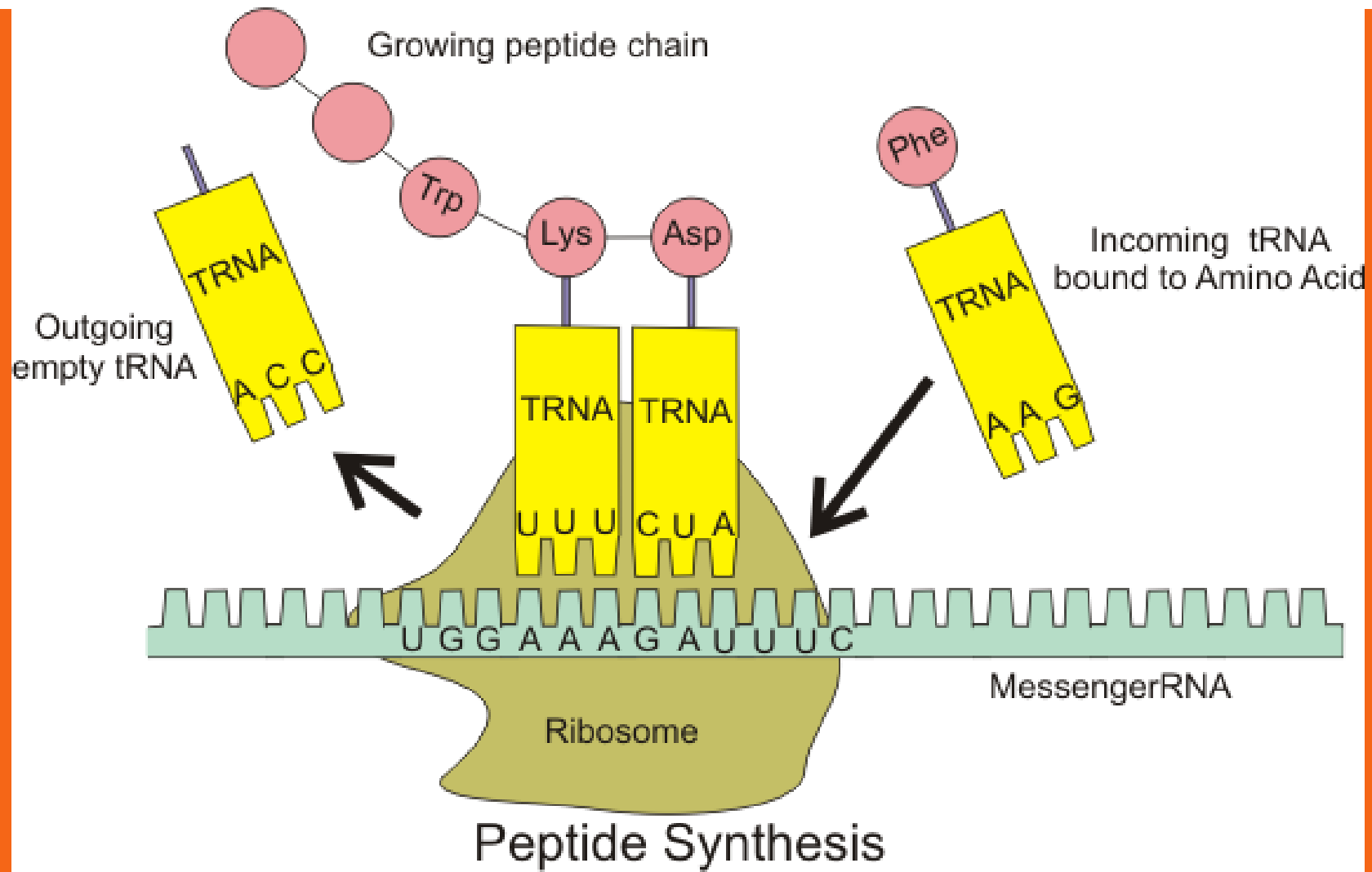


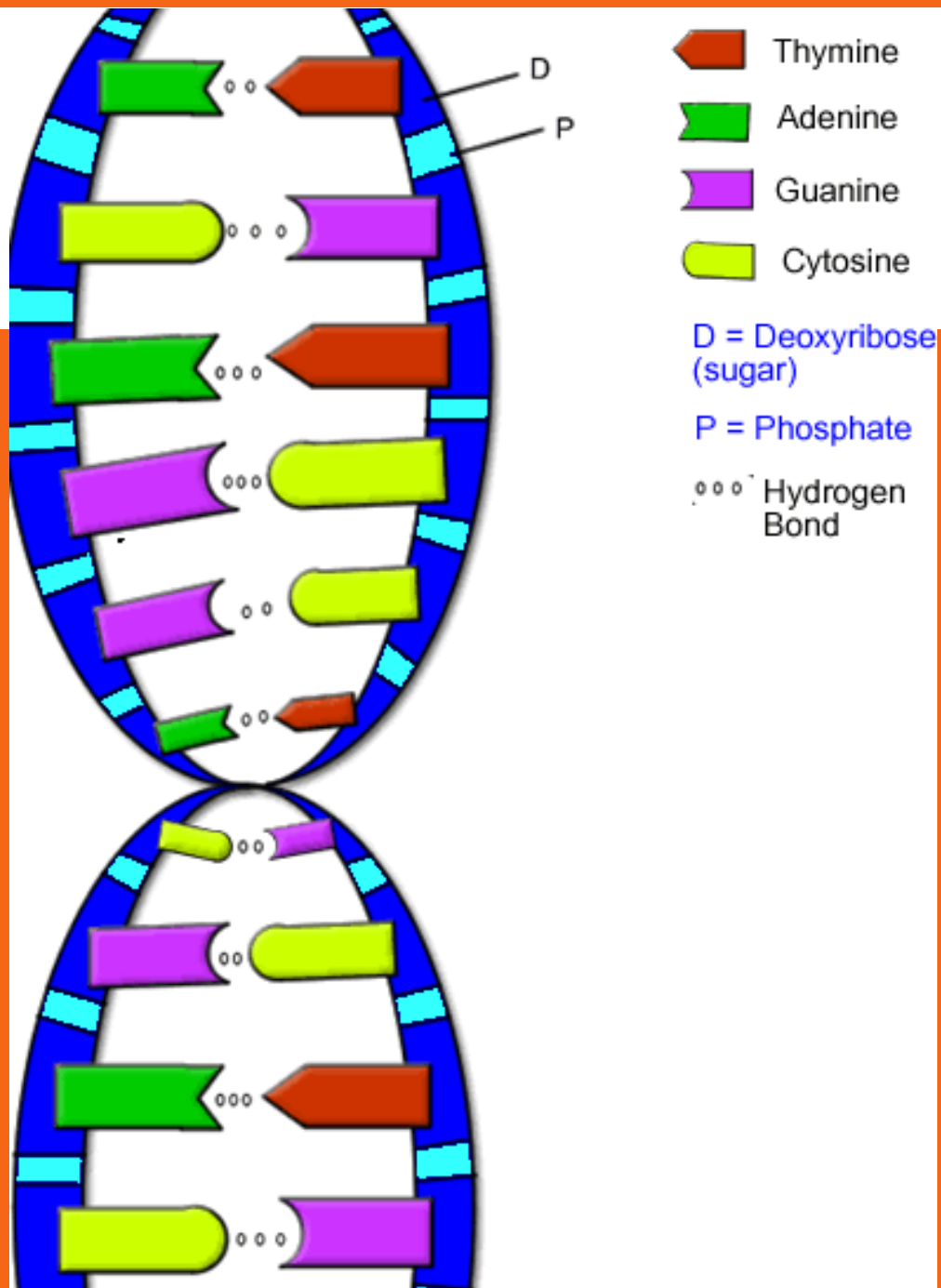
REPORTING CATEGORY 2

#21-PROTEIN SYNTHESIS

CHANGES TO DNA CODE



#18-STRUCTURE OF DNA



