THE MIRACLE OF LIFE WORKSHEET

Directions: Watch the video and then answer the questions.

Introduction:

1. How old is the earth?
2. Where on Earth did life first begin?
3a. How many chromosomes in each human body cell/somatic cell?
   b. How many chromosomes in a human sex cell (sperm or egg)
4. What is the genetic material in the nucleus of a cell called?

The Female Reproductive System:

1. How many egg cells in the human ovary?
2. How many chromosomes in the human egg cell?
3. When the follicle ruptures and the egg cell is released, what is this process called?
4. Where does the egg go after ovulation?
5. How small a human egg cell?
6. Once it is in the fallopian tube, what moves the egg down toward the uterus?
7. How wide is the fallopian tube/oviduct?
8. How long does it take the egg to travel 5 inches down the fallopian tube?
9. How long will the egg live in the fallopian tube after ovulation?
10. What happens to the egg if it is not fertilized?
11. Name the 2 female sex hormones.
12. Name the male sex hormone.
13. When can we tell whether the fetus is male or female?
14. How many people presently live on this planet?
15. How many millions of people are born each year?
The Male Reproductive System:

1. Where are sperm formed?
2. What is the function of the Cowper’s gland?
3. What is the function of the prostate?
4. What do the seminal vesicles produce?
5. Through what tube do the sperm leave the male’s body?
6. What keeps the urine in the bladder from entering the urethra during intercourse?
7. What is the total length of the seminiferous tubules?
8. How many sperm are produced /day?
9. Why must the testes be outside the body?
10. What do we call the pouch that houses/contains the testicles?
11. How many sperm does the average male produce in his reproductive lifetime?
12. How long does it take the sperm to develop and mature?
13. How many chromosomes are in the head of a human sperm cell?
14. What cells protect & feed the developing sperm cells?
15. How many sperm cells are in the ejaculated semen?
16. What happens to the sperm if they are not ejaculated after several weeks?
17. Where do sperm develop the ability to swim?
18. What structure enables the sperm to swim?
19. What substance is found on the head of the sperm?
20. What do these enzymes do?
21. What percent of the male’s sperm are deformed or defective?
22. Name some things that can be wrong with the sperm.
23. List causes of sperm deformity.
24. The seminal vesicles release what nourishing substance?
25. How much semen is ejaculated?
26. How is semen forced out of the penis?

27. **SEMINAL FLUID + SPERM =**

**Fertilization / Conception**

1. What is the pH of the vagina?

2. Why is the female vagina acidic?

3. How many sperm die in the vagina?

4. How long do sperm live inside the body of the female?

5. What is the mouth/opening of the uterus called?

6. What protein does the cervix secrete?

7. What is the function of musin?

8. What are the fallopian tubes/oviducts lined with?

9. In what direction do the cilia beat & how does this affect the sperm?

10. Two hundred million sperm begin the journey, how many million reach the egg?

11. What is the function of the enzymes in the head of the sperm?

12. How many sperm actually fertilize the egg?

13. Where does fertilization take place?

14. What keeps the other sperm from fertilizing the egg once 1 sperm has penetrated?

15. What happens to the tail of the sperm once it penetrates the egg?

16. What happens to the head of the sperm once it is inside the egg?

17. When does the fertilized egg begin to divide?

18. Once the egg is fertilized & begins to divide what is it called?

19. After 5 days, what is the fertilized egg called?

20. When does the blastocyst implant in the uterus?

21. What feeds the blastocyst?
THE MIRACLE OF LIFE WORKSHEET - ANSWER KEY

Directions: Watch the video and then answer the questions.

Introduction:

1. How old is the earth? **4.5 BILLION YEARS**
2. Where on Earth did life first begin? **OCEANS**
3a. How many chromosomes in each human body cell/somatic cell? **46**
   b. How many chromosomes in a human sex cell (sperm or egg) **23**
4. What is the genetic material in the nucleus of a cell called? **DNA**

The Female Reproductive System:

1. How many egg cells in the human ovary? **1/4 MILLION IN EACH**
2. How many chromosomes in the human egg cell? **23**
3. When the follicle ruptures and the egg cell is released, what is this process called? **OVULATION**
4. Where does the egg go after ovulation? **INTO THE FALLOPIAN TUBE/OVIDUCT**
5. How small a human egg cell? **SIZE OF A GRAIN OF SAND**
6. Once it is in the fallopian tube, what moves the egg down toward the uterus? **CILIA & MUSCLE CONTRACTIONS**
7. How wide is the fallopian tube/oviduct? **TWICE AS THICK AS A HUMAN HAIR**
8. How long does it take the egg to travel 5 inches down the fallopian tube? **3 – 4 DAYS TO MOVE 5 INCHES**
9. How long will the egg live in the fallopian tube after ovulation? **24 HOURS**
10. What happens to the egg if it is not fertilized? **DISINTEGRATES**
11. Name the 2 female sex hormones. **ESTROGEN, PROGESTERONE**
12. Name the male sex hormone. **TESTOSTERONE**
13. When can we tell whether the fetus is male or female? **7 WEEKS AFTER CONCEPTION**


