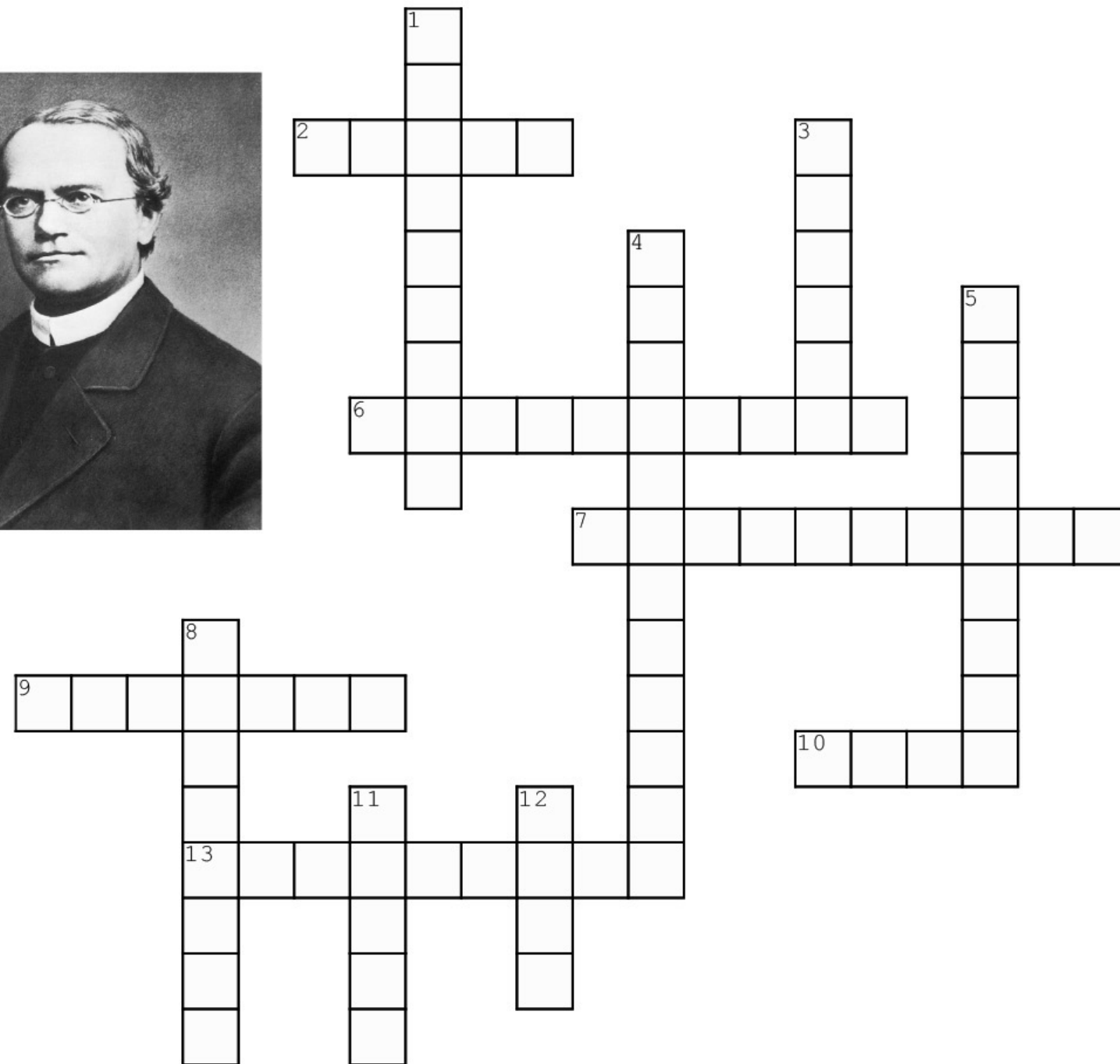
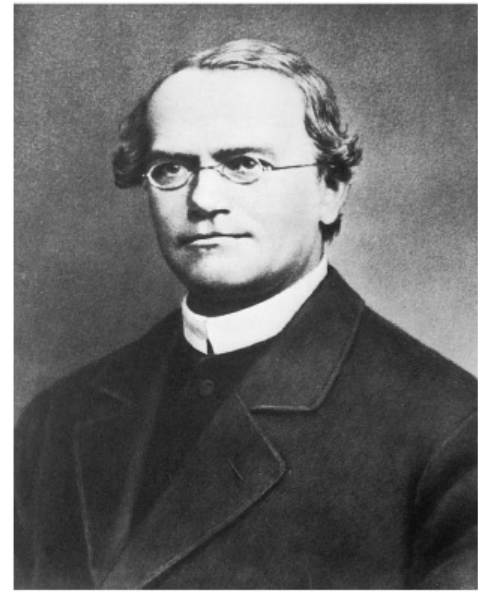


