7.1 Chromosomes & Phenotype

 **The chromosomes on which genes are located can affect the expression of \_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of each autosomal gene affect phenotype.

Mendel studied \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gene traits, like hair texture.

Mendel’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ apply to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genetic disorders.

* + A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_for a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_ alleles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**DRAW**

Males and females can differ in \_\_\_\_\_\_\_\_\_-linked traits.

Genes on \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are called sex-linked genes.

-\_\_\_\_ chromosome genes in mammals are responsible for \_\_\_\_\_\_\_ characteristics.

-\_\_\_\_ chromosome genes in mammals \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_.

**DRAW**

\_\_\_\_\_\_\_\_\_\_ mammals have an \_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* + \_\_\_\_\_\_\_ of a male’s sex-linked \_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	+ Males have \_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ of sex-linked genes.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mammals have an \_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-Expression of \_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_ genes is similar to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genes in females.

-X chromosome \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ randomly “turns off” one \_\_\_ chromosome.

**7.2 Complex Pattern of Inheritance**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can depend on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**A:** In \_\_I\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_D\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is completely dominant nor completely recessive.

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is intermediate between the two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ phenotypes.

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ parental phenotypes not seen in \_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Give example:**

**B:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will \_\_\_\_\_\_\_\_\_\_\_\_ be completely expressed.

* + Codominant alleles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dominant nor recessive.
	+ The \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ types result from codominant alleles.

**DRAW**

\_\_\_\_\_\_\_\_\_ genes may \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce \_\_\_\_ \_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ traits are produced by \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_\_\_\_\_ genes.

**DRAW** Order of Dominance: \_\_\_\_\_\_\_\_\_\_\_\_\_>\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_>\_\_\_\_\_\_\_\_\_\_\_\_\_

An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gene can interfere with other genes

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ interacts with genotype.

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The \_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ depends on both genes and the environment
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an example of a phenotype strongly affected by the environment.

7.4 Human Genetics and Phenotypes

**KEY CONCEPT A combination of methods is used to study human genetics.**

Human genetics follow the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ seen in other organisms.

The basic principles of genetics are the same in \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of many human traits is complex.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-gene traits are important in understanding human genetics.

Females can carry \_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genetic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Males (XY) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ of their sex linked genes.

Expression of the disorder depends on 1. which \_\_\_\_\_\_\_\_\_\_\_ carries the \_\_\_\_\_\_\_\_\_ and 2. the \_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_\_\_\_\_\_.

List X-Linked genes: List Y-Linked genes:

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a chart for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-Phenotypes are used to \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on a pedigree.

-Autosomal genes show \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on a pedigree than sex-linked genes.

Squares = Circles =

White = With Color =

# possible genotypes = # possible phenotypes =

-If the phenotype is \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in \_\_\_\_\_\_\_\_\_\_, the gene is likely \_\_\_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Partial Color =

Dominant designated how =

Recessive designated how =

Several methods help \_\_\_\_\_\_\_\_ human \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a \_\_\_\_\_\_\_\_\_\_\_\_.

# of Pairs =

2 types of pairs =

Karyotypes can show \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in chromosomes.

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of part of a chromosome or \_\_\_\_\_\_\_\_\_ of a chromosome

- large changes in chromosomes

- extra chromosomes or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of part of a chromosome