

## CHAPTER

## 4

## REINFORCEMENT WORKSHEET

*This is Radio KCEL*

Complete this worksheet after you have finished reading Chapter 4, Section 3.

Hello, Cell-O-Rama radio fans! Katy Chromosome here. We have a very exciting program in store for you: *Cell Mitosis in Action*, with local sports announcers Sid Toekinesis and Dee Ennay. To make this a Cell-O-Rama challenge, we've spliced the sound clips from each phase of mitosis in the wrong order. Your job is to identify the correct phase for each clip and then put the clips in the correct sequence. Good luck! Dee and Sid?

*Sid:* Thanks, Katy. Let's roll the tape, Dee.

*Dee:* Rolling . . .

**Segment A: Mitosis Phase \_\_\_\_\_**

*Sid:* Dee, I think the Chromatid twins are really mad this time. They seem to be storming off in opposite directions. Don't they care about the game?

*Dee:* This is just incredible, Sid. Wait a minute! Both groups appear to be moving into huddles. Is the game over? Do you think they'll come back?

**Segment B: Mitosis Phase \_\_\_\_\_**

*Sid:* Dee, this is UN-believable. The Chromatid twins are shrinking! Are they getting ready for a fight?

*Dee:* Sid, I am brand new to this game, and I just don't know what might happen next. Where on *Earth* are those centrioles going?

*Sid:* Dee, I think things are getting too hot for them. They are hightailing it out of there.

*Dee:* Oh no. They seem to be throwing a net to trap the Chromatid twins. It looks like the centrioles are herding them to the center of the field.

**Segment C: Mitosis Phase \_\_\_\_\_**

*Sid:* This is truly amazing, Dee. Some sort of barrier seems to be forming around each of the huddles. What is going on?

*Dee:* Sid, believe it or not, I think the teams are taking a timeout. See how they're all unwinding? They have worked hard today. This has been *quite* a game!

**Segment D: Mitosis Phase \_\_\_\_\_**

*Sid:* Dee, maybe they're getting ready for a kickoff. The twins are lining up along the center of the field. I think they're waiting for a signal.

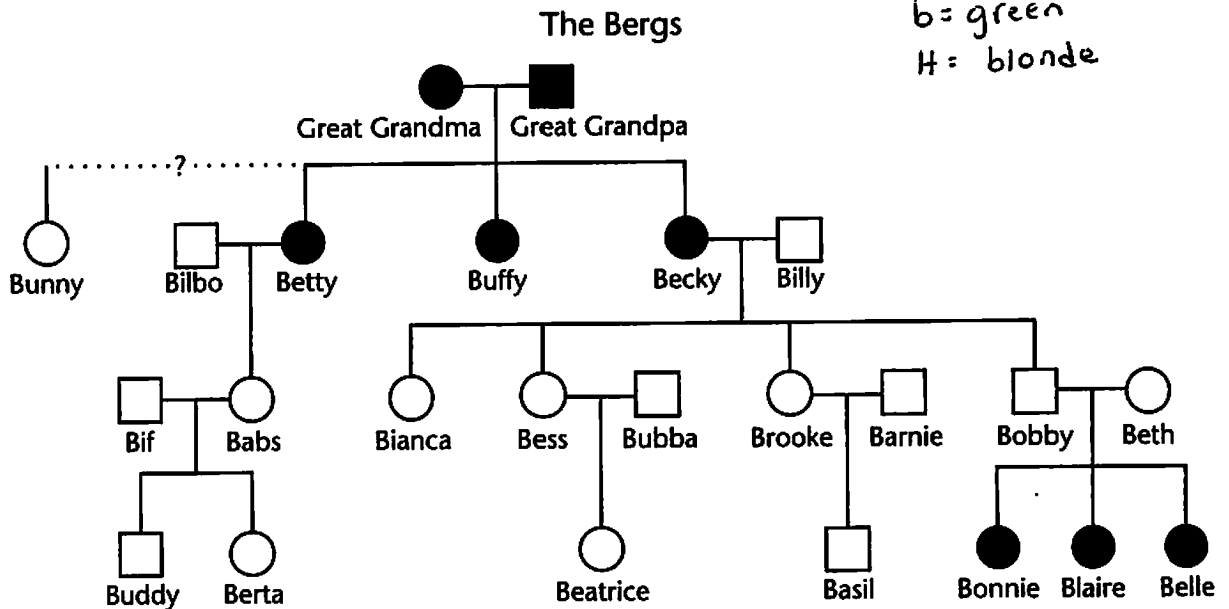
*Dee:* Sid, you can just *feel* the tension in the air. Uh oh. I think a fight just broke out. Wait—they're all *wrestling* out there! The twins look like they're trying to get away from each other. Where are the refs when you need them?

## Genes and Gene Technology

### Green Gene

1. On the planet Dyejob, green hair is a recessive trait. Great Grandma and Great Grandpa Berg both have green hair. So do their three children. They were surprised to find that three of their great-grandchildren have green hair too, even though all of their grandchildren have black hair. The Bergs concluded that their grandson Bobby must be a carrier of the green hair gene. Shown below is the pedigree of the Berg family. The solid shapes represent the family members with green hair. The pedigree does not show who is a carrier of the gene. Using the pedigree, answer the following questions.

