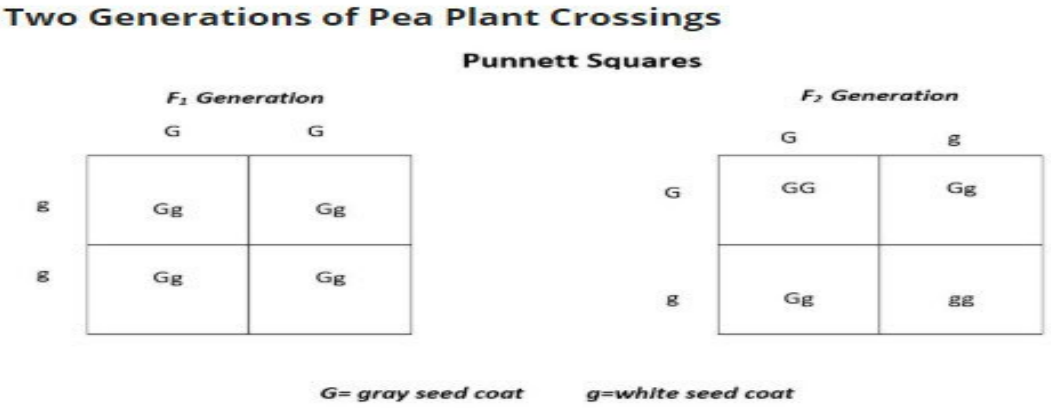
Factors:

- Two alleles for tallness
- two for shortness
- one allele for shortness and one for tallness

The result of his experiment concluded t***hird case:***

- ***Dominance – control the appearance of the trait***
- ***Recessive – is a shortness, a hidden trait***

All 1st generation offspring are known to be ***hybrid. (one alleles for tallness and one shortness)***



Importance of Proteins

Proteins are important because proteins are the the building blocks of repairing cells. We need proteins in our diet to help the body repair cells and make new ones. It also helps for the rowth and development in young children, teens and pregnant women.

How do proteins synthesize?

Proteins synthesize through the process stages of (TRANSCRIPTION & TRANSLATION)

<u>Transcription</u> is the transfer of genetic instructions in DNA to mRNA in the nucleus. It includes thre three important steps:

- ***initiation***
- ***elongation***
- ***termination***

After the mRNA is processed, it carries the instructions/message to the <u>ribosome</u> in the <u>cytoplasm.</u>

<u>Translation</u> occurs at the ribosome, which consists of rRNA and proteins. In translation, the instruction/messenger in mRNA are read and tRNA brings the correct sequence of a amino acids, producing a polypeptide chain.
**** After a polypeptide chain is synthesized, it may undergo additional processing to form the finished protein.***

Subject – Mathematics (360 - 361)

Topics: Factoring Quadratic Equations, Solving Quadratic Equation using Square Root, Completing the Square, Quadratic Formula, Graphing Equations

Definition- is an equation in one unknown that has the highest degree 2.

Formula of Quadratic in Standard form:

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

There are two types of quadratic equations:

- Complete – contains first and second degree terms of the unknown as well as a constant.
  Example: $x^2 + 7x + 6 = 0$

- Incomplete – is missing a term with the first power of the unknown or constant.
  Example: $x^2 – 3x = 0$

Rules:

- Write the standard equation, remove parenthesis, clear out fractions and combing like terms to the left of equal sign. Make the right side of the equal sign zero.
- Factor the left side of the equal sign
- Write two equations with each factor equal to zero
- Solve each equation. Check by substituting each value into the original equation

Example (Workout)

$x^2 – 4x = 5$
$x^2 - 4 – 5 = 0$ (add -5 on both sides to place in standard form)

$(x – 5) (x + 1) = 0$ (Factor)

$x – 5 = 0$ $x+ 1 = 0$ (set each factor 0)
$x = 5$ or $x = -1$

Completing the Square

Rules:

- Write the equation
- split the coeffient of x in half
- add result on both sides of equal sign
- solve the perfect square on the left side

Example:

$$x^2 - 10x + 21 = 0$$
$$x^2 - 10x = -21$$
½ of 10 = -5 ,
$$(-5)^2 - 25$$

(add 25 to both sides)

$$x^2 - 10x + 25 = -21 + 25$$

$$(x - 5)^2 = 4$$

$$\sqrt{(x - 5)^2} = \sqrt{4}$$ (take square root of each side)

$$x - 5 = \pm 2$$
$$x - 5 = 2 \text{ or } x - 5 = -2$$
$$x = 7 \text{ or } x = 3$$

The solutions are 7 and 3

The Quadratic Formula

Formula:

quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Rules:

- Use the standard form
- Write the standard form
- Write the values for a, b, and c
- Substitute the values
- Simplify
- Check over work

