

## 3L Week 6

### READING PACKET

Please keep this packet. You may need the readings and handouts in future weeks.



# MATH INSTRUCTIONS

Ms. Medcalf's Math Scholars-

Here are things to keep in mind:

1. The checklist is a guideline to make sure you complete everything you are asked to complete within the week. You are being asked to complete at least 30 minutes of math practice a day, but we encourage you to **do as much as you can** on any assignment.
2. Please complete ALL PROBLEMS for each problem set. This is a change from the last two weeks, but you are required to complete all 30 problems in each problem set for every lesson going forward.
3. There may be extra homework sheets attached within your packet in case anyone needs them.
4. Be mindful of your own math course. Whichever math textbook you have is the math work you should follow in the checklist.
5. **Please put your first and last name AND your math teacher's name (Ms. Medcalf) at the top of EVERY math page!** This will help the staff who sort the work to ensure that I get all the work from my scholars. 😊

For Week 6 of distance learning (May 8<sup>th</sup> – May 14<sup>th</sup>),

Ms. Medcalf's classes should complete all the problems in the sets for:

3L Saxon 8/7: Lessons 64, 65, 66

3L Algebra ½: Lessons 94, 95, 96

For additional resources to help you through the lessons, take a look at our website [www.parnassusteachers.com](http://www.parnassusteachers.com); the password is: Pegasus. Click on "School of Logic" to find resources organized by subject.

Feel free to email me at [medcalf@parnassusprep.com](mailto:medcalf@parnassusprep.com), or call/text me at 612-465-9631 with any questions you have about anything school related.

One step at a time. 😊 Ms. Medcalf

# ENGLISH INSTRUCTIONS

### Clarifications and Notes

*Reminders:*

1. NOTE: Please write “**Ms. Rossi English**” and **your name** at the top of your piece of paper before turning this in! It really helps the teachers who are sorting the work.
  2. All answers should be written in **cursive full sentences** on a separate sheet of paper! That is the only work you need to turn in for English. If you write everything on the same sheet of paper (which is recommended), then make sure to label each section (Friday, Monday, Tuesday, Wednesday, and Thursday) so it’s clear to me!
- 

**Friday:** Read Chapter 9 (pages 91-97). Do all of the Closer Look questions on page 98 on your separate sheet of paper to turn in by next Friday.

**Monday:** A Letter to the Editor: Read the instructions on page 99 carefully. Here are some hints:

1. 100-250 words (No more!)
2. Stay in character. You are from 1850! Use what you know!
3. You are a person who has read most of Frederick Douglass’ Narrative (Well, both in real life AND as this character you are writing as). Use what you have read to argue your point!
4. Use first person, since you ARE the character writing to the newspaper. (“I have recently read *Narrative of the Life of Frederick Douglass, An American Slave*, and I am appalled by....”)

**Tuesday:** Read Chapter 10a (pages 102-116). This is a longer chapter, so I will have you answer the questions tomorrow.

**Wednesday:** Answer all of the Closer Look questions on page 117 about Chapter 10a.

**Thursday:** Apostrophe: Read about this kind of speech or poem on page 118. Then, try your hand at writing an apostrophe of your own. Here are some hints:

1. Use second person (“**You** are a perfect cup of coffee...”)
2. This may be in the form of a poem (structured. May or may not rhyme), or prose (not structured. Simple paragraph).

# HISTORY READINGS

# TEXAS AND MEXICO 1835-1848

P1

Gaining independence from Spain in 1821, Mexico soon found itself in conflict with Texas over land ownership. The conflict led to war.



Sam Houston (1793-1863) was twice elected president of the Republic of Texas. He became governor of the state in 1859.

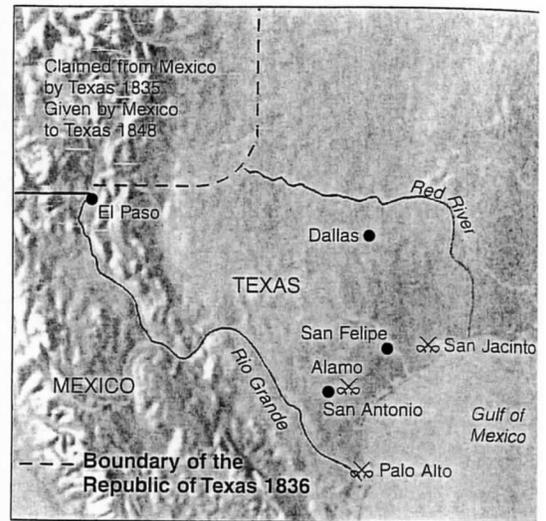
P2 At the time Mexico gained its independence, its borders stretched much farther north and covered many areas now in the southern United States. Many U. S. citizens settled in Texas, which belonged to Mexico. In 1835, Texas declared its independence. The Texans appointed Sam Houston as their military commander. He captured the town of San Antonio. His opponent, the Mexican General Santa Anna, then led a large Mexican army into Texas to crush the rebellion. He laid siege to the Alamo, a mission in the center of San Antonio, and won the town back. Davy Crockett was one of the defenders of the Alamo, which was sometimes used as a fort. It became a symbol of Texan resistance during the war against Mexico.



P3

▲ A contemporary cartoon shows the Aztec symbol for Mexico—a proud eagle perched on a cactus. Mexico's vast territories shrank after the United States gradually annexed the northern areas in the mid-1800s.

Santa Anna was later defeated by Houston's forces at the battle of San Jacinto in 1836. Texas then became independent, and was known as the Lone Star Republic. After a few years of independence, the people of Texas voted to join the United States. In 1845, Texas became the 28th state. Clashes between Texans and Mexicans continued as Texas tried to increase its territory.



The land that the Texans and the Mexicans fought over lay between the Rio Grande and the Red River. In 1848, a treaty gave the United States large tracts of land.

## WAR AND PEACE

P4

President James Polk sent troops to the Rio Grande, invading land still claimed by Mexico. The Mexicans resisted, and the Mexican-American War broke out. U.S. troops captured the capital, Mexico City, in 1847, and the Mexicans surrendered. The treaty of Guadalupe-Hidalgo, in 1848, gave the United States huge new territories, including the modern states of California, Nevada, Utah, Arizona, and some of New Mexico, as well as Texas.

► Davy Crockett (1786-1836) was one of the defenders of the Alamo, a mission in San Antonio. In 1836, 186 men held out against the 5,000 strong Mexican army of General Santa Anna. Only two women and two children survived. Other heroes killed were Jim Bowie and William Travis. In the end, they ran out of ammunition and had to use their guns as clubs.



### 3L History Texas and Mexico 1835-1848

#### The Texas Question

P1 In the Transcontinental Treaty of 1819 with Spain the boundary of the U.S. excluded Texas. Within months of the treaty's ratification Americans led by Stephen Austin began to settle in the area. At almost the same time Mexico gained its independence from Spain.

P2 Cotton grew well on the fertile Texas plains, and for a time, the Mexican authorities gave free land and local control to groups of U.S. settlers. By 1830 there were around 20,000 white settlers, 2,000 slaves and only a few thousand Mexicans.

P3 President John Quincy Adams had offered to buy Mexico for \$1 million but Mexico refused. By the late 1820s, the flood of new settlers gave the Mexican authorities second thoughts. The immigrants felt no loyalty to Mexico. Most were Protestants though Mexican law required all immigrants be Catholic. Few tried to learn more than a few words of Spanish. When Mexico outlawed slavery in 1829, they evaded the law by "freeing" their slaves and then signing them to lifetime contracts as indentured servants. In 1830 Mexico prohibited further immigration of Americans but the law proved impossible to enforce.

P4 As soon as the Mexican government began to restrict them, the Texans began to seek independence. In 1835 a series of skirmishes developed into rebellion. The Mexican president, Antonio Lopez de Santa Anna, marched north with 6000 soldiers to fight the rebels. In February 1836 he reached San Antonio.

P5 A force of 187 American men under Colonel William B. Travis held the city. They gathered in a former mission called the Alamo. For ten days they beat off Santa Anna's attacks, causing terrible casualties on the attackers. Finally, the Mexicans broke through. Once inside they killed everyone, even the wounded, then burned the dead. Among the dead were the legendary Davy Crockett and Jim Bowie, the inventor of the Bowie knife.

P6 After the Alamo and a similar slaughter at Goliad, peaceful settlement was impossible. On March 2, 1836, Texas declared its independence. Sam Houston, a former congressman and governor of Tennessee, was placed in charge of the rebel army. For a time, Houston retreated since Santa Anna's forces

outnumbered his. At the San Jacinto River he took a stand, shouting "Forward! Charge! Remember the Alamo! Remember Goliad!" His troops defeated the Mexican army which retreated across the Rio Grande. Houston was elected president of the Republic of Texas and a month later a plebiscite [a direct vote by the people] showed that the majority wanted annexation [to add land] by the U.S.

P7 President Jackson hesitated because annexation might lead to war with Mexico and more slavery problems. He did recognize the republic. Texas went its own way and developed friendly ties with Great Britain since Texas could provide cotton to Britain and be a market for British goods.

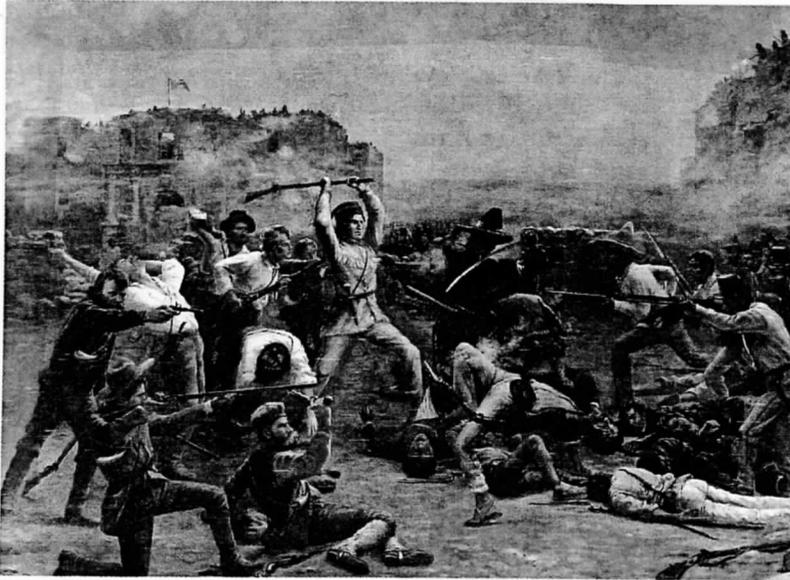
P8 These events alarmed the U.S. and especially the southerners who worried that Texas, dominated by Britain, might end slavery. The South was eager to add Texas and even the Northeast wanted to add such a great new territory.

P9 To ensure the annexation of Texas President Tyler appointed Jon C. Calhoun secretary of state. This was a mistake since Calhoun was closely associated with the South and slavery. This turned off northerners who might have welcomed annexation. Tyler's opponents opposed annexation because it might lead to war with Mexico. With a national election near, northern and southern senators refused to vote for annexation and the treaty was rejected. The Texans were angry and embarrassed and the British were eager to take advantage of this.

