Thursday, May 30, 2019

Your Learning Goal: SWBAT will be able to differentiate between a feature and a trait to understand heredity and passage of characteristics.

Inheriting Traits- 51 L + R

Catalyst 51 L:

- 1. How are the people in the room right now similar?
- 2. How are we different?

Homework:

Study for your final exam

Agenda:

- Catalyst
- Heredity
- LEAF

Table of Contents

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Catalyst:

1. How are the people in the room right now similar?

2. How are we different?

LEAF:

51L

5/30/19

Inheriting Traits

51R

Focus question

- What leads to variation in a population?

Feature VS Trait

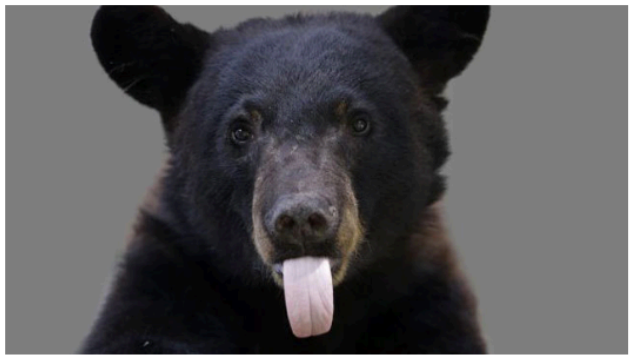
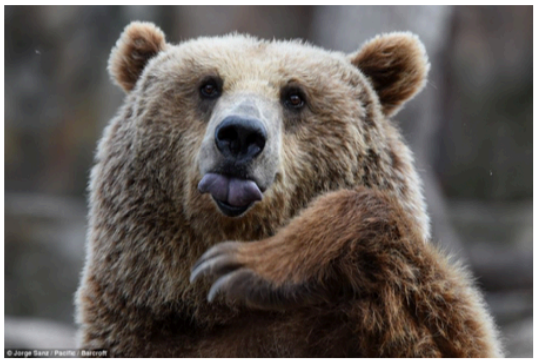
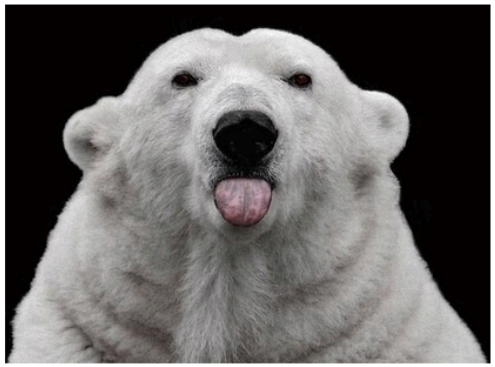
- All butterflies have **wings**

- The wings of a butterfly can be many **different colors**, **patterned**, **solid**, **pointy** or **round**.

Feature VS Trait

- All bears have fur

- The fur on bears can be black, brown, or white.

Feature VS Trait

- Cats have hair

- The hair on cats can be long, short, or absent.

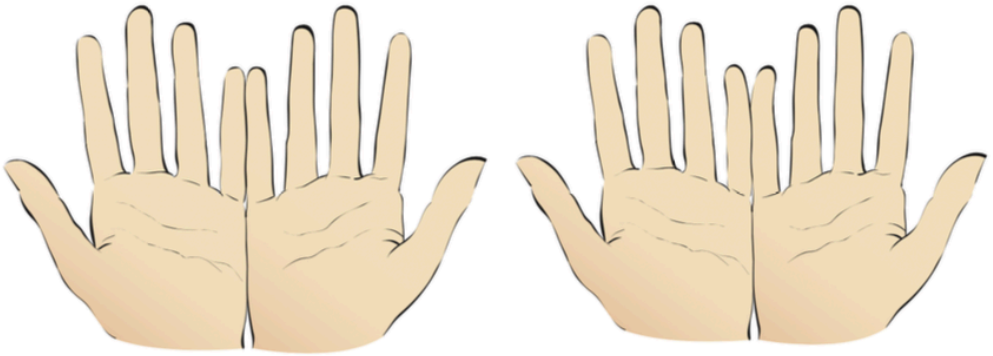
Glossary

Feature: an inherited characteristic or structure

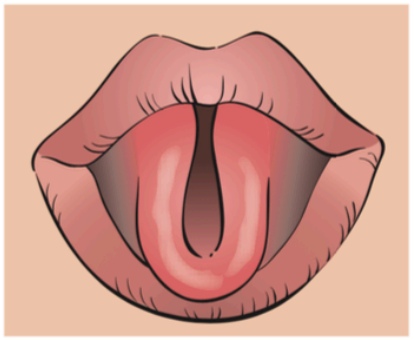
Trait: The individual expression of a feature

52 L

Human Traits

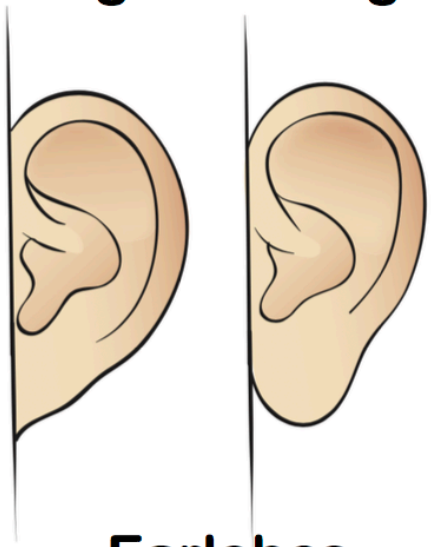


Pinky Fingers



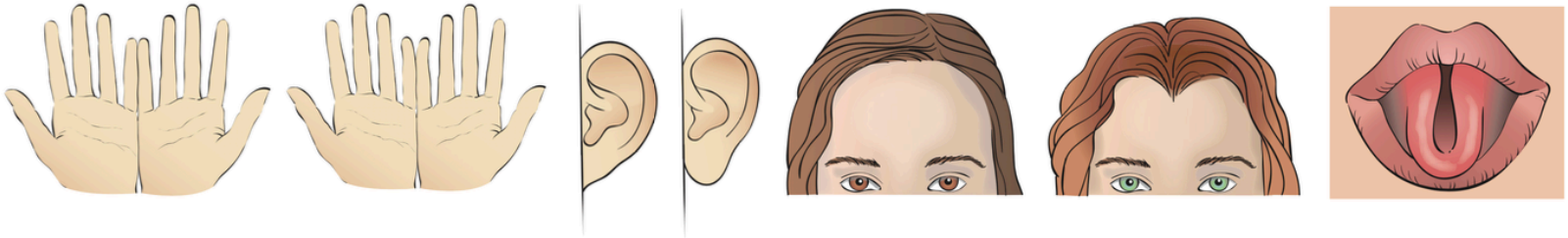
Tongue Rolling

Widow's Peak



Earlobes

Human Traits



- Visit the 4 posters around the room and sign your name under the trait you have

- Please sign only one time per poster!

5/30/19

Catalyst:

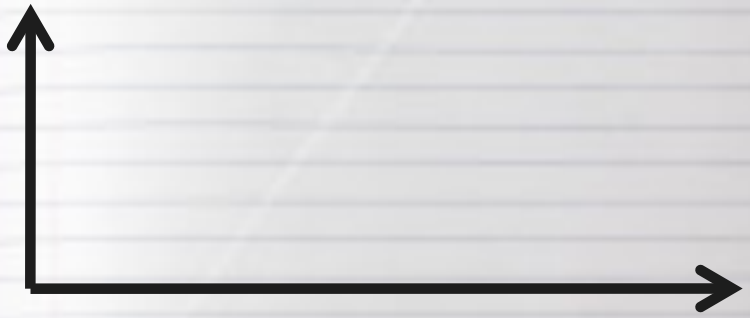
1. How are the people in the room right now similar?

2. How are we different?

LEAF:

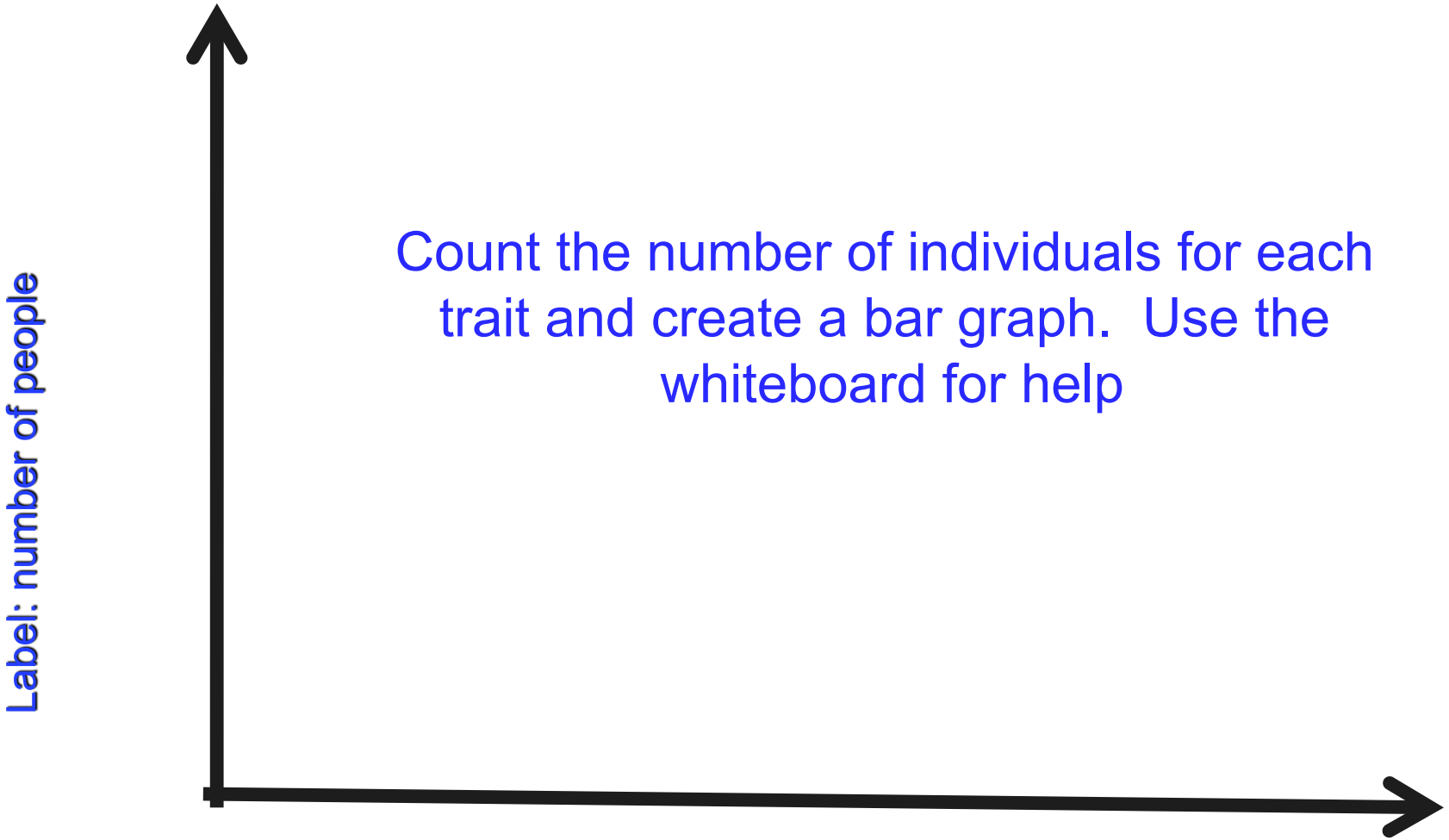
51L

Inheriting Traits



51R

Title: (relates x & y axis)



51R

Glossary

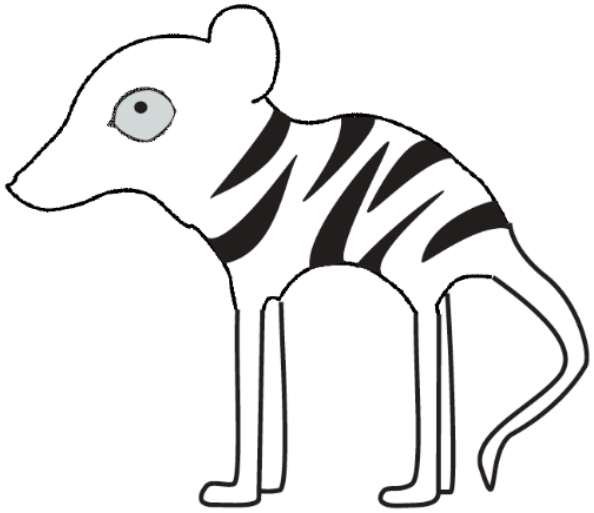
Feature: an inherited characteristic or structure

Trait: The individual expression of a feature

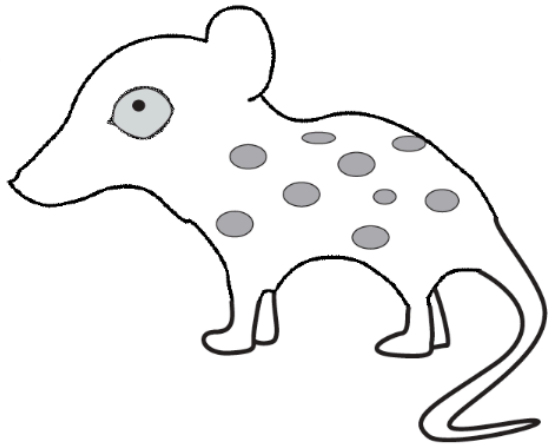
Variation: The range or difference between traits of a feature in the individuals of a population

52 L

Introducing: Larkeys



- What are some of the ways these Larkeys are similar?
- Where is there variation?



Catalyst:

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LEAF:

51L

5/30/19

Inheriting Traits

Create Data Table Here

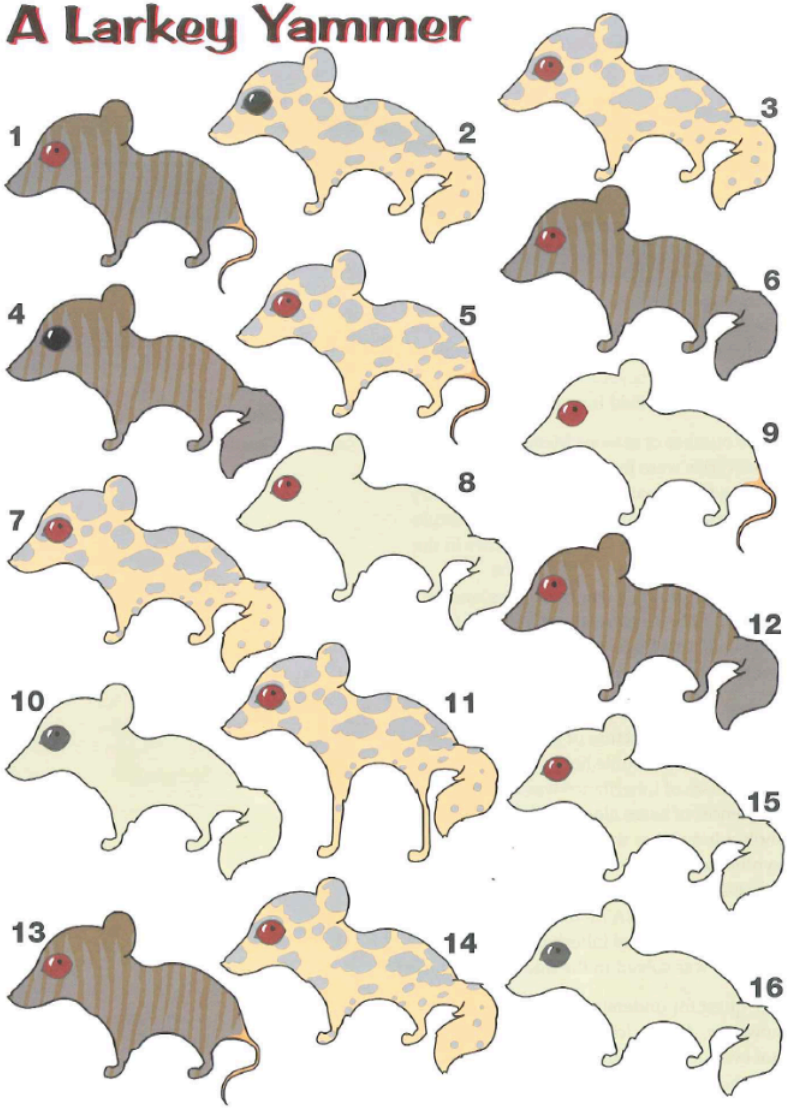
51R

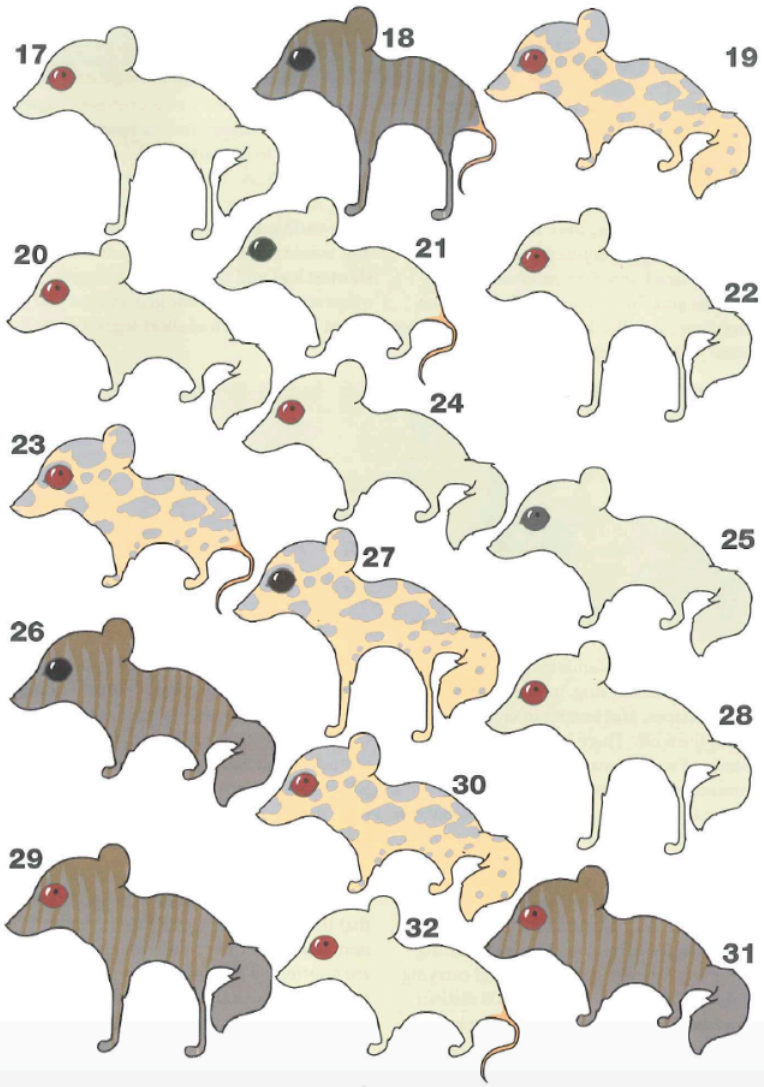
Introducing: Larkeys

Larkey Features								
Appendages		Eye Color		Fur Pattern			Tail Shape	
Trait		Trait		Trait			Trait	
Short	Long	Red	Gray	Stripe	Solid	Spots	Bushy	Bare

Are all traits in equal Numbers? Why/Why Not?
What would happen if we changed the sample size?

