Name: KCY Date:
Directions: Navigate to https://goo.gl/tCd8L4 to view the corresponding PowerPoint. Be sure
to click "PRESENT" in the upper right hand corner! Answer the following questions from the
PowerPoint. Note that the first 9 questions are from the opening video produced
by Hortensia Jiménez Díaz.
1. To understand how traits pass from one living being to its descendants, we need to go back
in time to the 19th century and a man named Gregor Mendel
2. By breeding the pea plants he was growing in the monastery's garden, he discovered the
principles that rule <u>herodity</u> .
3. And in this second generation, he got both yellow and green seeds, which meant that the
green trait had been <u>hidden</u> by the dominant yellow.
4. He called this hidden trait the <u>YCCCSSIVE</u> trait.
5. Now we know that these factors are called <u>Alcles</u> and represent the different variations
of a gene.
6. We can have what we call a homozygous pea where both alleles are <u>identical</u> and
what we call a heterozygous pea when the two alleles are
7. This combination of alleles is known as <u>genotype</u> and its result- being yellow or green-
is called phenotype.
8. The uppercase Y always <u>Over power</u> his lowercase friend, so the only time you get green
babies is if you have two lowercase y's.
9. These days, scientists know a lot more about genetics and heredity.

Name:	Key	Dat	e:		
	1	Punnett Squa	res		
What does	DNA c	ontain? <u>Chromosome</u>			
Where is th	ne infor	rmation carried in the DNA?Seq i	icnic	of nitrogen	bases
Define <i>gen</i>	e the	sequences of DNA that he	lps to	create and reg	ulate protein
		the combination of gene			
How many	differe	nt chromosomes do humans have?	23	_ How many of each? .	2
		hromosomes do humans have?			
		he first 22 pairs of chromosomes?			
		he 23 rd pair of chromosomes? SC)			
		o males have? XY Wha		type do females have?	XX
		lifferent versions of a			
		the physical appearer			the proteins
		types of genes? dominat ar		v v	
		This means that they always			nenotune
		e is always expressed? dominan-			
		e is only expressed some of the time?		ssive	
		mo- mean? Same What d			rent
		What does –zygous mean?			
Define <i>hon</i>	nozygo	us the same alless hav			
		ous different alleles hav			
		ng genotype(s) that are homozygous:	GG	Gg gg	
		ng genotype(s) that are heterozygous:		Gg gg	
		on in the table below to answer the			
1. What is t	the gen	otype of an animal that is	Allele	Trait	Туре
		inant for eye color? BB	G	Solid gray fur	Dominant
What woul	d this a	nimal's phenotype be?	g	Striped gray fur	Recessive
ar	cen	eyes	В	Green eyes	Dominant
			b	Blue Eyes	Recessive
homozygous recessive for eye color? Nh					Dominant
		animal's phenotype be?	t	Short tail	Recessive
	k el	•	E e	Large ears Small ears	Dominant Recessive
VIV	10 01	<u></u>		Jiliali Eals	Veressive

3. What is the genotype of an animal that is heterozygous for eye color? $\underline{\mathcal{Bb}}$
What would this animal's phenotype be? arcan cycs
4. What is the genotype of an animal that is homozygous for solid gray fur? GG
What would this animal's phenotype be? Solid grey fur
5. What is the genotype of an animal that is homozygous for striped gray fur? 49
What would this animal's phenotype be? Striped grey fur
5. What is the genotype of an animal that is heterozygous for fur? <u>Ga</u>
What would this animal's phenotype be? Solid grey Fur

Description	Genotype	Phenotype	
Homozygous recessive for tail length	tt	Short tails	
Heterozygous for ear size	Ee	large ears	
Homozygous for short tails	ŁŁ	Short tails	
Heterozygous for tail length	TŁ	long tails	
Homozygous for blue eyes	bb	blue eyes	
Homozygous dominant for fur	GG	solid grey fur	
Homozygous for striped gray fur	99	Striped grey fur	
Heterozygous for eye color	Bb	green eyes	
Homozygous for long tails	TT	long tails	

What do we use to predict genotypes and phenotypes? Punnett square

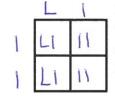
Is the placement of the male and female gametes that important? No, you will get the same what does each box represent? A possible combination of genes that might be created

What percentage does each box in a Punnett square represent? 25%

How else do we describe the outcomes of Punnett squares? as a ratio

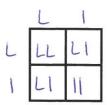
Complete the following Punnett squares and answer the questions go with each pair. Use the table of information below to answer questions 1-4.