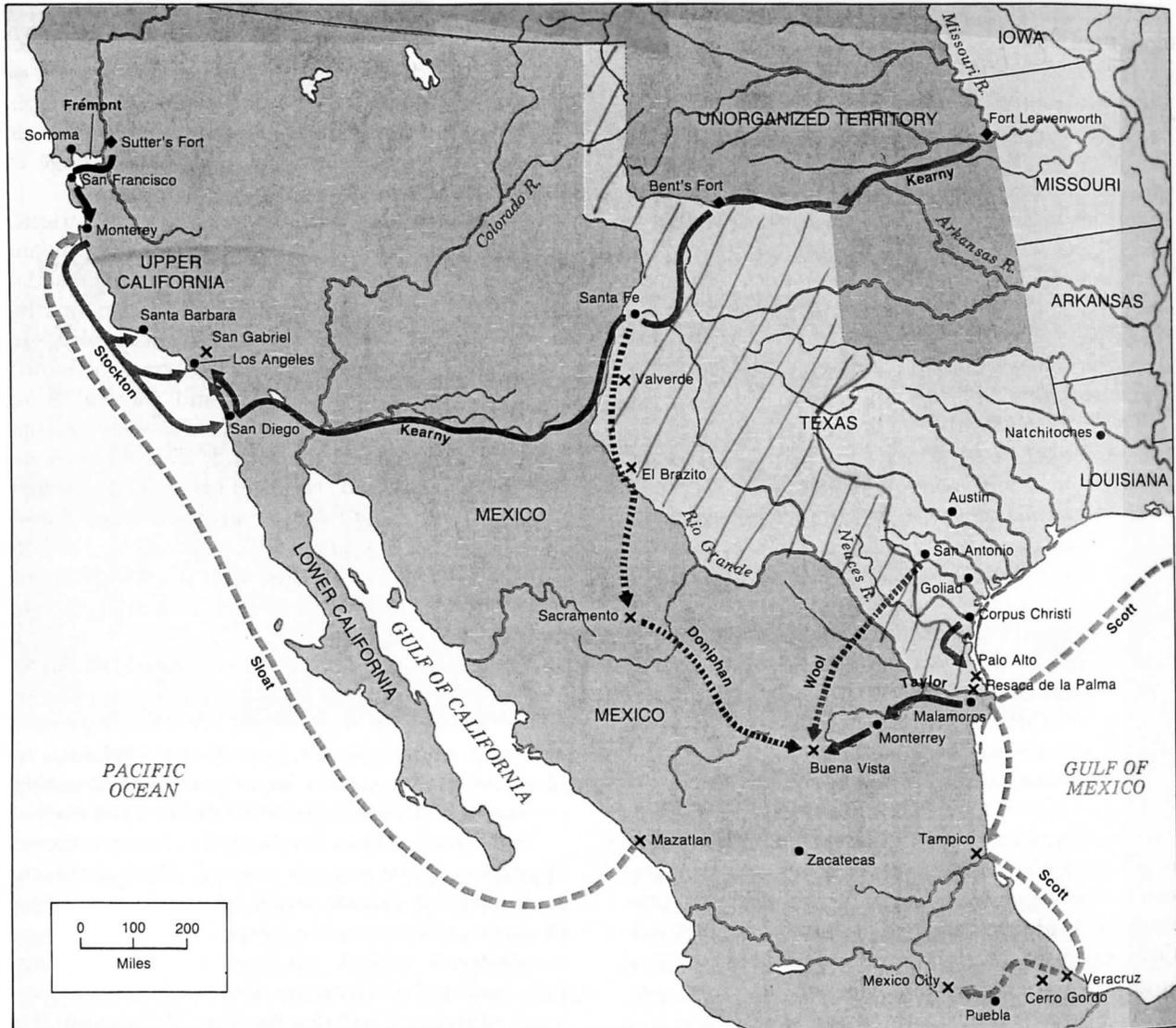
#### War with Mexico

P10 War broke out because of expansionist spirit and U.S. confidence based on its advantages of size and wealth which led America to bully Mexico. In addition, Mexico had defaulted [stopped paying back] on debts owed the U.S. which caused some to suggest using force to get the money. But Mexican pride was involved. Texas had been independent for almost 10 years, and Mexico had not tried to reconquer it. Nevertheless, Mexico never recognized its independence and broke off diplomatic relations when the U.S. annexed Texas.

### 3L History Texas and Mexico 1835-1848



The slaughter at the Alamo, a former Spanish mission, is realistically depicted in Robert Onderdonk's *Fall of the Alamo*.



American naval power proved a decisive factor in the Mexican War. The Pacific Squadron, under John D. Sloat and Robert F. Stockton, secured California, and a 200-vessel fleet conveyed Winfield Scott's army to Veracruz. The light salmon-colored area was later ceded to the United States by Texas.

- shown striped

### 3L History Texas and Mexico 1835-1848

P11 President Polk then ordered General Zachary Taylor to Texas to defend the border which was in dispute. Texas claimed the Rio Grande as the border while Mexico insisted the border was 150 miles north at the Nueces River. Taylor reached the Nueces in July 1845 with 1500 troops and crossed into the disputed territory.

P12 From the first battle the outcome of the Mexican War was never in doubt. At Palo Alto 2300 Americans scattered a Mexican force of more than twice their number. Then 1700 Americans routed 7500 Mexicans at another battle. Within a week of the war's start, the Mexicans had been driven across the Rio Grande and General Taylor had his troops firmly established on the southern side.

P13 The Mexican army was poorly equipped and despite too many high-ranking officers, poorly led. The well-supplied American forces had West Point graduates as officers and troops trained in Indian warfare to provide the leadership needed to turn volunteers into first-rate fighting men. Yet Mexico was a large, rugged country with few decent roads so conquering it proved to be a difficult task.

#### To the Halls of Montezuma

P14 President Polk's plan for the war was made of three parts. First, he would clear the Mexicans from Texas and occupy the northern provinces of Mexico. Second, he would take possession of California and New Mexico. Finally, he would march on Mexico City. Heading west from the Rio Grande, Taylor swiftly overran Mexico's northern provinces. In June 1846, American settlers seized Sonoma and raised the Bear Flag of the Republic of California. Another group led by Captain John C. Fremont, who happened to be in the area, clashed with Mexican authorities near Monterey and then joined with the Sonoma rebels. A naval squadron captured Monterey and San Francisco in July 1846, and a cavalry troop joined other American units in taking San Diego and Los Angeles. By February 1847 the U.S. had won nearly all of Mexico north of the capital city.

P15 The campaign against Mexico City was the most difficult of the war. President Polk put General Winfield Scott in charge. Scott landed near Veracruz, Mexico, on March 9, 1847, with 10,000 men. By mid-May he had

advanced to only 80 miles southeast of Mexico City. By September he hammered his way into Mexico City. The Duke of Wellington said Scott's campaign was the most brilliant of modern times.

#### The Treaty of Guadalupe Hidalgo

P16 After several delays the negotiations with Mexican peace commissioners began in January 1848. Early in February the Treaty of Guadalupe Hidalgo was completed. Mexico accepted the Rio Grande as the boundary of Texas and ceded [gave up control] New Mexico and Upper California to the U.S. In return the U.S. agreed to pay Mexico \$15 million and to take on the claims of American citizens against Mexico, which by that time were \$3.25 million.

P17 The relatively easy military victory made some people ashamed that their country crushed a weaker neighbor. Abolitionists, led by William Lloyd Garrison, called it an "invasion... waged solely for the detestable and horrible purpose of extending and perpetuating American slavery." However, President Polk agreed to the treaty and the Senate ratified it.

#### The Fruits of Victory

P18 The Mexican War, won quickly and at relatively small cost in lives and money, brought huge territorial gains. The Pacific Coast from south of San Diego north to the 49<sup>th</sup> parallel and all the land between the coast and the Continental Divide had become part of the U.S.

P19 Then came an event that seemed a sign from the heavens. In January 1848 a mechanic named James W. Marshall was building a sawmill on the American River in the Sacramento River Valley east of San Francisco. One day he noticed a few flecks of yellow in a stream. These he gathered up and tested. They were pure gold.

P20 This discovery produced an international sensation. The gold was real and plentiful - \$200 million of it was extracted in four years - but equally important was the fact that everyone was ready to believe the news. The gold rush reflected the confidence inspired by the Treaty of Guadalupe Hidalgo; it seemed the ultimate justification of manifest destiny.

Text abridged and simplified from Garrity, John A. *The American Nation: A History of the United States to 1877*, Vol. 1, 8<sup>th</sup> ed. New York: HarperCollins College Publishers, 1995.

# LATIN READING AND INSTRUCTIONS

# 3L Latin Distance Learning

— Week of May 11-15 —

## Directions:

- Carefully read Ch. 28 Grammar Notes Part II, where we begin learning some of the ways to *use* the subjunctive mood!
- On the page labelled “Latin Exercises”, write your name and class (hour) in the top right, and complete parts A and B. In part B, #1-3 are required; 4-6 are ***optional/enrichment!***

As always, **please** reach out to me with any questions you have (including the “enrichment” work)!

# Latin - Chapter 28 Grammar Notes: Part II

## Jussive Subjunctive; Purpose Clauses

**REVIEW:** Remember that you can identify whether a verb is in the **subjunctive mood** by looking at the stem vowel **before** its ending, which changes in a predictable way based on the following chart:

- -ā- → -e- (1<sup>st</sup> conjugation)
- -ē- → -ea- (2<sup>nd</sup> conjugation)
- -e- → -a- (3<sup>rd</sup> conjugation)
- -e- → -ia- (3<sup>rd</sup> -io conjugation) **\*\*only for -io verbs\*\***
- -ī- → -ia- (4<sup>th</sup> conjugation)

-So, for example, the verb *amō, amāre* in the 3<sup>rd</sup> person sg. **Indicative** would be *amat* (take *amāre*, chop off the “-re”, add your 3<sup>rd</sup> person sg. ending of “-t”; the “a” is your stem vowel.) In the 3<sup>rd</sup> person sg. **subjunctive** it would be *amet*; you follow the same steps, except the “-a-” becomes an “-e-”. That’s it!

-This shows why it’s so important to memorize what *conjugation* a verb is (1<sup>st</sup> thru 4<sup>th</sup>). Remember: you can almost always find out what conjugation a verb is by looking at the *second principal part* and chopping off the “-re”; if the stem vowel you’re left with is “-a-”, it’s 1<sup>st</sup>; “-ē-” and it’s 2<sup>nd</sup>, and so on!

-Now, onto Grammar Notes Part II!

There are two categories for using the subjunctive mood in Latin: **Independent** and **Dependent**. As we learn new ways to use the subjunctive, we’ll add them to the chart below! But for now, we’re just adding the first one for each.

**Note:** “Independent” means the clause stands on its own and doesn’t *need* another clause to complete its meaning; “dependent” *does* need to be completed by another clause, which is why it’s also called a “subordinate” clause.

### Example:

- You should walk the dog. (Independent clause--stands on its own)
- You walk the dog so that he may get some exercise. (Dependent clause--needs the first half of the sentence to complete its meaning)

INDEPENDENT (Main Clause)	DEPENDENT (Subordinate Clause)
1) <i>Jussive/Hortatory</i>	1) <i>Purpose</i>

### Jussive / Hortatory Subjunctive

**Definition:** expresses a command or exhortation, esp. in the 1<sup>st</sup> or 3<sup>rd</sup> persons  
 1<sup>st</sup> person is usually referred to “hortatory” (from “hortor”, to urge)  
 3<sup>rd</sup> person is referred to as “jussive” (from “iubeō”, to order)

**Recognition:** the main verb will be a **present subjunctive**  
 a negative is indicated by **nē**

**Translation:** “let” + objective case pron. (*me, us, him, her, them*) or nom. noun + verb; alternatively,  
 nom. noun/pronoun “should” + verb

**Examples:** puellam laudēmus.

*Let us (Let's) praise the girl./ We should praise the girl.*

cōgitem nunc dē hāc rē.

*Let me (I should) now think about this matter.*

nē id faciāmus.

*Let us not do this./ We should not do this.*

audeant illī virī et fēminae esse fortēs.

*Let those men and women dare to be brave./ Those men and women should dare to be brave.*

### Purpose Clauses

**Definition:** a subordinate clause indicating the objective of the main action  
 (She went to the store **to buy milk**.  
 We learn Latin **so that we may do well in college**.)

**Recognition:** subjunctive clause introduced by **ut** (*so that*) or **nē** (*so that...not, lest*)  
 explains the purpose or “why” of the main clause

**Translation:** “so that...may verb,” or “to verb, in order to verb” (when the purpose clause and main verb have the same subject)

**Examples:** hoc dicit **ut** eōs **iuvet**.

*He says this in order to help them.*

discedit **nē** id **audiat**.

*He leaves so that he may not hear this.*

cum cūrā docet **ut** discipulī bene **discant**.

*She teaches with care so that the students may learn well.*

hoc facit **nē** capiātur.

*He does this in order not to be captured.*

librōs legimus **ut** multa **discāmus**.

*We read books (in order) to learn many things.*

bonōs librōs nobīs dent **nē** malōs **legāmus**.

*Let them give us good books so that we may not read bad ones.*

\*\*\*You'll notice that especially with purpose clauses, there are a number of different ways you can translate them: “so that”, “in order that”, or sometimes just “to”. As usual, let context be your guide!

# SPANISH READING AND INSTRUCTIONS



# Gramática

3L

Sra. Serrano - Week 6: May 8<sup>th</sup> - 14<sup>th</sup>

## Instructions

### The imperfect tense: regular verbs

Another way to talk about the past is with the imperfect tense. Use the imperfect tense to talk about actions that happened repeatedly in the past.

Rafael patinaba y Mónica corría.

Rafael used to skate and Monica used to run.

Here are the regular forms of -ar, -er, and -ir verbs in the imperfect tense. Notice the accent mark on the nosotros form of jugar:  
*I used to play.* *To Play*

(yo)	jugaba	(nosotros)	jugábamos
(tú)	jugabas	(vosotros)	jugabais
Ud.	jugaba	Uds.	jugaban
(él)	jugaba	(ellos)	jugaban
(ella)	jugaba	(ellas)	jugaban

Note that -er and -ir verbs, such as hacer and vivir, have the same endings:

*To Live* *Todo* *We used to do...*

(yo)	hacía	(nosotros)	hacíamos
(tú)	hacías	(vosotros)	hacíais
Ud.	hacía	Uds.	hacían
(él)	hacía	(ellos)	hacían
(ella)	hacía	(ellas)	hacían

Notice the accent mark on each ending.

### ¿Recuerdas?

You have already learned to talk about completed actions in the past using the preterite tense.

- Ayer Rafael patinó y Mónica corrió en el parque.

- As you know, in Spanish you can often omit the subject of a verb because the subject is made clear in the verb ending:

(yo) Vivo en Chicago. (The subject, yo, is included in the verb ending.)