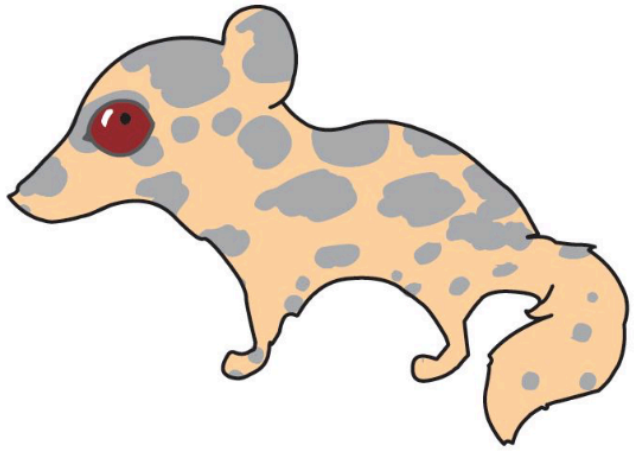
A Larkey Yammer





Heredity

1. How were all the larkeys similar?
2. What **variation** do they have?
3. Where do they get their **traits**?



Glossary

Feature: an inherited characteristic or structure

Trait: The individual expression of a feature

Variation: The range or difference between traits of a feature in the individuals of a population

Heredity: The passing of genetic information from one generation to the next.

52 L

Heredity Slide Show

Why is a fish a fish?

Heredity Slide Show

Why is a fly a fly?

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Why do you look the way you do?

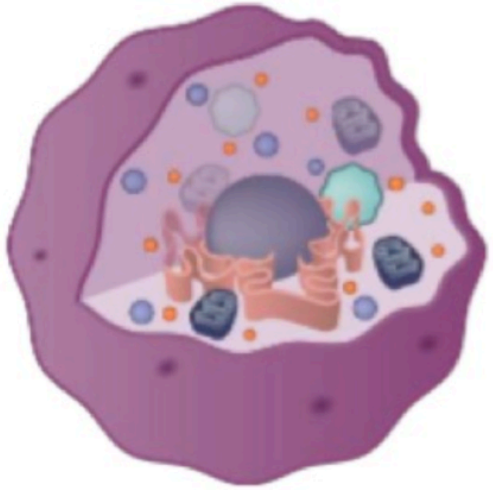
52 R

Because you inherited **traits** from both your biological parents.

Heredity Slide Show

Structure #1: CELL

How does that work?



Every **cell** in an organism carries *identical* **genetic information**.

This is called the organism's **genome**.

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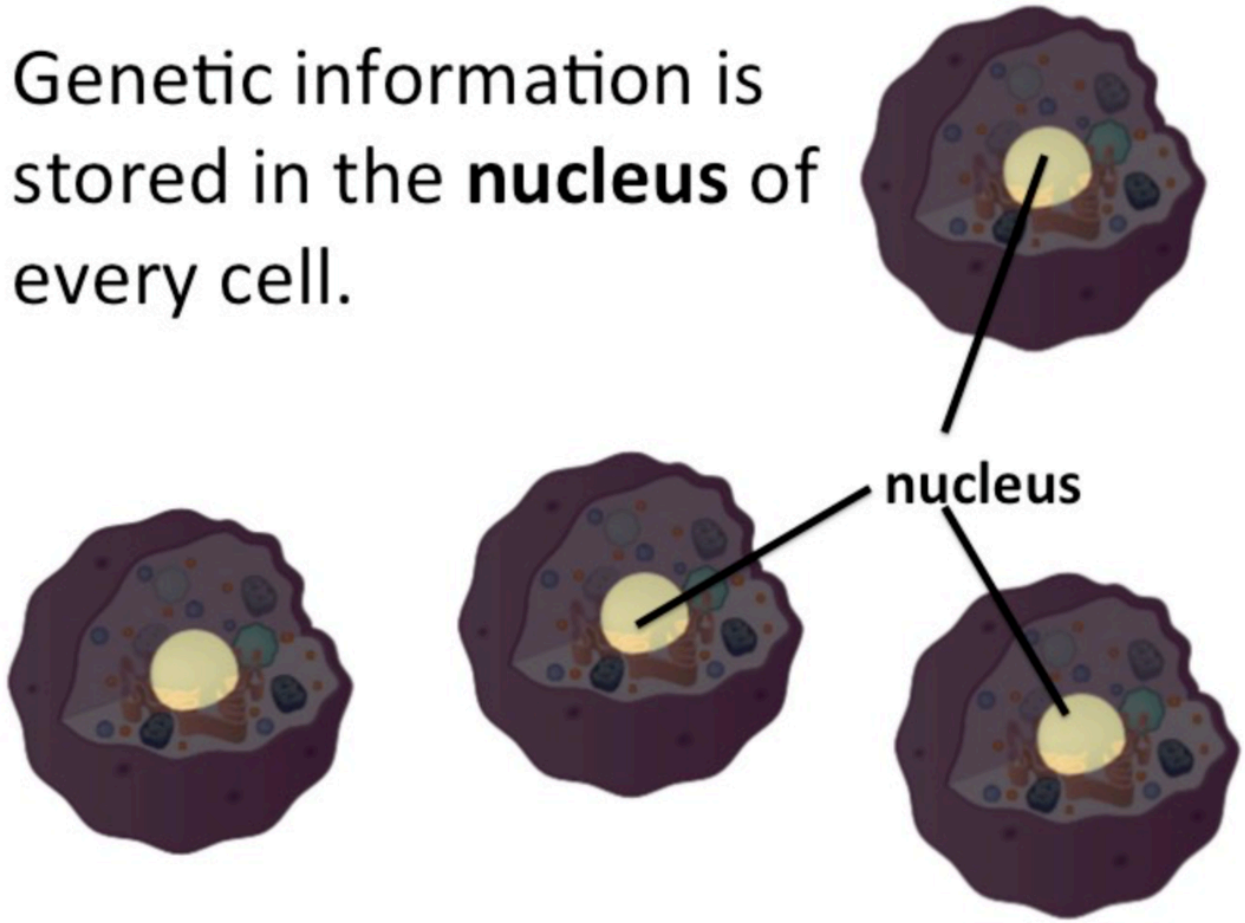
Heredity Slide Show

Structure #2: Nucleus

Genetic information is stored in the **nucleus** of every cell.



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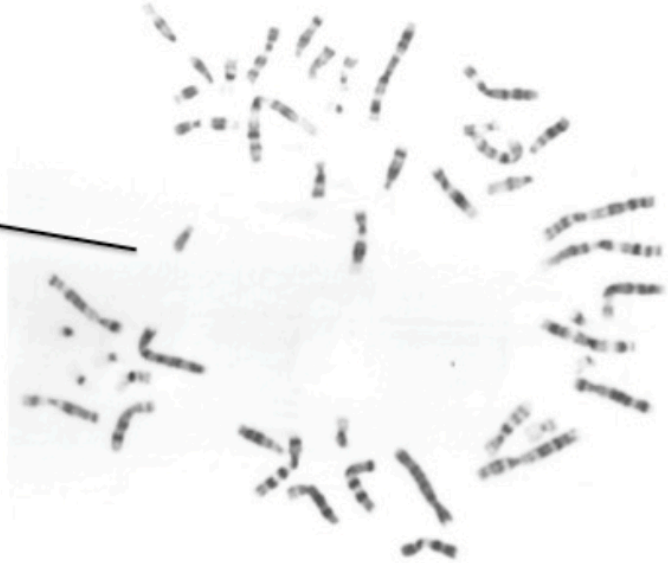
Heredity Slide Show

Let's think first about how the genetic information is stored in the nucleus.

