



The College Football Hall of Fame Teacher's Playbook for Elementary School Grades 3 – 5

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TurnKey Education, Inc.: www.turnkeyeducation.net

Welcome to the College Football Hall of Fame!

Game on! Your class has earned a coveted, All-Access Pass to the hallowed halls of college football. On your class tour through the College Football Hall of Fame, you and your students will experience the science, history, rivalries, and pageantry that have made college football one of the most beloved sports in America.

The College Football Hall of Fame is a highly-immersive and engaging experience that blends historic college football artifacts with state-of-the-art, interactive, multimedia college football exhibits. Most recently located in South Bend, Indiana, The National Football Foundation (NFF) voted to relocate the Hall of Fame to downtown Atlanta in 2009, with the attraction opening in 2014. The Hall is located adjacent to the Georgia World Conference Center (GWCC), one of the largest convention facilities in the country. It is also just steps from Centennial Olympic Park, the World of Coca-Cola, the Georgia Aquarium, CNN Center, the Imagine It! Children's Museum, and the Center for Civil and Human Rights.

The National Football Foundation launched the College Football Hall of Fame in 1951 to stand as one of the nation's premier sports shrines, immortalizing the game's greatest players and coaches as positive role models for future generations. The Hall of Fame represents the

highest level of achievement for players and coaches and serves as a tribute to all of amateur football.

The National Football Foundation itself was founded in 1947 with early leadership from General Douglas MacArthur, legendary Army football coach Earl "Red" Blaik, and revered sports journalist Grantland Rice. It is a not-for-profit, educational organization with programs that use the power of amateur football to develop scholarship, citizenship, and athletic achievement in young people.

Through exhibits, programs, and special events, the Hall of Fame will provide your students with a vivid look into the rich tradition and excitement of college football. You will find that you can use the topic of sports, along with the interactive experiences at the Hall of Fame itself, to connect the educational themes of the exhibition to your national and local STEAM curricula and content requirements. This Teacher's Guide features a curriculum designed to offer a memorable learning experience that is interdisciplinary and applicable across several grade levels and areas of study. You are sure to score points with your students throughout the school year. Now let's blow the whistle and start the game!

IMAGE SUGGESTIONS

- A basic photo of the exterior of the Hall, or any images used in PR/marketing.
- Official logo?

During Your Field Trip

This section of the Teacher’s Guide provides a brief overview of what your students will see and do during your field trip. As you kick off your class visit to the College Football Hall of Fame, the first thing you and your students will notice is a towering wall holding over 765 helmets, one from every college that has a football team. With each team averaging 90 players, these helmets represent almost 70,000 scholar-athletes! The excitement and adventure of a college football game day fills the air as your students make their way through the *Quad* and upstairs to *Why We Love College Football*. Here, they will find the annual awards honoring the most accomplished teams, players, and coaches in college football. These trophies include the Heisman Trophy for the most outstanding college player and the National Championship Trophy for the number one team at the end of each season.

Along with the trophies, a giant interactive wall will feature photos and videos of players, fans, cheerleaders, marching bands, college campuses, and stadiums where students will want to explore the themes and experiences yet to come at the College Football Hall of Fame. Follow the interactive wall to the *Game Day Theater* where the film, “The Game of Your Life,” is a one-of-a-kind look at the ultimate college football experience as told through the eyes of those who live it every season—the players, coaches, fans, media, cheerleaders, and bands. Get in the spirit!

Some of college football’s most compelling and colorful activities take place in the stands and outside the stadiums. Fans cheer, chant, chat, and chew their way to making their campus the only place to be on Saturdays in the Fall. The history of these uniquely American traditions is explored next, in *Fans’ Game Day*. Tailgating from its earliest years to today shows how changes in technology and society go hand-in-hand, from horse-drawn wagons in the late

1800s to modern-day mobile satellite TV systems and Game Day recycling challenges. Many of the interesting artifacts featured here reveal a unique connection between college football and Coca-Cola (another Atlanta institution). How refreshing!

Students should look carefully for some of the most beloved football traditions in history, such as the hound’s-tooth fedora worn by legendary Alabama coach Paul “Bear” Bryant. Keep an eye out for authentic marching band, cheerleading, and mascot uniforms that showcase the colors and creativity unique to each school. You won’t want to miss the interactives in *Fans’ Game Day* including a “Face Painting Station” to celebrate your team colors and “Fight Song Karaoke” to show your school spirit through music—educational and entertaining, just like the sport itself.