However since the yo and Ud. / él / ella forms are the same in the imperfect for -ar, -er, and -ir verbs, speakers often use the subject pronouns to avoid confusion.

Patricia tenía un triciclo rojo pero yo tenía uno azul. *same ending but different subjects.*

- Expressions such as generalmente, por lo general, a menudo, muchas veces, de vez en cuando, todos los días, and nunca can cue you to use the imperfect because they imply that something happened repeatedly in the past.

# Repaso del capítulo 4A

jcd-0489

## Vocabulario y gramática

3L

To prepare for the test, check to see if you...

- know the new vocabulary and grammar
- can perform the tasks on p. 209

1

to name toys  
 los bloques blocks  
 la colección, pl. las colecciones collection  
 la cuerda rope  
 el dinosaurio dinosaur  
 la muñeca doll  
 el muñeco action figure  
 el oso de peluche teddy bear  
 el tren eléctrico electric train  
 el triciclo tricycle

to name animals  
 el pez, pl. los peces fish  
 la tortuga turtle  
 to discuss things you used to do  
 coleccionar to collect  
 molestar to bother  
 pelearse to fight  
 saltar (a la cuerda) to jump (rope)  
 to name places  
 la guardería daycare center  
 infantil  
 el patio de recreo playground

2

to explain your actions  
 de niño, -a as a child  
 de pequeño, -a as a child  
 de vez en cuando once in a while  
 mentir (e → ie) to lie  
 obedecer (c → zc) to obey  
 ofrecer (c → zc) to offer  
 permitir to permit, to allow  
 por lo general in general  
 portarse bien / mal to behave well / badly  
 todo el mundo everyone  
 el vecino, la vecina neighbor  
 la verdad truth

3

### Adjectives

to describe what someone was like  
 bien educado, -a well-behaved  
 consentido, -a spoiled  
 desobediente disobedient  
 generoso, -a generous  
 obediente obedient  
 tímido, -a timid  
 travieso, -a naughty, mischievous  
 other useful words  
 la moneda coin  
 el mundo world

### imperfect of ir

I used to go

iba	íbamos
ibas	ibais
iba	iban

### imperfect of jugar

I used to play

jugaba	jugábamos
jugabas	jugabais
jugaba	jugaban

### imperfect of ser

I used to be

era	éramos
eras	erais
era	eran

### imperfect of tener / vivir

I used to have

tenía	teníamos
tenías	teníais
tenía	tenían

### indirect object pronouns

me (to / for) me	nos (to / for) us
te (to / for) you	os (to / for) you
le (to / for) him, her, you (formal)	les (to / for) them, you (formal)

For Vocabulario adicional, see pp. 498-499.

Imperfect of VER Irregular

Veía | veíamos

# SCIENCE READING



## The DNA Connection

## Reading Preview

## Key Concepts

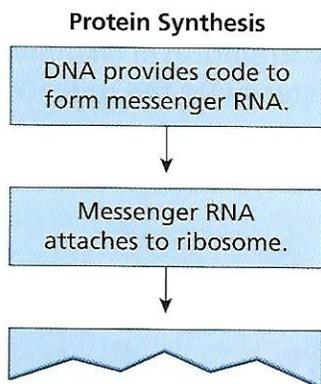
- What forms the genetic code?
- How does a cell produce proteins?
- How can mutations affect an organism?

## Key Terms

- messenger RNA
- transfer RNA

 Target Reading Skill

**Sequencing** A sequence is the order in which the steps in a process occur. As you read, make a flowchart that shows protein synthesis. Put the steps of the process in separate boxes in the flowchart in the order in which they occur.



Lab zone

## Discover Activity

## Can You Crack the Code?

1. Use the Morse code in the chart to decode the question in the message below. The letters are separated by slash marks.

• - - / • • • • / • / • - • / • / • - / • - • /  
 • / - - • / • / - • / • / • • • / • - • • / - - - /  
 - • - • / • - / - / • / - • • /

2. Write your answer to the question in Morse code.

3. Exchange your coded answer with a partner. Then decode your partner's answer.

## Think It Over

**Forming Operational Definitions** Based on your results from this activity, write a definition of the word *code*. Then compare your definition to one in a dictionary.

A • -	N - •
B - • • •	O - - -
C - • • •	P • - - •
D - • •	Q - - • -
E •	R • - •
F • • - •	S • • •
G - - •	T -
H • • • •	U • • -
I • •	V • • • -
J • - - -	W • - -
K - • -	X - • • -
L • - • •	Y - • - -
M - -	Z - - • •

The young, white, ring-tailed lemur in the photograph below was born in a forest in southern Madagascar. White lemurs are extremely rare. Why was this lemur born with such an uncommon phenotype? To answer this question, you need to know how the genes on a chromosome control an organism's traits.



A white lemur and its mother ►

## The Genetic Code

The main function of genes is to control the production of proteins in an organism's cells. Proteins help to determine the size, shape, color, and many other traits of an organism.

**Genes and DNA** Recall that chromosomes are composed mostly of DNA. In Figure 16, you can see the relationship between chromosomes and DNA. Notice that a DNA molecule is made up of four different nitrogen bases—adenine (A), thymine (T), guanine (G), and cytosine (C). These bases form the rungs of the DNA “ladder.”

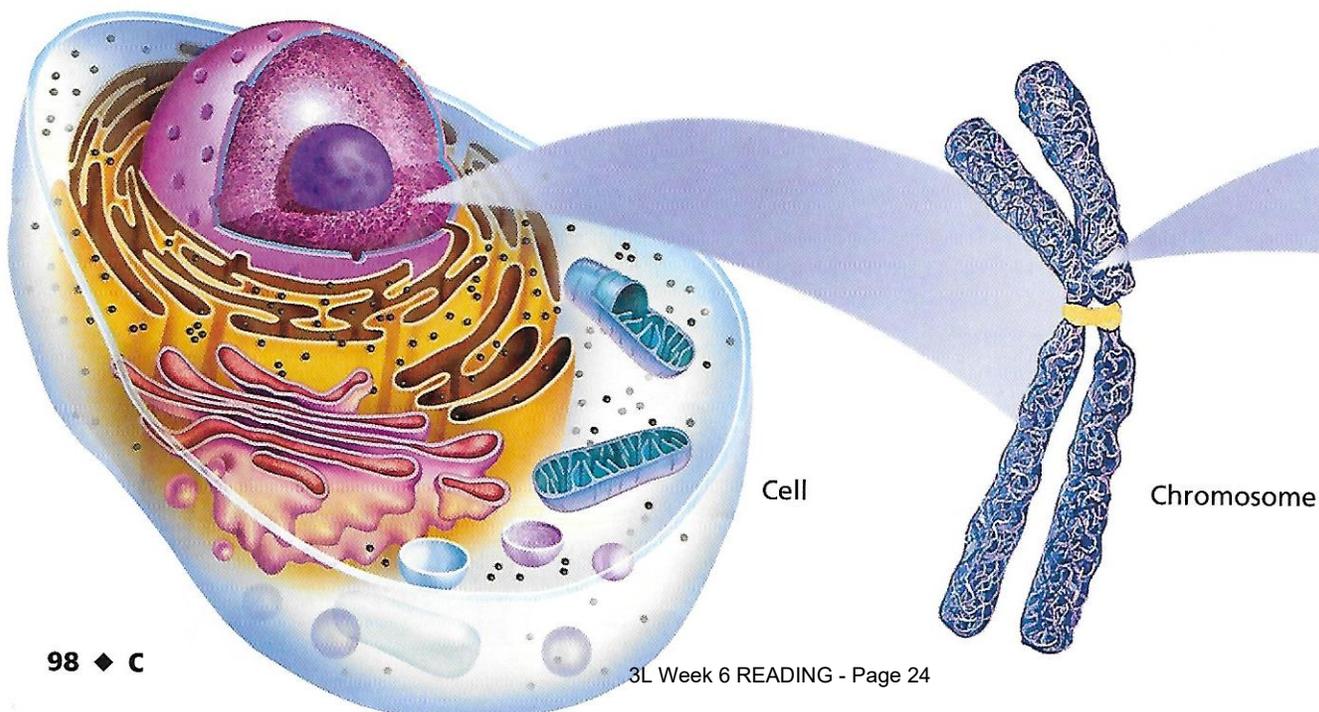
A gene is a section of a DNA molecule that contains the information to code for one specific protein. A gene is made up of a series of bases in a row. The bases in a gene are arranged in a specific order—for example, ATGACGTAC. A single gene on a chromosome may contain anywhere from several hundred to a million or more of these bases. Each gene is located at a specific place on a chromosome.

**Order of the Bases** A gene contains the code that determines the structure of a protein. **The order of the nitrogen bases along a gene forms a genetic code that specifies what type of protein will be produced.** Remember that proteins are long-chain molecules made of individual amino acids. In the genetic code, a group of three DNA bases codes for one specific amino acid. For example, the base sequence CGT (cytosine-guanine-thymine) always codes for the amino acid alanine. The order of the three-base code units determines the order in which amino acids are put together to form a protein.

FIGURE 16

### The DNA Code

Chromosomes are made of DNA. Each chromosome contains thousands of genes. The sequence of bases in a gene forms a code that tells the cell what protein to produce. **Interpreting Diagrams** *Where in the cell are chromosomes located?*



## How Cells Make Proteins

The production of proteins is called protein synthesis. During protein synthesis, the cell uses information from a gene on a chromosome to produce a specific protein. Protein synthesis takes place on the ribosomes in the cytoplasm of a cell. As you know, the cytoplasm is outside the nucleus. The chromosomes, however, are found inside the nucleus. How, then, does the information needed to produce proteins get out of the nucleus and into the cytoplasm?

**The Role of RNA** Before protein synthesis can take place, a “messenger” must first carry the genetic code from the DNA inside the nucleus into the cytoplasm. This genetic messenger is called ribonucleic acid, or RNA.

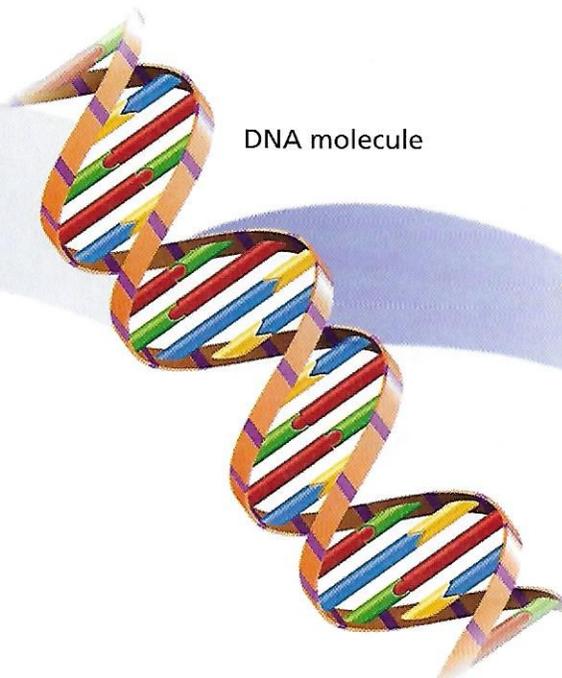
Although RNA is similar to DNA, the two molecules differ in some important ways. Unlike DNA, which has two strands, RNA has only one strand. RNA also contains a different sugar molecule from the sugar found in DNA. Another difference between DNA and RNA is in their nitrogen bases. Like DNA, RNA contains adenine, guanine, and cytosine. However, instead of thymine, RNA contains uracil (YOOR uh sil).

**Types of RNA** There are several types of RNA involved in protein synthesis. **Messenger RNA** copies the coded message from the DNA in the nucleus, and carries the message to the ribosome in the cytoplasm. Another type of RNA, called **transfer RNA**, carries amino acids to the ribosome and adds them to the growing protein.

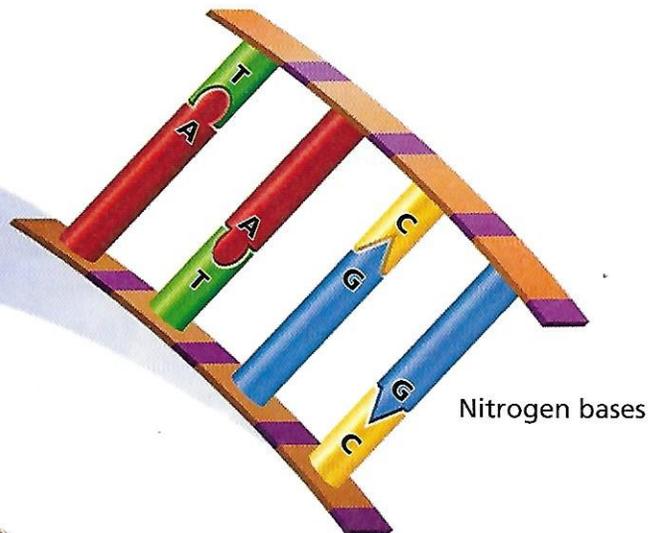


Reading  
Checkpoint

How is RNA different from DNA?



