Dear students and parents, April 2nd, 2020

Beginning two days prior to our last day at school I issued work packets to all students in all classed; the content of which was spanning a two-three week period. Now that our removal from school will continue to at least May 1st, I have provided the following work packets which will span the remainder of the year, should our crisis continue. The following folders are available:

ANATOMY – PHYSIOLOGY
1. Packet – THE HUMAN REPRODUCTIVE AND ENDOCRINE SYSTEMS.
2. Packet- THE HUMAN NERVOUS SYSTEM
3. Packet handed our prior to our last day: THE HUMAN EXCRETORY SYSTEM

ZOOLOGY
1. Packet- STUDY OF THE CRUSTACEANS
2. Packet- STUDY OF THE INSECTS
3. Packet- handed our prior to our last day- INTRODUCTION TO THE ARTRHOPODS- CLASSES MYRIAPODA AND ARACHNIDA

AP BIOLOGY – as per the newly devised topics of study focus, structure of adapted test, test dates and supports provided as per the guidelines and policies of The College Board

TO ALL STUDENTS! THESE PACKETS WILL BE GUIDED BY THE SAME PROCEDURES WE EMBRACED DURING FALL TECH WEEK WHERE YOU ARE RESPONSIBLE FOR THE WORK IN THE PACKETS- DELIVERED UPON YOUR RETURN TO SCHOOL OR AS PER UNFORESEEN CHANGES WHICH COME OUR WAY. COLLABORATION IS ENCOURAGED- SO STAY IN TOUCH AND DIG IN! YOUR PACKETS WILL BE A NOTEBOOK GRADE. EVENTUALLY YOU SHALL TAKE AN INDIVIDUAL TEST OF EACH PACKET = AN EXAM GRADE! SCHOOL IS OFF SITE BUT NOT SHUT DOWN SO PLEASE DO THE BODY OF WORK ASSIGNED IN THE PACKETS PROVIDED. YOU CAN’T PRINT THEM THEN WRITE YOUR ANSWERS ON SEPARATE PAPER AND TRANSFER THEM LATER UPON OUR RETURN! IF LEARN TOGETHER- ELECTRONICALLY THAT IS! STAY SAFE! BE SMART! BE A CITIZEN!

RIZZO- EMAIL PRIVATE: forestlone@earthlink.net
THE HUMAN REPRODUCTIVE SYSTEM

WORK LESS ON FIGURING OUT WHY!  WORK MORE ON FIGURING OUT HOW?

WOMEN HAVE FEELINGS ????
MEN HAVE EGOS ????

WHAT DOES THIS SYMBOL MEAN TO YOU?

WHAT DOES THIS SYMBOL MEAN TO YOU?

WHAT DOES THIS SYMBOL MEAN TO YOU?

WHAT DOES THIS SYMBOL MEAN TO YOU?

WHAT DOES THIS SYMBOL MEAN TO YOU?

WHAT DOES THIS SYMBOL MEAN TO YOU?
1. Male production of semen.

   When?

   Where? (storage) Location/ Temp. management.

2. Semen composed of 4 items:

3. Erection causation?

   Erection formation?

4. Vasectomy?

5. Ejaculation

   How?

   Why?

   Viability vs Infertility numbers

5. Sperm – journey and gamete #
Locomotion bulb vs torpedo shaped

Tails and fructose fuel

7,000 x’s own body length- (do the math)


Once in egg cell?

Egg cell 6,000 x’s size of sperm

7. Males determine sex of child. XY

8. Testosterone? THE MALE BASED “ADJUSTABLE WRENCH” HORMONE.

9. Chemically / Biologically driven vs Emotionally / Learning Drive
**Physiological Effects of Estrogen and Progesterone – They Balance Each Other in the Both Physiological Effects of Estrogen and Progesterone**