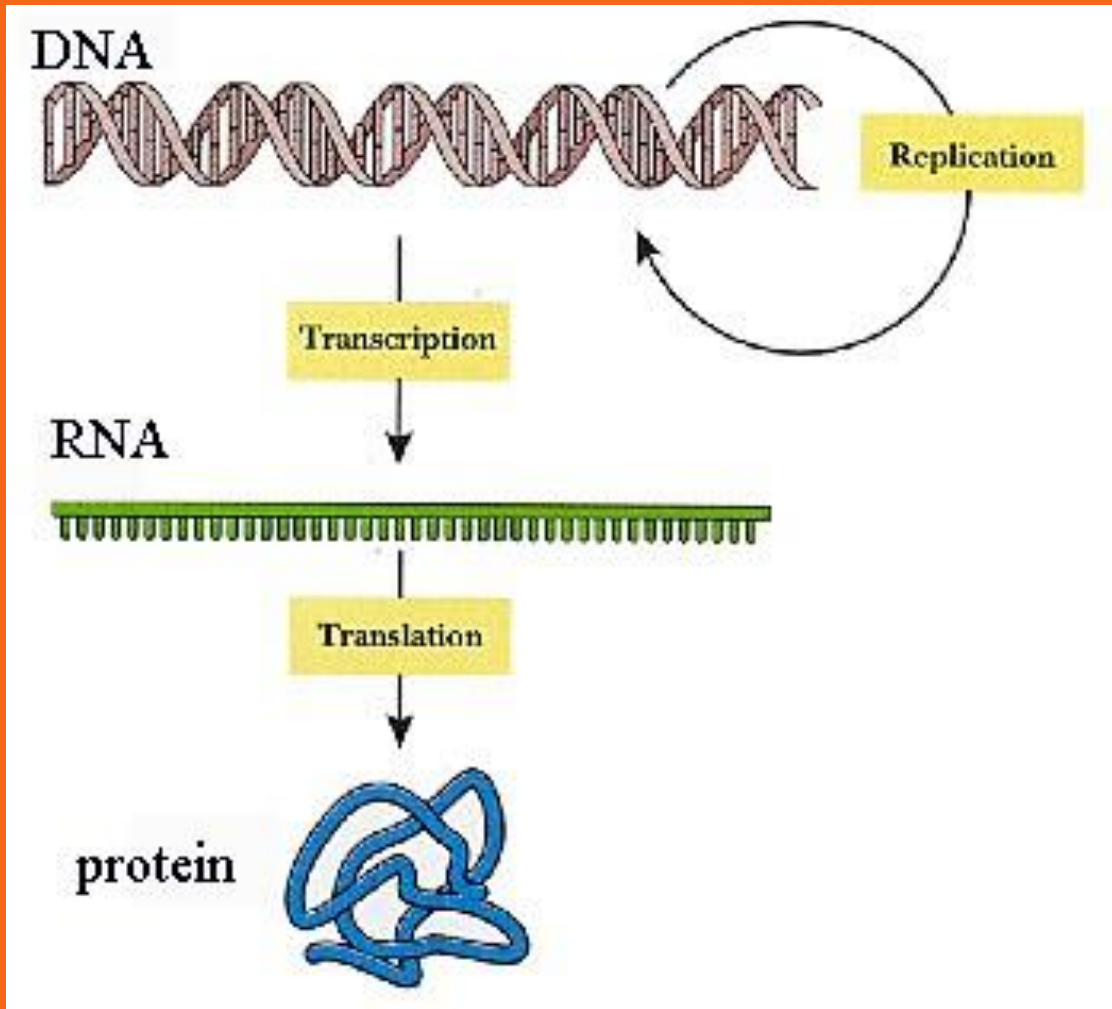
STRUCTURE OF DNA

COMPONENTS OF NUCLEOTIDES:

- deoxyribose sugar
- phosphate group
- nitrogenous bases:
A, T, G, C

#11-PROTEIN SYNTHESIS

DNA → RNA → PROTEIN



- DNA is transcribed to messenger RNA
- Double stranded to single stranded nucleic acid
- mRNA goes to ribosome to be translated into protein

