

Dihybrid Cross Worksheet

1. Set up a Punnett Square using the following information about guinea pigs:

- Dominant allele for black fur = B
- Recessive allele white fur = b
- Dominant allele for rough fur = R
- Recessive allele for smooth fur = r
- Cross a heterozygous parent (BbRr) with a heterozygous parent (BbRr)

3. Set up a Punnett Square using the following information:

- Dominant allele for tall plants = T
- Recessive allele for dwarf plants = t
- Dominant allele for purple flowers = P
- Recessive allele for white flowers = p
- Cross a homozygous dominant plant (TTPP) with a homozygous recessive plant (tpp)

2. Using the Punnett Square in question #1:

a. What is the probability of producing guinea pigs with black, rough fur? _____

Possible genotypes from this cross?

b. What is the probability of producing guinea pigs with black, smooth fur? _____

Possible genotypes from this cross?

c. What is the probability of producing guinea pigs with white, rough fur? _____

Possible genotypes from this cross?

d. What is the probability of producing guinea pigs with white, smooth fur? _____

Possible genotypes from this cross?

4. Using the Punnett Square in question #3:

a. What is the probability of producing tall plants with purple flowers? _____

Possible genotypes from this cross?

b. What is the probability of producing dwarf plants with white flowers? _____

Possible genotypes from this cross?

c. What is the probability of producing tall plants with white flowers? _____

Possible genotypes from this cross?

d. What is the probability of producing dwarf plants with purple flowers? _____

Possible genotypes from this cross?

5. Set up a Punnett Square using the following information:

- Dominant allele for purple corn kernels = P
- Recessive allele for yellow corn kernels = p
- Dominant allele for starchy kernels = S
- Recessive allele for sweet kernels = s
- Cross a plant that is homozygous recessive for both traits with a plant that is heterozygous for both traits.

6. Using the Punnett Square in question #5:

a. What is the probability of producing purple, starchy corn kernels? _____

Possible genotypes from this cross?

b. What is the probability of producing yellow, starchy corn kernels? _____

Possible genotypes from this cross?

c. What is the probability of producing purple, sweet corn kernels? _____

Possible genotypes from this cross?

d. What is the probability of producing yellow, sweet corn kernels? _____

Possible genotypes from this cross?

7. Set up a Punnett Square using the following information about wolves:

- Dominant allele for normal coat color = N
- Recessive allele black coat color = n
- Dominant allele for Brown eyes = B
- Recessive allele for blue eyes = b
- Cross a wolf that is heterozygous for both traits with one that is heterozygous for coat color, but homozygous recessive for eye color.

8. Using the Punnett Square in question #7:

a. What is the probability of producing a wolf with a normal coat color and brown eyes? _____

Possible genotypes from this cross?

b. What is the probability of producing a wolf with a normal coat color and blue eyes? _____

Possible genotypes from this cross?

c. What is the probability of producing a wolf with a black coat and brown eyes? _____

Possible genotypes from this cross?

d. What is the probability of producing a wolf with a black coat and blue eyes? _____

Possible genotypes from this cross?

Key

Dihybrid Cross Worksheet

1. Set up a Punnett Square using the following information about guinea pigs:

- Dominant allele for black fur = B
- Recessive allele white fur = b
- Dominant allele for rough fur = R
- Recessive allele for smooth fur = r
- Cross a heterozygous parent (BbRr) with a heterozygous parent (BbRr)

	BR	B \bar{r}	bR	b \bar{r}
BR	BBRR	BBR \bar{r}	BbRR	BbR \bar{r}
B \bar{r}	BBR \bar{r}	BBrr	BbR \bar{r}	Bbrr
bR	BbRR	BbR \bar{r}	bbRR	bbR \bar{r}
b \bar{r}	BbR \bar{r}	Bbrr	bbR \bar{r}	bbrr

2. Using the Punnett Square in question #1:

- What is the probability of producing guinea pigs with black, rough fur? 9/16
Possible genotypes from this cross? BBRR, BBR \bar{r} , BbRR, BbR \bar{r}
- What is the probability of producing guinea pigs with black, smooth fur? 3/16
Possible genotypes from this cross? BBrr, Bbrr
- What is the probability of producing guinea pigs with white, rough fur? 3/16
Possible genotypes from this cross? bbRR, bbR \bar{r}
- What is the probability of producing guinea pigs with white, smooth fur? 1/16
Possible genotypes from this cross? bbrr

3. Set up a Punnett Square using the following information:

- Dominant allele for tall plants = T
- Recessive allele for dwarf plants = t
- Dominant allele for purple flowers = P
- Recessive allele for white flowers = p
- Cross a homozygous dominant plant (TTPP) with a homozygous recessive plant (ttpp)

	TP			
tp	TtPp			

4. Using the Punnett Square in question #3:

- What is the probability of producing tall plants with purple flowers? 16/16
Possible genotypes from this cross? TtPp
- What is the probability of producing dwarf plants with white flowers? 0/16
Possible genotypes from this cross? _____
- What is the probability of producing tall plants with white flowers? 0/16
Possible genotypes from this cross? _____
- What is the probability of producing dwarf plants with purple flowers? 0/16
Possible genotypes from this cross? _____

5. Set up a Punnett Square using the following information:

- Dominant allele for purple corn kernels = P
- Recessive allele for yellow corn kernels = p
- Dominant allele for starchy kernels = S
- Recessive allele for sweet kernels = s
- Cross a plant that is homozygous recessive for both traits with a plant that is heterozygous for both traits.

	ps			
PS	$PpSs$			
P_s	$Ppss$			
pS	$ppSs$			
ps	$ppss$			

6. Using the Punnett Square in question #5:

- a. What is the probability of producing purple, starchy corn kernels? 25% (1/4)

Possible genotypes from this cross?

$PpSs$

- b. What is the probability of producing yellow, starchy corn kernels? 25% (1/4)

Possible genotypes from this cross?

$ppSs$

- c. What is the probability of producing purple, sweet corn kernels? 25% (1/4)

Possible genotypes from this cross?

$Ppss$

- d. What is the probability of producing yellow, sweet corn kernels? 25% (1/4)

Possible genotypes from this cross?

$ppss$

7. Set up a Punnett Square using the following information about wolves:

- Dominant allele for normal coat color = N
- Recessive allele black coat color = n
- Dominant allele for Brown eyes = B
- Recessive allele for blue eyes = b
- Cross a wolf that is heterozygous for both traits with one that is heterozygous for coat color, but homozygous recessive for eye color.

	NB	Nb	nB	nb
Nb	$NNBb$	$NNbb$	$NnBb$	$Nnbb$
nb	$NnBb$	$Nnbb$	$nnBb$	$nnbb$

8. Using the Punnett Square in question #7:

- a. What is the probability of producing a wolf with a normal coat color and brown eyes? 3/8

Possible genotypes from this cross?

$NNBb, NnBb$

- b. What is the probability of producing a wolf with a normal coat color and blue eyes? 3/8

Possible genotypes from this cross?

$NNbb, Nnbb$

- c. What is the probability of producing a wolf with a black coat and brown eyes? 1/8

Possible genotypes from this cross?

$nnBb$

- d. What is the probability of producing a wolf with a black coat and blue eyes? 1/8

Possible genotypes from this cross?

$nnbb$