Allele	Trait	Туре
G	Green feathers	Dominant
g	Yellow feathers	Recessive
L	Long beak	Dominant
1	Short beak	Recessive



1. LI (\circlearrowleft) x II (\updownarrow) What percentage of offspring will have short beaks?

50°/0



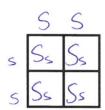
2. Ll (♂) x Ll (♀)

What is the ratio of long beaks to short beaks in the offspring?

3:1

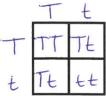
Use this information for questions 5-12 on this page.

Allele	Trait
Т	Tall
t	Short
S	Smooth peas
S	Wrinkled peas
Р	Purple flowers
р	White flowers



7. A plant which is homozygous for smooth peas is crossed with a plant that is homozygous for wrinkled peas. What percentage of offspring will have smooth peas?

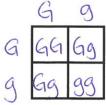
100°10



10. Tt (♂) x Tt (♀)

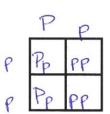
What percentage of offspring will be tall?

75%



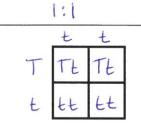
3. Two birds which are heterozygous for feather color are crossed. What percentage of offspring will have yellow feathers?

25%



6. Pp (♂) x pp (♀)

What will be the ratio of purple flowers to white flowers in the offspring?



8. A plant which is homozygous short is crossed with a plant that is heterozygous for height. What will be the ratio of tall plants to short plants in the offspring?

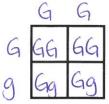
1:



11. SS (♂) x ss (♀)

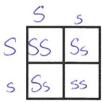
What percentage of offspring will be heterozygous?

100%



4. **GG** (♂) **x Gg** (♀) What percentage of offspring will have green feathers?

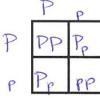
10000



5. Ss (♂) x Ss (♀)

What percentage of offspring will have wrinkled peas?

25%



9. A plant which is heterozygous for flower color is crossed with a plant that is also heterozygous for flower color. What will be the ratio of purple flowers to white flowers in the offspring?

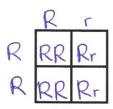
P PP PP

12. Pp (\circlearrowleft) x Pp (\hookrightarrow) What will be the ratio of purple flowers to white flowers in the offspring?

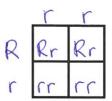
3:

Use this information for questions 13-23 on this page.

Allele	Trait	
R	red eyes	
r	brown eyes	
W	large wings	
w	small wings	
В	brown body	
b	yellow body	



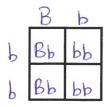
15. **Rr** (♂) **x RR** (♀) What percentage of offspring will have brown eyes?



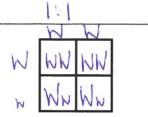
18. An insect which is homozygous recessive for eye color is crossed with an insect that is heterozygous for eye color. What percentage of offspring will have red eyes?

M MM MM

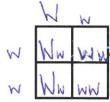
21. ww (♂) x Ww (♀) What percentage of offspring will have large wings?



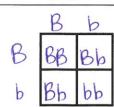
13. An insect which is heterozygous for body color is crossed with an insect that has a yellow body. What will be the ratio of brown bodies to yellow bodies in the offspring?



16. **WW** (♂) **x Ww** (♀) What percentage of offspring will have a heterozygous genotype?

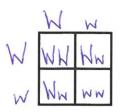


19. An insect which is heterozygous for wing size is crossed with an insect that is homozygous for small wings. What will be the ratio of large to small wings in the offspring?

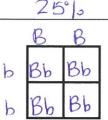


10

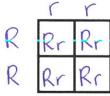
22. **Bb** (\circlearrowleft) **x Bb** (\hookrightarrow) What percentage of offspring will have brown bodies?



14. Two insects which are heterozygous for wing size are crossed. What percentage of offspring will have small wings?



17. **BB** (\circlearrowleft) **x bb** (\updownarrow) What percentage of offspring will have yellow bodies?



20. An insect with brown eyes is crossed with an insect that is homozygous for red eyes. What percentage of insects will have red eyes?





23. Rr (\circlearrowleft) x rr (\hookrightarrow) What will be the ratio of red eyes to brown eyes in the offspring?