DNA molecule



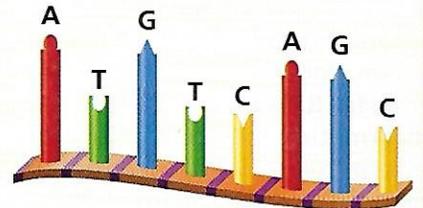
Nitrogen bases

Lab  
zone

Skills Activity

### Drawing Conclusions

The following is a sequence of nitrogen bases on one strand of a nucleic acid molecule.



Does the strand come from DNA or RNA? Explain your answer.

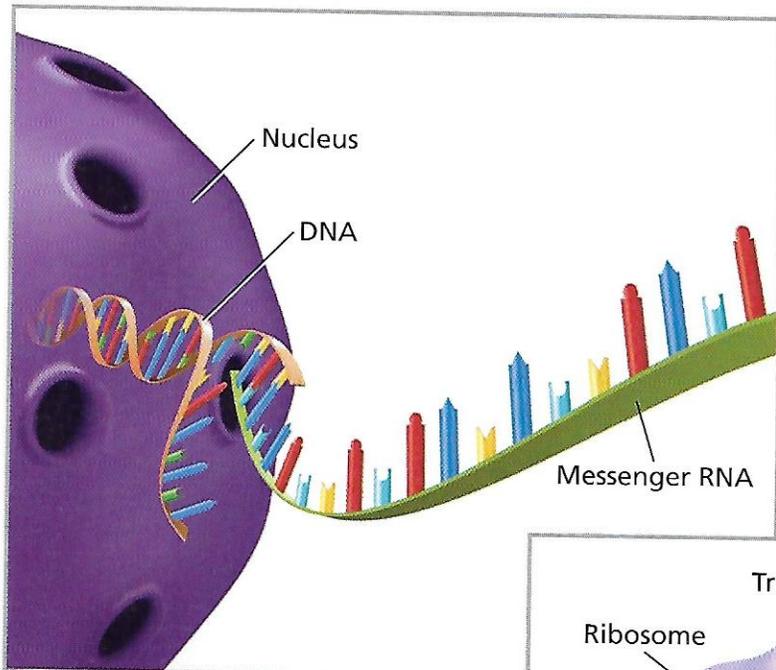
FIGURE 17

## Protein Synthesis

To make proteins, messenger RNA copies information from DNA in the nucleus. Messenger RNA and transfer RNA then use this information to produce proteins. **Interpreting Diagrams** In which organelle of the cell are proteins manufactured?

**Translating the Code** The process of protein synthesis is shown in Figure 17. Look at the illustration as you read the following steps.

- 1 The first step is for a DNA molecule to “unzip” between its base pairs. Then one of the strands of DNA directs the production of a strand of messenger RNA. To form the RNA strand, RNA bases pair up with the DNA bases. The process is similar to the process in which DNA replicates. Cytosine always pairs with guanine. However, uracil—not thymine—pairs with adenine.
- 2 The messenger RNA then leaves the nucleus and enters the cytoplasm. In the cytoplasm, messenger RNA attaches to a ribosome. On the ribosome, the messenger RNA provides the code for the protein molecule that will form. During protein synthesis, the ribosome moves along the messenger RNA strand.

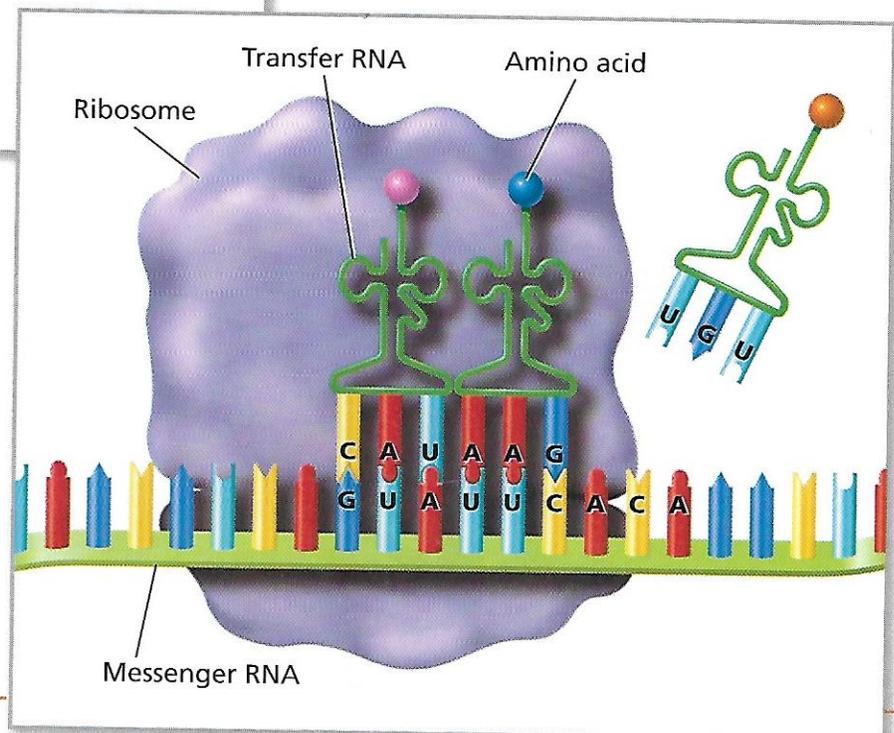


### 1 Messenger RNA Production ▲

In the nucleus, a DNA molecule serves as a “pattern” for making messenger RNA. The DNA molecule “unzips” between base pairs. RNA bases match up along one of the DNA strands. The genetic information in the DNA is transferred to the messenger RNA strand.

### 2 Messenger RNA Attaches to a Ribosome ▼

When the messenger RNA enters the cytoplasm, it attaches to a ribosome, where production of the protein chain begins. The ribosome moves along the messenger RNA strand.



3 Molecules of transfer RNA attach to the messenger RNA. The bases on the transfer RNA “read” the message by pairing up three-letter codes to bases on the messenger RNA. For example, you can see that a molecule of transfer RNA with the bases AAG pairs with the bases UUC on the messenger RNA. The molecules of transfer RNA carry specific amino acids. The amino acids link in a chain. The order of the amino acids in the chain is determined by the order of the three-letter codes on the messenger RNA.

4 The protein molecule grows longer as each transfer RNA molecule puts the amino acid it is carrying along the growing protein chain. Once an amino acid is added to the protein chain, the transfer RNA is released into the cytoplasm and can pick up another amino acid. Each transfer RNA molecule always picks up the same kind of amino acid.



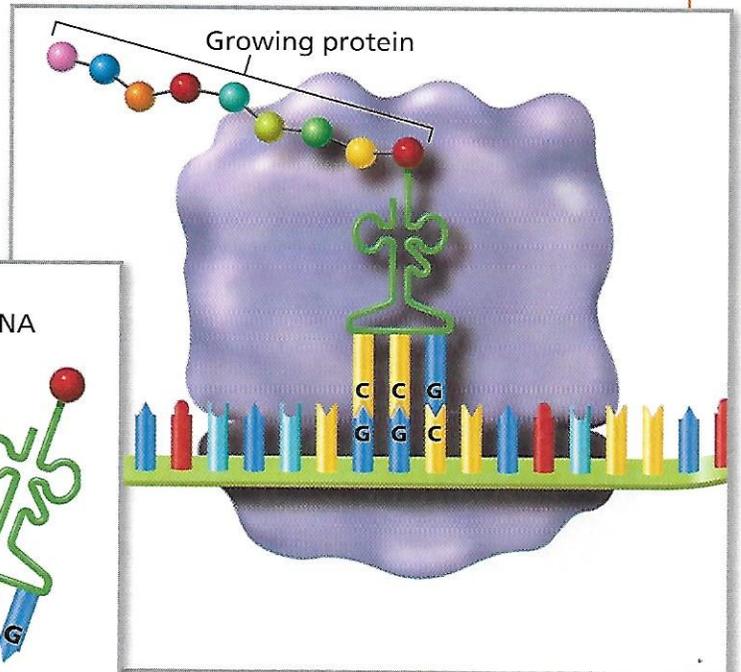
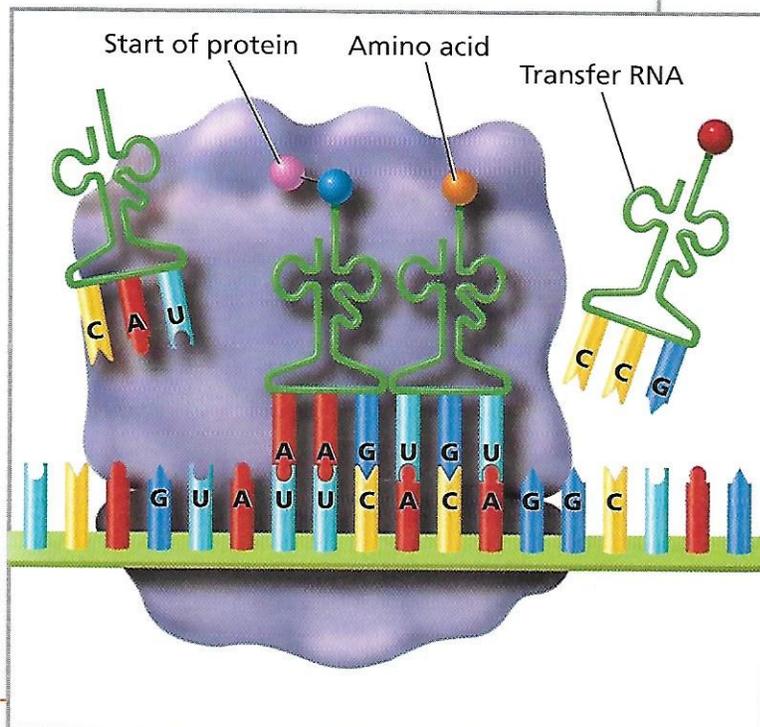
What is the function of transfer RNA?

Go online  
**active art**

For: Protein Synthesis activity  
Visit: PHSchool.com  
Web Code: cep-3034

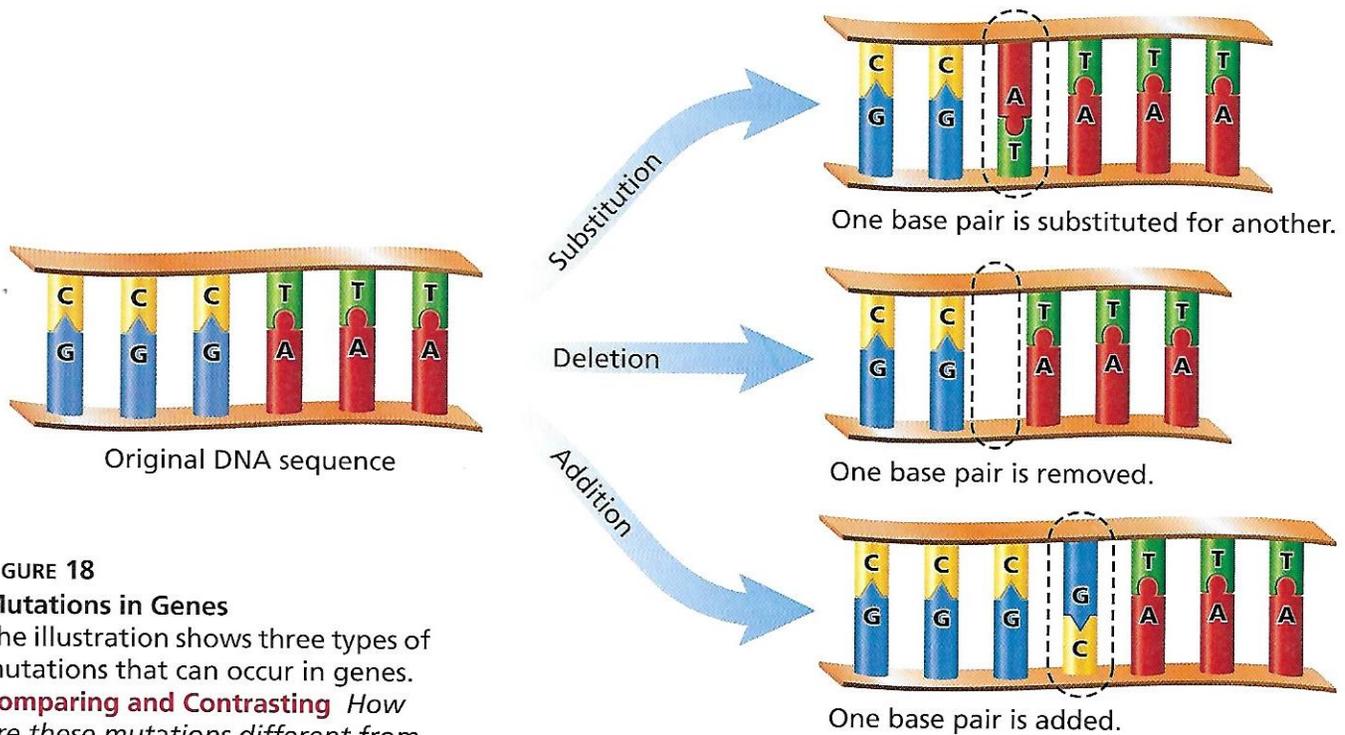
3 **Transfer RNA Attaches to Messenger RNA** ▼

Transfer RNA molecules carry specific amino acids to the ribosome. There they “read” the message in messenger RNA by matching up with three-letter codes of bases. The protein chain grows as each amino acid is attached.



