

Lesson 3 DNA and Genetics

Skim Lesson 3 in your book. Read the headings and look at the photos and illustrations. Identify three things you want to learn more about as you read the lesson. Record your ideas in your Science Journal.

Main Idea

The Structure of DNA

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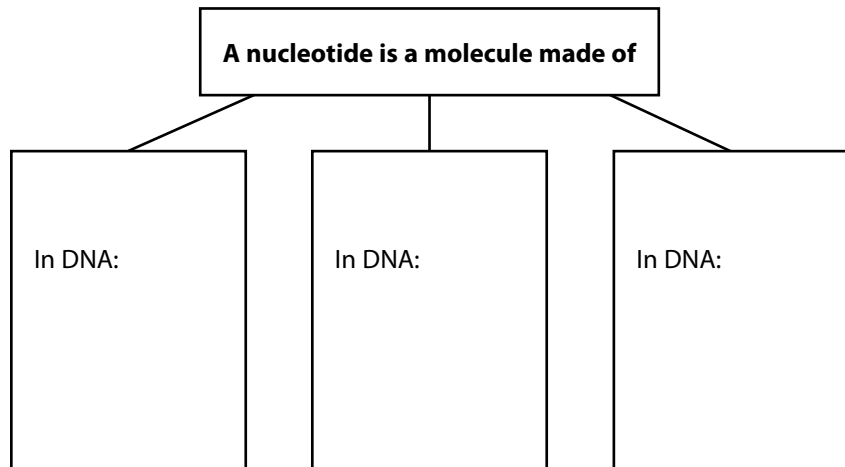
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Details

 **Define** DNA, and explain the relationship of DNA and genes.

Describe the shape of a DNA molecule.

Identify the 3 components of a nucleotide, and tell where each component is found in a DNA molecule.



Identify the 4 nitrogen bases found in DNA, and finish the statement about the nitrogen bases.

1. _____ 3. _____

2. _____ 4. _____

_____ always bonds to T; _____ always bonds to G.

Sequence the DNA replication process.

1. DNA strand separates and _____.
2. Nucleotides form new _____.
3. Two _____ are produced.

Lesson 3 | DNA and Genetics (continued)

Main Idea

Making Proteins

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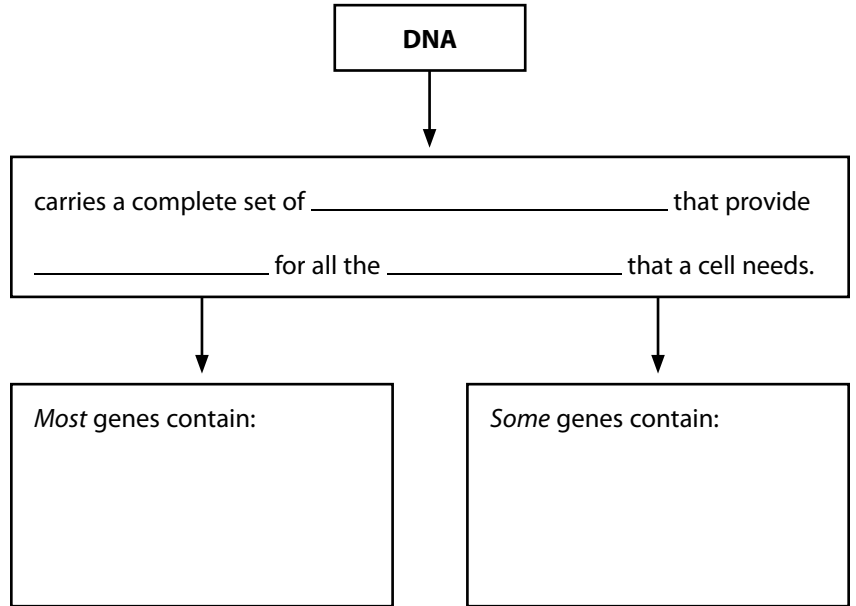
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Details

Explain the role DNA plays in making proteins.



Explain the term junk DNA and its function.

Define RNA, and describe its 2 functions.

RNA, or ribonucleic acid, is a type of _____.

1. _____, and
2. _____.

Compare DNA and RNA.

	RNA	DNA
Made of		
Number of strands		
Nitrogen base		
Sugar		

Lesson 3 | DNA and Genetics (continued)

Main Idea

I found this on page _____.

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Mutations

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Details



Describe transcription.

Transcription: _____



Sequence the 2 steps involved in transcription.

1. _____

2. _____

Identify 3 types of RNA and their abbreviations.

1. _____

2. _____

3. _____

Define translation, and tell where this process occurs.



Sequence the process of translation.

1. _____ carries amino acids to the _____.



2. _____ helps form chemical bonds that _____.



3. The first _____ separates from its amino acid and from the _____.
A third _____ brings in another _____.

Explain the part that codons play in making proteins.

Define mutation. Identify two factors that can trigger them.

Mutations: _____

Triggered by: 1. _____ 2. _____

Lesson 3 | DNA and Genetics (continued)

Main Idea

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Details

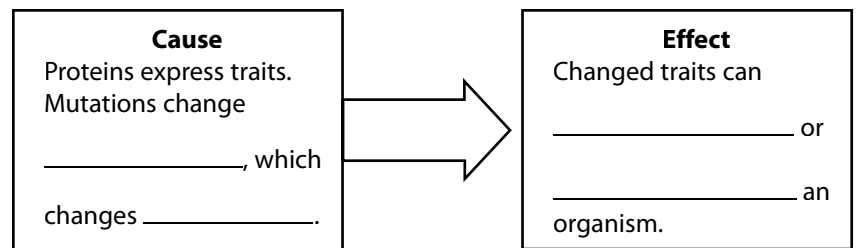
Analyze 3 types of mutations.

1. Deletion: _____

2. Insertion: _____

3. Substitution: _____

 **Identify** the effects of a mutation.



Identify four genetic disorders caused by mutations.

1. _____
2. _____
3. _____
4. _____

 **Connect It** Are genetic disorders always inherited? Explain your answer.

Chapter Wrap-Up

Now that you have read the chapter, think about what you have learned. Complete the **What I Learned** column on the first page of the chapter.

Use this checklist to help you study.

- Complete your Foldables® Chapter Project.
- Study your *Science Notebook* on this chapter.
- Study the definitions of vocabulary words.
- Reread the chapter, and review the charts, graphs, and illustrations.
- Review the Understanding Key Concepts at the end of each lesson.
- Look over the Chapter Review at the end of the chapter.



Summarize It Reread the chapter Big Idea and the lesson Key Concepts. Analyze the information you have learned about DNA and genetics. How do genes, environment, and life choices affect a human's phenotype?

A vertical column of 20 small gray squares on the left side of the page, serving as a guide for the writing area.

Challenge Explain why DNA is vitally important to the cloning process.