<table>
<thead>
<tr>
<th><strong>Estrogen Effects</strong></th>
<th><strong>Progesterone Effects</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Creates proliferative endometrium</td>
<td>Maintains secretory endometrium</td>
</tr>
<tr>
<td>Breast cell stimulation (fibrocystic breasts*)</td>
<td>Protects against breast fibrocysts</td>
</tr>
<tr>
<td>Increased body fat and weight gain*</td>
<td>Helps use fat for energy</td>
</tr>
<tr>
<td>Salt and fluid retention</td>
<td>Natural diuretic</td>
</tr>
<tr>
<td>Depression, anxiety, and headaches*</td>
<td>Natural anti-depressant &amp; calms anxiety</td>
</tr>
<tr>
<td>Cyclical migraines*</td>
<td>Prevents cyclical migraines</td>
</tr>
<tr>
<td>Poor sleep patterns*</td>
<td>Promotes normal sleep patterns</td>
</tr>
<tr>
<td>Interferes with thyroid hormone function*</td>
<td>Facilitates thyroid hormone function</td>
</tr>
<tr>
<td>Impairs blood sugar control*</td>
<td>Helps normalize blood sugar levels</td>
</tr>
<tr>
<td>Increased risk of blood clots*</td>
<td>Normalizes blood clotting</td>
</tr>
<tr>
<td>Little or no libido effect*</td>
<td>Helps restores normal libido</td>
</tr>
<tr>
<td>Loss of zinc and retention of copper*</td>
<td>Normalizes zinc and copper levels</td>
</tr>
<tr>
<td>Reduced oxygen levels in all cells*</td>
<td>Restores proper cell oxygen levels</td>
</tr>
<tr>
<td>Causes endometrial cancer*</td>
<td>Prevents endometrial cancer</td>
</tr>
<tr>
<td>Increased risk of breast cancer*</td>
<td>Helps prevent breast cancer†</td>
</tr>
<tr>
<td>Increased risk of prostate cancer*</td>
<td>Decreased risk of prostate cancer</td>
</tr>
<tr>
<td>Restains bone loss</td>
<td>Stimulates new bone formation</td>
</tr>
<tr>
<td>Reduces vascular tone (dilates blood vessels)</td>
<td>Improves vascular tone</td>
</tr>
<tr>
<td>Triggers autoimmune diseases*</td>
<td>Prevents autoimmune diseases</td>
</tr>
<tr>
<td>Creates progesterone receptors</td>
<td>Increases sensitivity of estrogen receptors</td>
</tr>
<tr>
<td>Relieves hot flashes***</td>
<td>Necessary for survival of embryo</td>
</tr>
<tr>
<td>Prevents vaginal dryness &amp; mucosal atrophy***</td>
<td>Precursor of corticosteroid biosynthesis</td>
</tr>
<tr>
<td>Increases risk of gall bladder disease*</td>
<td>Prevents coronary artery spasm and</td>
</tr>
<tr>
<td>Improves memory***</td>
<td>atherosclerotic plaque.</td>
</tr>
<tr>
<td>Improves sleep disorders***</td>
<td>Sleepiness, depression**</td>
</tr>
<tr>
<td>Improves health of urinary tract***</td>
<td>Digestive problems**</td>
</tr>
<tr>
<td>Relieves night sweats***</td>
<td></td>
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</tbody>
</table>
ЕНАКСТ СОМЕ CONSIDERATION GUYS!

FEMALE egg production

Prior to birth

Puberty

Menstruation Cycle

Menopause

BIRTH AND DIALATION?

“C” SECTION?

EPIDURAL?
AMNIONIC SACK? FLUID?
COMPOSITION / REGULATION / PROTECTION?

UMBILICAL CORD (PLACENTA)?
HUMAN REPRODUCTION – READ AND NOTATION — Read the following sections of your Human Reproduction System packet, then summarize/illustrate the key points. QUIZ – using your notes.

1. Mitosis vs Meiosis-

2. TWINS

3. SIAMESE TWINS
5. MAMMARY GLANDS (anatomy/physiology and milk production)

MITOSIS – BODY CELL DIVISION

RESULTS IN TWO IDENTICL CELLS WITH THE SAME CHROMOSOMES IN THE TWO DAUGHTER CELLS AS WAS IN THE PARENT CELL.

MEIOSIS - THE FORMATION OF SEX CELLS DIVISION

MALES           FEMALES
DISTRIBUTION OF CYTOPLASM?
WHERE DO THESE OCCUR?
WHEN DO THEY OCCUR?
POLAR BODIES?
CHROMOSOME BEHAVIOR?
WHERE DOES REDUCTION DIVISION OCCUR?
**TWINS - THREE TYPES**

**IDENTICAL TWINS - LOOK ALIKES!**  **FRATERNAL TWINS - DON’T USUALLY LOOK ALIKE**
3. SIAMESE TWINS

a) Identical (Monozygotic) Twins

- One Sperm – One Egg
  (fertilized egg divides = same sex)

b) Fraternal (Dizygotic) Twins

- Two Eggs – Two Sperm
  (can be opposite or same sex – may or may not look alike)
In biology, a hermaphrodite is an organism that has reproductive organs normally associated with both male and female sexes. Many taxonomic groups of animals (mostly invertebrates) do not have separate sexes. In these groups, hermaphroditism is a normal condition, enabling a form of sexual reproduction in which both partners can act as the "female" or "male". Snails and Earthworms are good examples of this. In the case of oysters or clams, they can change their sex from one year to another, depending on the biological count of each sex cell in the seawater; obviously seeking a homeostatic balance with respect to the gender of sex cells.