Your students may even have a chance to sit behind the ESPN GameDay Desk and play the role of an on-camera sports broadcaster predicting the results of a game. Stop at the *Fans’ Game Day* interactive table to test your trivia knowledge, search for your favorite tailgate food, and create your own marching band routine and cheerleading performances. Can you locate your favorite?

The next gallery, *Building a Champion*, highlights those college football coaches who molded the game into what it is today and helped shape the characters of countless student-athletes. Artifacts and objects of great interest to your students include an interactive version of a 1920s playbook from John Heisman (Rice, Georgia Tech) and personal items from coaches Bobby Bowden (Florida), Hayden Fry (Iowa), Tubby Raymond (Delaware), and Woody Hayes (Ohio State). Interviews with individual college football players found at the “Meet the Players” interactive reveal how these young men manage to successfully balance academics

with conditioning and practice, down time, media attention, and a social life. That's quite a schedule considering that there are only 24 hours in each day!

Football is more than just a game for players and coaches. It also relies on experts—men and women—who can provide advice on physical training, adequate nutrition, and mental preparation. And let's not forget the scientists and engineers! The significance of technology is at the forefront of the "Evolution of Equipment" section of *Building a Champion*. You can compare and contrast the kinds of gear, uniforms, and protection that have been used in well over a century of college football. Here, you will also find the "Touchdown Timeline," a copy of which is included in the Appendix to this Teacher's Guide. At the College Football Hall of Fame, this timeline is augmented with rare historic treasures such as the Yale-Eaton game program from 1873 and the first penalty flag, thrown at Youngstown State in 1941. So much to learn and see!

Every week, from coast to coast, great rivalries and matchups are staged in hallowed cathedrals before millions of loud and loyal fans. The next gallery, *Game Time*, brings it all to life—the greatest sights, sounds, stadiums, and singular moments from over a century of college football. "Rivalry Row" conveys the range of emotions, from agony to ecstasy, elicited by annual games between rivals. Did you know that the Yale-Harvard rivalry became so heated by the 1890s that Harvard President Charles Eliot called for a ban on football altogether? Scenes from these annual competitions are presented in the "ESPN Annual Theater," with a highlight reel that will either preview the upcoming season or review the previous season.

Your class will get really close to the action at the interactive stations in *Game Time*. There is an opportunity for some individual students to record their own play-by-play calls of some of college football's memorable moments from

1972 to today or to use cutting edge virtual video technology to place themselves on the field at one of college football's iconic stadiums. The culmination of everything your students have learned thus far at the College Football Hall of Fame can be put to the test with an opportunity to take on the role of a Head Coach building his or her college football program from the ground up in the "Getting to the Championship" interactive station. Another feature found here that put you in the middle of it all is "Anatomy of a Play." This video breaks down all that happens between the end of a play, through the huddle, snap, and execution of the next play, as told by first-hand accounts from players and coaches.

Before leaving this level of the College Football Hall of Fame, you will pass a gallery that hosts a variety of related educational exhibitions on a rotating basis. Keep checking back to see what comes next! In this area, you will also find some of the most treasured items in the Hall of Fame's collection as well as a "Greatest Moments" film. This film is a timeline of notable events from the history of college football.

Only the most outstanding performers on and off the field are even considered for membership in the College Football Hall of Fame, and even fewer are voted in. In the *Hall of Fame* gallery on the third floor, your students can find Hall of Famers on glass panels on the perimeter and interact with stations to access information, images and videos about every inductee, many of whom are highlighted in the lesson plans and activities in this Teacher's Guide.

Your field trip continues in *Building Leaders*, which introduces your students to the achievements made by players after their college football careers. The vast majority of these men go on to pursue careers and occupations off the gridiron. The National Football Foundation's (NFF) highest honors are reserved for these remarkable people who have

made contributions in many facets of their lives, whether they spend most of their time in a locker room or a classroom or a board room. Interactive stations focus on the themes of “Character,” “Teamwork,” “Excellence,” and “Dedication.”

As the time clock winds down, the field trip ends for your students the same way most college football games begin for its players, by walking through the *Touchstone Tunnel* and onto the field. It’s a moment that will stay with your students long after the final whistle blows.

