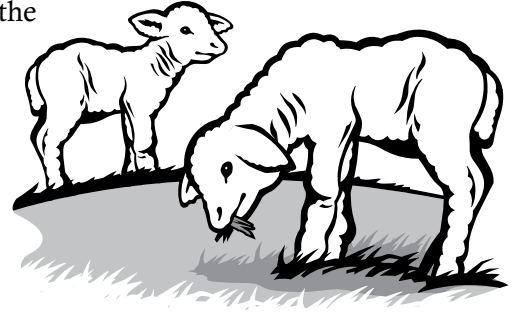


# Have You Any Wool?

## Answer Key

As an animal geneticist, you help ranchers determine the probable outcome of sheep breeding programs. A sheep rancher has two sheep he would like to breed. The male is called a ram, the female, a ewe. You decide to use a Punnett square to determine the probability of their lamb's wool color based on the genes passed on by the parents. An allele is a gene containing inherited traits from parents. The ram has white wool. An upper case W is used to represent his *dominant* white wool allele and a lower case b to represent his *recessive* black wool allele. The ewe has black wool. Two lowercase b's are used to represent her *recessive* black wool alleles. What is the probability their offspring, a lamb, will have white wool? What is the probability for black wool?



		RAM	
		W	b
EWE	b	Wb  Roll 1	bb  Roll 2
	b	Wb  Roll 4	bb  Roll 3

Probability of white wool:

\_ 2 \_ out of \_ 4 \_

Probability of black wool:

\_ 2 \_ out of \_ 4 \_

**Directions:** After reading the paragraph above, complete the Punnett square to determine the probability of the lamb having black or white wool. Once you know the probability of black or white wool, roll a die to represent chance. If you roll a one, select the top left hand square. If you roll a two, select the top right hand square. If you roll a three, select the bottom right hand square. If you roll a four, select the bottom left hand square. In the space provided, sketch a portrait of the newborn lamb.