4 **Protein Production Continues** ▲

The protein chain continues to grow until the ribosome reaches a three-letter code that acts as a stop sign. The ribosome then releases the completed protein.



**FIGURE 18**  
**Mutations in Genes**  
 The illustration shows three types of mutations that can occur in genes.  
**Comparing and Contrasting** How are these mutations different from the mutations that occur when chromosomes do not separate during meiosis?

## Mutations

Suppose that a mistake occurred in one gene of a chromosome. Instead of the base A, for example, the DNA molecule might have the base G. Such a mistake is one type of mutation that can occur in a cell's hereditary material. Recall that a mutation is any change in a gene or chromosome. **Mutations can cause a cell to produce an incorrect protein during protein synthesis. As a result, the organism's trait, or phenotype, may be different from what it normally would have been.** In fact, the term *mutation* comes from a Latin word that means "change."

If a mutation occurs in a body cell, such as a skin cell, the mutation will not be passed on to the organism's offspring. If, however, a mutation occurs in a sex cell, the mutation can be passed on to an offspring and affect the offspring's phenotype.

**Types of Mutations** Some mutations are the result of small changes in an organism's hereditary material. For example, a single base may be substituted for another, or one or more bases may be removed from a section of DNA. This type of mutation can occur during the DNA replication process. Other mutations may occur when chromosomes don't separate correctly during meiosis. When this type of mutation occurs, a cell can end up with too many or too few chromosomes. The cell could also end up with extra segments of chromosomes.

**Discovery**  
 CHANNEL  
**SCHOOL**  
*Genetics: The Science of Heredity*  
 Video Preview  
 ▶ Video Field Trip  
 Video Assessment

**Effects of Mutations** Because mutations can introduce changes in an organism, they can be a source of genetic variety. Some mutations are harmful to an organism. A few mutations, however, are helpful, and others are neither harmful nor helpful. A mutation is harmful to an organism if it reduces the organism's chance for survival and reproduction.

Whether a mutation is harmful or not depends partly on the organism's environment. The mutation that led to the production of a white lemur would probably be harmful to an organism in the wild. The lemur's white color would make it more visible, and thus easier for predators to find. However, a white lemur in a zoo has the same chance for survival as a brown lemur. In a zoo, the mutation neither helps nor harms the lemur.

Helpful mutations, on the other hand, improve an organism's chances for survival and reproduction. Antibiotic resistance in bacteria is an example. Antibiotics are chemicals that kill bacteria. Gene mutations have enabled some kinds of bacteria to become resistant to certain antibiotics—that is, the antibiotics do not kill the bacteria that have the mutations. The mutations have improved the bacteria's ability to survive and reproduce.



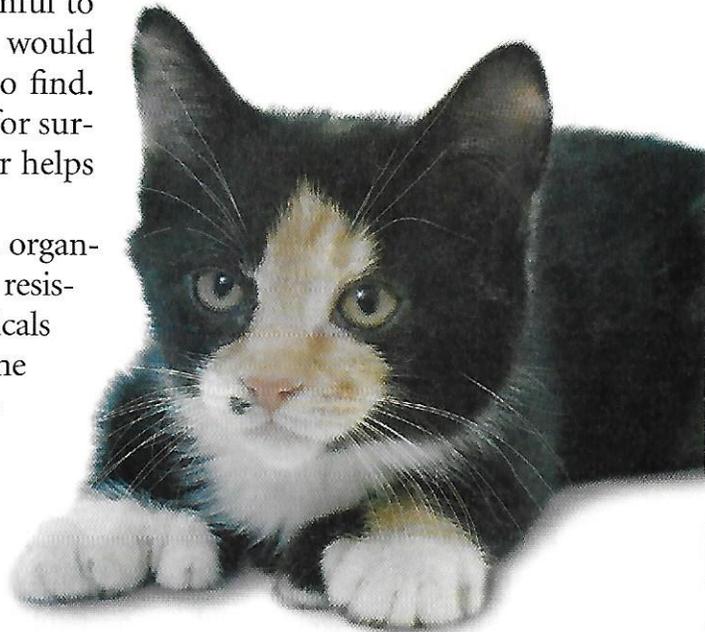
**Reading Checkpoint**

What are two types of mutations?

For more information watch youtube video <https://www.youtube.com/watch?v=oefAI2x2CQM>

**FIGURE 19**  
**Six-Toed Cat**

Because of a mutation in one of its ancestors, this cat has six toes on each front paw.



## Section 4 Assessment

**Target Reading Skill Sequencing** Refer to your flowchart as you answer Question 2.

### Reviewing Key Concepts

1. a. **Explaining** What is the relationship between a gene, a DNA molecule, and a protein?
- b. **Relating Cause and Effect** How does a DNA molecule determine the structure of a specific protein?
- c. **Inferring** The DNA base sequence GGG codes for the amino acid proline. Could this same base sequence code for a different amino acid? Why or why not?
2. a. **Listing** List the sequence of events that happens during protein synthesis.
- b. **Describing** What is messenger RNA? Describe how it performs its function.

c. **Inferring** Does transfer RNA perform its function in the nucleus or cytoplasm? Explain your answer.

3. a. **Reviewing** How does a mutation in a gene affect the order of DNA bases?
- b. **Relating Cause and Effect** How can a mutation in a gene cause a change in an organism's phenotype?

### Writing in Science

**Compare/Contrast Paragraph** Write a paragraph comparing and contrasting gene mutations and chromosome mutations. In your paragraph, explain what the two types of mutations are, and how they are similar and different.

# Human Inheritance

## Reading Preview

### Key Concepts

- What are some patterns of inheritance in humans?
- What are the functions of the sex chromosomes?
- What is the relationship between genes and the environment?

### Key Terms

- multiple alleles
- sex chromosomes
- sex-linked gene
- carrier

## Target Reading Skill

### Identifying Main Ideas

As you read the Patterns of Human Inheritance section, write the main idea—the biggest or most important idea—in a graphic organizer like the one below. Then write three supporting details that further explain the main idea.

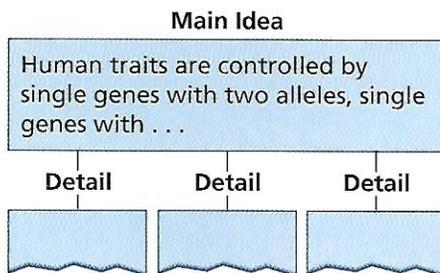


FIGURE 1

### Family Resemblance

Because children inherit alleles for traits from their mother and father, children often look like their parents.

Lab zone

## Discover Activity

### How Tall Is Tall?

1. Choose a partner. Measure each other's height to the nearest 5 centimeters. Record your measurements on the chalkboard.
2. Create a bar graph showing the number of students at each height. Plot the heights on the horizontal axis and the number of students on the vertical axis.

### Think It Over

**Inferring** Do you think height in humans is controlled by a single gene, as it is in peas? Explain your answer.



The arrival of a baby is a happy event.

Eagerly, the parents and grandparents gather around to admire the newborn baby. “Don’t you think she looks like her father?” “Yes, but she has her mother’s eyes.”

When a baby is born, the parents, their families, and their friends try to determine whom the baby resembles. Chances are good that the baby will look a little bit like both parents. That is because both parents pass alleles for traits on to their offspring.



## Patterns of Human Inheritance

Take a few seconds to look at the other students in your classroom. Some people have curly hair; others have straight hair. Some people are tall, some are short, and many others are in between. You'll probably see eyes of many different colors, ranging from pale blue to dark brown. The different traits you see are determined by a variety of inheritance patterns. **Some human traits are controlled by single genes with two alleles, and others by single genes with multiple alleles. Still other traits are controlled by many genes that act together.**

**Single Genes With Two Alleles** A number of human traits are controlled by a single gene with one dominant allele and one recessive allele. These human traits have two distinctly different phenotypes, or physical appearances.

For example, a widow's peak is a hairline that comes to a point in the middle of the forehead. The allele for a widow's peak is dominant over the allele for a straight hairline. The Punnett square in Figure 2 illustrates a cross between two parents who are heterozygous for a widow's peak. Trace the possible combinations of alleles that a child may inherit. Notice that each child has a 3 in 4, or 75 percent, probability of having a widow's peak. There is only a 1 in 4, or 25 percent, probability that a child will have a straight hairline. When Mendel crossed peas that were heterozygous for a trait, he obtained similar percentages in the offspring.

**FIGURE 2**  
**Widow's Peak Punnett Square**  
 This Punnett square shows a cross between two parents with widow's peaks.  
**Interpreting Diagrams** *What are the possible genotypes of the offspring? What percentage of the offspring will have each genotype?*

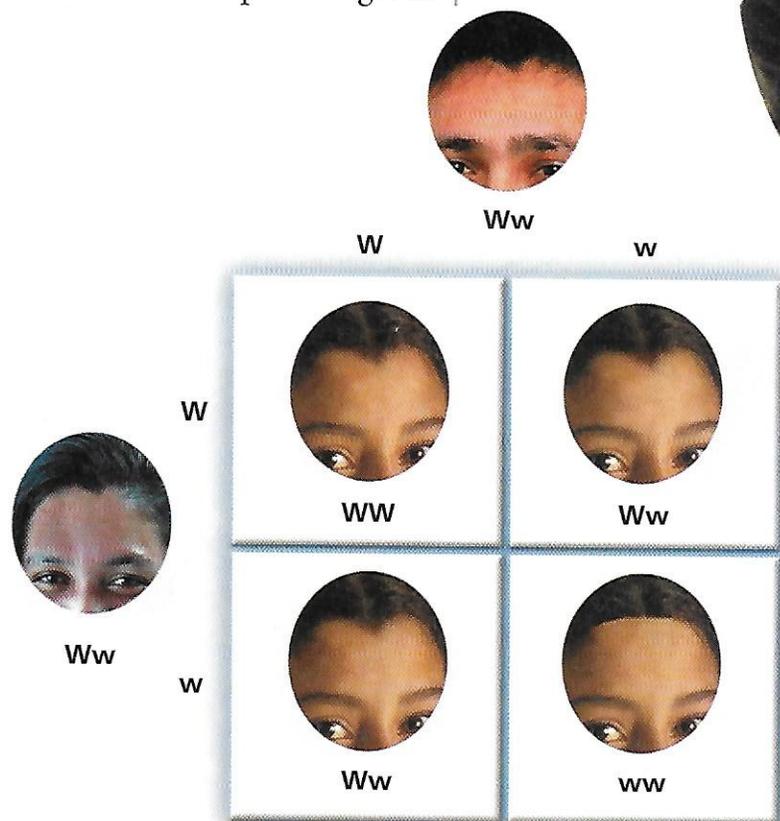


FIGURE 3

### Inheritance of Blood Type

Blood type is determined by a single gene with three alleles. This chart shows which combinations of alleles result in each blood type.

Alleles of Blood Types	
Blood Type	Combination of Alleles
A	$I^A I^A$ or $I^A i$
B	$I^B I^B$ or $I^B i$
AB	$I^A I^B$
O	$ii$

FIGURE 4

### Many Phenotypes

Skin color in humans is determined by three or more genes. Different combinations of alleles for each of the genes result in a wide range of possible skin colors.

**Single Genes With Multiple Alleles** Some human traits are controlled by a single gene that has more than two alleles. Such a gene is said to have **multiple alleles**—three or more forms of a gene that code for a single trait. Even though a gene may have multiple alleles, a person can carry only two of those alleles. This is because chromosomes exist in pairs. Each chromosome in a pair carries only one allele for each gene.

Human blood type is controlled by a gene with multiple alleles. There are four main blood types—A, B, AB, and O. Three alleles control the inheritance of blood types. The allele for blood type A and the allele for blood type B are codominant. The allele for blood type A is written as  $I^A$ . The allele for blood type B is written  $I^B$ . The allele for blood type O—written  $i$ —is recessive. Recall that when two codominant alleles are inherited, neither allele is masked. A person who inherits an  $I^A$  allele from one parent and an  $I^B$  allele from the other parent will have type AB blood. Figure 3 shows the allele combinations that result in each blood type. Notice that only people who inherit two  $i$  alleles have type O blood.

**Traits Controlled by Many Genes** If you completed the Discover activity, you saw that height in humans has more than two distinct phenotypes. In fact, there is an enormous variety of phenotypes for height. Some human traits show a large number of phenotypes because the traits are controlled by many genes. The genes act together as a group to produce a single trait. At least four genes control height in humans, so there are many possible combinations of genes and alleles. Skin color is another human trait that is controlled by many genes.