IMAGE SUGGESTIONS

- Floor plan/map of the Hall
- Images of interior spaces/inside the galleries (can also be used for the next section if the text needs to be broken up visually), with location identified in captions

Using This Teacher's Playbook

As a companion to your field trip experience at the College Football Hall of Fame, this comprehensive Teacher's Guide for Elementary School has been created to complement your classroom instruction and make the most of your school field trip. This Teacher's Guide contains original, assessable, STEAM-related classroom lesson plans with additional inquiry-based interdisciplinary activities and project ideas for you to use and share.

The Teacher's Guide for Elementary School contains dynamic activities and assignments for students in grades three through five. There are also Teacher's Guides for Middle School and High School. Each of these Guides is created to be flexible; use them to best meet the needs and capabilities of your class. You know your students better than anyone else!

Following this Introduction, you will find a list of School Names and Nicknames that you and your students may encounter within this Teacher's Guide, followed by an onsite activity that can be completed during your field trip to the College Football Hall of Fame. The list of school names also includes the states that each school is located within, along with their team names based on their mascots. Use this information to assign a mapping activity, have your students create their own matching worksheet, or play a round of Game Day Game Show. Your call, Coach!

The next section contains five Classroom Lesson Plans designed to correlate directly with your state curriculum standards. The lesson plans begin with the Teacher Instructions pages, which include the answer keys for those activities. At the top of the Teacher instruction page, you will find the appropriate content areas and skills addressed by the activities in the lesson. Each lesson continues with complete, ready-to-copy, Student Activity worksheets that center on key topics featured

in the exhibition. Depending on your schedule, these lesson plans can also be conveniently broken down and completed over a series of days.

The first lesson plan, **It's Game Time**, gives your students practice with converting, adding, and subtracting units of time. These calculations are based on the length in a quarter of a football game at five different age levels: *Youth* (for 9-12 year olds), *Junior* (for 12-14 year olds), *High School*, *College*, and *Professional*.

In the second lesson plan, **The Forces of a Football**, your students will use both a real football and a foam (Nerf) football in an inquiry-based lesson plan to witness Newton's Laws of Motion in action for themselves. Much like the quarterback who throws the ball, your students' hands will provide the unbalanced force needed to get the ball rolling and, literally, start the lesson. Contemplating reasons why the balls do not roll indefinitely, and why they bounce off the floor when they fall off of a desk introduces the roles of force, friction, and gravity. Performing the activities with these two different kinds of footballs illustrates the effect that mass has on force.

For the third lesson, **What's the Score?**, your students are provided with a chart that explains the ways points are earned in a college football game. They will use these amounts to practice addition, subtraction, multiplication, and division to manipulate combinations of plays and see how the same number solution can be obtained by more than one equation. Finally, they will solve story problems about how scores were earned in five historically important college football games.

Your students will begin the fourth lesson plan, **Football Forecast**, by reading a weather chart to answer the questions about the effects weather can have on a college football game.

The chart lists the average high temperature, low temperature, amount of daylight time, and chance of precipitation for 10 dates in Atlanta, GA (home of the College Football Hall of Fame), during a typical college football season. In Part 2, they will conduct an experiment to decide which kind of uniform would be most beneficial for a college football game played on a hot, sweaty, sunny day in late summer.

The final lesson plan is the **Fans' Game Day Logic Puzzle**. Your students will read a short story about a field trip to the College Football Hall of Fame and use their critical reasoning skills to solve a logic puzzle that matches four fictitious students to their favorite topics explored in *Fans' Game Day*: marching bands, mascots, cheerleading, and tailgating.

A field trip to the College Football Hall of Fame has connections to multiple content areas at the elementary school level. To round out your playbook, additional Interdisciplinary Activities and Inquiry-based Project Ideas follow the Classroom Lesson Plans and can be incorporated into a wide variety of curricula, including Social Studies and Language Arts. The next section contains three Games and Puzzles related to the themes of college football and the College Football Hall of Fame. These are excellent activities for your bus ride to and from the Hall of Fame or to assign for extra credit PAT ("Points after Trip") as you see fit.

Under Additional Resources, you will find a handy "Football 101" reference guide. Keep this guide within reach as you introduce your class to the basics of college football. Be prepared to tackle their questions about the field, the player positions, the point system, and the College Football Hall of Fame itself. You may also find it helpful to copy "Football 101" and distribute it to your students for their own use.