COMPLEMENTARY BASES

DNA → DNA

A=T

C=G

DNA → RNA

A=U

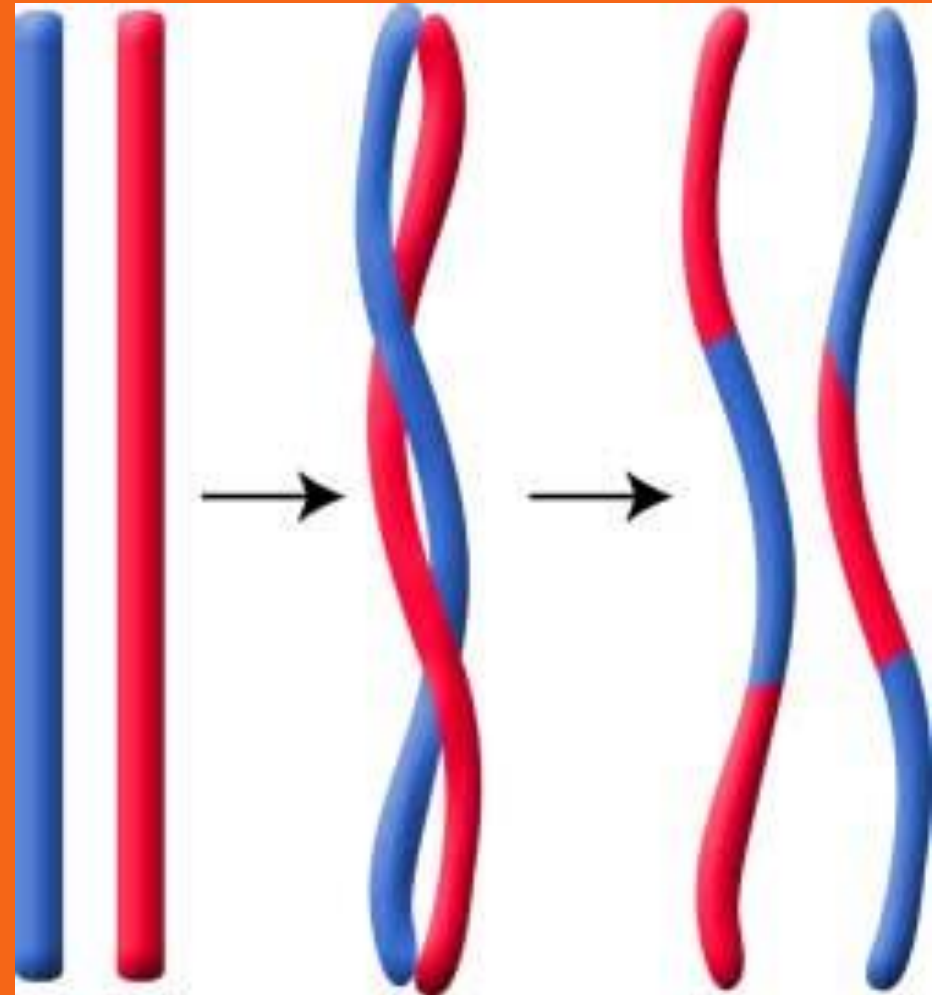
T=A

C=G

#26-MEIOSIS

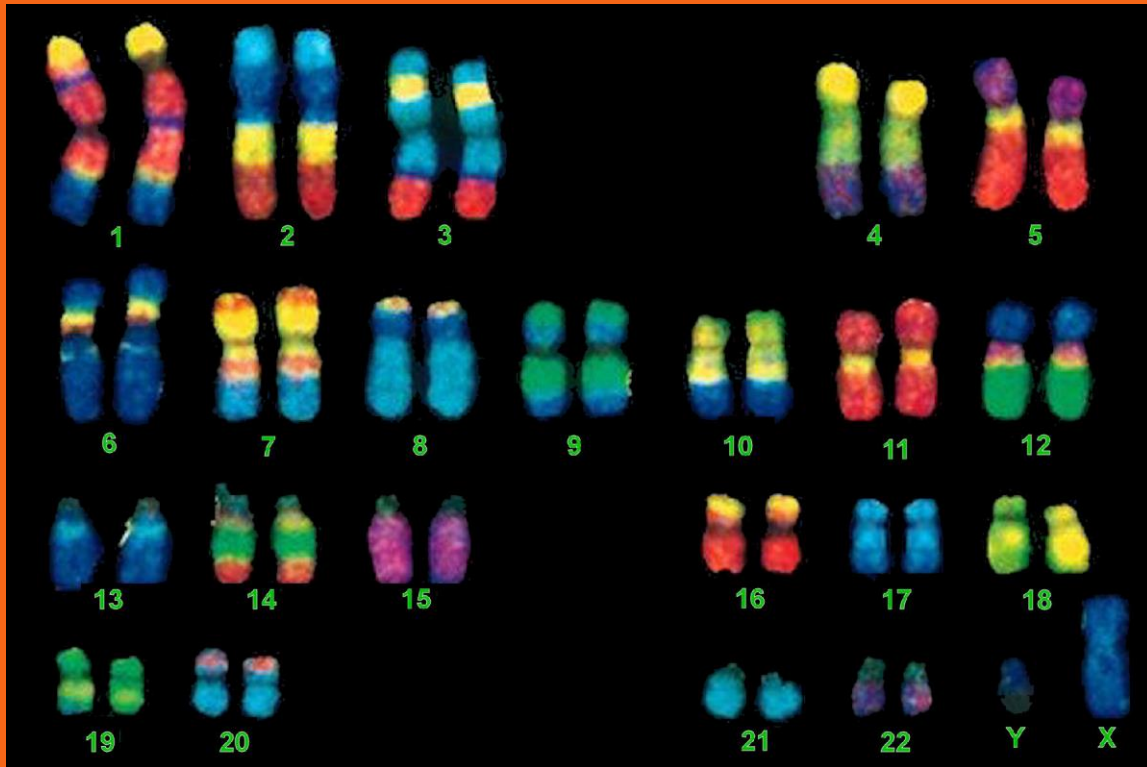
CROSSING OVER DURING MEIOSIS

- Segments of homologous chromosomes break and reattach at similar locations.
- Results in new genetic combinations of offspring.



#4-DNA AND TECHNOLOGY

LOCATION OF GENES ON CHROMOSOMES



















-Karyotypes are charts used to show genetic disorders

-Different species may share similar genetic sequences that may be spotted using mapped-out chromosomes

#13-MENDELIAN GENETICS

DIHYBRID CROSS

- Looks at **two traits** that are independently assorted
