

BIOLOGY DATA

Symbols

Symbol	Description	Symbol	Description
D_p	population density	♂	male
N	number of individuals in a population	♀	female
A	area occupied by a population	n	chromosome number
V	volume occupied by a population	B, b	alleles: upper case is dominant, lower case is recessive
t	time	I^A, I^B, i	alleles, human blood type (ABO)
Δ	change in	P	parent generation
K	carrying capacity	F ₁	first filial generation
gr	growth rate	F ₂	second filial generation
cgr	per capita growth rate	p	frequency of dominant allele
>	greater than, dominant over	q	frequency of recessive allele
<	less than, recessive to		


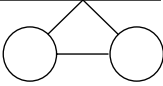

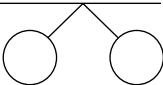
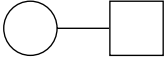

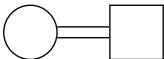

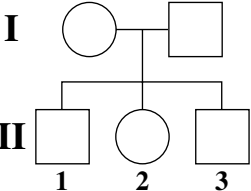


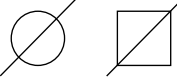

Equations

Subject	Equation
Hardy–Weinberg principle	$p^2 + 2pq + q^2 = 1$
Population density	$D_p = \frac{N}{A}$ or $D_p = \frac{N}{V}$
Change in population size	$\Delta N = (\text{factors that increase pop.}) - (\text{factors that decrease pop.})$
Growth rate	$gr = \frac{\Delta N}{\Delta t}$
Per capita growth rate (time will be determined by the question)	$cgr = \frac{\Delta N}{N}$

Abbreviations for Some Hormones

Hormone	Abbreviation
Adrenocorticotrophic hormone	ACTH
Antidiuretic hormone	ADH
Follicle-stimulating hormone	FSH
Gonadotropin-releasing hormone	GnRH
Human chorionic gonadotropin	hCG
Human growth hormone or growth hormone (somatotropin)	hGH or GH (STH)
Luteinizing hormone	LH
Parathyroid hormone	PTH
Prolactin	PRL
Thyroid-stimulating hormone	TSH

Pedigree Symbols

	Male		Identical twins
	Female		Non-identical twins
	Mating		Affected individuals
	Mating between close relatives		Known heterozygotes for autosomal recessive
I 	Roman numerals symbolize generations		Known carrier of X-linked recessive
II 	Arabic numbers symbolize individuals within a given generation		Deceased individuals
	Birth order, within each group of offspring, is drawn left to right, oldest to youngest		Sex unknown

Note: Pedigrees may or may not show individuals who are carriers for a particular trait.

Messenger RNA Codons and Their Corresponding Amino Acids

First Base	Second Base				Third Base
	U	C	A	G	
U	UUU phenylalanine	UCU serine	UAU tyrosine	UGU cysteine	U
	UUC phenylalanine	UCC serine	UAC tyrosine	UGC cysteine	C
	UUA leucine	UCA serine	UAA stop**	UGA stop**	A
	UUG leucine	UCG serine	UAG stop**	UGG tryptophan	G
C	CUU leucine	CCU proline	CAU histidine	CGU arginine	U
	CUC leucine	CCC proline	CAC histidine	CGC arginine	C
	CUA leucine	CCA proline	CAA glutamine	CGA arginine	A
	CUG leucine	CCG proline	CAG glutamine	CGG arginine	G
A	AUU isoleucine	ACU threonine	AAU asparagine	AGU serine	U
	AUC isoleucine	ACC threonine	AAC asparagine	AGC serine	C
	AUA isoleucine	ACA threonine	AAA lysine	AGA arginine	A
	AUG methionine*	ACG threonine	AAG lysine	AGG arginine	G
G	GUU valine	GCU alanine	GAU aspartate	GGU glycine	U
	GUC valine	GCC alanine	GAC aspartate	GGC glycine	C
	GUA valine	GCA alanine	GAA glutamate	GGA glycine	A
	GUG valine	GCG alanine	GAG glutamate	GGG glycine	G

* Note: AUG is an initiator codon and also codes for the amino acid methionine.

** Note: UAA, UAG, and UGA are terminator codons.

Information About Nitrogen Bases

Nitrogen Base	Classification	Abbreviation
Adenine	Purine	A
Guanine	Purine	G
Cytosine	Pyrimidine	C
Thymine	Pyrimidine	T
Uracil	Pyrimidine	U