Chromosomes

(from one human nucleus)



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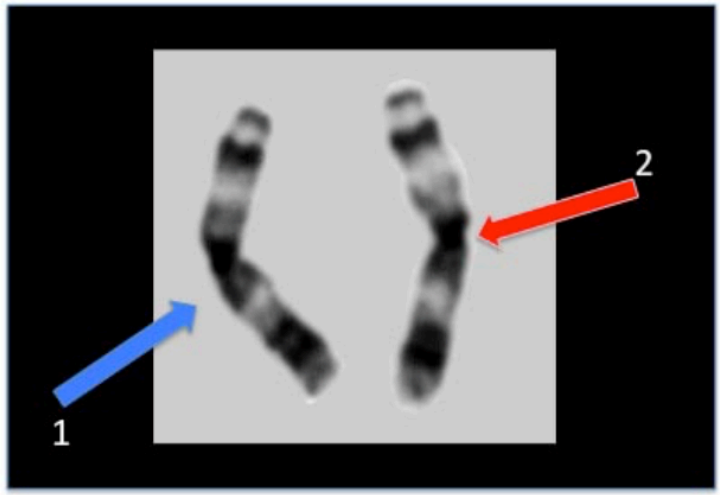
Chromosomes always come in pairs.



Why?

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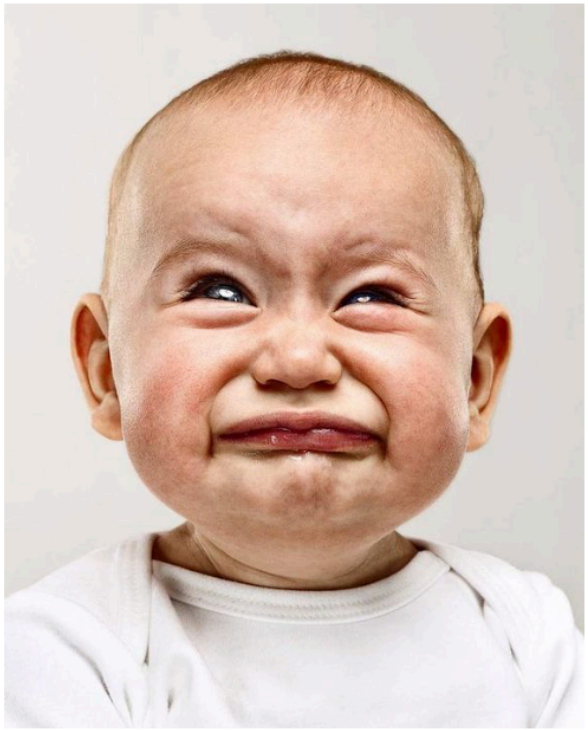
Heredity Slide Show

1260 Chromosomes
Ophioglossum
Reticulatum

2 Chromosomes
Round Worm



46 Chromosomes
Humans

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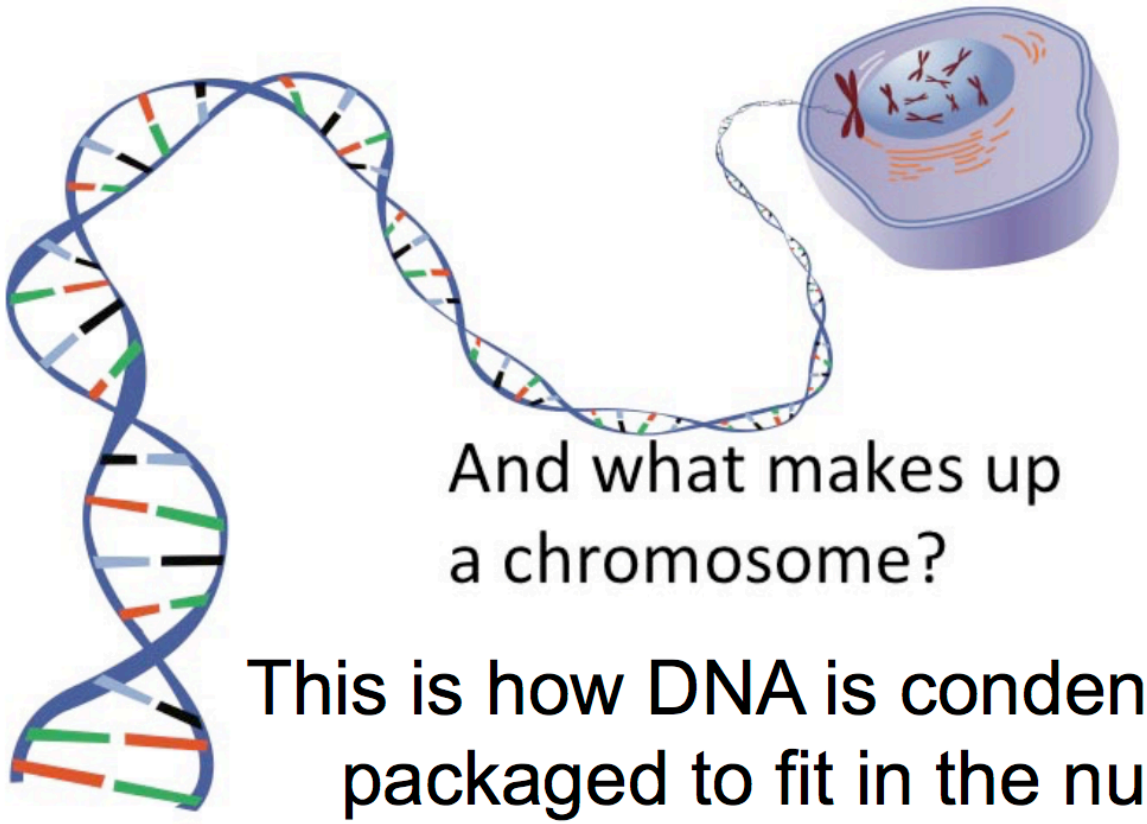
Heredity Slide Show

Structure #3: CHROMOSOME



And what makes up a chromosome?

This is how DNA is condensed and packaged to fit in the nucleus

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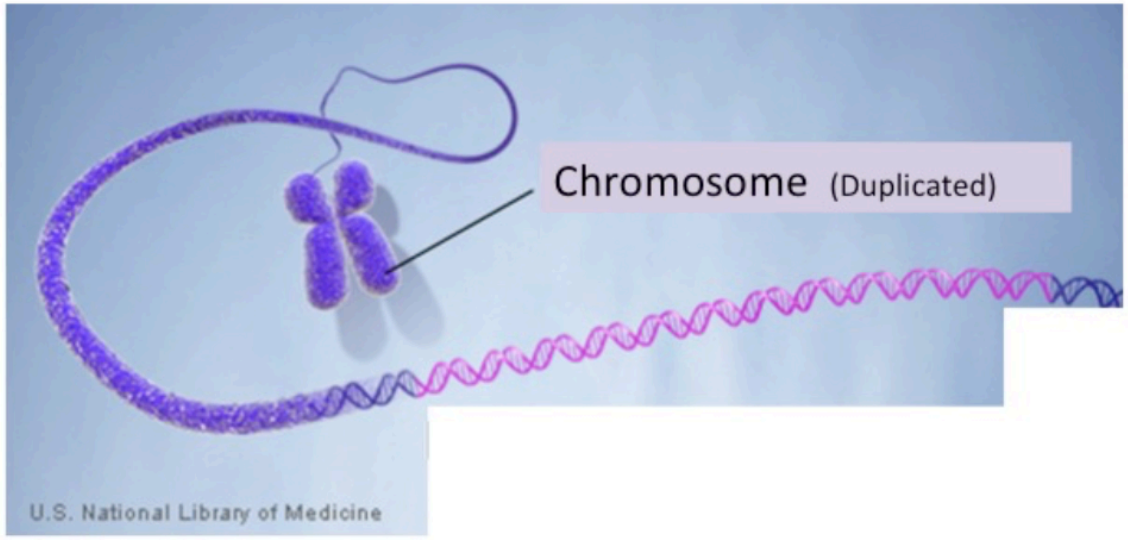
Heredity Slide Show



A molecule of human DNA can be up to about 9 cm long. It is coiled up into the shape of a chromosome.

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Structure #4: DNA

All of an organism's genetic information is stored in its DNA.

DNA is basically a recipe book for the cell.

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Structure #4: DNA

Each recipe has specific instructions to make *one* specific **protein** molecule.

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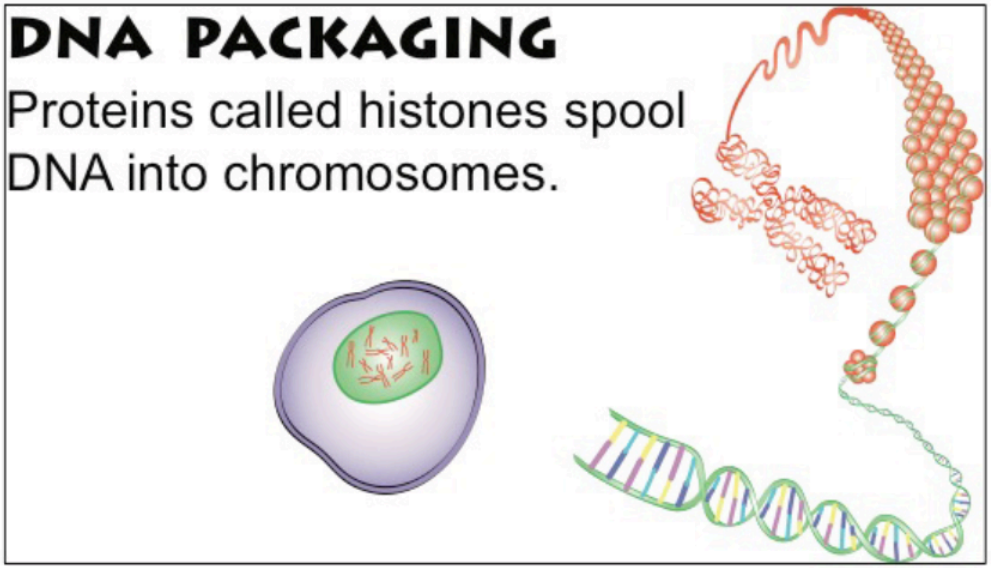
Heredity Slide Show

Proteins play a key role in the way we look, the way we grow, and the way our body works.