**Why do some traits exhibit a large number of phenotypes?**



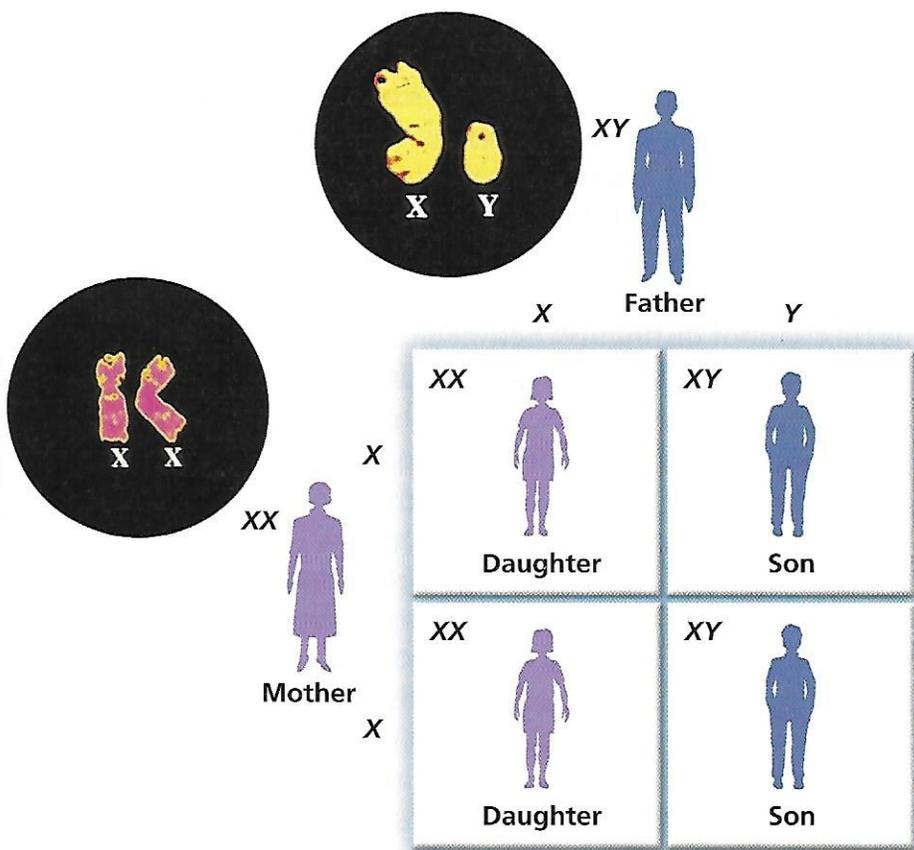


FIGURE 5

**Male or Female?**

As this Punnett square shows, there is a 50 percent probability that a child will be a girl and a 50 percent probability that a child will be a boy.

**Interpreting Diagrams** What sex will the child be if a sperm with a Y chromosome fertilizes an egg?

**The Sex Chromosomes**

The **sex chromosomes** are one of the 23 pairs of chromosomes in each body cell. The sex chromosomes carry genes that determine whether a person is male or female. They also carry genes that determine other traits.

**Girl or Boy?** The sex chromosomes are the only chromosome pair that do not always match. If you are a girl, your two sex chromosomes match. The two chromosomes are called X chromosomes. If you are a boy, your sex chromosomes do not match. One of them is an X chromosome, and the other is a Y chromosome. The Y chromosome is much smaller than the X chromosome.

**Sex Chromosomes and Fertilization** What happens to the sex chromosomes when egg and sperm cells form? Since both of a female’s sex chromosomes are X chromosomes, all eggs carry one X chromosome. Males, however, have two different sex chromosomes. Therefore, half of a male’s sperm cells carry an X chromosome, while half carry a Y chromosome.

When a sperm cell with an X chromosome fertilizes an egg, the egg has two X chromosomes. The fertilized egg will develop into a girl. When a sperm with a Y chromosome fertilizes an egg, the egg has one X chromosome and one Y chromosome. The fertilized egg will develop into a boy.

**Lab zone Try This Activity**

**The Eyes Have It**

One inherited trait is eye dominance—the tendency to use one eye more than the other. Here’s how you can test yourself for this trait.

1. Hold your hand out in front of you at arm’s length. Point your finger at an object across the room.
2. Close your right eye. With only your left eye open, observe how far your finger appears to move.
3. Repeat Step 2 with the right eye open. With which eye did your finger seem to remain closer to the object? That eye is dominant.

**Designing Experiments**

Is eye dominance related to hand dominance—whether a person is right-handed or left-handed? Design an experiment to find out. Obtain your teacher’s permission before carrying out your experiment.

**Sex-Linked Genes** The genes for some human traits are carried on the sex chromosomes. Genes on the X and Y chromosomes are often called **sex-linked genes** because their alleles are passed from parent to child on a sex chromosome. Traits controlled by sex-linked genes are called sex-linked traits. One sex-linked trait is red-green colorblindness. A person with this trait cannot distinguish between red and green.

Recall that females have two X chromosomes, whereas males have one X chromosome and one Y chromosome. Unlike most chromosome pairs, the X and Y chromosomes have different genes. Most of the genes on the X chromosome are not on the Y chromosome. Therefore, an allele on an X chromosome may have no corresponding allele on a Y chromosome.

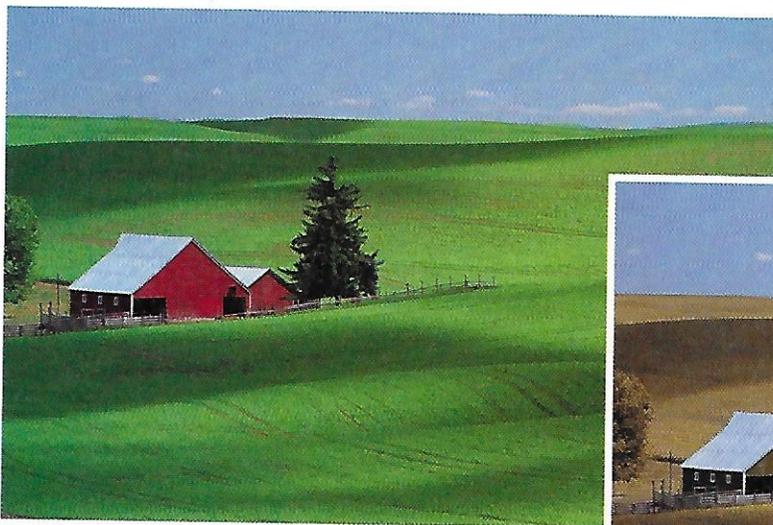
Like other genes, sex-linked genes can have dominant and recessive alleles. In females, a dominant allele on one X chromosome will mask a recessive allele on the other X chromosome. But in males, there is usually no matching allele on the Y chromosome to mask the allele on the X chromosome. As a result, any allele on the X chromosome—even a recessive allele—will produce the trait in a male who inherits it. Because males have only one X chromosome, males are more likely than females to have a sex-linked trait that is controlled by a recessive allele.

**FIGURE 6**

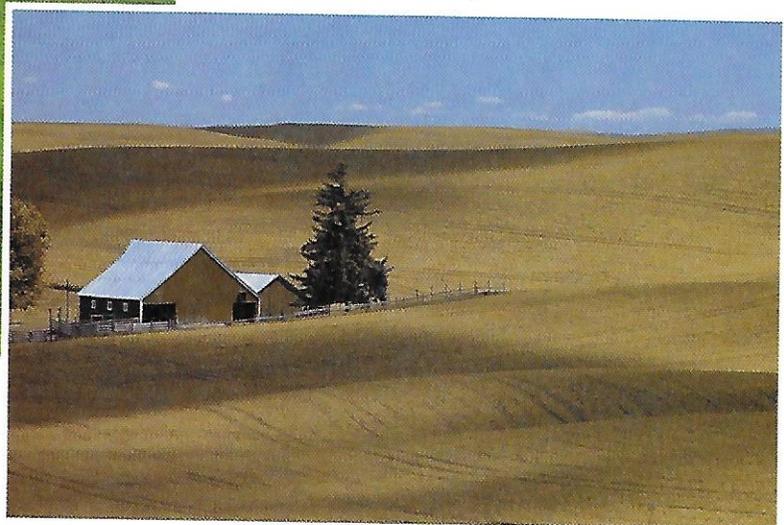
**Colorblindness**

The lower photo shows how a red barn and green fields look to a person with red-green colorblindness.

Normal vision



Red-green colorblind vision



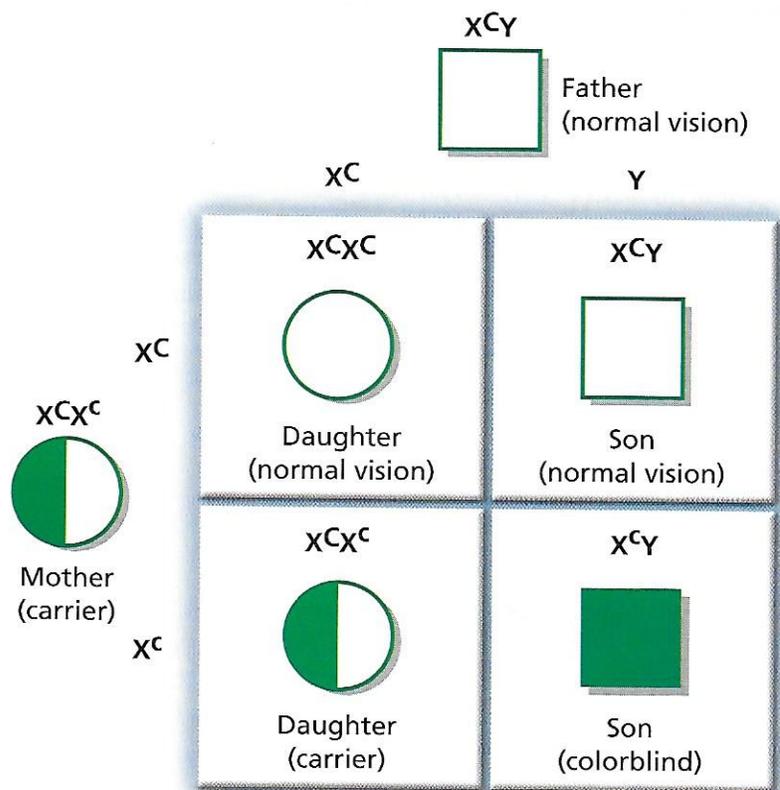
**Inheritance of Colorblindness** Colorblindness is a trait controlled by a recessive allele on the X chromosome. Many more males than females have red-green colorblindness. You can understand why this is the case by examining the Punnett square in Figure 7. Both parents in this example have normal color vision. Notice, however, that the mother is a carrier of colorblindness. A **carrier** is a person who has one recessive allele for a trait and one dominant allele. A carrier of a trait controlled by a recessive allele does not have the trait. However, the carrier can pass the recessive allele on to his or her offspring. In the case of sex-linked traits, only females can be carriers.

As you can see in Figure 7, there is a 25 percent probability that this couple will have a colorblind child. Notice that none of the couple's daughters will be colorblind. On the other hand, the sons have a 50 percent probability of being colorblind. For a female to be colorblind, she must inherit two recessive alleles for colorblindness, one from each parent. A male needs to inherit only one recessive allele. This is because there is no gene for color vision on the Y chromosome. Thus, there is no allele that could mask the recessive allele on the X chromosome.



**Reading Checkpoint**

What is the sex of a person who is a carrier for colorblindness?

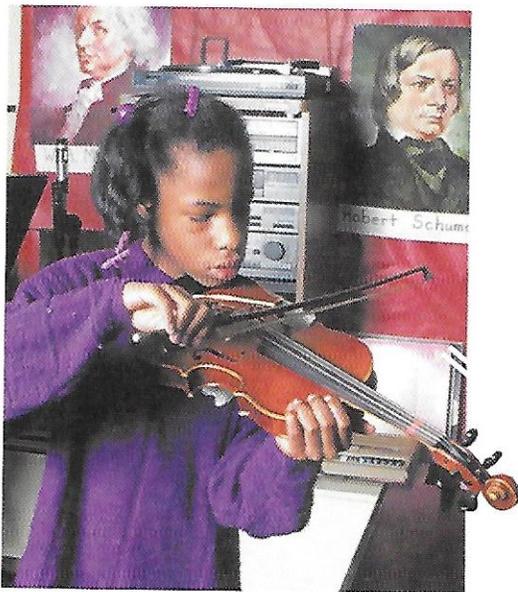


**FIGURE 7**  
**Colorblindness Punnett Square**  
 Red-green colorblindness is a sex-linked trait. A girl who receives only one recessive allele (written  $X^c$ ) for red-green colorblindness will not have the trait. However, a boy who receives one recessive allele will be colorblind.

**Applying Concepts** What allele combination would a daughter need to inherit to be colorblind?



For: Links on genetics  
 Visit: [www.SciLinks.org](http://www.SciLinks.org)  
 Web Code: scn-0341



**FIGURE 8**

**Heredity and Environment**

When a person plays a violin, genetically determined traits such as muscle coordination interact with environmental factors such as time spent in practice. For more information watch youtube <https://www.youtube.com/watch?v=9O5JQqlngFY>

## The Effect of Environment

In humans and other organisms, the effects of genes are often influenced by the environment—an organism’s surroundings. **Many of a person’s characteristics are determined by an interaction between genes and the environment.**

You have learned that several genes work together to help determine human height. However, people’s heights are also influenced by their environments. People’s diets can affect their height. A diet lacking in protein, certain minerals, or certain vitamins can prevent a person from growing as tall as might be possible.

