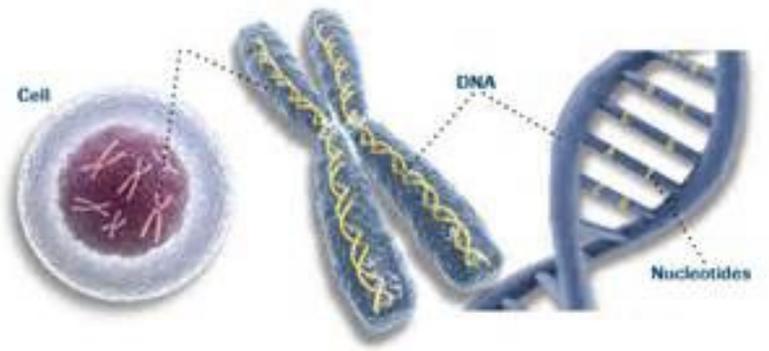


PHONES & EAR BUDS away Please!

Thurs, Jan 5, 2017



Pick up: new packet & clicker

Today you will:

- Review data interpretation stations
- DSQ/Terms and Intro to Genetics

Homework/Planner:

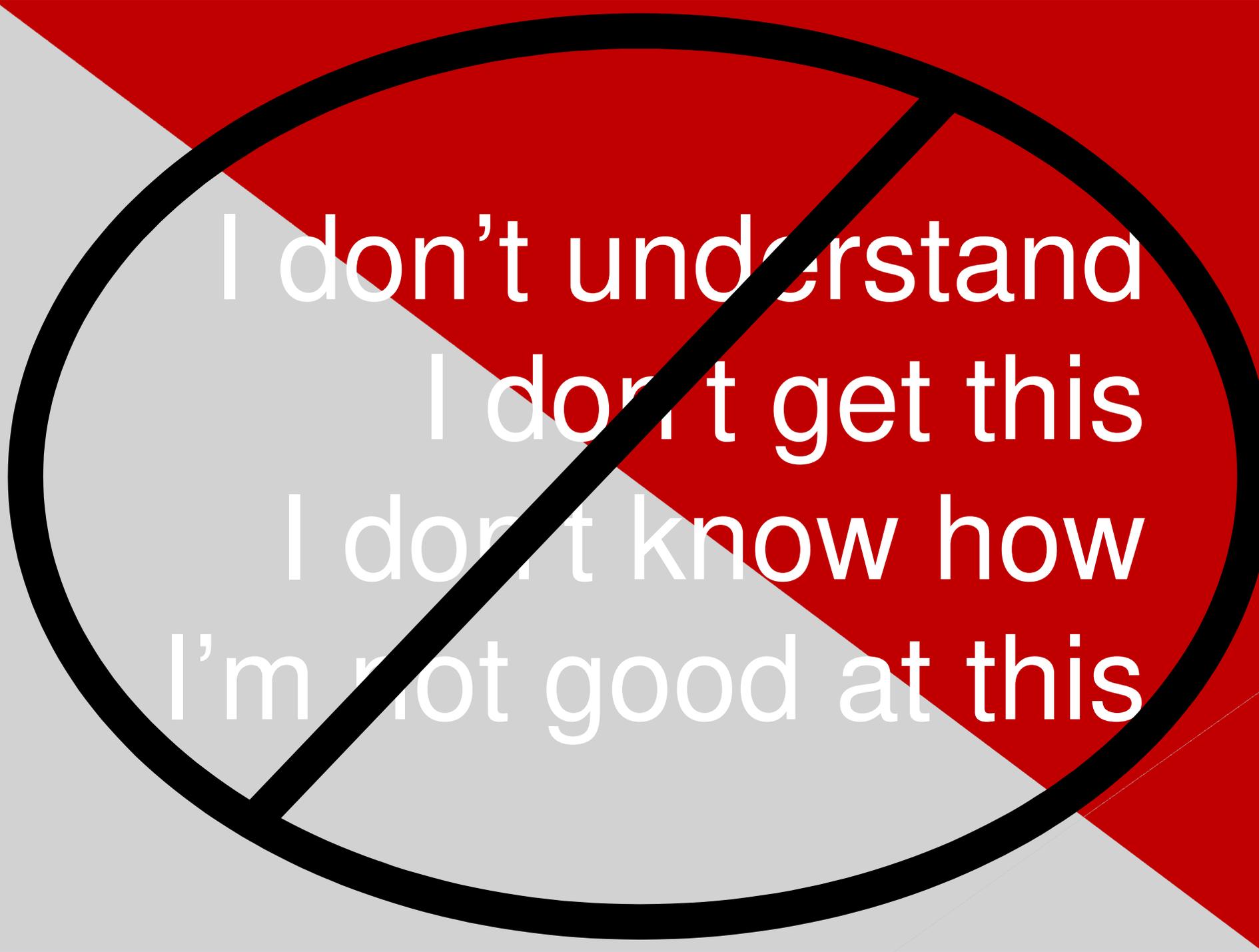
- Complete ISN pg 117, 119

# Genetics

Packet Page		ISN Page
1	Unit Overview	115
2	Mendel & Genetics	117
3	Terms	119
4	Term Practice	121
5	Traits & Prob	123
6	Punnett Sq	124
7	Punnett Sq	125
8	Incomplete	129
9	Sex linked	131
10	Punnett Sq	130
11	Karyotype	133