15. How many millions of people are born each year? **128 MILLION (1991)**

**The Male Reproductive System:**

1. Where are sperm formed? **TESTES**

2. What is the function of the **Cowper's gland**? **PRODUCES LUBRICATING FLUID; SEMINAL FLUID**

3. What is the function of the **prostate**? **SECRETES ALKALIN/BASIC FLUID TO PROTECT SPERM**

4. What do the **seminal vesicles** produce? **FRUCTOSE SUGAR SOLUTION**

5. Through what tube do the sperm leave the male's body? **URETHRA**

6. What keeps the urine in the bladder from entering the urethra during intercourse? **VALVE/MUSCLE**

7. What is the total length of the seminiferous tubules? **700 FEET**

8. How many sperm are produced /day? **100 MILLION/DAY**

9. Why must the testes be outside the body? **MUST BE SEVERAL DEGREES LOWER THAN NORMAL BODY TEMPERATURE TO PRODUCE SPERM.**

10. What do we call the pouch that houses/contains the testicles? **SCROTUM**

11. How many sperm does the average male produce in his reproductive lifetime? **400 BILLION**

12. How long does it take the sperm to develop and mature? **ONE MONTH**

13. How many chromosomes are in the head of a human sperm cell? **23**

14. What cells protect & feed the developing sperm cells? **NURSE CELLS FEED & PROTECT 150 SPERM CELLS.**

15. How many sperm cells are in the ejaculated semen? **200 - 300 MILLION**

16. What happens to the sperm if they are not ejaculated after several weeks? **THEY DIE & ARE REABSORBED BY THE BODY.**

17. Where do sperm develop the ability to swim? **EPIDIDYMIS (ORGAN THAT LIES ABOVE THE TESTIS)**

18. What structure enables the sperm to swim? **FLAGELLUM**

19. What substance is found on the head of the sperm? **A LAYER OF ENZYMES**
20. What do these enzymes do? **HELP TO SOFTEN THE CELL MEMBRANE OF THE EGG SO THE ONE SPERM CELL CAN PENETRATE & FERTILIZE THE EGG.**

21. What percent of the male’s sperm are deformed or defective? **20%**

22. Name some things that can be wrong with the sperm. **CAN HAVE 2 TAILS, HEAD ALMOST SEVERED OFF, ATTACKED BY BACTERIA, NOT FULLY DEVELOPED, INFECTION**

23. List causes of sperm deformity. **SLIGHT ELEVATION OF TEMPERATURE OF THE TESTES, OVERCROWDING, STRESS, SMOKING, CHEMICAL POLLUTION, RADIATION, POOR NUTRITION, TIGHT JEANS**

24. The seminal vesicles release what nourishing substance? **FRUCTOSE**

25. How much semen is ejaculated? **1/2 TEASPOON**

26. How is semen forced out of the penis? **MUSCLE CONTRACTIONS**

27. **SEMINAL FLUID + SPERM = SEMEN**

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**Fertilization / Conception**

1. What is the pH of the vagina? **ACIDIC (pH 3.6 to 4.5 in most women)**

2. Why is the female vagina acidic? **TO PROTECT AGAINST BACTERIAL INFECTION**

3. How many sperm die in the vagina? **25%**

4. How long do sperm live inside the body of the female? **28 – 48 HOURS**

5. What is the mouth/opening of the uterus called? **CERVIX**

6. What protein does the cervix secrete? **MUSIN**

7. What is the function of musin? **AIDS/HELPS SPERM IN SWIMMING UP UTERUS TO FALLOPIAN TUBES.**

8. What are the fallopian tubes/oviducts lined with? **CILIA**

9. In what direction do the cilia beat & how does this affect the sperm? **DOWNWARD; MAKES IT DIFFICULT FOR SPERM TO SWIM.**

10. Two hundred million sperm begin the journey, how many million reach the egg? **50 MILLION**

11. What is the function of the enzymes in the head of the sperm? **TO SOFTEN THE CELL MEMBRANE OF THE EGG.**
12. How many sperm actually fertilize the egg? **ONE**

13. Where does fertilization take place? **FALLOPIAN TUBE/oviduct**

14. What keeps the other sperm from fertilizing the egg once 1 sperm has penetrated? **A CHEMICAL REACTION OCCURS IN THE CELL MEMBRANE MAKING IT IMPERMEABLE**

15. What happens to the tail of the sperm once it penetrates the egg? **IT FALLS OFF**

16. What happens to the head of the sperm once it is inside the egg? **SWELLS & BREAKS OPEN, RELEASING ITS DNA**

17. When does the fertilized egg begin to divide? **WITHIN 24 HOURS**

18. Once the egg is fertilized & begins to divide what is it called? **ZYGOTE**

19. After 5 days, what is the fertilized egg called? **BLASTOCYST – CONTAINS 70 – 100 CELLS**

20. When does the blastocyst implant in the uterus? **10 DAYS AFTER CONCEPTION/FERTILIZATION**