IMAGE SUGGESTIONS

- Images of interior spaces/inside the galleries (if not used in previous section and if the text here needs to be broken up visually), with location identified in captions

The second part of Additional Resources contains a "Recommended Reading" list. Before or after a class trip to the College Football Hall of Fame, you will want to use this list as a starting point to create your own "Literary Hall of Fame" exploring the science, math, history and fun of college football. This section also includes a copy of the "Touchdown Timeline" of American history and college football you will see displayed at the College Football Hall of Fame in *Building a Champion*.

We know how important it is to be able to justify field trips and document how instructional time is spent outside of your classroom. To that end, this Teacher's Guide is directly correlated to the Common Core State Standards for Mathematics and English Language Arts along with the Next Generation Science Standards and the C3 Framework for Social Studies State Standards. In addition you will find specific state requirements for Alabama, Florida, Georgia, North Carolina, South Carolina, and Tennessee to assist with your planning needs. The correlations are organized by grade level and content. You can readily see how they fit into your required curriculum making it easier than ever to connect a field trip to the College Football Hall of Fame with your classroom instruction.

All of these education resources can be used before your visit to the Hall of Fame to help prepare students for the teachable moments found throughout the exhibition as well as when you return to school to further explore connections between the educational themes of the exhibition and your classroom STEAM instruction. We look forward to seeing you at the College Football Hall of Fame. Time for kick-off!

College Names and Nicknames

This list contains the names and nicknames of the colleges and universities you may encounter in the College Football Hall of Fame Lesson Plans and Activities. The chart matches the official name of the school with its nicknames. You will see a few schools that are referred to by multiple names! The state in which the school is located is also included as well as the team names based on their mascots.

Official name	Also known as	Team	State
Campbell University	Campbell	Camels	NC
Cumberland University	Cumberland	Bulldogs	TN
Drake University	Drake	Bulldogs	IA
Duke University	Duke	Blue Devils	NC
Georgia Institute of Technology	Georgia Tech	Yellow Jackets	GA
Georgia Southern University	Georgia Southern, GS	Eagles	GA
Harvard University	Harvard	Crimson	MA
Kennesaw State University	Kennesaw, KSU	Owls	GA
Lafayette College	Lafayette	Leopards	PA
Lehigh University	Lehigh	Mountain Hawks	PA
Louisiana State University and Agricultural and Mechanical College	Louisiana State University, LSU	Tigers	LA
Ohio State University	Ohio State, OSU	Buckeyes	OH
Oregon State University	Oregon State	Beavers	OR
Stillman College	Stillman	Tigers	AL
Texas A&M University	Texas A&M, TAMU	Aggies	TX
United States Military Academy	Army, West Point	Black Knights	NY
University of Akron	Akron	Zips	OH
University of Alabama	Alabama, Bama	Crimson Tide	AL
University of California, Los Angeles	UCLA	Bruins	CA
University of Florida	Florida	Gators	FL
University of Georgia	Georgia, UGA	Bulldogs	GA
University of Kentucky	Kentucky, UK	Wildcats	KY
University of Maryland	Maryland	Terrapins	MD
University of Michigan	Michigan, U of M	Wolverines	MI
University of Minnesota	Minnesota	Gophers	MN
University of Nebraska	Nebraska	Cornhuskers	NE
University of Notre Dame	Notre Dame, ND	Fighting Irish	IN
University of Oklahoma	Oklahoma, OU	Sooners	OK
University of South Carolina	South Carolina	Gamecocks	SC
University of Southern California	USC, Southern Cal	Trojans	CA
University of Tennessee	Tennessee, UT	Volunteers	TN
University of Texas	Texas, UT	Longhorns	TX

University of Washington	Washington	Huskies	WA
University of West Alabama	West Alabama, UWA	Tigers	AL
University of Wisconsin	Wisconsin	Badgers	WI
Yale University	Yale	Bulldogs	CT

First Down! A Student Field Trip Activity

Teacher Instructions

This activity is for your students to complete during their field trip to the College Football Hall of Fame. The galleries inside the Hall of Fame are highly immersive and interactive. Your class will have a true fan experience with audio features, videos, games, and touchscreen interactives. This Field Trip Activity will help your students make the most of their time at the Hall of Fame, while highlighting some of the content they might not otherwise see or read.

