

PHONES & EAR BUDS away Please!

Monday, Dec 11,
2017

Pick up: new packet

Today you will:

- Mutations
- DSQ/Terms and Intro to Genetics
- Terms practice

Homework/Planner:

- Complete pages 1-4

Point Mutations

- Occurs at ONE Nucleotide
- May or may not affect the amino acid – because there can be several sequences that code for the same amino acid (like on p.244 A.A. Table)

Frameshift Mutations

- When a nucleotide is inserted or deleted →
- this affects every amino acid after the mutation →
- will alter protein so it does not carry out normal function

Normal = *THE FAT CAT ATE THE RAT*

- Look how the ribosome would read this sentence if the “H” in the first “the” was deleted.
 - Abnormal = *TEF ATC ATA TET HER AT*



I don't understand
I don't get this
I don't know how
I'm not good at this

DSQ

Title the page

Mendel's Laws

The Law of Segregation

Textbook pg 179

- ◉ WHAT is it...?
- ◉ Write it on ISN

🎯 Topic 12

Genetics of Life!

The Father of Genetics



Mendel

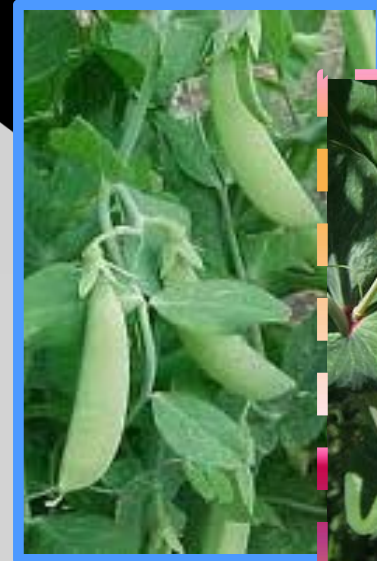


- ❖ Good student in math, sciences...
- ❖ Studied to become a Monk
- ❖ Taught at a monastery
- ❖ Studied bees, astronomy, meteorology
- ❖ Out of curiosity he studied the **pea plants** in the monastery garden:
 - ❖ **Pea Plants**....Small, easy to grow, grow fast, matures quickly, many offspring, Male/Female in same flower

Either/Or Traits... *make them easy to study!*

Mendel's Seven Traits

	Flower Color	Flower Position	Pea Color	Pea Shape	Pod Color	Pod Shape	Height
Dominant	 purple	 axial	 yellow	 round	 green	 inflated	 tall
Recessive	 white	 terminal	 green	 wrinkled	 yellow	 constricted	 short



Purebred vs Hybrid

- ❖ A Purebred plant produces the **same offspring** with the **same trait as the parent**.
 - ❖ *Mendel discovered that purebred tall pea plants would always have offspring that were tall.*
 - ❖ *Mendel knew that the offspring would be identical to the parent.*
- ❖ A Hybrid plants traits are not the same as the parent



