Worksheet: Dihybrid Crosses

UNIT3: GENETICS

STEP 1: Determine what kind of problem you are trying to solve.

STEP 2: Determine letters you will use to specify traits.

STEP 3: Determine parent's genotypes.

STEP 4: Make your punnett square and make gametes

STEP 5: Complete cross and determine possible offspring.

STEP 6: Determine genotypic and phenotypic ratios.

Two-Factor Crosses (Di-hybrid)

Ex) A tall green pea plant (TTGG) is crossed with a short white pea plant (ttgg).

TT or Tt = tall

tt = short GG or Gg = green gg = white

	TG	TG	TG TG	ì
tg	TtGg	TtGg	TtGg	TtGg
tg	TtGg	TtGg	TtGg	TtGg
tg	TtGg	TtGg	TtGg	TtGg
tg	TtGg	TtGg	TtGg	TtGg

16 Tall/Green: 0 Tall/White: 0 Short/Green: 0 Short/ White

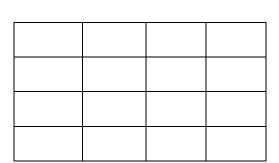
1) A tall green pea plant (TTGg) is crossed with a tall green pea plant (TtGg)

Tall/Green: ____ Tall/White: ____

Short/Green: ____ Short/ White

2) A tall green pea plant (TtGg) is crossed with a Short white pea plant (ttgg).

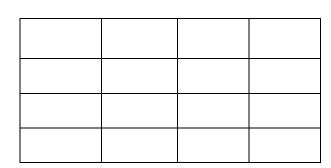
____X



____ Tall/Green : ____ Tall/white : ____ short/Green : ____ short/ white

3) A Homozygous tall, green flowered plant is crossed with a Homozygous short white flowered plant.

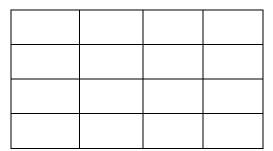
____X___



____ Tall/green : ____ Tall/White : ____ Short/green: ____ Short/White

4) Two Heterozygous Tall, Green pea plants are crossed.

Name							Period
		·	x				
Tall/Green	: Tall/V	Vhite :	Shoi	rt/Green : _	Shor	t/ White	
1. In many and the		i- (O) i-	.1 !				and that we sho
 In man, assume than air (W) is dominant over the 	er non-woo	oly hair (v	v). Cro	ss a marr	iage betv	veen a het	erozygous
spotted, non-wooly ma and phenotypic ratios (terozygo	us woo	oly-haired,	, non-spo	tted woma	ın. Give genotypic
					Т		
2. In horses, black is d							
allele, b. The trotting ga a homozygous black p	acer is mate						
appearance of the F ₁ g	eneration?						



3. In summer squash, white fruit color (W) is dominant over yellow fruit color (w) and disk-shaped fruit (D) is dominant over sphere-shaped fruit (d).. If a squash plant true-breeding for white, disk-shaped fruit is crossed with a plant true-breeding for yellow, sphere-shaped fruit,

5. In mice, the ability to run	normally ic	a domina	ot troit Mi	oo with thi	is trait are	called ru	nning
mice (R). The recessive training to run mice (R). The recessive training mice (r). Hair color (b). For each of the following gametes then construct a F	it causes m is also inhe pproblems,	ice to run i erited in m determine	in circles on the circles of the cir	only. Mice hair (B) is	with this to dominan	trait are cat t over bro	alled wn hair
a. Cross a heterozygous runomozygous black mouse Parental genotypes Possible gametes Offspring phenotypic ratio _			olack mou	se with a	homozygo	ous runnir	ng,
o. Cross a homozygous run mouse Parental genotypes Possible gametes			ack mouse	e with a he	eterozygo	us runnin	g, brown
Offspring phenotypic ratio _							

Name_____

Period_____

Name					Peri	od		_
c. Cross a waltzing brown mouse with a waltzing brown mean parental genotypes Possible gametes	nouse							_
Offspring phenotypic ratio								-
								-
								_
d. Cross a homozygous running, heterozygous black mou Parental genotypes Possible gametes Offspring phenotypic ratio	se with	n a v	valtzinę	g bro	own m	ouse		
								_
e. Cross a heterozygous running, brown mouse with a he black mouse	terozyg	gous	runnir	ng, h	omoz	ygous		
Parental genotypes Possible gametes Offspring phenotypic ratio								
enophing phonotypic radio								
								-
f. Cross a heterozygous running, heterozygous black mounterozygous black mouse Parental genotypes	L use with	n a l	neteroz	zygoi	us run	ning,		J
Possible gametes								
	-						+	

Name	Period	_
1.Set up a punnett square using the following information:		
 Dominate allele for tall plants = D Recessive allele for dwarf plants = d Dominate allele for purple flowers = W Recessive allele for white flowers = w Cross a homozygous dominate parent (DDWW) with a homozygous recessive parent (ddww) 		
2. Using the punnett square in question #1:		
a. What is the probability of producing tall plants with purple flowers?Possible genotype(s)?		
b. What is the probability of producing dwarf plants with white flowers?Possible genotype(s)?		
c. What is the probability of producing tall plants with white flowers? Possible genotype(s)?		
d. What is the probability of producing dwarf plants with purple flowers?		
Possible genotype(s)?		
 3. Set up a punnett square using the following information: Dominate allele for black fur in guinea pigs = B Recessive allele for white fur in guinea pigs =b Dominate allele for rough fur in guinea pigs =R Recessive allele for smooth fur in guinea pigs = r Cross a heterozygous parent (BbRr) with a heterozygous parent (BbRr) 		
4. Using the punnett square in question #3: a. What is the probability of producing guinea pigs with black, rough fur?		
Possible genotype(s)?		
b. What is the probability of producing guinea pigs with black, smooth fur?		
Possible genotype(s)? c. What is the probability of producing guinea pigs with white, rough fur?		

Possible genotype(s)?

d. What is the probability of producing guinea pigs with white, smooth fur? Possible genotype(s)?