## CROSSWORDS

Complete the crossword below



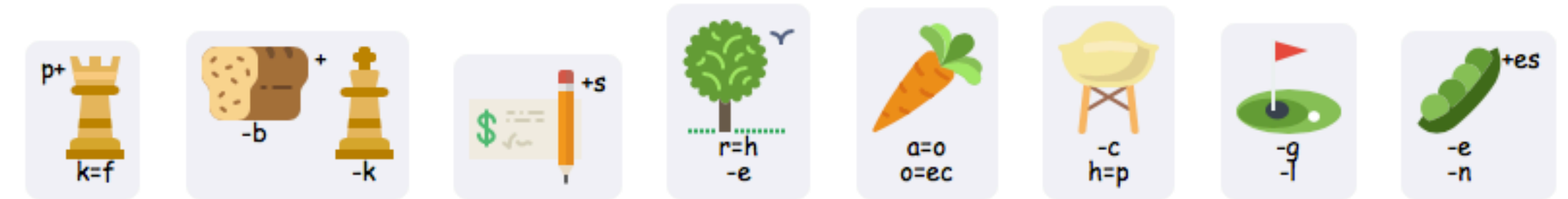
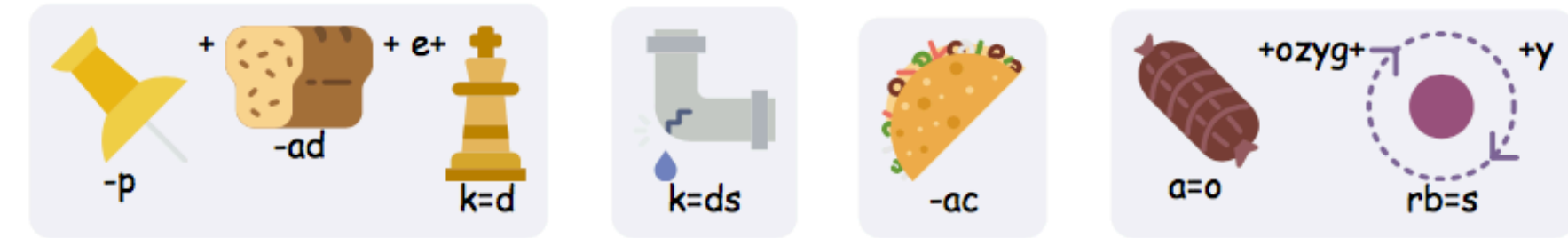
### Down

1. A physical characteristic that can be observed in an individual.
3. The 64 sequences of three nucleotide bases each specified by a particular amino acid or message.
4. An individual in which the two alleles of a gene are different.
5. The observable characteristic determined by the genotype.
8. The entire set of alleles that determines a character.
11. The place on a chromosome where a gene is located.
12. A copy of the information from a piece of DNA.

### Across

2. The particular form that a character can assume.
6. The enzyme that catalyzes the addition of any lost telomeric sequence.
7. An individual in which both alleles of a gene are the same.
9. Different versions in which a gene can exist.
10. The unit responsible for the heredity of a character.
13. Repetitive sequences found at the ends of many eukaryotic chromosomes.

## REBUS





# INTERESTING FACTS ABOUT GENETICS



1. When identical twins procreate with another set of identical twins, their offspring are both genetic siblings and social cousins.



2. Inbreeding and the rare genetic condition called methemoglobinemia resulted in blue-skinned family in Kentucky named the Fugates.



3. Elizabeth Taylor's apparent dark outlined eyes were due to a rare genetic mutation giving her "double eyelashes".



4. There exists a treatment for cystic fibrosis that involves actually inhaling genes to attempt to repair the disease.



5. All humans carry genetic material passed down by a female line extending back at least 200,000 years to a woman dubbed "Mitochondrial Eve".