- Can use cross to determine probable **genotypes** and **phenotypes**

		♂ gametes			
		$R Y$ $\frac{1}{4}$	$R y$ $\frac{1}{4}$	$r y$ $\frac{1}{4}$	$r Y$ $\frac{1}{4}$
♀ gametes	$R Y$ $\frac{1}{4}$	$RR YY$ $\frac{1}{16}$ 	$RR Yy$ $\frac{1}{16}$ 	$Rr Yy$ $\frac{1}{16}$ 	$Rr YY$ $\frac{1}{16}$ 
	$R y$ $\frac{1}{4}$	$RR Yy$ $\frac{1}{16}$ 	$RR yy$ $\frac{1}{16}$ 	$Rr yy$ $\frac{1}{16}$ 	$Rr Yy$ $\frac{1}{16}$ 
	$r y$ $\frac{1}{4}$	$Rr Yy$ $\frac{1}{16}$ 	$Rr yy$ $\frac{1}{16}$ 	$rr yy$ $\frac{1}{16}$ 	$rr Yy$ $\frac{1}{16}$ 
	$r Y$ $\frac{1}{4}$	$Rr YY$ $\frac{1}{16}$ 	$Rr Yy$ $\frac{1}{16}$ 	$rr Yy$ $\frac{1}{16}$ 	$rr YY$ $\frac{1}{16}$ 