**Be sure to skip the appropriate pages!**

**Start your new ISN on pg 111**



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

DSQ

ISN 114

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



- ❖ 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

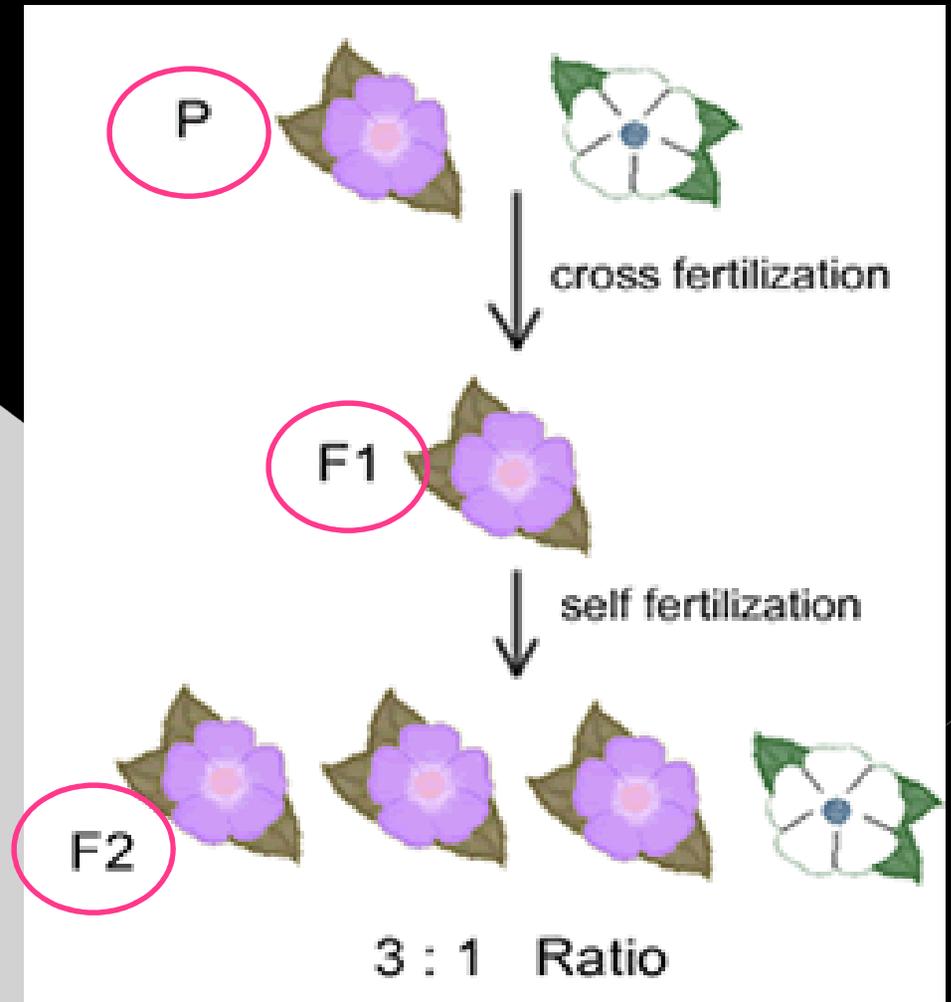


## Hybrid Labrodoodle



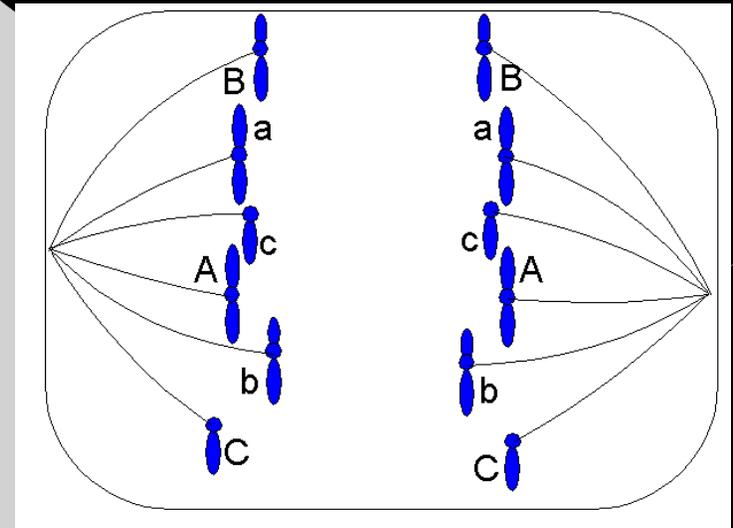
# Genetic Cross & Generations

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