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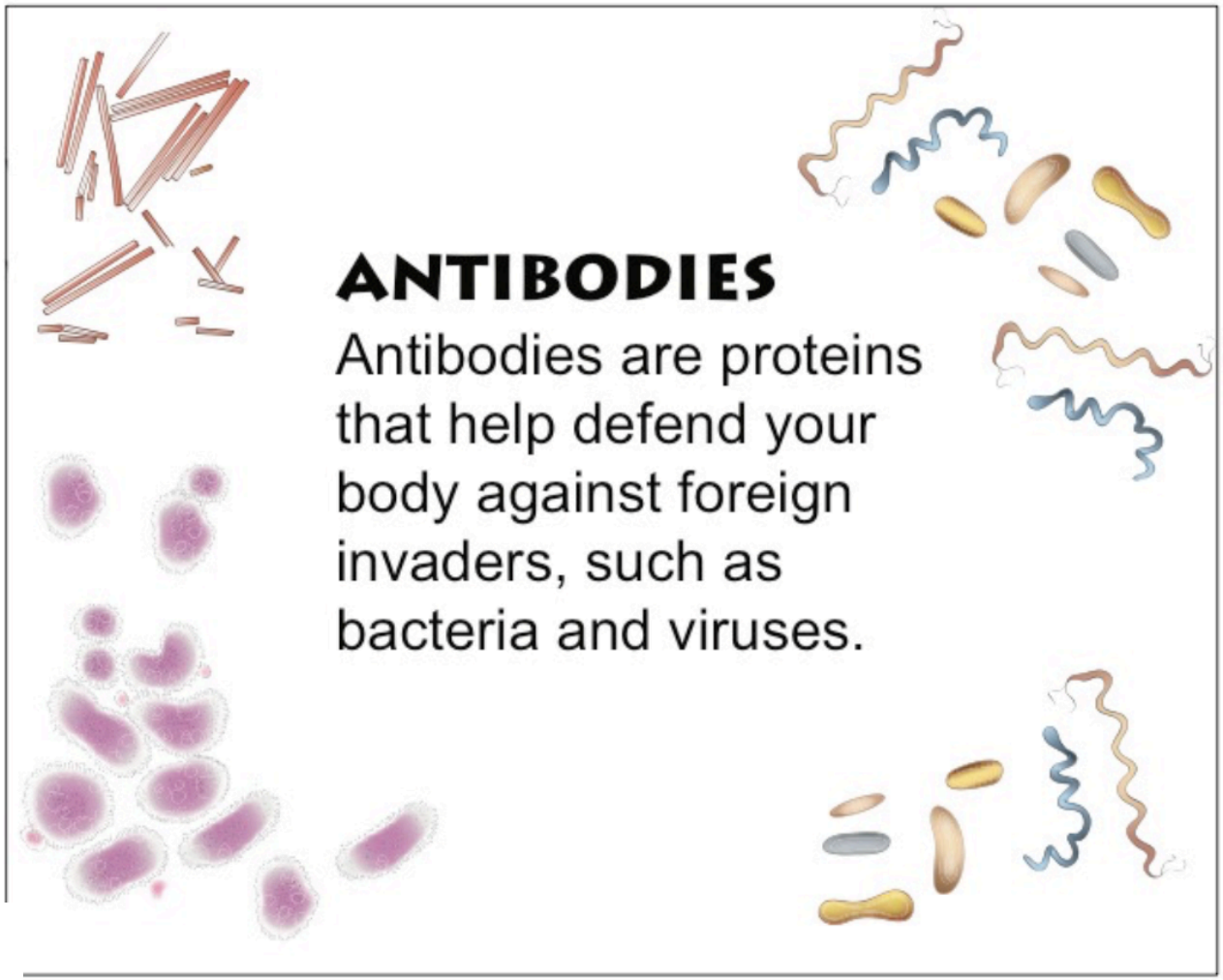

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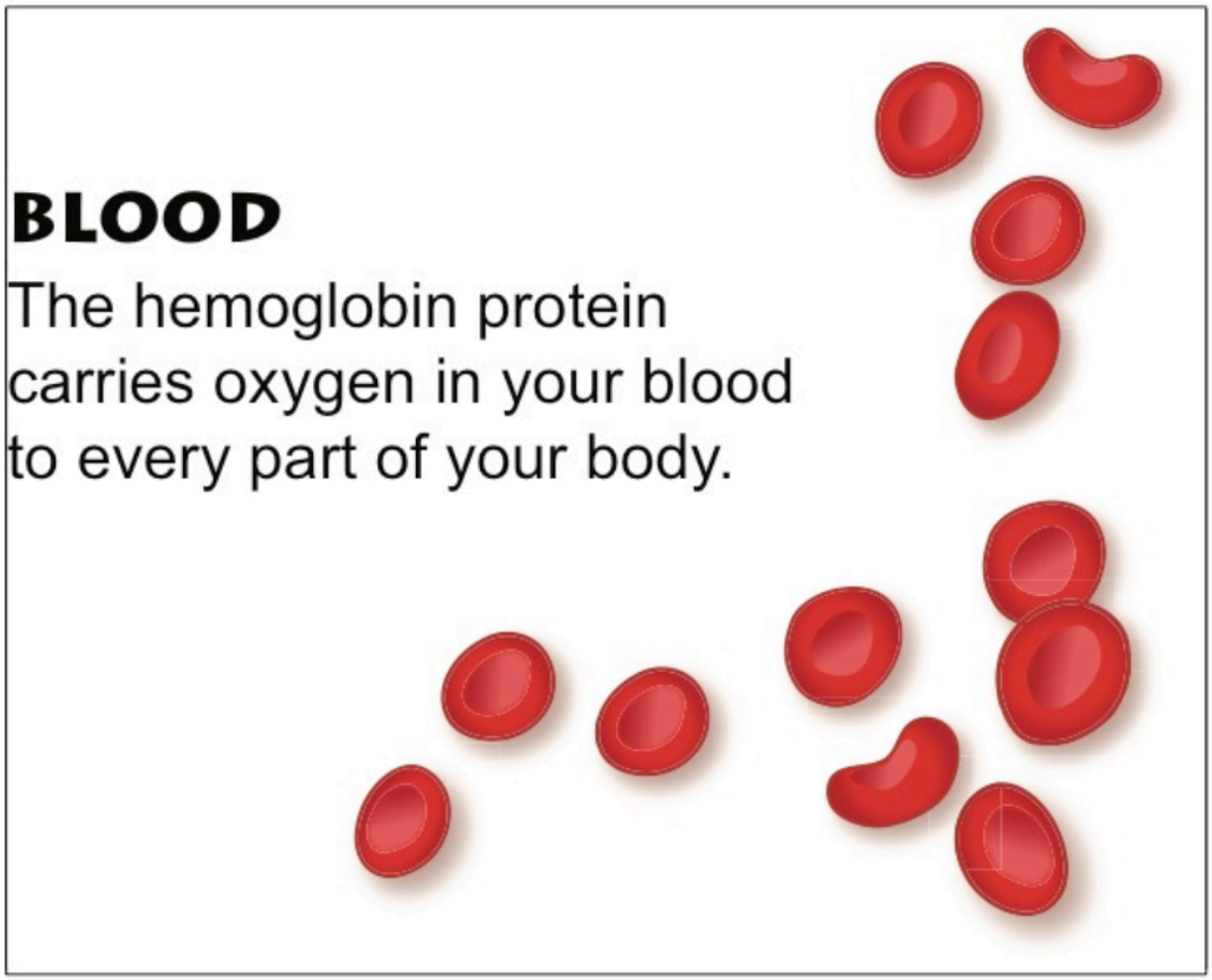

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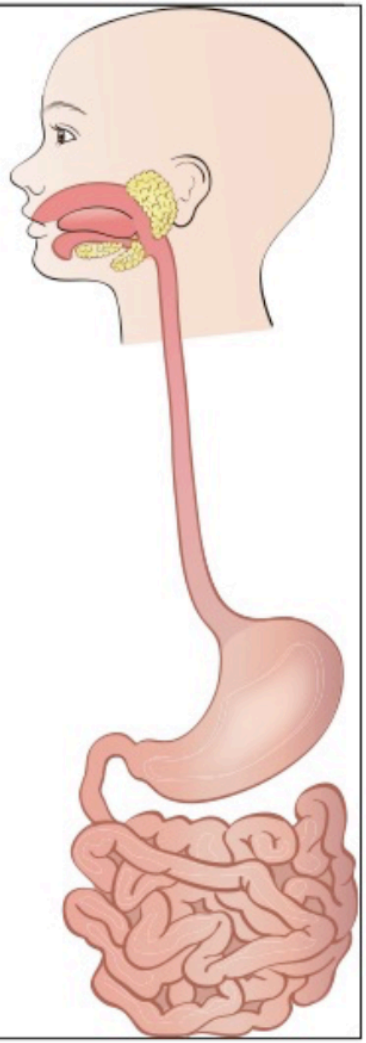
Heredity Slide Show

ENZYMES

Enzymes in your saliva, stomach, and small intestine are proteins that help you digest food.



