

GENETIC TRAITS

A PHYSICAL CHARACTERISTIC THAT IS
CONTROLLED BY GENES INHERITED
FROM PARENTS

EXAMPLES:

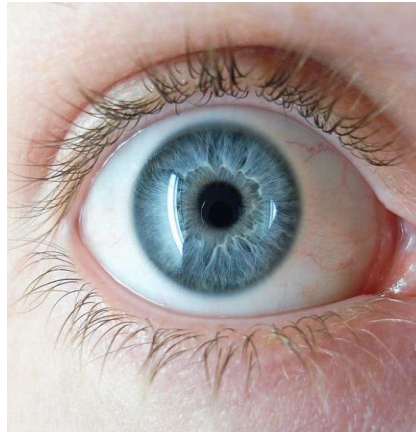
EYE COLOR, HAIR SHAPE, BLOOD TYPE,
HEMOGLOBIN TYPE, ETC...

**MANY OF OUR TRAITS HAVE
DIFFERENT PHYSICAL VERSIONS**

PHENOTYPE

**The way a trait PHYSICALLY
APPEARS**

EXAMPLE 1: EYE COLOR



EXAMPLE 2: BLOOD TYPE



Blood type A



Blood type B



Blood type AB



Blood type O

MONOGENIC TRAIT:

CONTROLLED BY 1 SET OF GENES

POLYGENIC TRAIT:

**CONTROLLED BY SEVERAL
SETS OF GENES**

- MUCH MORE COMPLEX

- *Most human traits are polygenic*

If a trait has multiple phenotypes, there must be multiple versions of the gene.

