PRaCTicInG PunNeTt SqUAreS

Circle your vocabulary words as you read this example

Scientist know that every person receives one allele for a trait from their mom and one allele for a trait from their dad. Using our understanding of genetics, or how things are inherited, we can predict which traits offspring might show based on their parents' alleles.

For example, I am heterozygous for freckles. My mom has freckles and my dad does not. My husband is homozygous recessive; he does not have freckles. What are the odds that my child will have freckles?

My Phenotype is freckles
My husband's phenotype is NO freckles

My genotypes is Ff
My husband's genotype is ff

Complete the Punnett Square for our traits Ff x ff, then answer the questions

What are the possible genotypes and phenotypes for our child?

Genotype Phenotype

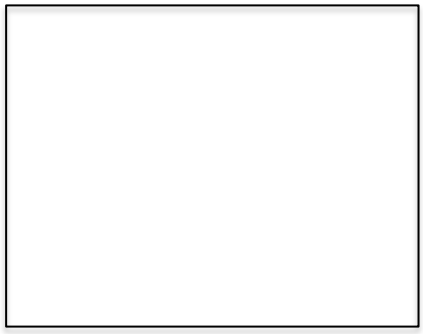
_____

_____

_____

What are the odds of our child having freckles? _____ %

How do you know this?



Cartoon Breeding

Now that we have seen the application of genetics in a real life situation, lets use it in a pretend situation. You are going to breed some cartoon characters for pretend traits. You may **choose any 2 cartoons** you want (pick a boy and a girl, 2 boys, or 2 girls – it doesn't matter because these are cartoons and this is pretend). Once you have selected the parents, write their genotypes, create a Punnett Square for each trait of your cartoon characteristics (4 total Punnett squares). Answer the questions provided. Then, follow the directions to draw yourself the cartoon baby. So…

1. Select parents, write their Genotype
2. Breed parents and create a Punnett square for each trait
3. Answer questions, Draw your baby

Our Imaginary Cartoon Trait Key

Dominant Trait	Recessive Trait
1. Evil (G)	Nice (g)
2. Fur (F)	No fur (f)
3. Strong (S)	Weak (s)
4. Smart (B)	Simple (b)

Wonder woman
gg, ff, SS, Bb

The Grinch
Gg, FF, ss, Bb

Belle
gg, ff, ss, BB

Cruella Da Ville
GG, Ff, ss, Bb

Garfield
Gg, FF, Ss, Bb

Phineaus
gg, ff, Ss, BB

Gru
Gg, ff, Ss, BB

Velma
gg, ff, ss, BB

Superman
gg, ff, SS, BB

Hello Kitty
gg, FF, ss, bb

Homer
gg, ff, ss, bb

Patrick
gg, ff, SS, bb

Cartoon Breeding

I am going to mate the following character:

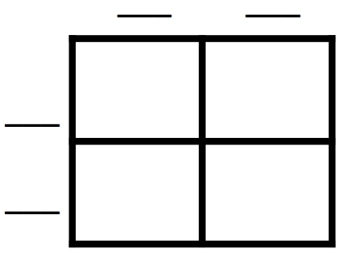
Character's Name_____

Genotype	Phenotype

Character's Name_____

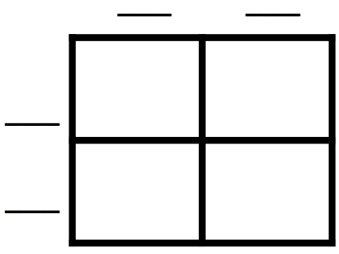
Genotype	Phenotype

Punnett Square One (Evil, Nice)



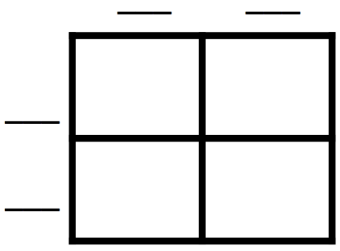
____ % Evil ____ % Nice

Punnett Square Two (Fur, no fur)



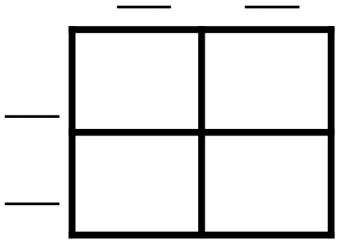
____ % Fur ____ % No Fur

Punnett Square Three (Strong, Weak)



____ % Strong ____ % Weak

Punnett Square Four (Smart, Simple)



____ % Smart ____ % Simple

Now, to determine the offspring's inherited traits, we are going to flip a coin two times FOR ECH PUNNETT SQUARE. You will need to keep careful track of what you flip. **Circle the trait** your coin flips indicate:

head, head = top left square
head, tail = top right square
tail, head = bottom left
Tail, tail = bottom right square

Record your offspring's information here by writing down the circled alleles:

GENOTYPE

Explain what your child looks and acts like (there phenotype):

Now, draw a picture of the cartoon baby you have created. You may need to use thought bubbles to help makes its traits clear.

Suppose you want to create a VERY nice baby, who would you mate?

Suppose Phineaus wanted to produce a strong baby, who should he mate with?

What are the odds that Cruella Da Ville will have a nice baby? (show your work)