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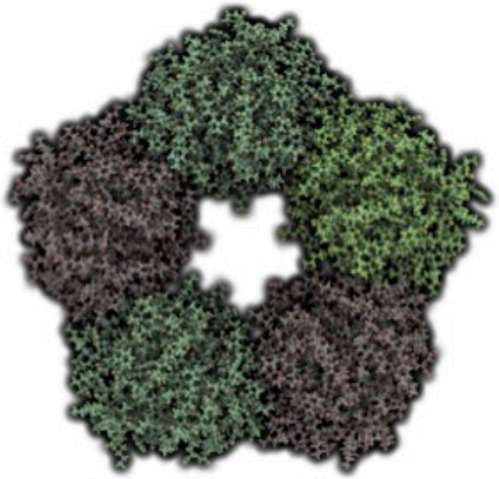
Heredity Slide Show

Structure #5: PROTEIN



Proteins are the fundamental molecules in our body. They determine how all the *other* molecules are organized and how they act.

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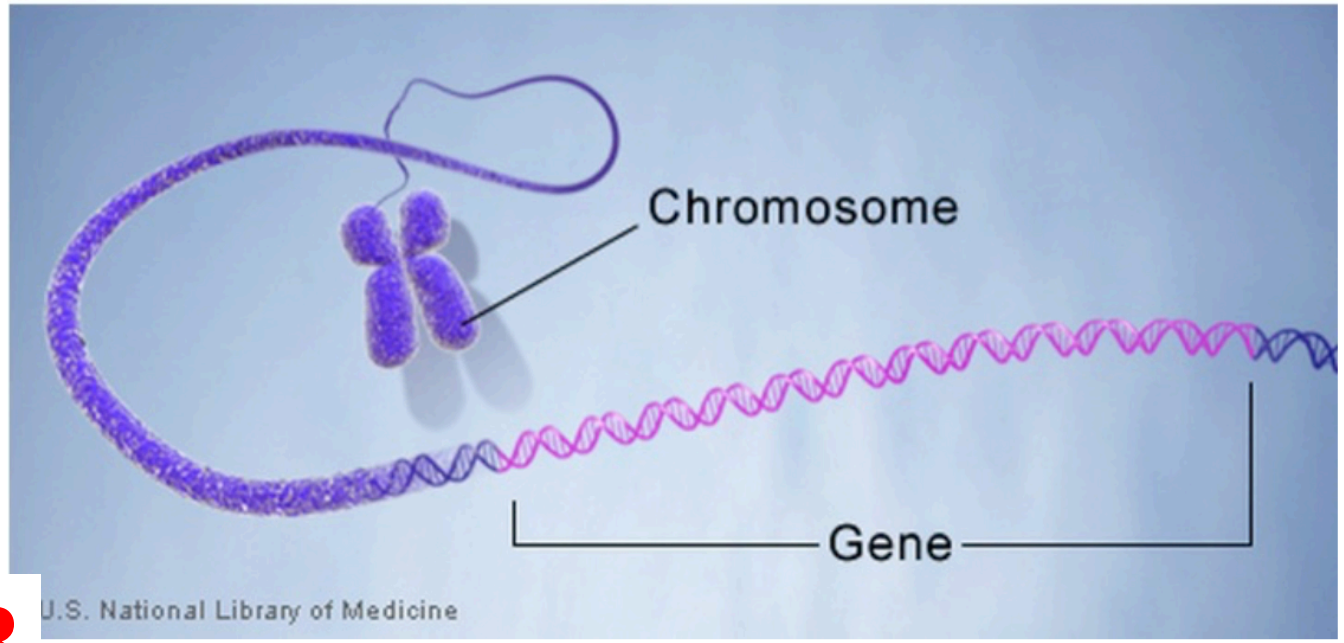
Heredity Slide Show

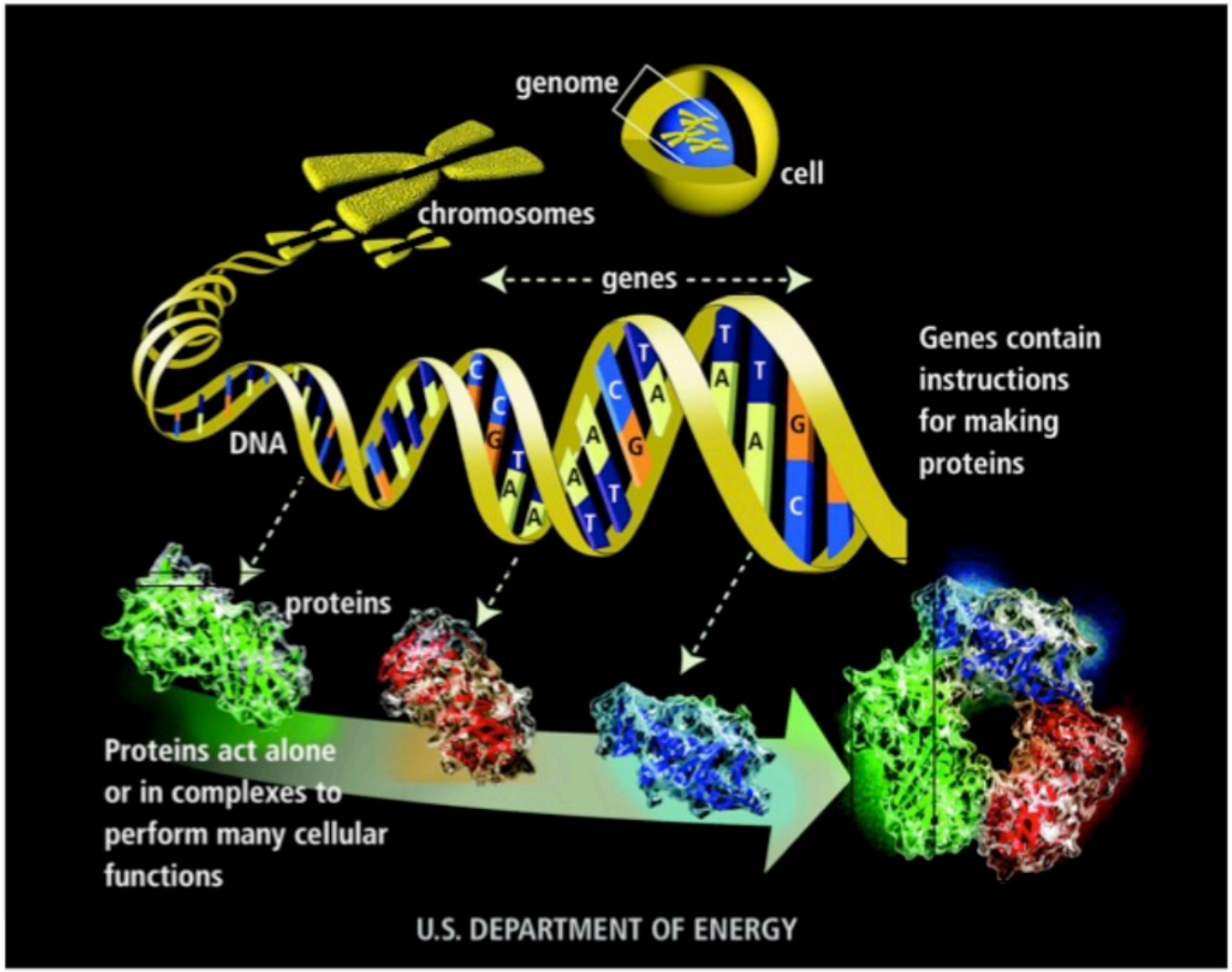
Structure #6: GENE

DNA is the recipe book. A gene is a recipe to make one protein.