9  : 3  : 3  : 1 

 Round, yellow

 Wrinkled, yellow

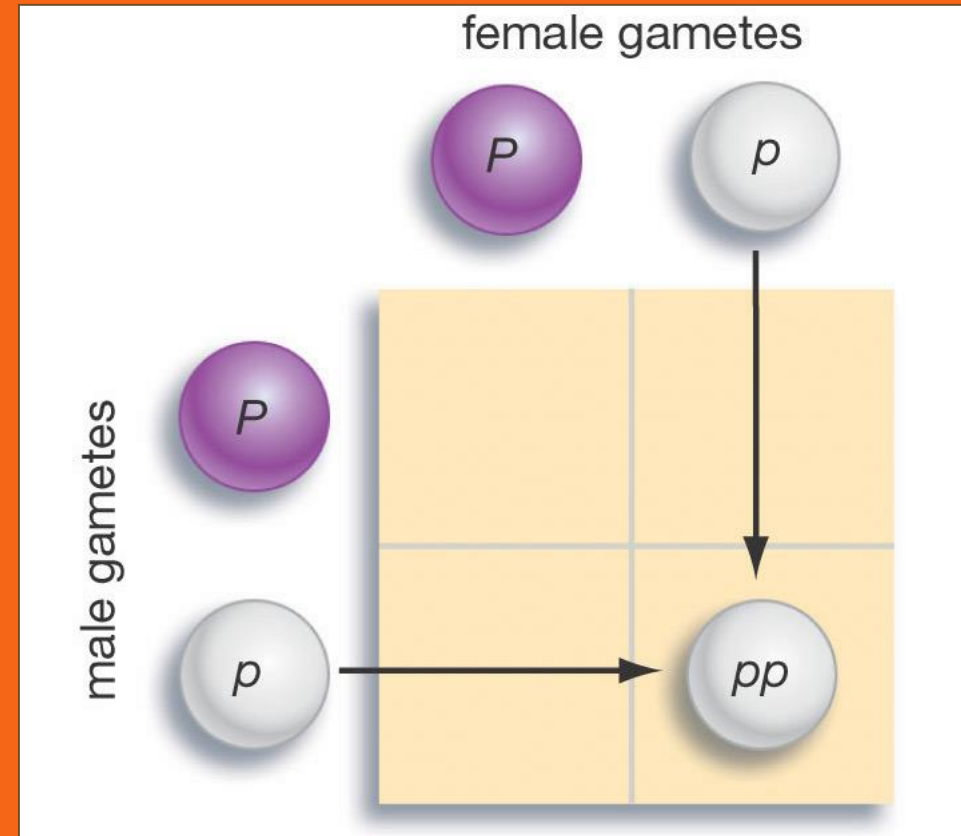
 Round, green

 Wrinkled, green

#38-MENDELIAN GENETICS

MONOHYBRID CROSS

- Punnett squares are used to solve crosses
- Dominant vs Recessive alleles
- Heterozygous vs Homozygous
- Genotype vs Phenotype



#49-GENETIC CODE

UNIVERSAL GENETIC CODE

ARMADILLO	-----T GCTACTAATAT -----T-
COW	GCC TCTCTTT-----CT GCCCTGCAGGC -
HORSE	GTCACA TTT AGGAAGT GCCACTGGCCT -----C-
CAT	GTCACAG TTT AGGGGGTACTACTGGCAT -----C-
DOG	GTCACA TTT GGGGGATACTACTGGCAT -----C-
HEDGEHOG	GTCATAG TTT---- GATTATATGGGCTT -----C-
MOUSE	GTCACAG TTT GGAGGATGTTACTGACAT -----C-
RAT	GTCACA TTT GGAGGATGTTACTGGCAT -----C-
RABBIT	ATCACA TTT GGGGAACACCCTGGCAT -----C-
LEMUR	ATCACA -TT GGGGG-TGCCACGGTCCT -----C-
MOUSE-LEMUR	ATCACAG -TT GGGGGATGCCACTGGCCT -----C-
VERVET	GTCAGAA TTT GGGGGATGCTTCTGGCTC -----T-
MACAQUE	GTCAGAA TTT GGGGGATGCTTCTGGCTC -----T-
BABOON	GTCAGAA TTT GGGGGATGCTTCTGGCTC -----T-
ORANGUTAN	GTCACG TTT GGGAGATGCTTCTGGCTC -----G-
GORILLA	GTCACG TTT GGGGGATGCTTCTGGCTC -----A-
CHIMP	GTCACG TTT GGGGGATGCTTCTGGCTC -----A-
HUMAN	GTCACG TTT GGGGGATGCTTCTGGCTC -----A-
PRED. ANC.	GTCACA TTT GGGGGATGCTACTGGCAT -----C-
MER20 CONS.	GTCACA CT GGGGGATGCTACTGGCAT -----C-
	↑ ↑ GGGGG