In each gallery, your students will be able to direct their own learning by choosing questions about the topics and people that interest them most. Each list of questions comes with directions indicating how many need to be answered from that group. By the end of the field trip, your students will have answered a total of 12 questions. However, you can assign the number of questions that best fits the skill level and interests of your students. The five galleries with questions on this Field Trip

Activity are: *Why We Love College Football, Fan's Game Day, Building a Champion, Game Time, Hall of Fame, and Building Leaders*. Hall of Fame Fan Ambassadors will greet your group upon arrival and provide directions as to how and where your experience will begin.

During your preparations for the field trip, advise your students to read through the questions carefully ahead of time so they will know what to look for once they are inside the galleries. Upon returning to school after the field trip, have students share and compare the answers to the questions they chose. By working in groups or as a whole class, try to complete all of the questions from the Field Trip Activity. The Answer Key below gives specific answers where appropriate and provides the locations where the answers will be found within the galleries for those questions with answers that can vary.

Answer Keys

Why We Love College Football

1. 25 lbs
2. Choices include national championships for Division I, II, and III, or FCS and NAIA; bowl games such as the Orange, Fiesta, Cotton, or Sugar; or the Heisman

Fan's Game Day

1. These artifacts will be located in the bed of the antique car, immediately on the left upon entering the gallery.
2. All green, a green suit, leprechaun, etc.
3. 17 – 7
4. Students will be able to choose from a list of over 50 colleges and universities.
5. 65,000
6. Morehouse College

Building a Champion

1. Coaches on the mural: Eddie Robinson, Knute Rockne, Pop Warner, Bud Wilkinson, Bobby Bowden, Vince Dooley, Bobby Dodd, Bo Schembechler, Amos Alonzo Stagg, Lavell Edwards, John McKay, Woody Hayes, Bear Bryant, Darrell Royal
2. Virginia Tech
3. The Father of American Football
4. USAF: "Aim High...Fly! Win! Fight!" Army: "Duty, Honor, Country." Navy: "Honor, Courage, Commitment."
5. 172.3, 284.7
6. More than 100
7. Choices: Trail mix, protein bars, peanut butter on whole wheat. Apple slices with peanut butter. String cheese. Tuna on pita.
8. Pink, to make the other team more mellow, to get an edge
9. The old ones were round spheres. Footballs today are more like ovals (officially, a "prolate spheroid").
10. As a tribute to the men and women serving in the armed forces
11. Players must wear helmets
12. 1892, in North Carolina

Game Time

1. Harvard-Yale (1875), Auburn-Alabama (1893), Army-Navy (1890), Michigan-Ohio State (1897), Notre Dame-USC (1925-6), Texas-Oklahoma (1900), Cal-Stanford (1892), or Grambling-Southern (1932)
2. Minnesota-Wisconsin
3. Wide receiver, right guard, left guard, running back, or tight end
4. 45

Hall of Fame

1. Inductees are listed by year on the panels along the walls.
2. The "Legends of College Football" interactive touch screens are located in the center of the gallery. Students can select from a large number of Hall of Fame players and coaches.

Building Leaders

1. The nation's top scholar-athlete
2. The four themes are Character, Dedication, Teamwork, and Excellence. (The stations are located along the wall opposite the glass windows overlooking the field.)

First Down!

Student Field Trip Activity

You have a choice of questions to answer for each gallery. You can move around to see the exhibitions within the galleries in any order. The questions are in the first column. Write the numbers for the questions you chose with your answers in the second column. Please do not lean on the glass cases or touchscreens to write.

Why We Love College Football: Choose one.

<p>1. How much does the Heisman Trophy weigh?</p> <p>2. Which of the trophies in the glass cases is your favorite? Why?</p>	<p># _____</p>
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Fan's Game Day: Choose three.

<p>1. <i>Kick Off</i>: Look in the antique car. Pick one Coca-Cola artifact from the early years of tailgating. What is the artifact and what is its year?</p>	<p># _____</p>
<p>2. <i>Mascot</i>: Describe the costume worn by Notre Dame's mascot.</p>	<p># _____</p>
<p>3. <i>Cheerleaders</i>: What was the score of the Army-Navy game played on December 12, 1931? (Hint: Look for the small megaphone.)</p>	<p># _____</p>
<p>4. <i>Down, Set, Sing</i>: If you did the "Fight Song Karaoke," which song did you sing?</p>	<p># _____</p>
<p>5. <i>Family, Food, Fun</i>: How many bottles of water do fans go through on game days at the University of Michigan?</p>	<p># _____</p>
<p>6. <i>Bands</i>: Which college has a band called "The House of Funk?"</p>	<p># _____</p>

Building a Champion: Choose four.

