

# Genetics

## Lesson 2 Understanding Inheritance



Grade 7 Science Content Standards—2.b: Students know sexual reproduction produces offspring that inherit half their genes from each parent. Also covers: 2.c, 2.d

**Skim** Lesson 2 and predict three topics that you will study.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Review Vocabulary**

Use the word soil in a sentence.

soil

\_\_\_\_\_

**New Vocabulary**

Use your book or a dictionary to define the following terms.

*Punnet Square*

\_\_\_\_\_  
\_\_\_\_\_

*pedigree*

\_\_\_\_\_

*incomplete dominance*

\_\_\_\_\_  
\_\_\_\_\_

*codominance*

\_\_\_\_\_

*multiple alleles*

\_\_\_\_\_

*polygenic inheritance*

\_\_\_\_\_  
\_\_\_\_\_

*genetic disorder*

\_\_\_\_\_

**Academic Vocabulary**

Use a dictionary to define the word complex.

complex

\_\_\_\_\_

Lesson 2 Understanding Inheritance (continued)

**Main Idea**

**Modeling Inheritance**

I found this information on page \_\_\_\_\_.

I found this information on page \_\_\_\_\_.

**Details**

**Analyze** the possible offspring of two true-breeding plants, one with two dominant alleles for yellow seeds (Y) and one with two recessive alleles for green seeds (y). Predict the percentage of offspring that will have each possible genotype and phenotype.

		Yellow seeds	
		Y	Y
Green seeds	y		
	y		

Genotypes:

YY \_\_\_\_\_ %

Yy \_\_\_\_\_ %

yy \_\_\_\_\_ %

Phenotypes:

Green seeds \_\_\_\_\_ %

Yellow seeds \_\_\_\_\_ %

**Complete** a Punnett square to show the possible offspring of two heterozygous plants, each with genotype Yy. Then predict the percentage of offspring that will have each genotype and phenotype.

		Yellow seeds	
		Y	y
Yellow seeds	Y		
	y		

Genotypes:

YY \_\_\_\_\_ %

Yy \_\_\_\_\_ %

yy \_\_\_\_\_ %

Phenotypes:

Green seeds \_\_\_\_\_ %

Yellow seeds \_\_\_\_\_ %

**SUMMARIZE IT**

Rephrase the main ideas of the above section.

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Name \_\_\_\_\_ Date \_\_\_\_\_

Lesson 2 Understanding Inheritance (continued)

**Main Idea**

**Modeling Inheritance**

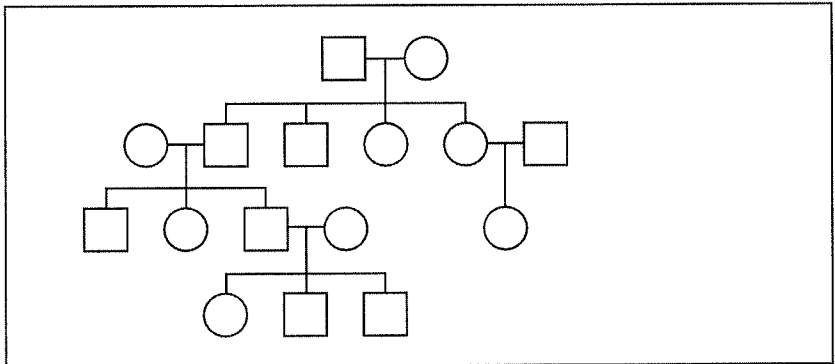
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**Complex Patterns of Inheritance**

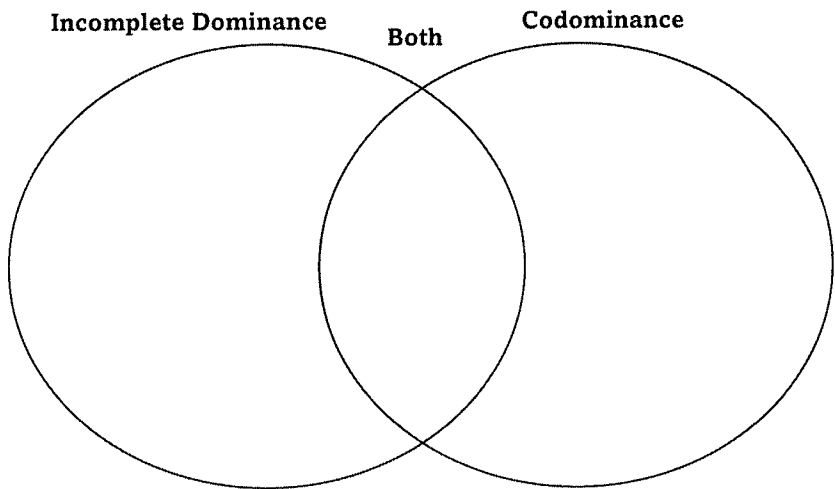
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**Details**

Label the generations shown in the pedigree below. Circle the parents in each generation.