Environmental factors can also affect human skills, such as playing a musical instrument. For example, physical traits such as muscle coordination and a good sense of hearing will help a musician play well. But the musician also needs instruction on how to play the instrument. Musical instruction is an environmental factor.



**Reading Checkpoint**

**How can environmental factors affect a person’s height?**

For more information watch youtube video <https://www.youtube.com/watch?v=h2xufrHWG3E>

## Section 1 Assessment

**Target Reading Skill Identifying Main Ideas**

Use your graphic organizer to help you answer Question 1 below.

**Reviewing Key Concepts**

1. **a. Identifying** Identify three patterns of inheritance in humans. Give an example of a trait that follows each pattern.
- b. Summarizing** How many human blood types are there? Summarize how blood type is inherited.
- c. Drawing Conclusions** Aaron has blood type O. Can either of his parents have blood type AB? Explain your answer.
2. **a. Reviewing** What are the functions of the sex chromosomes?
- b. Comparing and Contrasting** Contrast the sex chromosomes found in human females and human males.

- c. Relating Cause and Effect** Explain how red-green colorblindness is inherited. Why is the condition more common in males than in females?
3. **a. Reviewing** Are a person’s characteristics determined only by genes? Explain.
- b. Applying Concepts** Explain what factors might work together to enable a great soccer player to kick a ball a long distance.

## Writing in Science

**Heredity and Environment** Think of an ability you admire, such as painting, dancing, snowboarding, or playing games skillfully. Write a paragraph explaining how genes and the environment might work together to enable a person to develop this ability.

# LOGIC READING

## LESSON 14 Was Slavery Good or Bad?

In this lesson you'll read viewpoints written before the Civil War defending and attacking slavery in the South. They have been summarized and edited. Read them and answer the questions.

### Viewpoint A

(1) It has been the practice in all countries and in all ages, in some degree, to develop the type of government according to the wants, intelligence, and moral levels of the nations or individuals to be governed. A highly moral and intellectual people, like the free citizens of ancient Athens, are best governed by a democracy. Now, it is clear that Athenian democracy would not suit a Negro nation, nor will the government of mere law suffice for the individual Negro. He is but a grown-up child, and must be governed as a child. The master occupies towards him the place of parent or guardian.

(2) Secondly, the Negro is extravagant; he will not lay up in summer for the wants of winter; he will not accumulate in youth for the needs of old age. He would become an insufferable burden to society. Society has the right to prevent this, and can only do so by subjecting him to domestic slavery.

(3) In the last place, the Negro race is inferior to the white race, and living in their midst, they would be far outstripped or outwitted in the chase of free competition. Gradual

but certain extermination would be their fate.

(4) Those who criticize Negro slavery should remember that slavery here relieves the Negro from a far more cruel slavery in Africa, or from idolatry (false religions) and cannibalism, and every brutal vice and crime that can disgrace humanity; and that it Christianizes, protects, supports and civilizes him; that it governs him far better than free laborers in the North are governed. There, wife-murder has become a mere holiday pastime; and where so many wives are murdered, almost all must be brutally treated. Nay more: men who kill their wives or treat them brutally, must be ready for all kinds of crimes, and the calendar of crime in the North proves the inference to be correct. Negroes never kill their wives. If it be objected that legally they have no wives, then we reply, that in an experience of more than forty years, we never yet heard of a Negro man killing a Negro woman. Our Negroes are not only better off as to physical comforts than free laborers, but their moral condition is better.

*[continued on next page]*

*[continued from previous page]*

3. Evaluate the evidence this author presents.
  
  
  
  
  
  
  
  
  
  
4. Do you think George Fitzhugh, the author of Viewpoint A, believed what he wrote in this argument?
  
  
  
  
  
  
  
  
  
  
5. In another writing, George Fitzhugh wrote that human bonds are closer in family ties. People act out of trust, generosity, and love. On the other hand, capitalism, such as in factories, is impersonal and based on greed. Slavery is a closer approximation to family than to capitalism, so it is a superior system for organizing society. Government should be based on the social ties emphasized in slavery. Evaluate this argument.

### **Viewpoint B**

(1) Several million persons in the Southern States are held as slaves by force and fear, and for no crime! Reader, what do you think of such treatment? Suppose I should kidnap you, take your liberty away, and make you work in my fields without pay for as long as you live? Everybody knows that slaveholders do these very things to the slaves all the time. Yet some people say that the slaveholders treat the slaves kindly, that they love their slaves and never are cruel to them.

(2) We will prove by a thousand witnesses that the slaves are whipped with such inhuman severity, as to lacerate and mangle their flesh in the most shocking manner, leaving permanent scars; after establishing

this, we will present a mass of testimony, concerning a great variety of other tortures. The testimony, for the most part, will be that of the slaveholders themselves, and in their own chosen words. A large portion of it will be taken from the advertisements, which they have published in their own newspapers, describing, by the scars on their bodies made by the whip, their own runaway slaves. In the column under the word witnesses, will be found the name of the individual, who signs the advertisement, or for whom it is signed, with his or her place of residence, and the name and date of the paper in which it appeared, and

*[continued on next page]*

**Viewpoint B***[continued from previous page]*

generally the name of the place where it is published. Opposite the name of each witness will be an extract, from

the advertisement, containing his or her testimony.

**Witnesses****Testimony**

Mr. D. Judd, jailor, Davidson Co., Tennessee, in the *Nashville Banner*, Dec. 10, 1838

"Committed to jail as a runaway, a negro woman named Martha, 17 or 18 years of age, has *numerous scars of the whip on her back.*"

Mr. Robert Nicoll, Dauphin St. between Emmanuel and Conception St. s, Mobile, Alabama, in the *Mobile Commercial Advertiser*

"Ten dollars reward for my woman Siby, *very much scarred about the neck and ears by whipping.*"

Mr. Bryant Johnson, Fort Valley, Houston Co., Georgia, in the *Standard of Union*, Milledgeville, Ga., Oct. 2, 1838

"Ranaway, a negro woman, named Maria, *some scars on her back occasioned by the whip.*"

Mr. James T. De Jarnett, Vernon, Autauga Co., Alabama, in the *Pensacola Gazette*, July 14, 1838

"Stolen a negro woman, named Celia. On examining her back you will find *marks caused by the whip.*"

Maurice Y. Garcia, Sheriff of the County of Jefferson, La., in the *New Orleans Bee*, August 14, 1838

"Lodged in jail, a mulatto boy, *having large marks of the whip, on his shoulders and other parts of his body.*"

Mr. Asa B. Metcalf, Kingston, Adams Co., Mi. in the *Natchez Courier*, June 15, 1832

"Ranaway Mary, a black woman, has a scar on her back and right arm near the shoulder, *caused by a rifle ball.*"

Mr. William Overstreet, Benton, Yazoo Co., Mi., in the *Lexington (Kentucky) Observer*, July 22, 1838

"Ranaway a negro man named Henry, *his left eye out, some scars from a dirk on and under his left arm, and much scarred with the whip.*"

Mr. R.P. Carney, Clark Co., Ala., in the *Mobile Register*, Dec. 22, 1832

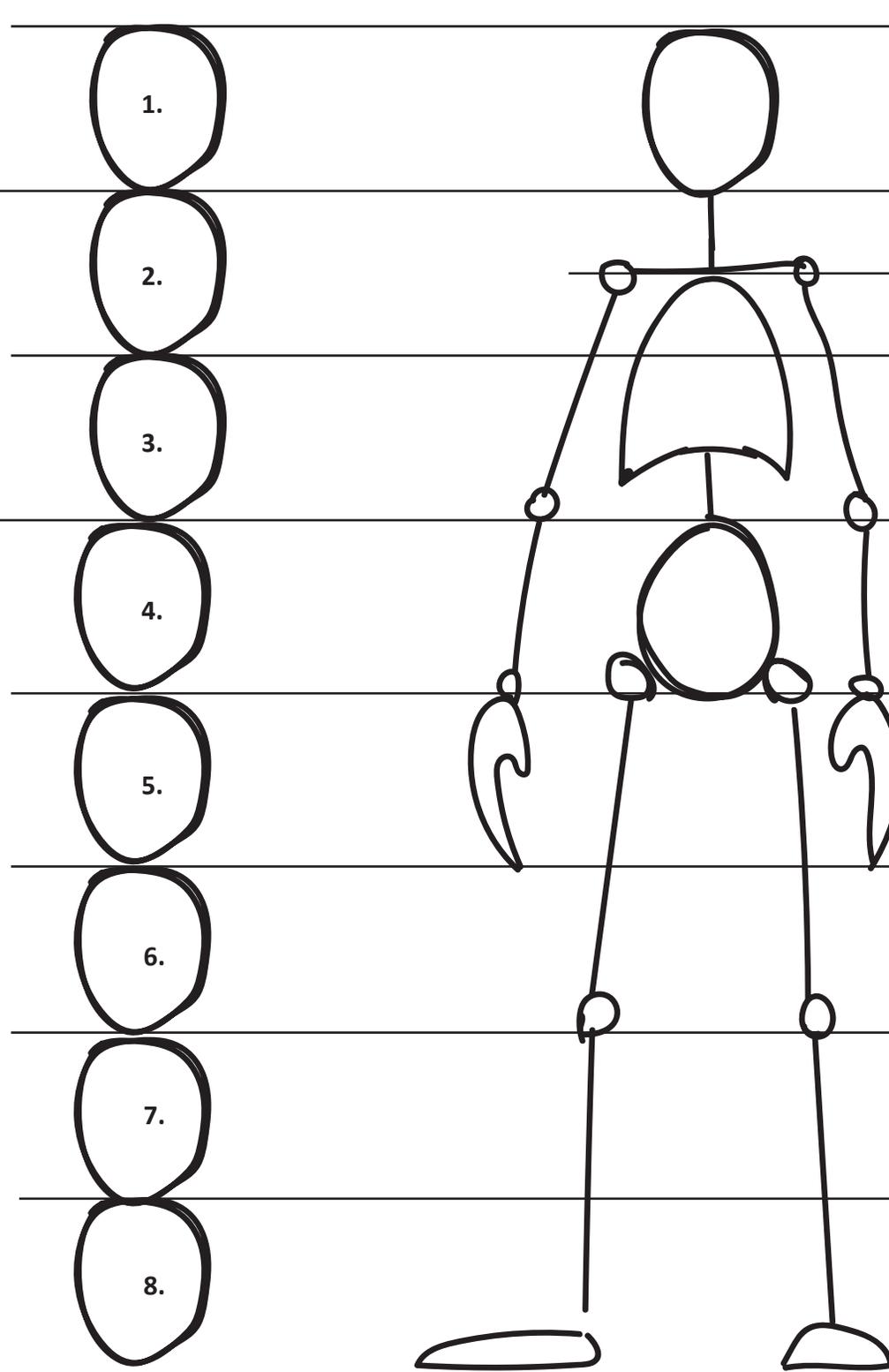
"One hundred dollars reward for a negro fellow Pompey, 40 years old, he is *branded on the left jaw.*"

*[continued on next page]*

# ART INSTRUCTIONS

**Step1 :** Last week you created a proportional “stick skeleton” that was 8 heads tall.

This week you will transform that stick skeleton into a well proportioned person. Begin by drawing that “stick skeleton” lightly on your work page.



**1. Top of Head line:** When you draw in your head the top of it should start there.

**2. Chin line:** Marks where the bottom of your chin should end.

**2.5. Shoulder line:** Shows where the top of shoulders circles need to be

**3. Center chest line:** Points out the center of the pectoral, or chest.

**4. Belly button/Elbow line:** Indicates where you need to place elbow joint circles for both arms. Also where the belly button of your person should be.