# Mendel's 1<sup>st</sup> 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?

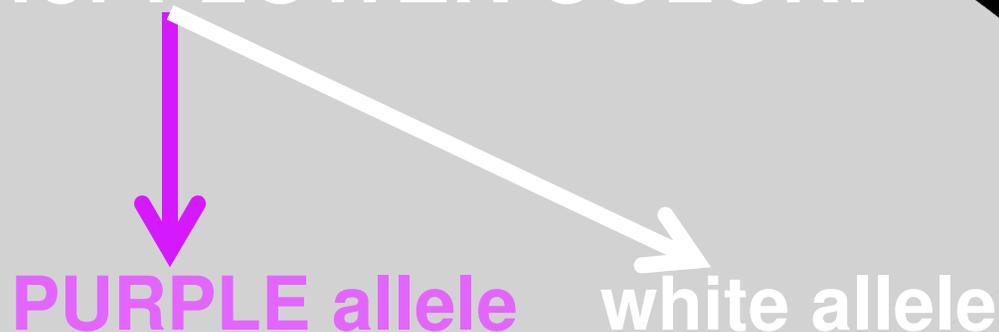
*Greek 'allellos' meaning each other*

## 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**

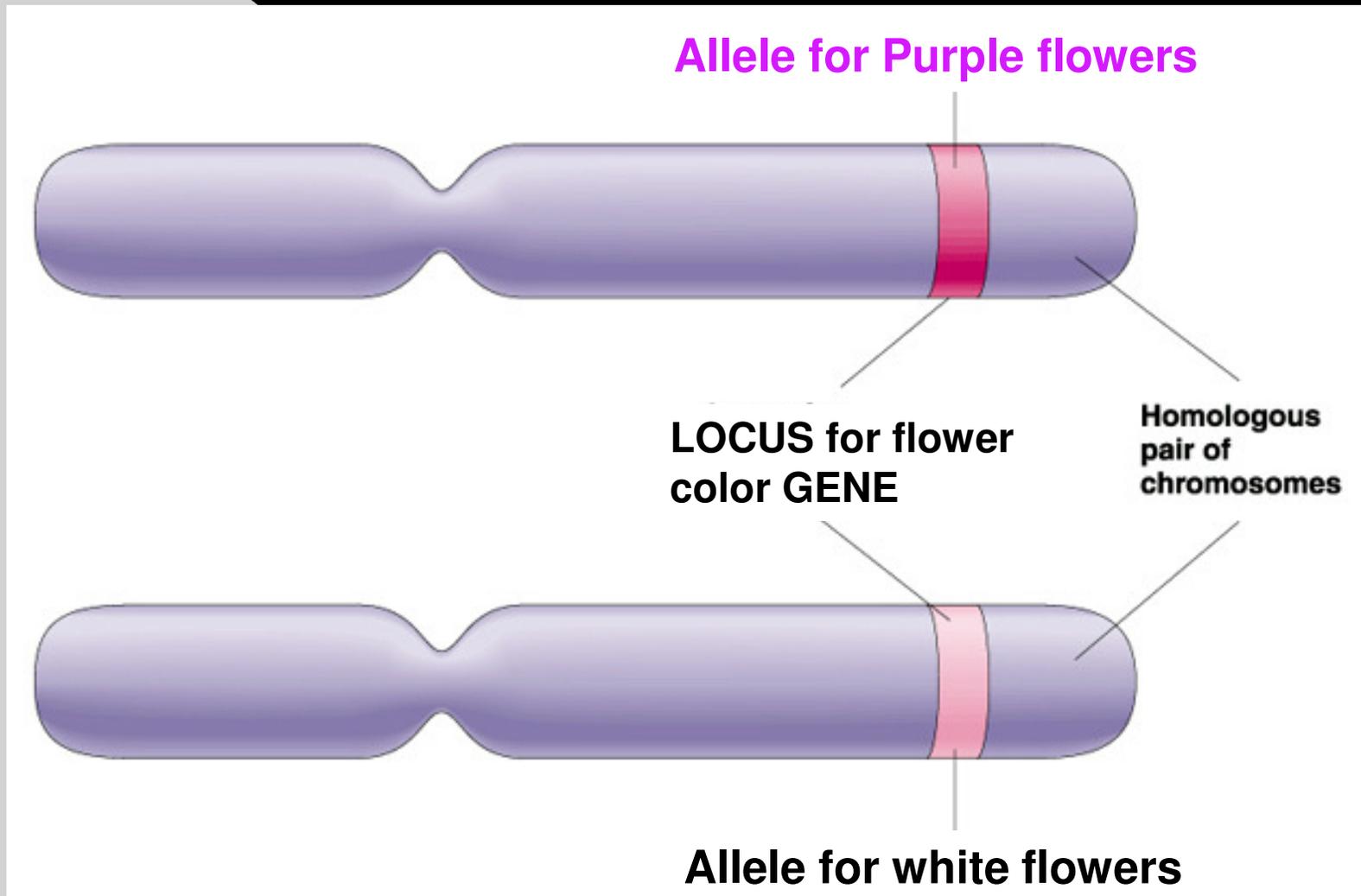
**HEIGHT**

**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
- ◉  $T_t$  = TALL
- ◉  $P_p$  = PURPLE
- ◉ Present but does **NOT** necessarily show up...
- ◉  $T_t$  = TALL ( $t$  does not show up)
- ◉  $tt$  = then trait shows up (short)