Almost all living organisms
use same translation rules
DNA → mRNA → protein

#30-GENETIC CODE

UNIQUE GENETIC CODES

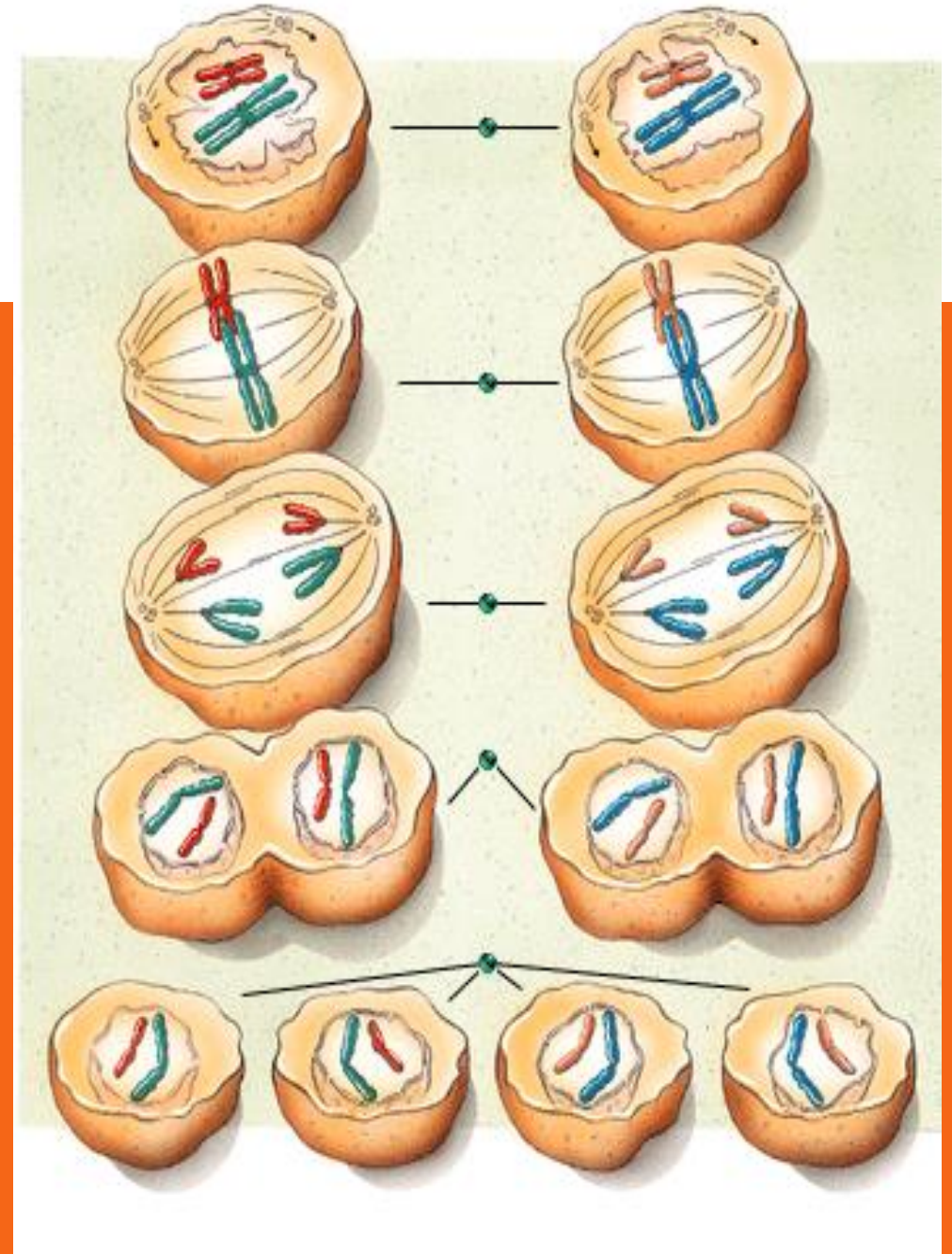
Sequences of nitrogenous bases lead to **genetic variation** among organisms.



#53-MEIOSIS

SEXUAL REPRODUCTION

- Meiosis results in the formation of haploid cells.
- Gametes formed are either egg or sperm cells.
- Egg and sperm fuse to become a fertilized zygote.
- Offspring will inherit equal amounts of genetic information from each parent.



#43-GENETIC CODE