Historically, the term hermaphrodite has also been used to describe ambiguous genitalia (questionable sex organ identification and gonadal mosaicism (a combination of both sex organs). The word hermaphrodite entered the English lexicon (language) in the 15th century, derived from the Greek Hermaphroditos, a combination of the names of the gods Hermes (male) and Aphrodite (female). Recently, the word intersex has come into preferred usage for humans, since the word hermaphrodite is considered to be misleading and stigmatizing as well as "scientifically specious and clinically problematic.

**Hermaphroditism In Humans**

Actually, it has nothing to do with sex chromosomes. Klinefelter males (XXY) are completely male, NOT ambiguous. They may develop female-like breasts or have less facial hair at puberty, but they are fully male. XYY males, XO females, and XXX females also are not hermaphrodites. Such conditions are caused by the action of ANDROGENS.

Androgen, also called androgenic hormone or testoid, is the generic term for any natural or synthetic compound, usually a steroid hormone, that stimulates or controls the development and maintenance of male characteristics in vertebrates. This includes the activity of the accessory male sex organs and development of male secondary sex characteristics. Androgens are the original anabolic steroids and the precursor of all estrogens, the female sex hormones. The primary and most well-known androgen is testosterone. Androgen insensitivity ( = a lack of) will cause a genetically male person to be physically a female. This is also not a hermaphrodite. While infertile because they do not have working ovaries, they are physically female (Jamie Lee Curtis is the famous example of this).

True hermaphrodites in humans are due to specific mutations that cause the development of the sexual organs to be altered. They are usually born ambiguous (although there is a condition where what looks more like a female suddenly has testes drop at puberty). FOR VISUAL SUPPORT ON THIS GRAPHIC TOPIC, REFER PERSONALLY TO INTERNET SOURCES.

Transvestism (also called transvestitism) is the practice of cross-dressing, which is wearing clothing traditionally associated with the opposite sex. Transvestite refers to a person who cross-dresses; however, the word often has additional connotations.

Transsexualism is an individual's identification with a gender inconsistent or not culturally associated with their assigned sex. Simply put, it defines a person whose assigned sex at birth conflicts with their psychological gender. In addition, some individuals choose to have their gender changed by undergoing medical/surgical/cosmological alteration of their genitals.
SYNONYMOUS TERMS – VENN DIAGRAM

HAPLOID DIPLOID 1N 2N GAMETE ZYGOTE 23 Chromosomes 46 Chromosomes Mitosis Meiosis Spermatogenesis Oogenesis Egg Cell Sperm Cell Oogonium Cell Spermatogonium Cell Sex Cells PHASE OF MITOSIS CELL DIVISION PHASES OF MEIOSIS CELL DIVISION NO NEW GENETIC INFORMATION INVOLVED ADDITIONAL GENTIC INFORMATION INVOLVED.

MITOSIS ONLY BOTH MITOSIS AND MEIOSIS MEIOSIS ONLY
MAMMARY GLANDS- “A Mammalian Wonder For Survival

Everybody has them! The BIG and MIGHTY to the teeny tiny!

If you “GOT HAIR” Then you “GOT MILK (mammary glands)

Diagram: Breast Anatomy

Female Breast Anatomy

Although the human breasts are located over the pectoral muscles of the chest wall, the human breast doesn’t actually contain any muscle tissue. Your breasts, which are made up of glandular, fatty and fibrous tissues, have a number of different functional parts:

- Areola (colored area around the nipple)
- Blood vessels and lymph vessels
- Ducts (milk passages)
- Fatty tissue
- Fibrous tissue that surrounds the lobules and ducts
- Lobes
- Lobules (milk glands)
- Nipple.
A layer of fatty tissue surrounds the breast glands and runs throughout the entire breast. This layer of tissue gives the female breast its soft consistency.

**Female Breast Milk Production**

Each breast has 15 to 20 sections (or "lobes") beneath the nipple and areola, arranged in a circular pattern that resembles a daisy. Lobes are part of the milk production system; each lobe contains many smaller milk-producing glands called "lobules." Each lobule has tiny bulbs, called "alveoli." When a woman is lactating, the alveoli produce milk in response to hormonal signals.