Example:

$$2x^2 + 9x - 5 = 0$$

$$ax^2 + bx + c = 0$$
$$2x^2 + 9x - 5 = 0$$

$$a = 2 \quad b = 9 \quad c = -5$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-b \pm \sqrt{-9}^2 - 4\,(2)\,(-5)}{2a}$$

$$x = \frac{-9 \pm \sqrt{(9)^2 - 4\,(2)\,(-5)}}{2(2)}$$

$$x = \frac{-9 \pm \sqrt{81 + 40}}{4}$$

$$x = \frac{-9 \pm \sqrt{81 + 40}}{4}$$

$$x = \frac{-9 \pm \sqrt{121}}{4}$$

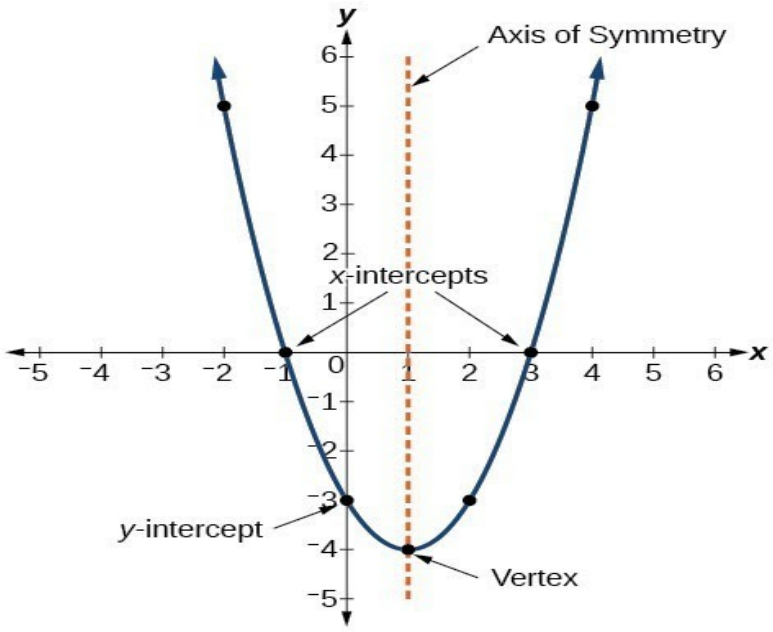
$$x = \frac{-9 + 11}{4} \text{ or } x = \frac{-9 - 11}{4}x$$

$$2/4\ x = -20/4 \quad x = ½ \quad x = -5$$

Graphing Quadratic Equations

Definition – Quadratic equation is a parabola.

The point/tip of a parabola is called the **vertex**. If it is open **upwards t**he vertex is called **minimum**. If it opens d**ownwards** it is called **maximum.** The **axis of symmetry g**oes through the center and divides the parabola into **two mirror images.**



Formula: $y = ax^2 + bx + c$

Rules:

- Determine the minimum and maximum. If **a is positive the graph opens upward and will have a minimum. If a is a negative, the graph will open upward and will have a maximum.**
- Find out the **axis symmetry.** The axis symmetry is found by using the formula:

$$\mathbf{x = \frac{-b}{2a}}$$

- Find the **coordinates of the vertex**. This can happen by substituting the value x from the second step into the original equation.
- Last choose the value for **x** or the corresponding **y** values. Then plot the ordered pairs and sketch the parabola.

Example: $y = 2x^2 + 4x + 1$

1. Since a = +2, the parabola will open upward.

2. The axis symmetry is $x = \frac{4}{2(2)} = -1$

3. Get the coordinate of the vertex, substitute x = -1 into the original equation and solve y.

$$y = 2x^2 + 4x + 1$$
$$y = 2(-1)^2 + 4(-1) + 1$$
$$y = 2 + -4 + 1$$
$$y = -1$$

The coordinates of the vertex are (-1, -1)

4. Choose more values for x and y by substituting the original equation. Then plot the points.

Example:

x	y
-1	-1
0	1
1	7
-2	4

Subject: Social Studies (446 - 447)

Topic: The Cold War and The Civil Rights Era

Background Information – The Cold War was a political dispute between United States and their allies, the Soviet Union and their allies. It was caused by the Soviet Union being greedy or having an appetite for power also known as Imperialism. The Cold began with the surrender of Nazis Germany in 1945. (nuclear weapons) between US and Russia. The split between the two superpowers.The Cold War gets its name, due that is was a way to avoid another war. The two nations did not want to fight each other directly. Theylooked for ways to avoid another war.

Major Causes

- Tension between two nations to end WWII
- Nuclear weapons
- Fear of Communism in the United States

The Cold occurred under the Administration of Mikail Gorbachev, who changed the aspects of the Soviet government and tried to democratize its political system. Gorbachev weakened the political party system and allowed power to shift the contitute governments to the Soviets. The Soviet Union collapsed in 1991 giving rise at 15 new nations, as well as Russia as an anticommunist leader.

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The second half century, the United States faced lots of challenges. African Americans brought a new era known as the Civil Rights movement. This was to break/end the discrimination that people faced and segragation. That all people should have the same rights and be equal in the following aspects:

- voting
- rights of minorities
- fighting laws (race and cultural background)
- still on – going today

Technology

There have been many advantages in technology that have led many countries to share information, better jobs, and be more productive. “A world wide village.”

It has been a positive way, but also it has brought lots of pollution in:

- cars – gas exhaustion
- waters – acid rain
- burning of fuels
- damage of land – hazardous waste
- etc.