52 R

Heredity Slide Show



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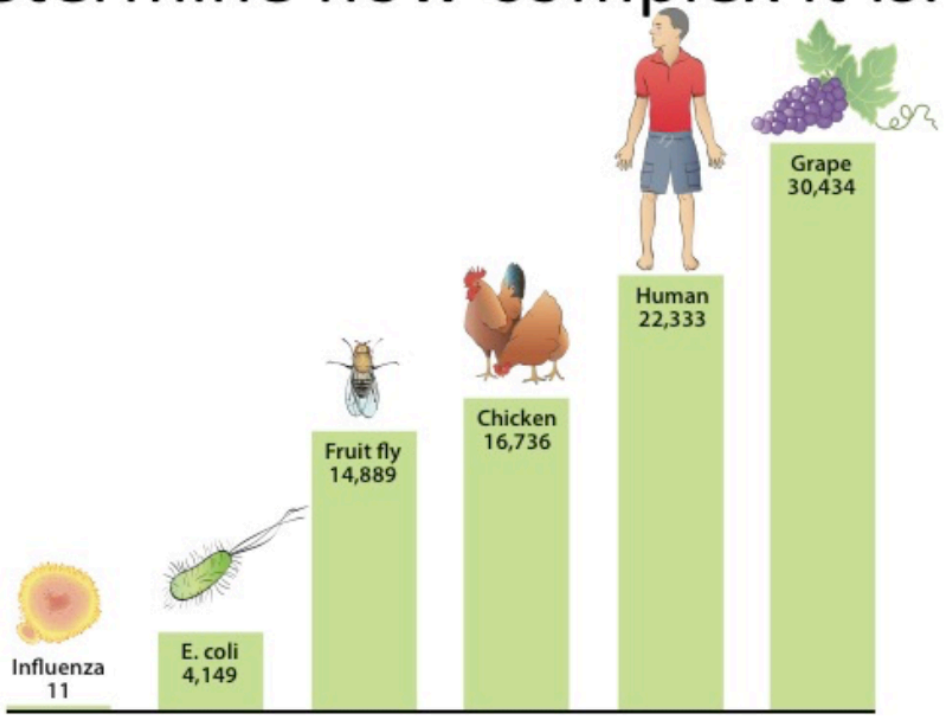
Heredity Slide Show

The number of genes an organism has does not determine how complex it is.



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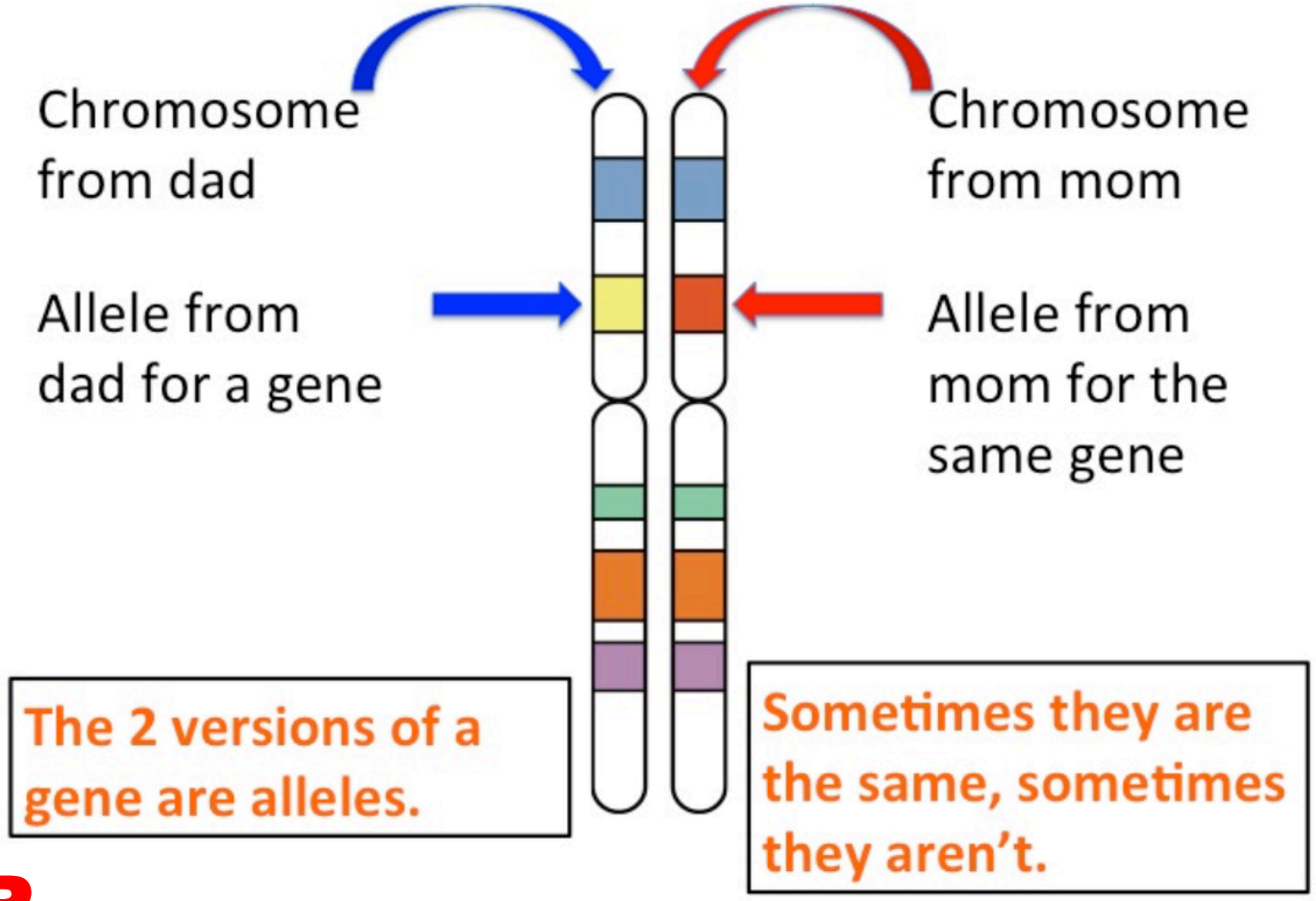
Heredity Slide Show

Structure #7: ALLELE



52 R

Glossary

Feature: an inherited characteristic or structure

Trait: The individual expression of a feature

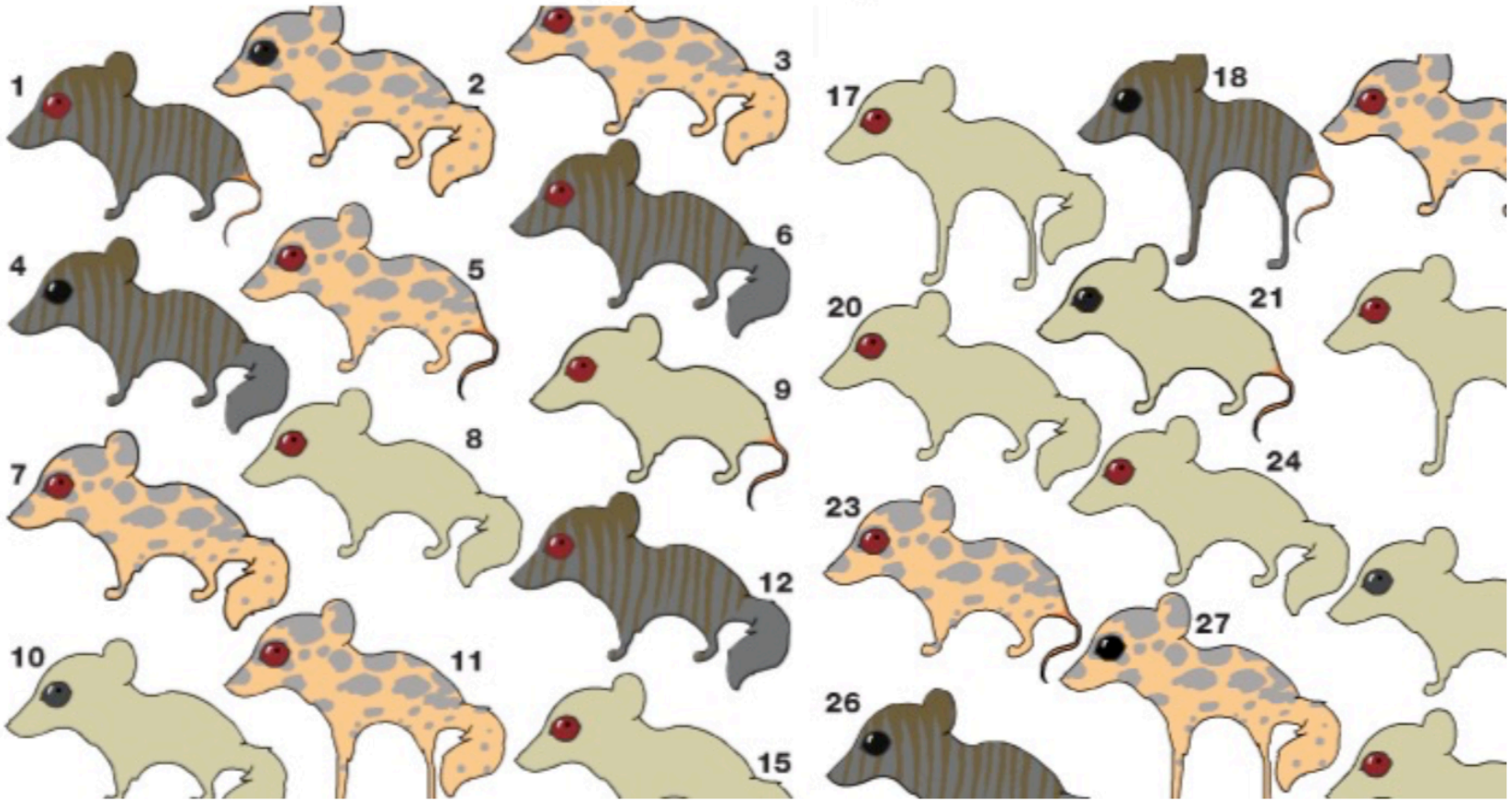
Variation: The range or difference between traits of a feature in the individuals of a population

Heredity: The passing of genetic information from one generation to the next.

