

# Lions, Tigers & Monsters, Oh My!

## Day 4: A Family of Monsters

### Teacher/Parent Background:

Lions, tigers and monsters? Yes, you read that correctly; monsters! By creating a unique monster, students will apply their understanding of the needs of living things and their roles in their environments. All animals and plants (including monsters!) have adaptations that help them survive, grow and behave in their environments. Scientists define survival as not only the ability to live and grow but also to successfully reproduce.

### Overview:

In this activity, students will create their monster's offspring using Punnett Squares.

### Related Standards:

- Construct an explanation of how genetic variations occur in offspring through the inheritance of traits or through mutations.

### Key Terms:

- Punnett Square: A tool used to analyze the possible allele combinations of the offspring between 2 individuals.
- Heredity: The transfer of genetic information from parent to offspring.

### Materials List:

- Pen/pencil
- Colored squares and a container
- Possible visual representation resources:
  - Colored pencils/crayons/markers
- Computer/phone internet access with audio
- *Student Resources - Pages 2-5*
  - *My Monster's Family*

### Activity Description:

- Have students review punnett squares using [this reading](#) and [this video](#) before following the instructions on the *My Monster's Family*.

**Extensions:** [Watch!](#) TED Ed - [How Mendel's Pea Plants Helped Us Understand Genetics](#)



## Student Resources

### My Monster's Family

Even monsters can fall in love. In this activity you are going to predict the probability your monster's offspring will be born with a certain trait!

1. Refer back to your monster and their mate from Day 3. In this first step you will write out the monster's genotypes and phenotypes out. Use the example below as a guide.

Dominant Trait	Assigned Letter	Recessive Trait	Assigned Letter
One Eye	E	Two Eyes	e
Two Horns	H	One Horn	h
Yellow Horns	Y	Orange Horns	y
Sharp Teeth	T	Round Teeth	t

Monster 1	Monster 2
	
Genotype: ee Phenotype: 2 eyes	Genotype: Ee Phenotype: 1 eye
Genotype: Hh Phenotype: 2 horns	Genotype: Hh Phenotype: 2 horns
Genotype: YY Phenotype: Yellow horns	Genotype: yy Phenotype: Orange horns
Genotype: tt Phenotype: Round teeth	Genotype: TT Phenotype: Sharp teeth

- Next, you will determine the probability that the monster's offspring will inherit their parent's traits using a Punnett Square. Use the example below as a guide.

Trait 1: # of eyes		
	e	e
E	Ee	Ee
e	ee	ee

- Once you have all the Punnett Squares completed you assign each genotype a color and pick colored squares out of a hat or a bag to get the true sense of chance that plays into inheritance. For example all genotypes with 2 dominant alleles (EE) will be assigned red, genotypes with 2 different alleles (Ee) will be assigned blue and genotypes with 2 recessive alleles will be assigned yellow. You can either cut out the colored squares from the bottom of Page 5 or make your own.
- In the example above you would place 2 blue colored squares and 2 yellow colored squares in a hat and randomly choose one without looking. Whatever colored square you pick is the genotype of your monster's offspring!
- Once all the traits have been chosen, draw the monster's offspring on the last page.

- Write in the genotype and phenotype for each of the four traits of your monster and monster's mate. Then, complete the Punnett Squares below.

Your Monster	Monster's Mate
Genotype: Phenotype:	Genotype: Phenotype:
Genotype: Phenotype:	Genotype: Phenotype:
Genotype: Phenotype:	Genotype: Phenotype:
Genotype: Phenotype:	Genotype: Phenotype:

Trait 1:		

Trait 2:		

Trait 3:		

Trait 4:		

2. Write the offspring's genotypes and phenotypes for each of the four traits below after randomly selecting the colored squares from a hat. Then draw your offspring below.

Monster Offspring	
Trait 1: Genotype: Phenotype:	Trait 3: Genotype: Phenotype:
Trait 2: Genotype: Phenotype:	Trait 4: Genotype: Phenotype:
Picture of offspring:	