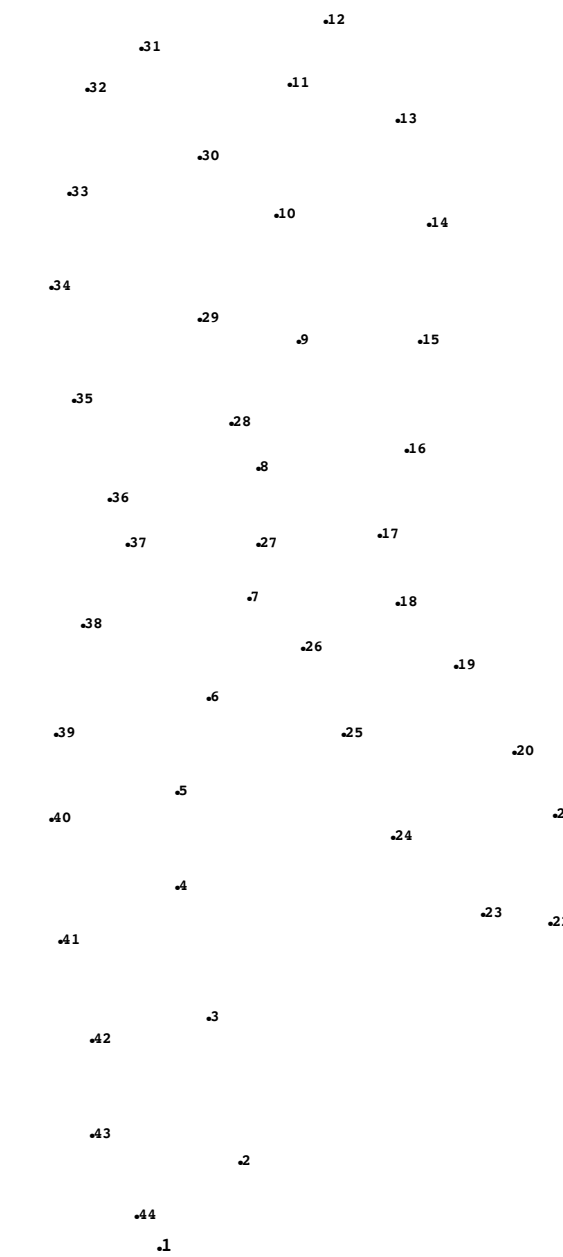
6. Blue-eyed people probably have a single, common ancestor, who had a genetic mutation between 10,000 and 6,000 years ago.



7. One single group of 55 chimpanzees in West Africa has twice the genetic variability of all humans combined.

## WHAT IS IT?

Connect the points from n. 1 to 44.



## NUMBERS

Number of nucleotides in the human genome: **3 BLION**

Number of genes in the genome: **21000**

All the human beings differentiate one from the other in the genome: **3 MILLIONS OF NUCLEOTIDES**

Patented human genes: **4000**

Numbers of time that you can cover the distance Earth-Sun with all the DNA present in the human body: **1200**

Genes dedicated to brain functions: **15000**



## TWISTED WORDS

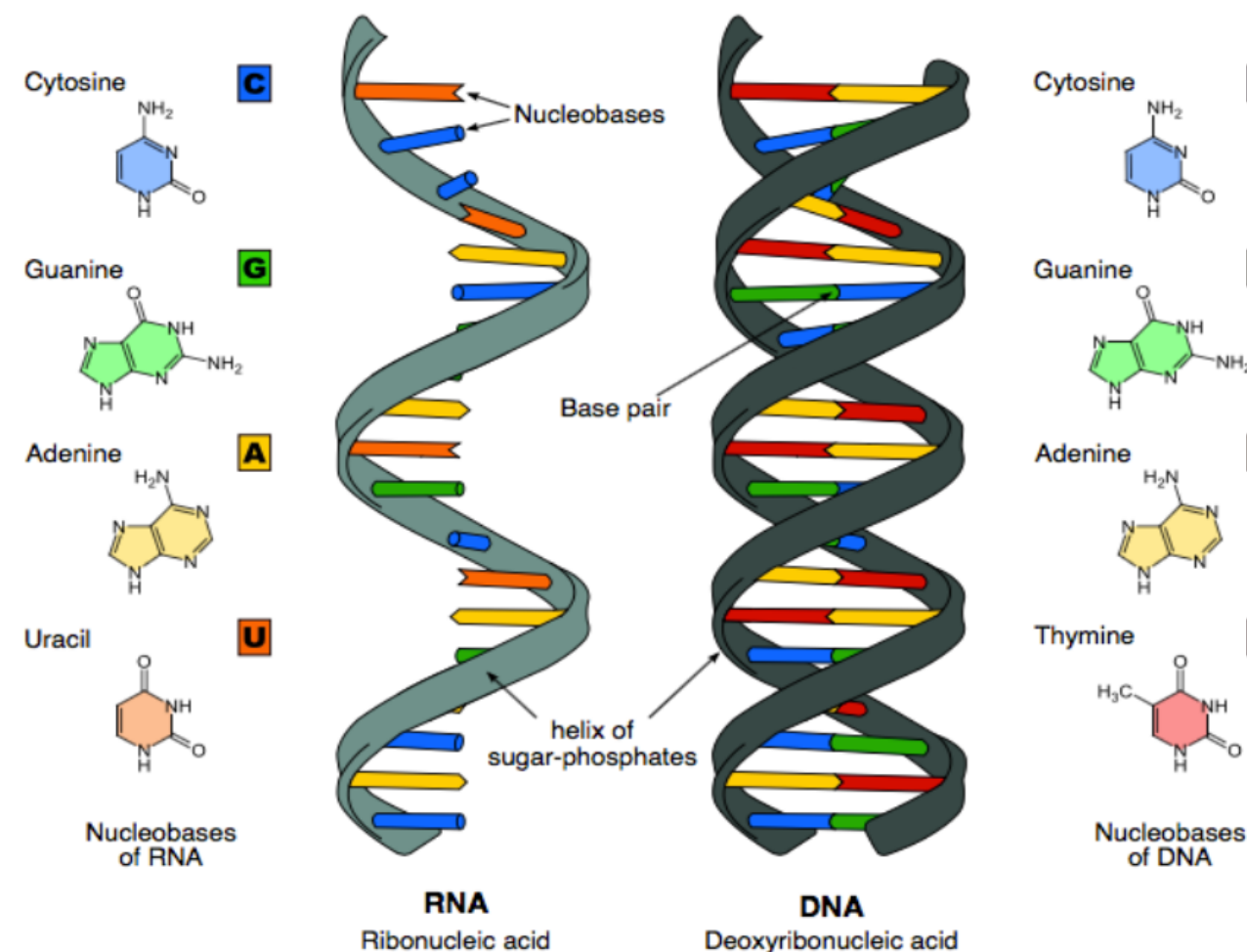
Find the 22 scientific words that deal with genetics, written in vertical, horizontal, diagonal and also from right to left and bottom-up.