When milk is produced, the ducts transport it from the lobules to the nipple. As each duct gets closer to the nipple, it widens to form a sac called an "ampulla." The spaces between the lobules and the ducts are filled with fatty tissue, connective tissue and ligaments. As the milk production system is roughly the same size in all women, breast size and shape depend on the amount of fat in the breasts.

**Arterial and Lymphatic Anatomy of the Breast**

Arteries and capillaries carry oxygen- and nutrient-rich blood to the breasts. The axillary artery, which extends from the armpit, supplies blood to the outer half of the breast. The internal mammary artery, which extends down from the neck, supplies blood to the inner part of the breast.

The human breast also contains lymph vessels. The lymphatic system is part of your immune system and contains blood vessels, lymph ducts and lymph nodes. These work to fight off harmful or infectious substances within your body. Clusters of lymph nodes are located under your arm, above your collarbone, behind your breastbone and in various other parts of your body.

**CANCER SCREENING?**

**IMPLANTS? + and --**

**LACTATION?**

**BREAST FEEDING vs FORMULA?**

**HOW OLD SHOULD YOUR BABY BE WHEN YOU STOP BREAST FEEDING??**
Take the list of terms below and decided which of the three sections of the Venn Diagram each item belongs to. Use the number assigned to each item as your entry into the diagram. Place them in ascending numerical order prior to submitting your final document.  

25 pts for participation  75 Q’s @ 1 pt

1. HAPLOID  CELLS
2. DIPLOID  CELLS EARLY IN MEIOSIS
3. 1N
4. 2N
5. GAMETE CELLS
6. ZYGOTE
7. 23 Chromosomes in sex cells
8. 46 Chromosomes resulting from fertilization
9. Mitosis of body cells
10. Meiosis occurs
11. Spermatogenesis
12. Oogenesis
13. Egg Cell
14. Sperm Cell
15. Oogonium Cell
16. Spermatogonium Cell
17. Estrogen
18. Testosterone
19. Follicle Stimulating Hormone
20. Puberty occurs
21. Prior to birth meiosis
22. Puberty to death meiosis
23. aerola around a nipple
24. epididymus
25. oviducts
26. swimming gametes
27. mammary glands
28. testicles
29. uterus
30. menstrual cycle
31. ejaculation
32. ovaries
33. hormones present in body
34. involved in sexual reproduction
35. orgasm required for propagation
36. vaginal canal
37. cervix
38. womb
39. placenta
40. umbilical cord
41. prostate gland
42. semen
43. 300 million
44. erection
45. vas deferens
46. vasectomy
47. lactation
48. lobules
49. “C” section
50. epidural
51. chemically driven mood changes
52. dilation
53. episiotomy
54. amiotic sac
55. amiotic fluid
56. labor
57. LH hormone
58. hormonal process is more linear and simple
59. hormonal affects are networked and complicated
60. chemically drive for sex is greater
61. biologically drive for sex is greater
62. more ego based
63. more emotionally based
64. menopause
65. 28 day cyclic
66. Siamese twins production
67. identical twins production
68. fraternal twins production
69. zygote creation
70. composed of three fluids and sex cells
71. penis
72. scrotum
73. seminal vesicles
74. progesterone
75. fallopian tube
Be Sensible and Reasonable MyDear!

Oh yea! Are **YOU** Listening To ME ???

**HE** VS **SHE**

**MALES ONLY** **BOTH SEXES** **FEMALES ONLY**
HOMONES VS. PHERMONES

HORMONE- a regulatory substance produced in an organism and transported in tissue fluids such as blood or sap to stimulate specific cells or tissues into action.

- a synthetic substance with an effect similar to that of an animal or plant hormone.

- a person's sex hormones as held to influence behavior or mood.

