The National Orthodox School Shmaisani

Science Worksheet #3

Heredity

Name: Answer Key Grade **8 ( )**

Date: **/11/2022**

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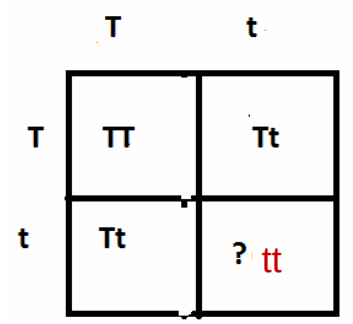
1 – Complete the following Punnet squares, and answer the following questions.

T= tall
t=short



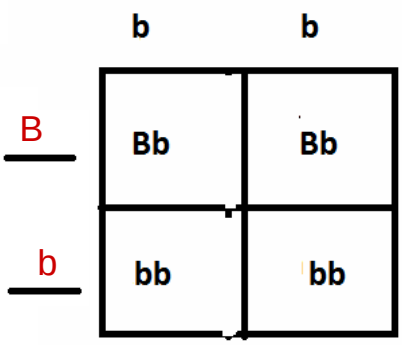
a- What genotype are the offspring? TT / Tt / tt

b- What phenoype will the offspring have?

tall / short

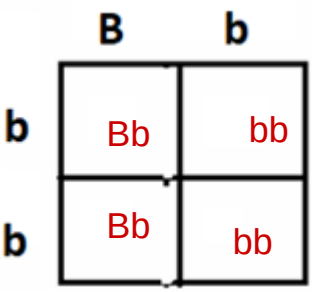
c- What percentage of the offspring will be short? 25%

B= brown fur
b= white fur



a- What genotype are the offspring? Bb/ bb

B= brown fur
b= white fur



a- What is the probability of homozygous offspring? 50%

b- Are the alleles in part (a) dominant or recessive? recessive

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2 – Choose the correct answer.

Different forms of a gene are _____

a- dominant

b- alleles

c- recessive

d- chromosome

An organism that has two identical alleles for a trait is _____

a- recessive

b- dominant

c- heterozygous

d- homozygous

Cross: Aa x Aa

	A	a
A	AA	Aa
a	Aa	aa

What is the phenotype of the offspring? (A= brown hair / a= blonde hair)

a- 50% brown hair and 50% blonde hair

b- 75% brown hair and 25% blonde hair

c- 25% brown hair and 75% blonde hair

d- 0% brown hair and 100% blonde hair

In a flowering plant species, red flower color (R) is dominant over white flower color (r). What is the genotype of any red-flowering plant resulting from this species?

a- **rr**

b- **R**

c- **RR**

d- **RR** or **Rr**

In a heterozygous genotype, the _____ allele takes over in the phenotype.

b- recessive

b- dominant

c- both

d- homozygous

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Which of the following alleles is purebred recessive?

a- **Tt**

b- **tt**

c- **TT**

d- **T**

Which of the following represents a heterozygous genotype?

a- **Aa**

b- **AA**

c- **aa**

d- **Ab**

Which of the following is an example of a phenotype?

a- Bb

b- Bb

c- allele

d- blue eyes

If you are purebred dominant for a trait, your genotype would be….

a- Tt

b- tall

c- tt

d- TT

3 – Write down the correct term for the following definitions.

a- Transfer of pollen grains from an anther to a stigma of different plants of the same species.

Cross pollination

b- A version or variation of a gene.

Allele

c- Alleles that an offspring has/ inherits.

Genotype

d- The observable expression of a trait.

Phenotype

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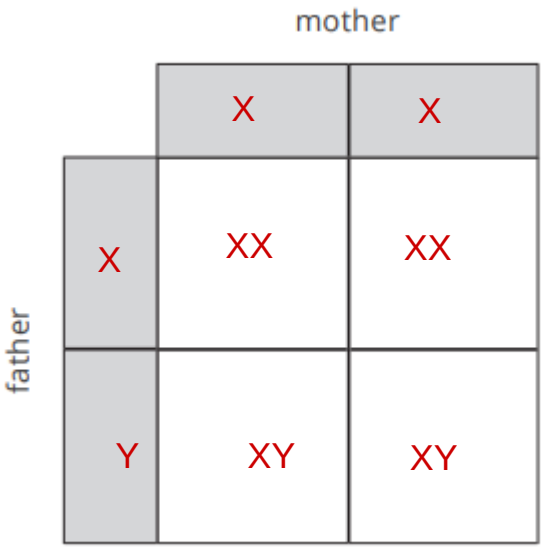
4 – Most human body cells contain 46 chromosomes. These are found in 23 pairs. One pair of chromosomes carries the genes that determine biological sex.

There are two versions of the sex chromosomes, an X chromosome and a Y chromosome. In females, the sex chromosomes are the same (XX). This means that during meiosis, every gamete (egg cell) formed carries an X chromosome. In males, the chromosomes are different (XY). During meiosis, males produce gametes (sperm) carrying either a Y chromosome or an X chromosome.

You can use a genetic cross to show the inheritance of biological sex.

Complete the punnet square to show the inheritance of biological sex.



a- What genotype are the offspring? XX / XY

b- What Phenotype will the offspring have? XX : female

XY: male

c- What percentage of the offspring will be females? 50%

d- What percentage of the offspring will be males? 50%

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