Purebred Labrador Retriever

Purebred Standard Poodle

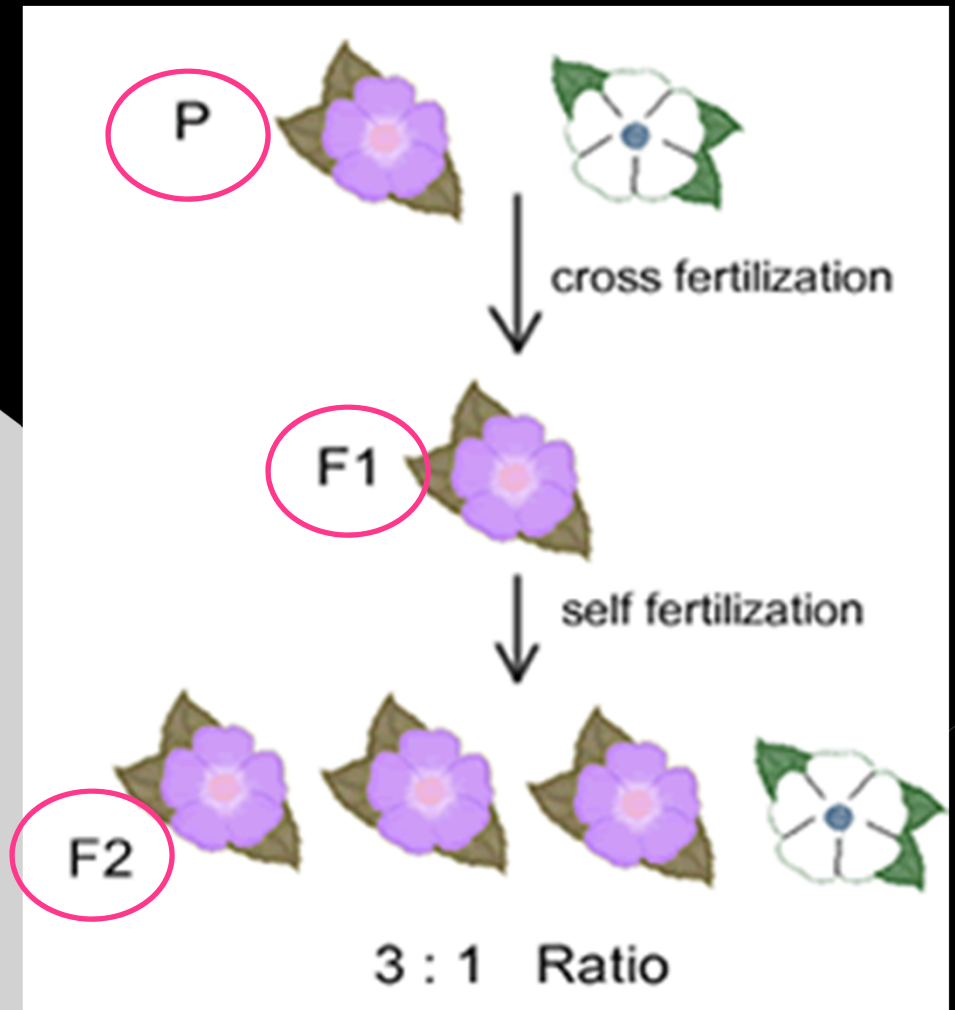


Hybrid Labrodoodle



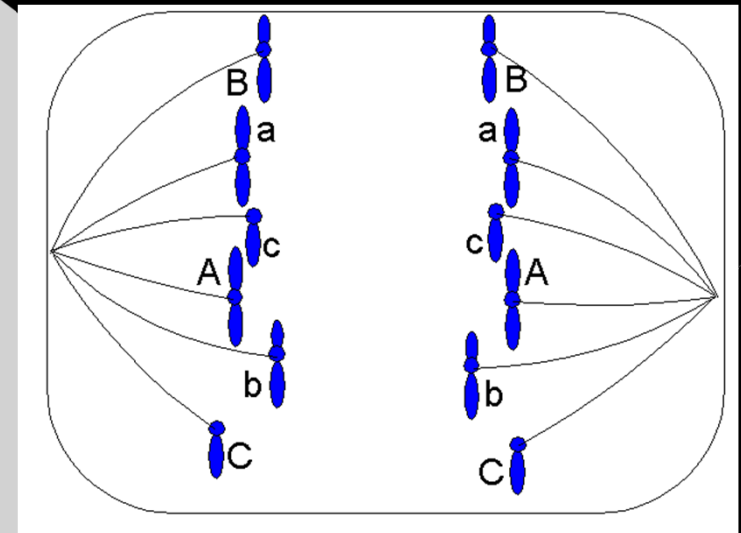
Genetic Cross & Generations

- ⦿ A **cross** is simply the mating of 2 individual plants, animals, etc
- ⦿ **P** = parental generation
- ⦿ **F1** = 1st filial (Latin for daughter & son)
- ⦿ **F2** = 2nd filial



Mendels 1st Law

- ❖ 2 genes for a trait: 1 from mom, 1 from dad)
- ❖ The genes separate → SEGREGATE → during meiosis (anaphase)... which IS **The LAW OF SEGREGATION**
- ❖ End up with *variety of genes* in the 4 sperm/eggs produced = random assortment!



WHAT is an Allele?

Greek 'allellos' meaning each other

Variations of a gene:

Ex. GENE for POD COLOR:

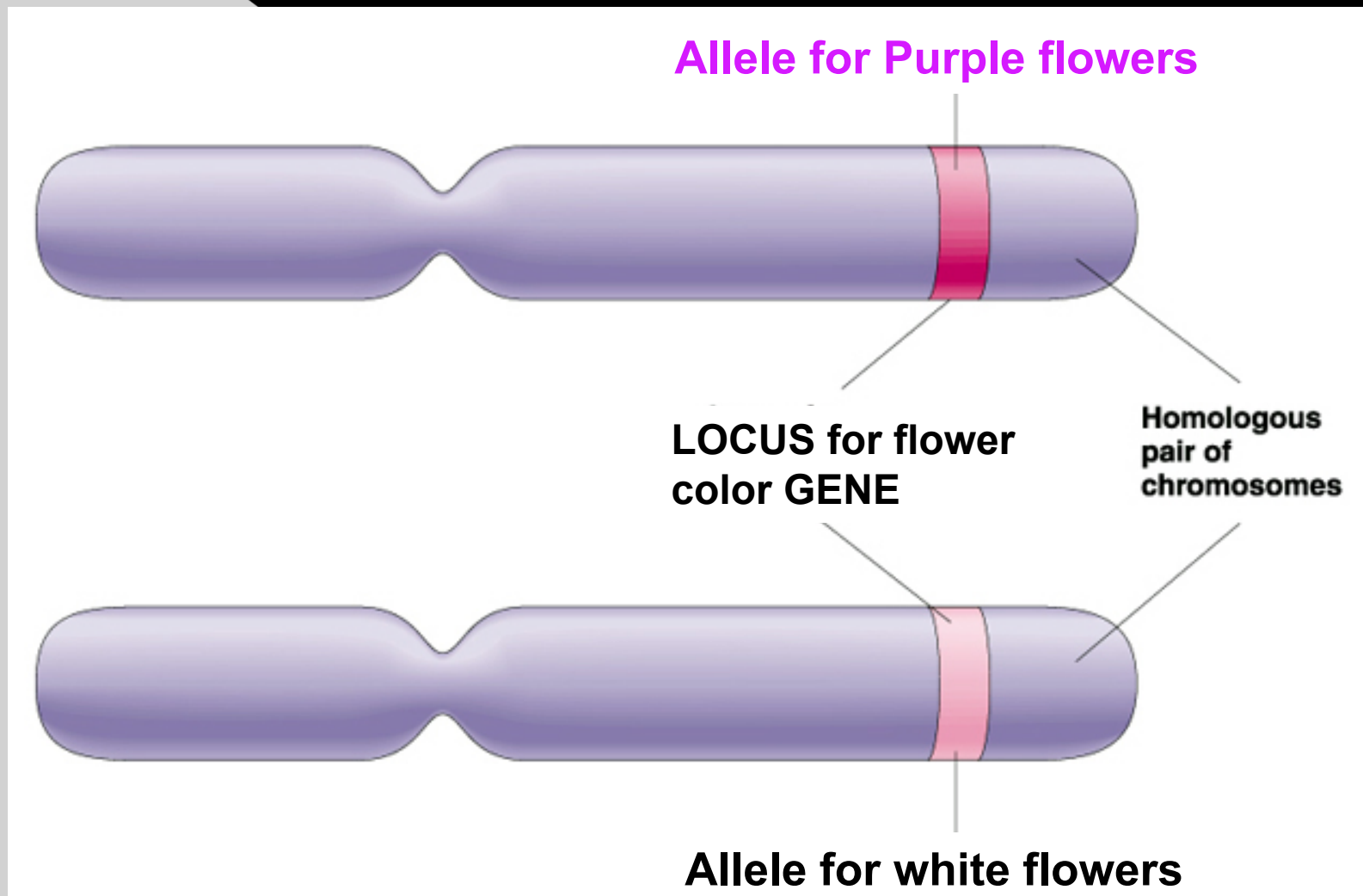


Ex. GENE for FLOWER COLOR:



GENE	allele
GENERAL	specific
BOOKS	Biology, math
LUMBER	Pressure treated, not
WATER	Dasani, zephyrhills
SPORT	Football, basketball
ART	Visual, performing
HEIGHT	Tall, short
COLOR	Purple, white

Some showing Gene & Locus of the Alleles



HOMOzygous vs HeTErOzygous

- ◉ 2 of the SAME alleles

- ◉ Rep. by letters:

 - > TT

 - > *tt*

 - > *bb*

- ◉ 2 DiFFErEnT alleles

- ◉ Rep. by letters:

 - ◉ Tt

 - ◉ Bb

GENOtype vs PHENOtype

- Type of GENES
- Cannot SEE it!
- Rep. by letters

> TT

> T*t*

> *tt*

> BB

> B*b*

> *bb*

- PHysical Appearance
- Observable
- Rep. by words!

○ HOMOzygous Tall

○ HeTErOzygous Tall

○ short

○ HOMOzygous Black

○ HeTErOzygous Black

○ white

DOMINANT vs recessive

- ◉ When one allele MASKS the effects of the other
- ◉ Tt = TALL
- ◉ Pp = PURPLE
- ◉ Present but does NOT necessarily show up...
- ◉ Tt = TALL (t does not show up)
- ◉ tt = then trait shows up (short)

Your Job Today

page

COMPLETE

- The Genetics Practice Worksheet