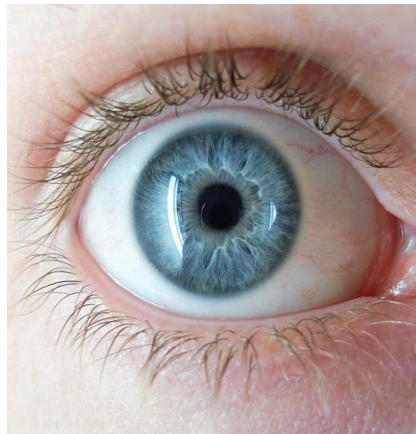
ALLELE

1 of a number of alternative forms of a gene for the same trait

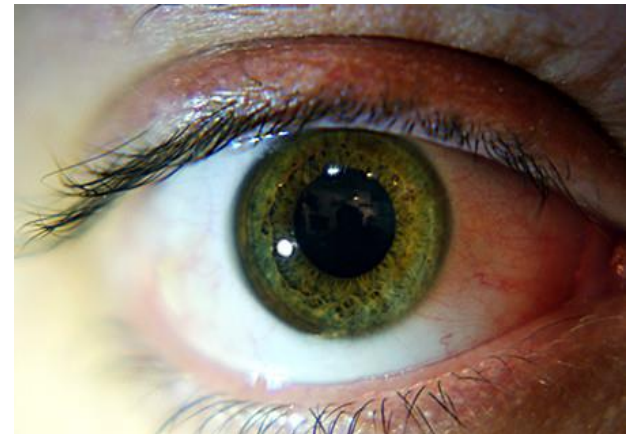
Brown Alleles



Blue Alleles



Green Alleles



EARLOBE ATTACHMENT



Attached earlobes

TONGUE ROLLING



Can roll tongue

CLEFT CHIN



Cleft chin

DIMPLES



Dimples

HANDEDNESS



FRECKLES



Freckles

HAIR SHAPE



Naturally curly hair

HAND CLASPING

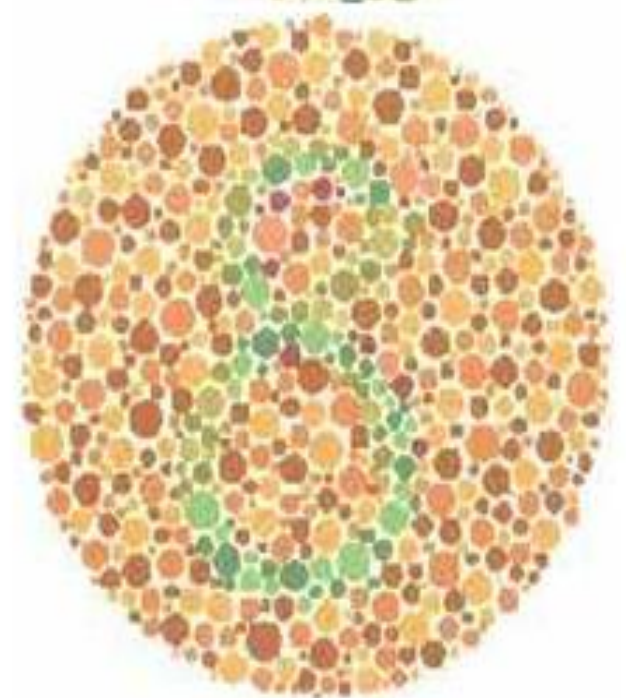
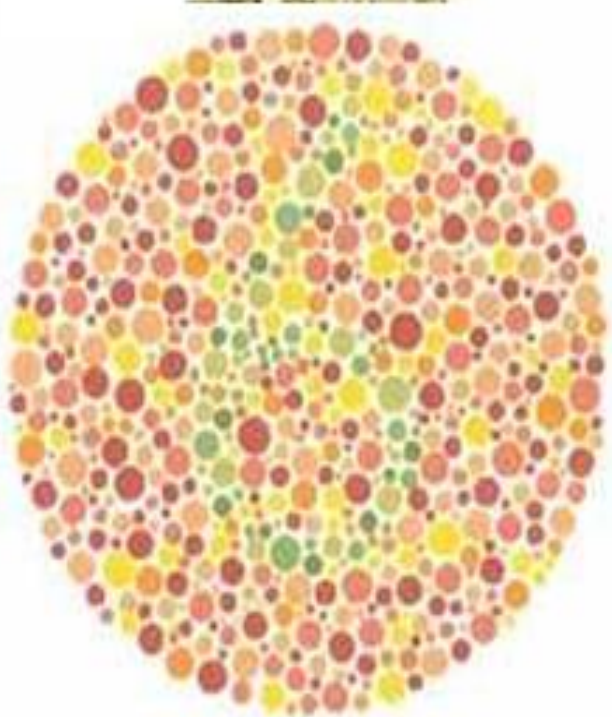
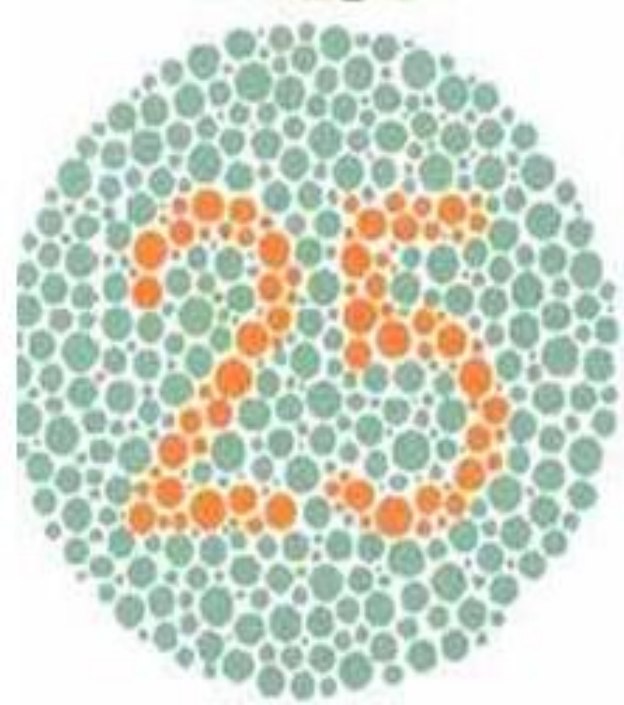
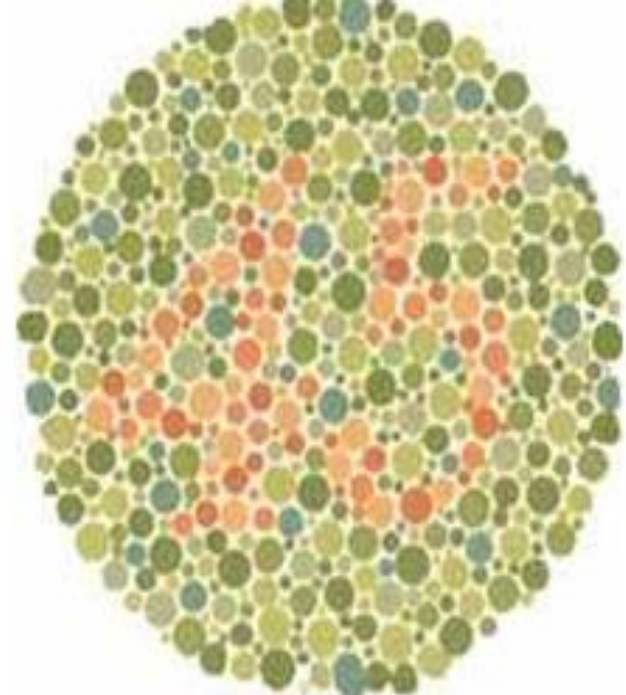
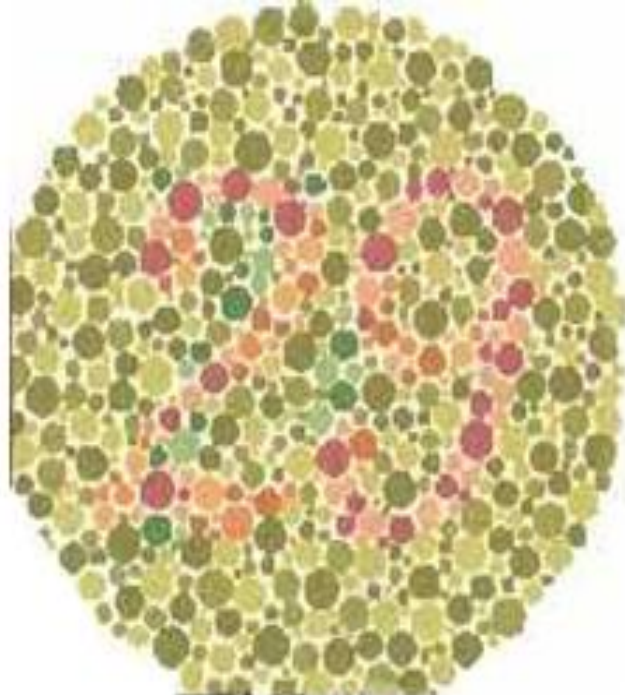
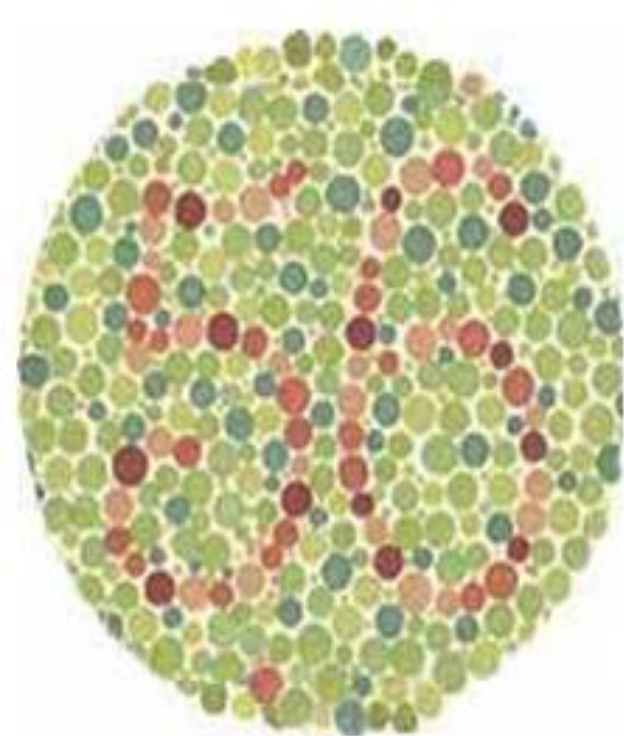