C P T I Z E R D R E C N S D E  
 Y N R Z Z M F M V E O O U O M  
 T O A J V O J P D D M P L G O  
 O D N O I S D G O N L I W P S  
 S T S R L O T C U I A R R E O  
 I H C I Y B Q E C A T X S P M  
 N Y R N O I T A L S N A R T O  
 E M I X Y R T I G O R I Q C R  
 L I P F V I G E S E M O N V H  
 I N T G O A N X M Z U E X E C  
 C E I N S E N Y S A M I R P T  
 A A O E T X L A D E N I N E S  
 R P N I N O I T A T U M H O S  
 U H C N P T R A N S P O S O N  
 V S H O W P W O U G T R N A C

ADENINE  
 CHROMOSOME  
 CODON  
 CYTOSINE  
 DNA  
 DUPLICATION  
 GENETICS  
 GUANINE  
 LIGASE  
 MUTATION  
 ORI  
 POLYMERASE  
 PRIMAS  
 PRIMER  
 RIBOSOME  
 TELOMERES  
 THYMINE  
 TRANSCRIPTION  
 TRANSLATION  
 TRANSPOSON  
 TRNA  
 URACIL

## SPOT THE DIFFERENCE

Find the 3 principal differences between the two filaments.



## TRUE OR FALSE?

1. A healthy spermatozoon has a X chromosome or a Y chromosome, but not both. V F
2. DNA has a sugar different from the RNA's one. V F
3. In the replication of DNA the DNA strand needs only one RNA primer. V F
4. Centromeres are compact in heterochromatin. V F
5. Guanine - cytosine : three hydrogen bonds. V F
6. Adenine - thymine: two hydrogen bonds. V F
7. When DNA duplicates, thymine is replaced by uracil. V F
8. The duplication of DNA happens during mitosis. V F

### ANSWERS:

Crosswords: 1 Character 2 trait 3 codons 4 heterozygous 5 phenotype 6 telomerase 7 homozygous 8 genotype 9 alleles 10 gene 11 locus 12 rna 13 telomeres

Rebus: 1 inbreeding leads to homozygosity. 2 proofreading checks the correct pair of bases. 3 a ribosome is made up of two subunits of rna and proteins.

### Twisted words:

(Over, Down, Direction)  
 ADENINE (8, 12, E) CHROMOSOME (15, 10, N) CODON (8, 5, NE) CYTOSINE (1, 1, S)  
 DNA (9, 3, SE) DUPLICATION (14, 1, SW) GENETICS (9, 8, SW) GUANINE (8, 4, SE)  
 LIGASE (9, 7, SW) MUTATION (12, 13, W) ORI (4, 4, S) POLYMERASE (5, 14, NE)  
 PRIMAS (14, 11, W) PRIMER (14, 6, NW) RIBOSOME (6, 8, N) TELOMERES (7, 5, SE)  
 THYMINE (2, 5, S) TRANSCRIPTION (3, 1, S) TRANSLATION (14, 7, W) TRANSPOSON (6, 14, E)  
 TRNA (11, 15, E) URACIL (1, 14, N)

Spot the difference: 1- Uracil/Thymine 2- double/single filament 3- ribose/deoxyribose

True or false: 1V 2V 3F 4V 5V 6V 7F 8F