

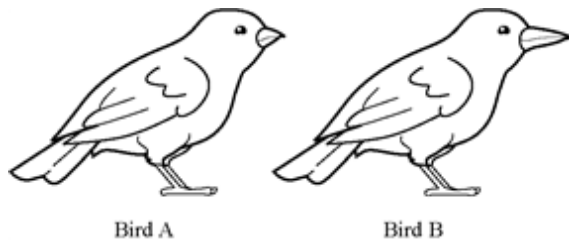
## Answer Key with Questions

### Lesson Check: Inheritance

1) Which of the following is NOT an example of a trait?

- ☐ A) eye color
- ☐ B) ear shape
- ☐ C) species
- ☐ D) body height

2) Bird A has the genotype  $ll$  for bill length, and Bird B is  $LL$ . The bills of their offspring would be:



- ☐ A) long in 100% of the offspring.
- ☐ B) short in 100% of the offspring.
- ☐ C) long in 50% of the offspring.
- ☐ D) short in 75% of the offspring.

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**3)** A child looks more like one parent than the other because a child only inherits chromosomes from one parent.

- ☐ True
- ☐ False

**4)** The study of \_\_\_\_ is called genetics.

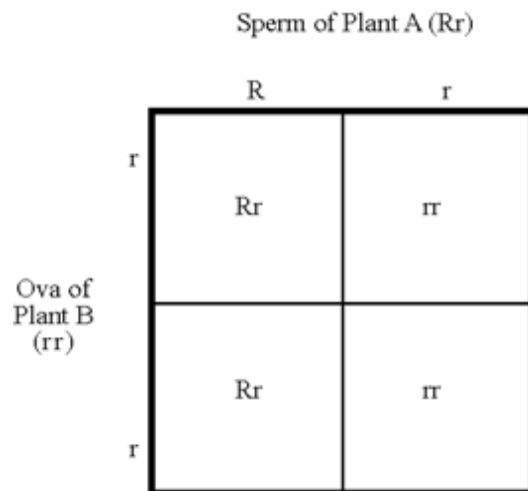
- ☐ **A)** heredity
- ☐ **B)** domir
- ☐ **C)** pea plants
- ☐ **D)** mutations

**5)** Passing of traits from parents to offspring is \_\_\_\_\_.

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- 6) A florist has one kind of plant that usually has red flowers (the dominant trait), but sometimes has white flowers (the recessive trait). If she crosses plants A and B as shown here, 50% of the offspring will have red flowers.



- ☐ True
- ☐ False

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- 7) A heterozygous orange-flowered plant is crossed with a homozygous purple-flowered plant. If orange is a dominant allele and purple is recessive, what color ratio will the flowers of the offspring plants have?

		Orange Flower	
		O	o
Purple Flower	O	Oo	oo
	o	Oo	oo

- ☐ A) 1 purple: 3 orange
- ☐ B) 4 purple: 0 orange
- ☐ C) 2 purple: 2 orange
- ☐ D) 0 purple: 4 orange

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**8)** What model can be used to show traits and help determine genotypes of genetically related family members over several generations?

- ☐ **A)** Punnett square
- ☐ **B)** pedigree
- ☐ **C)** ratio
- ☐ **D)** phenotype

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- 9) A scientist crossed two fruit flies in a lab. She was studying the transmission of the alleles that affect wing shape. The dominant allele,  $C$ , is the allele for curly wings, and the recessive allele,  $c$ , is the allele for straight wings. She knew that one of the parent flies was heterozygous and had curly wings ( $Cc$ ). Half of the offspring from the cross had curly wings, and the other half had straight wings. Identify the genotype and phenotype of the second parent fly. State the evidence that supports your response.

## Extended-Response Rubric

	Level of Understanding	Evidence of Understanding
3	<b>Demonstrating Expected Understanding</b>	<p>Student response provides <b>clear</b> evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems. Student is able to:</p> <ul style="list-style-type: none"> <li>▪ Identifies that the second parent fruit fly's genotype is <i>cc</i> and its phenotype is straight wings;</li> </ul> <p><b>AND</b></p> <ul style="list-style-type: none"> <li>▪ States evidence to support their response</li> </ul>
2	<b>Progressing toward Understanding</b>	<p>Student response provides <b>partial</b> evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems. The response lacks some critical information and details or contains some errors. Student is able to:</p> <ul style="list-style-type: none"> <li>▪ Identifies that the second parent fruit fly's genotype is <i>cc</i> and its phenotype is straight wings;</li> <li>▪ <b>BUT</b> does not include evidence to support their response;</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>▪ Correctly identifies either the genotype or phenotype and includes an explanation <b>BUT</b> one or the other is incorrect</li> </ul>
1	<b>Beginning to Develop Understanding</b>	<p>Student response is incomplete or provides minimal evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems.</p>
0	<b>Not Showing Understanding</b>	<p>Student does not respond or student response is inaccurate, irrelevant, or contains insufficient evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems.</p>
<p><i>*As outlined in the Performance Expectations (PE) of the NGSS, the three dimensions are the disciplinary core ideas (DCI), science and engineering practices (SEP), and crosscutting concepts (CCC). Note that due to the complexity of the PEs, individual assessment items may not address all three dimensions.</i></p>		

### Scoring Notes:

Possible answers include:

The second parent fly has the genotype (*cc*) and straight wings. The evidence that supports this is that half of the offspring had straight wings. For that to happen, half of the offspring had to receive a recessive allele from both parents. When one of the parents is heterozygous, the other parent must be homozygous recessive for this to occur.