**5. Hip joint line:** Shows where hip joint circles need to be placed. also acts as the top of the hand shape.

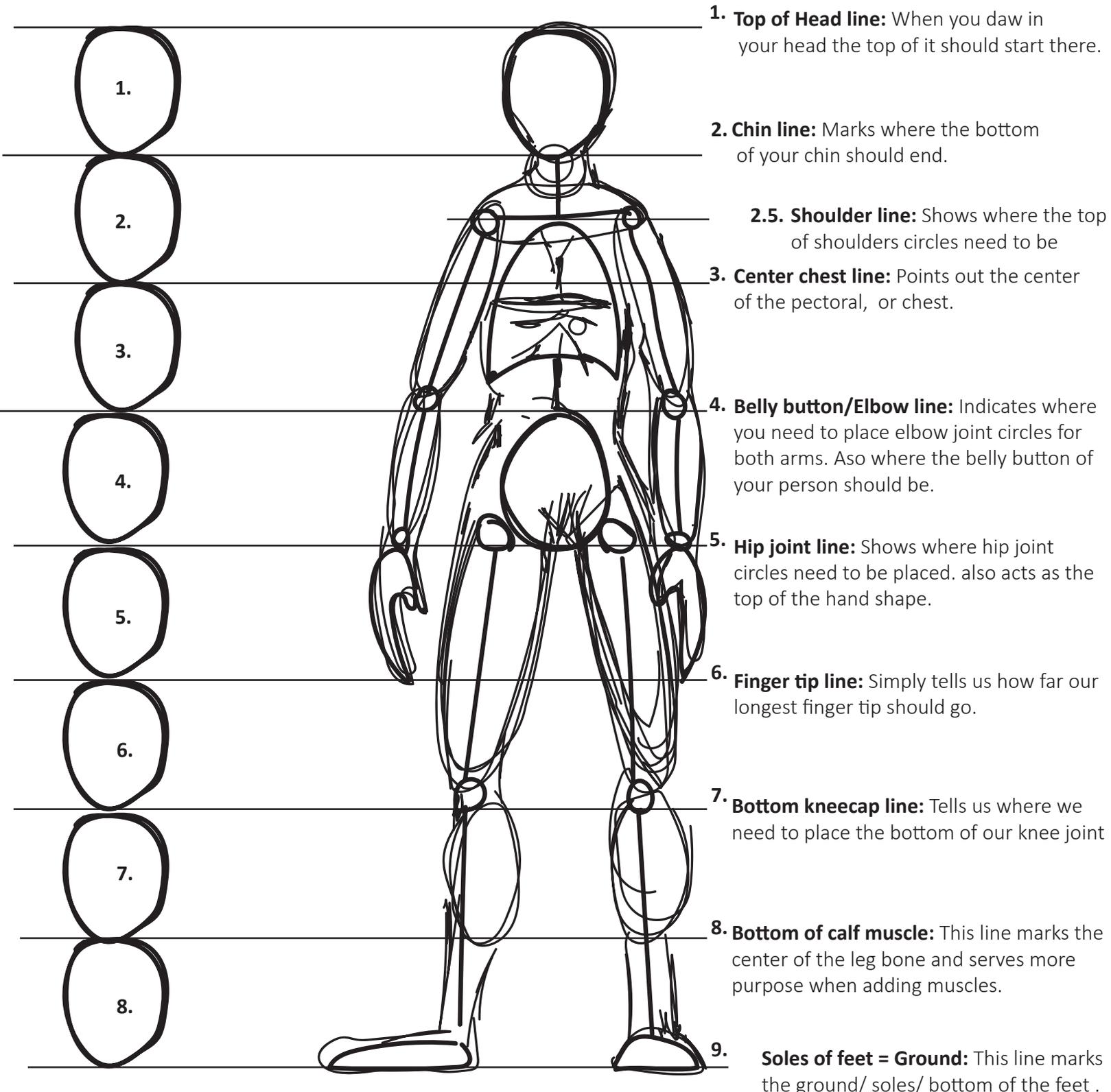
**6. Finger tip line:** Simply tells us how far our longest finger tip should go.

**7. Bottom kneecap line:** Tells us where we need to place the bottom of our knee joint

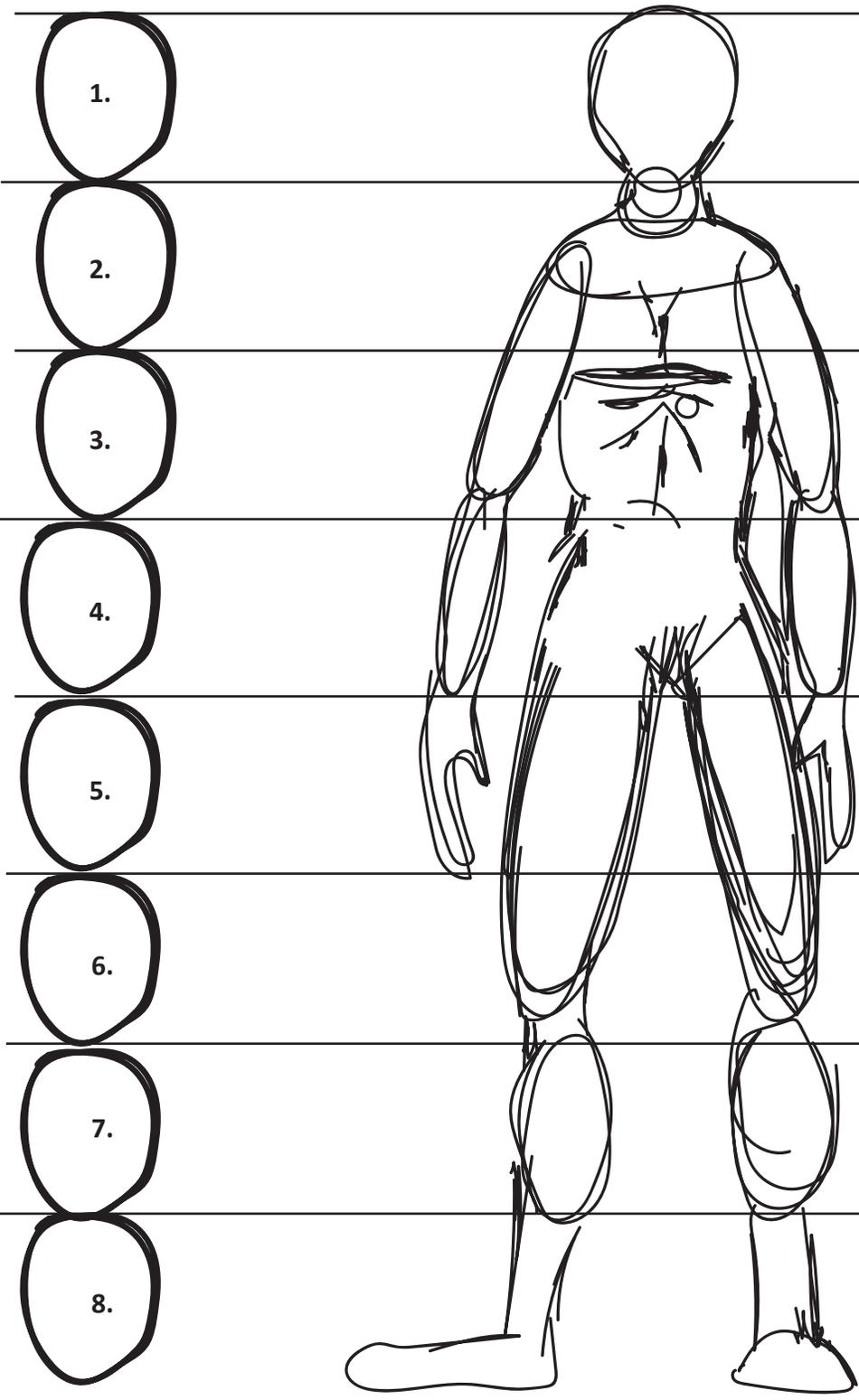
**8. Bottom of calf muscle:** This line marks the center of the leg bone and serves more purpose when adding muscles.

**9. Soles of feet = Ground:** This line marks the ground/ soles/ bottom of the feet .

**Step 2 :** Now that you have your lightly drawn stick skeleton you can start to add thickness or muscle to the body. Start this by drawing thin oval shapes from the circle joints of each shoulder. Draw the same oval shape from the shoulder joint circle to the elbow joint circle. Continue this till you have outlined your skeleton like I have done below. Dont forget we are still drawing lightly in this step, these shapes will serve as a guide as we continue our drawing. ( NOTE: If you have internet check the schools web site in the distance learning section under art for a video reference.)



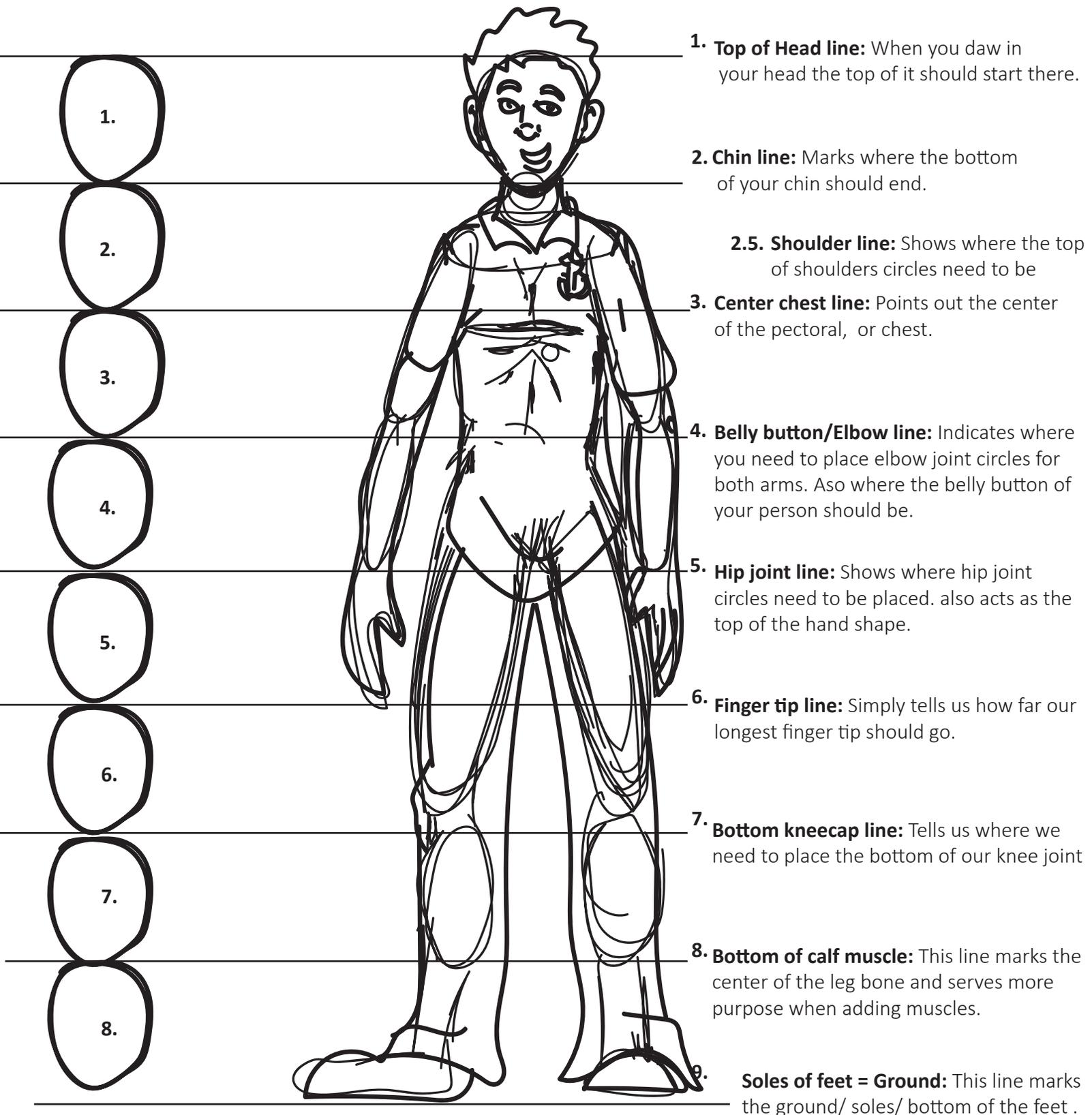
**Step 3:** Once you have your muscles drawn, it is time to start to erase the stick skeleton. Erasing the “stick skeleton” should leave you with the shape of a person as shown below. At this point you have a blank person that is ready to be detailed .



1. **Top of Head line:** When you draw in your head the top of it should start there.
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3. **Center chest line:** Points out the center of the pectoral, or chest.
4. **Belly button/Elbow line:** Indicates where you need to place elbow joint circles for both arms. Also where the belly button of your person should be.
5. **Hip joint line:** Shows where hip joint circles need to be placed. also acts as the top of the hand shape.
6. **Finger tip line:** Simply tells us how far our longest finger tip should go.
7. **Bottom kneecap line:** Tells us where we need to place the bottom of our knee joint
8. **Bottom of calf muscle:** This line marks the center of the leg bone and serves more purpose when adding muscles.
9. **Soles of feet = Ground:** This line marks the ground/ soles/ bottom of the feet .

**Step 4:** In this step you will draw in your persons face using a face map method and then adding details. This is your chance to turn this person into whoever you want. Some examples are: Spartan Warrior, Viking, Greek/Roman God, Queen/Princess, anyone from history, or even yourself. So get creative!

Once you are done adding the defining details to you character start to erase any muscle lines that do not need to be seen anymore.



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- 7. **Bottom kneecap line:** Tells us where we need to place the bottom of our knee joint
- 8. **Bottom of calf muscle:** This line marks the center of the leg bone and serves more purpose when adding muscles.
- 9. **Soles of feet = Ground:** This line marks the ground/ soles/ bottom of the feet .

**Finished:** Once you have removed all the unnecessary lines, your drawing should be close to done. If you have access to colors you can customize it even further. Congratulations, you have drawn a proportional person!

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