\* B = black  
b = green  
H = blonde



- a. Which, if any, of Bobby's three sisters are carriers of the gene for green hair as well? *Prove it!*
- 
- b. Beth does not have green hair. Is Beth a carrier? Explain.
- 
- c. Bunny, who has blond hair, is a carrier of the green hair gene. She claims to be the long lost child of Great Grandma and Great Grandpa Berg. Should they include her as a daughter in their will? Explain.
-

## CHAPTER

## 5

## VOCABULARY REVIEW WORKSHEET

*Vocabulary Garden*

After you finish Chapter 5, give this puzzle a try!

Write the word or phrase being described below in the appropriate space on the next page.

1. chromosomes with matching information
2. carry genes that determine the sex of offspring
3. the two genes that govern the same characteristic
4. an organism's inherited combination of alleles
5. nuclear division in eukaryotic cells in which each cell receives a copy of the original chromosomes
6. the passing of traits from parents to offspring
7. cell division that produces sex cells
8. kind of trait that seemed to vanish in the offspring produced in Mendel's first experiment
9. tool used to visualize all the possible combinations of alleles from parents
10. kind of trait that always appeared in the offspring produced in Mendel's first experiment
- × 11. A true-\_\_\_\_\_ plant always produces offspring with the same trait as the parent(s).
- × 12. A self-\_\_\_\_\_ plant contains both male and female reproductive structures.
13. male sex cells
14. an organism's inherited appearance
15. female sex cells
16. the mathematical chance that an event will occur
17. located on chromosomes and carry hereditary instructions



Vocabulary Garden, continued

1. \_\_\_\_\_ **G** \_\_\_\_\_
2. \_\_\_\_\_ **R** \_\_\_\_\_
3. \_\_\_\_\_ **E** \_\_\_\_\_
4. **G** \_\_\_\_\_
5. \_\_\_\_\_ **O** \_\_\_\_\_
6. \_\_\_\_\_ **R** \_\_\_\_\_
7. **M** \_\_\_\_\_
8. \_\_\_\_\_ **E** \_\_\_\_\_
9. \_\_\_\_\_ **N** \_\_\_\_\_
10. **D** \_\_\_\_\_
11. **B R E E D I N G**
12. **P O L L I N A T I N G**
13. **S** \_\_\_\_\_



14. \_\_\_\_\_ **P** \_\_\_\_\_
15. \_\_\_\_\_ **E** \_\_\_\_\_
16. \_\_\_\_\_ **A** \_\_\_\_\_
17. \_\_\_\_\_ **S** \_\_\_\_\_



18. What do Gregor Mendel's peas have to do with the study of heredity?

---



---



---



---



---



---

CHAPTER

**5 SCIENCE PUZZLERS, TWISTERS & TEASERS**

*Heredity*

**Put on Your Rhyming Genes**

1. Fill in the blanks in each of the following rhymes to complete these catchy jingles about heredity.

a. With an "X" from my mom Gail

And a "Y" from my dad Dale

It should be clear that I'm a \_\_\_\_\_

b. As you surely know from your reading,

A pair of dominant or recessive alleles

Makes you \_\_\_\_\_

c. Your genes, indeed, would be tough to steal;



Those thieves would be very aggressive

They may grab a dominant \_\_\_\_\_

Though some thieves steal only \_\_\_\_\_

**The PUNnett Square**

2. These puns are bound to make you groan. Fill in the blanks with words from the chapter.

<p>a. If you have blue _____, does that mean that you're bound to be sad?</p>	
	<p>b. Ouch! You just stepped on _____!</p>

**Heredity, continued**

**Will She Get Your Goat?**

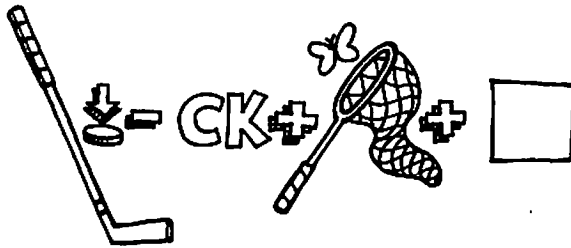
3. Your goat is about to have a kid. If it is a male, you will randomly select one of these three names to give the kid: Billy, Willy, or Philly. Then you'll ship it off to your aunt Lily. Aunt Lily wants to know how likely it is that she will be sent a Willy. Calculate the probability and fill in the blank with the answer.



\_\_\_\_\_



4. Decide what term from the chapter this picture puzzle represents.



\_\_\_\_\_

**Wordy Numbers**

5. Vanity phone numbers are numbers that can be spelled out as easy-to-remember words using the letters on a telephone keypad. For instance, the number 878-6738 can spell the word TRUMPET. What term from the chapter could this number represent?

1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PRS	8 TUV	9 WXY
*	0	#

739-2355 (Hint: They're not like the others.)

\_\_\_\_\_