"she told herself she was suffering from hormones, that she would cheer up soon"

PHERMONE

pheromone is a chemical that an animal produces which changes the behavior of another animal of the same species. Some describe pheromones as behavior-altering agents. Many people do not know that pheromones trigger other behaviors in the animal of the same species, apart from sexual behavior.
PHERMONES AND HUMAN SEXUALITY – VIDEOS

1. SWEATY T-SHIRT EXPERIMENT ......................................................4:25

2. Sweaty T-Shirts and Human Mate Choice........................................3:11

3. Dating by smell: can pheromones lead to true love?.........................1:20

4. HOW DO PHERMONES WORK ?.........................................................2:59
GENDER BREAKDOWN

M=male only  F= female only

MF – both sexes

1. ___ SPERM
2. ___ EGGS
3. ___ OVARY
4. ___ VAS DEFEREN TUBULES
5. ___ XX
6. ___ FALLOPIAN TUBES]
7. ___ UTERUS
8. ___ TESTICLES
9. ___ CERVIX
10. ___ LABIA\]
11. ___ PENIS
12. ___ VAGINA
13. ___ A CIRCLE WITH AND ARROW
14. ___ A CIRCLE WITH A CROSS
15. ___ F.S.H.
16. ___ L.H.
17. ___ OVULATION
18. ___ EMBRYO
19. ___ FETUS
20. ___ GESTATION]
21. ___ EJACULATION
22. ___ POLR BODIES]
23. ___ MAMMARY GLANDS
24. ___ PROSTATE GLAND
25. ___ SEMINAL VESSICLES
26. ___ MENSTRATION
27. ___ DIALATION DURING BIRTH
28. ___ DIALATION OF BLOOD VESSELS
   DURING INTERCOURSE.
29. ___ XY
30. ___ DETERMINES SEX
31. ___ MORE MOBILE
32. ___ DIFFERENT SHAPES
33. ___ MENOPAUSE
34. ___ ZYGOTE
35. ___ FERTILIZED EGG
36. ___ SWIMS
37. ___ REDUCTION DIVISION
38. ___ NEEDS MORE IRON
39. ___ NEEDS MORE ZINC
40. ___ PUBERTY
41. ___ C SECTION
42. ___ UMBILICAL CORD
43. ___ PLACENTA
44. ___ EPIDURAL
45. ___ SCROTUM
46. ___ MADE BEFORE BIRTH
47. ___ URETHRA
48. ___ ERECTION
49. ___ VIAGRA
50. ___ SEMEN
51. ___ MUCH SMALLER
52. ___ 1
53. ___ 500,000,000
54. ___ pH sensitive
55. ___ orgasm required
56. ___ Oogonial cells
57. ___ Spermatagonial cells
58. ___ genitals
59. ___ gonad tissues
60. ___ gametes
61. ___ 1N
62. ___ 23 chromosomes
63. ___ hormones
64. ___ pheromones
65. ___ more testosterone
66. ___ estrogen
67. ___ puberty first
68. ___ amniotic fluid
69. ___ water breaks
70. ___ “afterbirth”
HUMAN REPRODUCTION – READ AND NOTATION –
Read the following sections of your Human Reproduction System packet, then summarize/illustrate the key points. QUIZ – using your notes.

1. **Mitosis vs Meiosis**

2. **TWINS**

3. **SIAMESE TWINS**

4. **HERMAPHRODITISM**

5. **MAMMARY GLANDS (anatomy/physiology and milk production)**
REVIEW QUIZ - MITOSIS – MEIOSIS, TWINS, HERMAPHRODITISM, MAMMARY GLANDS, MILK PRODUCTION – (using personal notes taken on these readings in the packet.)

**M = MITOSIS**  **MM = MEIOSIS**  **ID = IDENTICAL TWINS**  **FT = FRATERNAL TWINS**  **ST = SIAMESE TWINS**  **H = HERMAPHRODITISM**  **MG = MAMMARY GLANDS- MILK PRODUCTION**

1. _____ Advantage for the success in rearing young.
2. _____ 46 to 23 – sex cells created
3. _____ One egg – one sperm – two children
4. _____ two eggs two sperm
5. _____ outcome is the same as if from an older or younger brother or sister.
6. _____ fertilized egg divides into two parts “almost”.
7. _____ failure to divide into two separate parts
8. _____ will always be two separate twins of same gender and looks
9. _____ always look the same and conjoined.
10. _____ Androgens involved
11. _____ Genitalia are not clearly defined.
12. _____ high concentrations of fatty tissues
13. _____ 46 chromosomes in the beginning and the end
14. _____ Spermatogenesis
15. _____ Oogenesis
16. _____ Discusses transsexualism and transvestism
17. _____ God and Goddess
18. _____ Areola
19. _____ hair and these go together
20. _____ glandular in nature
21. _____ happens in all body cells except sex cells
22. _____ sex cell division/formation
23. _____ provides first immune boost to newly born child
24. _____ both genitalia from each gender yet underdeveloped
25. _____ may share vital organs