Allele: Each version of an inherited gene

52 L

Let's find out how this works using larkeys!



Glossary

Allele: Each version of an inherited gene

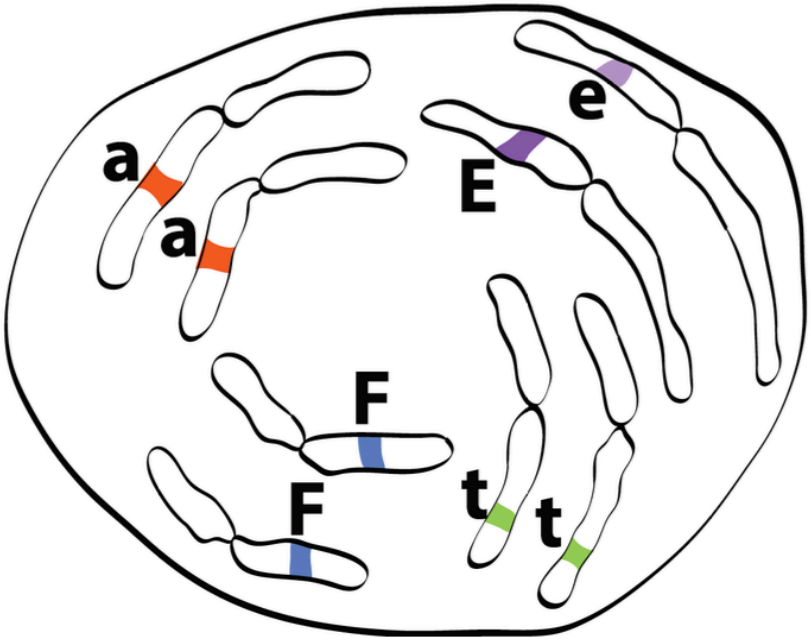
Genotype: The genes that makeup an organism is the genotype

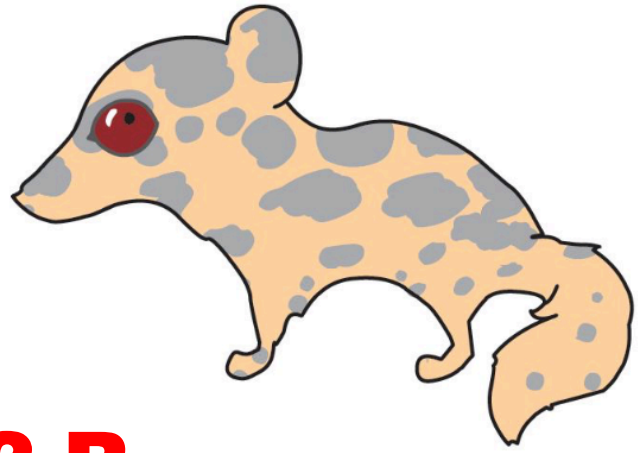
Dominant: Alleles that are MORE influential on appearance, represented by a capital letter

Recessive: Alleles that are LESS influential on appearance, represented by a lower case letter

52 L

Larkey alleles	
	Genotype
Alleles for appendages	a a
Alleles for eye color	E e
Alleles for fur pattern	F F
Alleles for tail shape	t t





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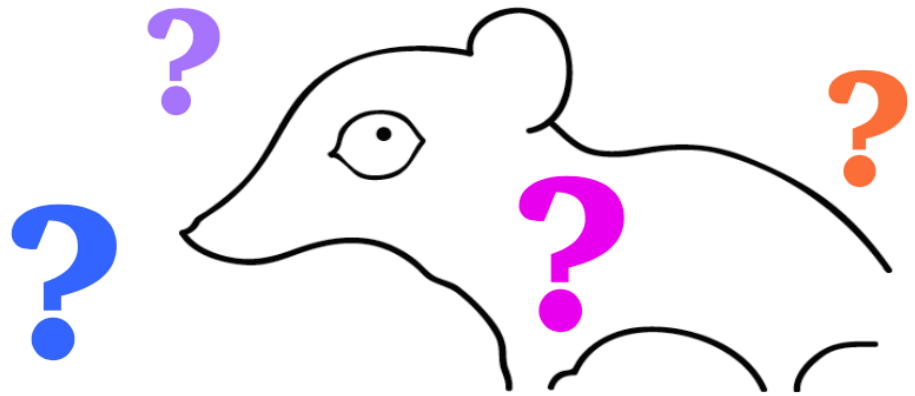


Genotype
a a
E e
F F
t t

From ♀	Larkey genetic code	From ♂
a	**Appendages** A A or A a = short legs a a = long legs	a
e	**Eye color** E E or E e = red eyes e e = gray eyes	E
F	**Fur pattern** F F = striped F f = solid f f = spotted	F
t	**Tail shape** T T or T t = bushy t t = bare	t

What Does this Larkey Look Like?

52 R

Glossary

Dominant: Alleles that are MORE influential on appearance, represented by capital letter

Recessive: Alleles that are LESS influential on appearance, represented by lower case letter

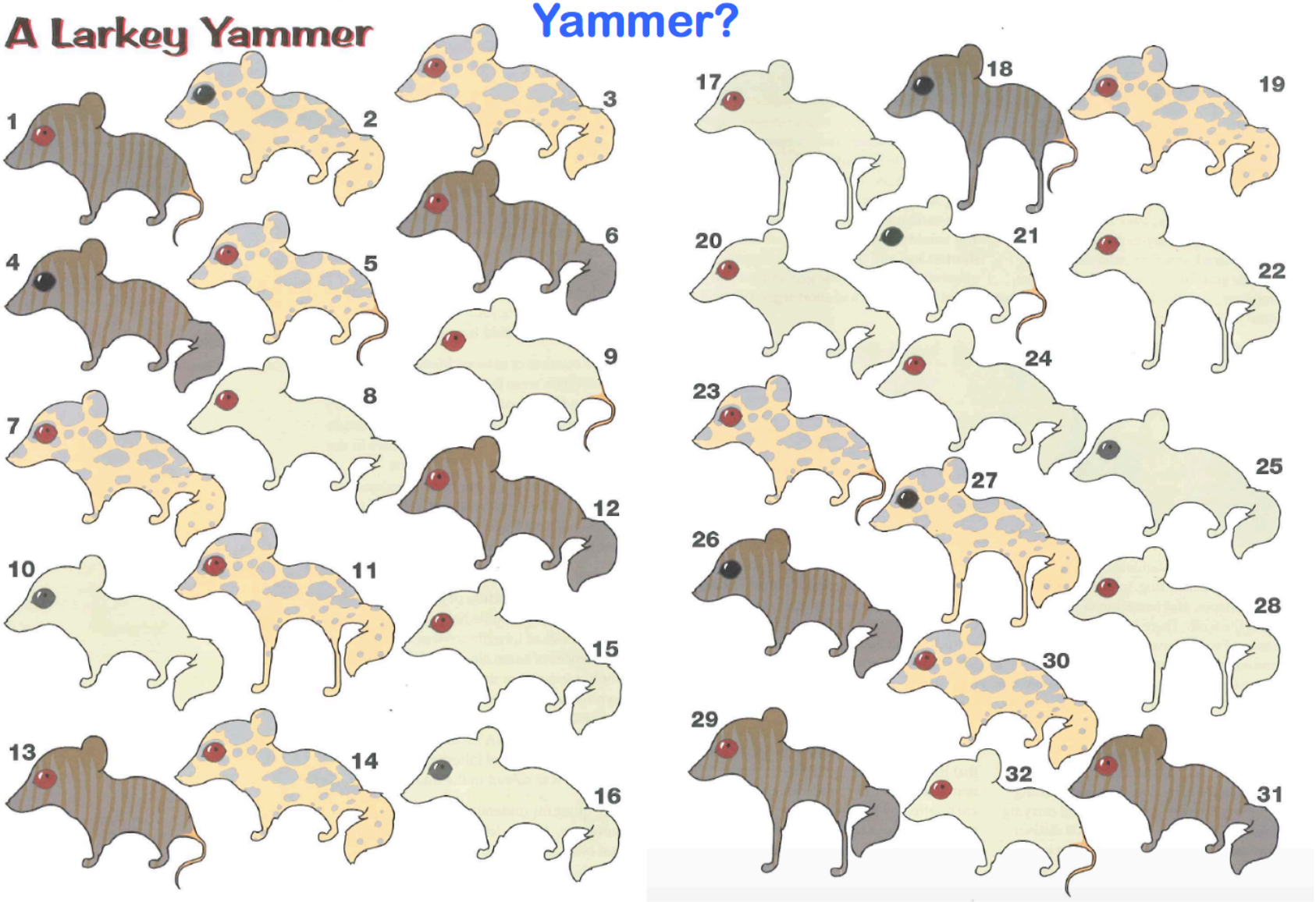
Homozygous: When two alleles are the same

Heterozygous: When two alleles are different

Phenotype: The way an organism looks with a specific genotype

52 L

What Genotypes and Phenotypes are Present In this Larkey Yammer?



Catalyst:

1. How are the people in the room right now similar?

2. How are we different?

LEAF: What leads to variation in a population?

Variation in a population is caused by...

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5/30/19

Inheriting Traits

Create Data Table Here

51R