Compare and contrast incomplete dominance and codominance. Complete the Venn diagram with definitions and examples of each.



**SUMMARIZE IT**

Summarize the main ideas of the above sections in two bullet points.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Lesson 2 Understanding Inheritance (continued)

**Main Idea**

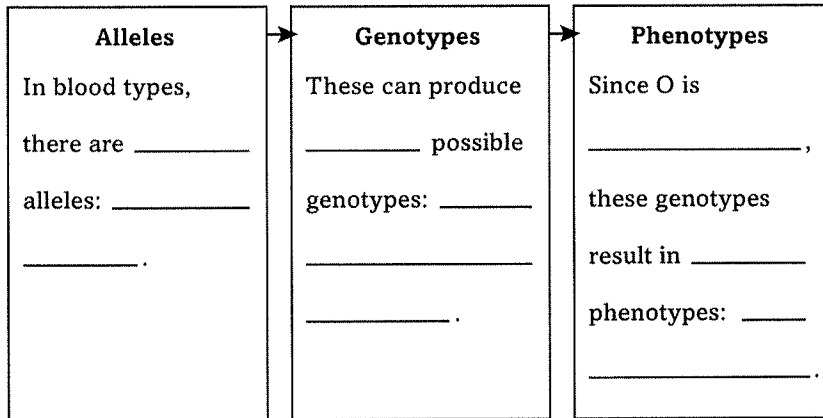
**Complex Patterns of Inheritance**

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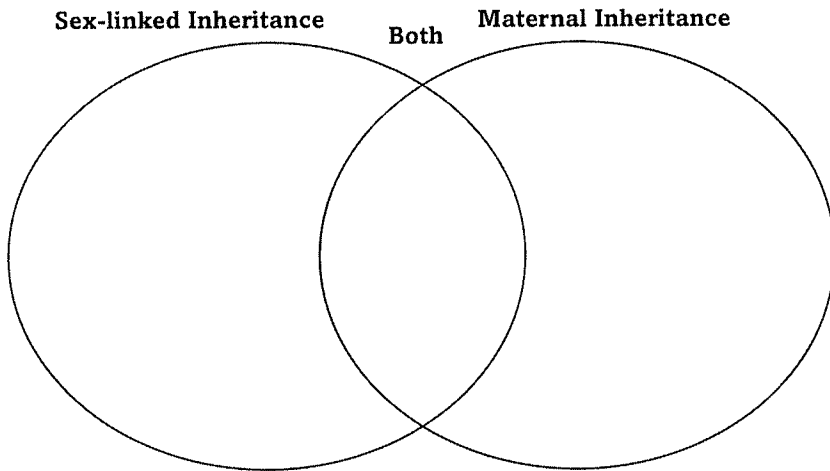
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**Details**

**Analyze** how a gene with multiple alleles can produce more than three phenotypes, using blood types as an example.



**Compare** sex-linked inheritance and maternal inheritance by completing the Venn diagram with at least four facts.



**SUMMARIZE IT**

Summarize the main ideas of the above section in three bullet points.

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Lesson 2 Understanding Inheritance (continued)

**Main Idea**

**Human Genetic Disorders**

I found this information on page \_\_\_\_\_.

**Details**

**Classify** five genetic disorders humans can inherit. Specify what type of inheritance causes each disorder.

Disorder	Type of Inheritance
Huntington's disease	
Sickle-cell disease	
Cystic fibrosis	
Hemophilia	
Down syndrome	

**Model** how two heterozygous parents who do not have a genetic disorder can produce a child who does. Draw a pedigree of two generations using C for a dominant allele and c for a recessive allele that carries a disorder.

**Genes and the Environment**

I found this information on page \_\_\_\_\_.

**Analyze** how environment can affect an organism's phenotype by using heart disease as an example.

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**SUMMARIZE IT**

Summarize the main ideas of the above sections.

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# Genetics Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned and complete the table below. Compare your previous answers to these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

<b>Genetics</b>	<b>After You Read</b>
• An individual inherits factors for each trait from both parents.	
• An inherited trait might not be observed in one generation yet reappear in the next.	
• A single gene might affect more than one trait in an organism.	
• One type of DNA is inherited only from the male parent.	

## Review

Use this checklist to help you study.

- Review the information you included in your Foldable.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Review daily homework assignments.
- Re-read the chapter and review the charts, graphs, and illustrations.
- Review the Standards Check at the end of each lesson.
- Look over the Standards Review at the end of the chapter.

### SUMMARIZE IT

After reading this chapter, write a summary sentence for each lesson to illustrate the chapter's main ideas

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