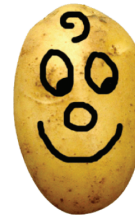


Taters



In this activity, you will learn about how traits are passed on from one generation to the next. While it is difficult to experiment with genetics in *living* organisms, you can experience how this works by creating your own organisms and producing a family tree. The potato-shaped organisms that you will be making are called “Taters.”

YOUR GOAL

Your goal is to create an original Tater that will be used to mate with another Tater created by a classmate. You will then be able to experiment with genetics by combining traits to create your baby “Tiny Taters.” To complete the project successfully, you must

- create your own unique Tater using certain given traits and adding traits of your own,
- mate your Tater with a classmate’s to produce at least 6 Tiny Taters, and
- produce a family tree showing how the traits were combined.

Ask your teacher for the Tater Template, which appears at the end of this activity. Cut out the Tater and trace it onto a piece of construction paper (you may choose either red or yellow paper). Using the Tater traits that follow, complete your Tater by selecting the given traits and adding others of your own. Make sure that your Tater is interesting so that it will not have trouble finding a mate!

Traits to Choose

- Male or Female
- Red or Yellow Tater
- Round or Oval Eyes
- Round or Oval Nose
- Teeth or No Teeth

Teachers can add other inherited traits such as diseases by placing a letter on the back of the Tater. These letters will not be decoded until after the Taters have mated and created Tiny Taters.

Other Inherited Traits

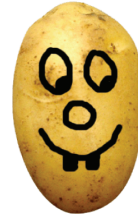
- A Alzheimer’s
- Allergies

- Ar arthritis
- AT athletically talented
- C cancer
- D diabetes
- G gifted
- M musically talented
- MS multiple sclerosis

Students have to select which of the Tiny Taters would receive these traits, based upon whether they are dominant (*all* Tiny Taters get them!) or recessive (two out of six get them). Teachers can decide these rules as the simulated family is created. Another interesting twist is to create divorces and remarriages, which produces extended families and intersecting family trees.



Tater Template



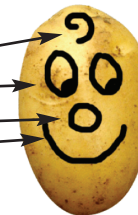
Cut out the Tater below. Now, select a piece of red or yellow construction paper. Use your outline to trace your Tater design onto the construction paper. Then, glue the outline to the construction paper.

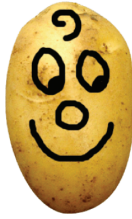
**My tiny Tater's
name is**

	PHENOTYPE	GENOTYPE
<i>Color</i>	_____	_____
<i>Sex</i>	_____	_____
<i>Eyes</i>	_____	_____
<i>Nose</i>	_____	_____
<i>Teeth</i>	_____	_____

On the other side of the construction paper, draw your Tater according to the following choices:

- Color (You have already chosen this trait!)
- Male or Female (females have a curl on their forehead.)
- Round Eyes or Oval _____
- Round Nose or Oval _____
- Teeth or No Teeth _____



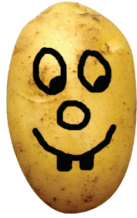


Tater Phenotype Enhancement

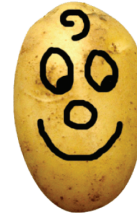


It is important that you enhance the looks of your Tater so that it will be selected for mating with your classmate's Tater. If your Tater is not selected, you will have to go to the singles area and fill out a personal ad. Your homework for tonight is to decorate your Tater so that it may be selected for mating. You can do this by adding piercings, makeup, tattoos, or any other decoration that might get your Tater noticed. In the next class, mating will begin based upon phenotypes. Your final grade for this project will be based upon your Tater family tree. You'll create six tiny Taters according to the rules of the genetic mating guide. Then you'll name your tiny Taters and complete by enhancing their phenotypes. Now, you're ready to create a family tree. You and your partner can show off all of their phenotypes by placing the Taters and tiny Taters on a piece of construction paper. You'll have a chance to display your family tree and introduce its members to the class.

When you are done, you can discuss the "hidden" diseases and traits that do not show in the phenotypes, but are part of the Taters' genotypes.



Tater Mating Guide

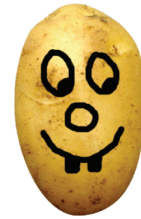
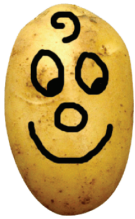


Now that you have picked out the physical traits (phenotypes), determine the genotypes for your Taters. *Genotype* means the genetic combination or the makeup of the genes for that particular trait in the Tater. An organism is *purebred* for a trait if *both* genes are the same (both letters are capital *or* both letters are lowercase). An organism is *hybrid* if it has two different genes for the same trait (one capital letter and one lowercase letter). A dominant trait is one that masks or prevails over a recessive trait. A recessive trait is one that is masked by a dominant trait. Remember, if you show a recessive trait, your genotype *must* be two lowercase letters.

Find another student with the opposite sex or gender for their Tater. With your two Taters in front of you, fill out the genotype according to the table below:

	<i>Phenotype</i>	<i>Genotype</i>	<i>Phenotype</i>	<i>Genotype</i>
Sex or Gender	Male	XY	Female	XX
	Dominant Trait	Recessive Trait		
	<i>Phenotype</i>	<i>Genotype Phenotype</i>		<i>Genotype</i>
Color	Red	CC or Cc	Yellow	cc
Eyes	Round	EE or Ee	Oval	ee
Nose	Round	NN or Nn	Oval	nn
Teeth	Teeth	TT or Tt	No Teeth	tt

Now you may begin to mate your Taters! Ask your teacher for the Tiny Taters First Filial Generation Sheet. Each Tater can only contribute *one* of its genes to produce the Tater. Using a coin, determine which gene will be selected. “Heads” will select the first letter of the genotype and “tails” will select the second letter trait of your genotype. Each student should flip the coin once for each trait. The genes are then written on the Tiny Tater outline and pasted on the back of the Tiny Tater.



Tiny Taters

First Filial

Generation Sheet

Cut out the Tiny Taters on this sheet and fill in the information as you determine the phenotype and genotype of each Tiny Tater. Trace each Tiny Tater onto your construction paper and glue the sheet to the back. Draw each Tiny Tater according to the phenotype selected when you flipped the coin. You will need three of these sheets to make your six Tiny Taters.

My tiny Tater's name is _____		My tiny Tater's name is _____			
	PHENOTYPE	GENOTYPE		PHENOTYPE	GENOTYPE
<i>Color</i>	_____	_____	<i>Color</i>	_____	_____
<i>Sex</i>	_____	_____	<i>Sex</i>	_____	_____
<i>Eyes</i>	_____	_____	<i>Eyes</i>	_____	_____
<i>Nose</i>	_____	_____	<i>Nose</i>	_____	_____
<i>Teeth</i>	_____	_____	<i>Teeth</i>	_____	_____

On the other side of the construction paper, draw your Tiny Tater according to the following choices:

- Color (You have already chosen this trait!)
- Male or Female (females have a curl on their forehead.)
- Round Eyes or Oval _____
- Round Nose or Oval _____
- Teeth or No Teeth _____