Cross left thumb
over right

COLOR VISION



Can see red &
green

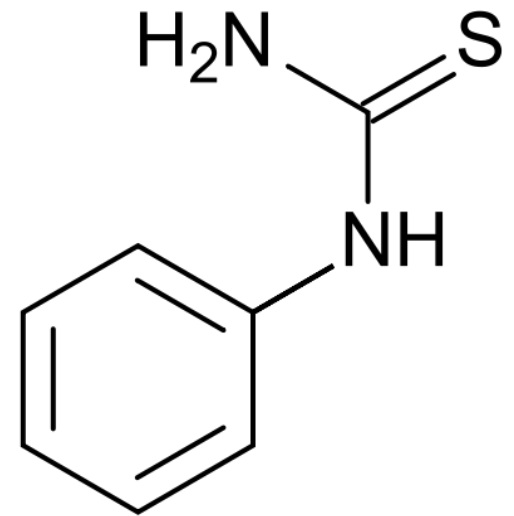


HAIRLINE SHAPE



Widow's Peak

PTC TASTING



OF FINGERS



Six Fingers

TRAITS

**MONOGENIC vs POLYGENIC:
WHAT IS THE DIFFERENCE?**

ALLELES

DOMINANT vs RECESSIVE: WHAT IS THE DIFFERENCE?

- When 2 different alleles are present but only 1 shows up while the other is “hidden”, the allele that is expressed is said to be **DOMINANT**
- The “hidden” allele is said to be **RECESSIVE**
- **Example: PTC Tasting**

PTC Tasting

PTC Gene: Creates a protein that is part of the “bitter” taste receptor in tongue cells

- 5 different alleles:
 - 4 “tasting” alleles from intermediate to fully sensitive
 - 1 “tasteless” allele
- Tasting alleles are dominant over non-tasting
 - ~75% of population can taste PTC

GENOTYPE

The combination of Alleles received from parents for a particular trait.

- Use letters to represent different alleles:
 - PTC Tasting Allele → “T”
 - Non-Tasting Allele → “t”