1. *Coaches Who Changed the Game*: Pick a quote that you like from the cartoon mural. What is the quote? Who said it? Why do you like it?

2. *Chemistry Counts*: Which school's team has an old lunch box that represents hard work and determination?

3. *Coaches Desk*: What is Walter Camp's nickname? (Hint: Check the blue wall panels.)

4. *Service Academies*: What is the motto for the football team from one of the US military academies?

5. *How Do You Measure Up*: What was the average weight for linemen in 1890? In 2010?

6. *The Weight Room*: At UGA, how many miles of athletic tape does the team use each year?

7. *The Training Table*: Which snack idea from Georgia Tech's sports dietician would you choose?

8. *The Mind Game*: Why is the visiting team's locker room pink at the University of Iowa?

9. *Evolution of Equipment, Football*: Compare the shape of the first ball (1869) to those used today.

10. *Evolution of Equipment, New Technology*: Why do some schools use camouflage in their football uniforms?

11. *Touchdown Timeline*: What rule change came in 1939?

12. *HBCU*: Find the Black College Football Centennial Patch. When was the first black college football game played? In what state?

Game Time: Choose two.

1. *Rivalries*: Pick one of the rivalries shown in this gallery. What are the names of the two schools? In what year did their rivalry begin?

2. *Rivalries*: Which two teams play each other every year for Paul Bunyan's axe?

3. *Anatomy of a Pass* (window wall overlooking the field): Name a football position that needs a player who can run fast.

4. *The Greatest Moments*: What number did Archie Griffin wear at Ohio State? (Hint: Look for his red jersey.)

Hall of Fame: Choose one.

1. Name a player from the most recent year of Hall of Fame inductees.

2. At the "Legends of College Football" screens, select "Ask A Hall of Famer." Whom did you choose? What year was he inducted?

Building Leaders: Choose one.

1. To whom is the William V. Campbell Trophy awarded each year?

2. Choose one of the four themes for the Leadership Station touchscreen interactives along the wall. Select one player. Who did you choose? Which leadership theme does he represent?

Lesson 1: It's Game Time

Teacher Instructions

Few sporting events produce more emotion than a college football rivalry. History plus proximity can lead to animosity, and when you sprinkle in national championship possibilities, things can get a little heated. Just think of the annual Georgia-Georgia Tech played game each November! Many of these rivalry games—like Yale vs. Harvard, Lehigh vs. Lafayette, or Wisconsin vs. Minnesota—have been played for over a hundred years. The Lehigh-Lafayette rivalry is honored at the College Football Hall of Fame by a ball from their game in 1899, while Yale-Harvard is represented by a 1906 game ball. For these and the other famous college football rivalries on “Rivalry Row” in *Game Time* at the College Football Hall of Fame, 60 minutes of football dictates bragging rights for the next 364 days.

In this activity your students will compare the length of time played in a quarter of a football game at five different age levels: *Youth* (for 9-12 year olds), *Junior* (for 12-14 year olds), *High School*, *College*, and *Professional*. Just like the players at the younger levels are not as big as the college or professional players, their quarters are not as long either: the younger the player, the shorter the quarter.

The exact playing time for the younger ages can vary from league to league. The ones cited here are commonly used, but your students may play in leagues with different times. If so, ask your students to compare their leagues' quarter lengths to the ones included here.

Students will need scratch paper to work out their solutions to the questions and you may choose to let them use calculators.

ANSWER KEY

Level	playing time, in minutes
Junior	32
Youth	40
High School	48
College	60
Professional	60

1. (a) 480, (b) 32
2. (a) 600, (b) 40
3. (a) 720, (b) 48
4. (a) 900, (b) 60
5. (b) 28
6. (c) 24
7. (a) $\frac{3}{4}$
8. 16 minutes
9. 29 minutes 30 seconds
10. 20 minutes 35 seconds

It's Game Time!

Student Activity

Few sporting events produce more emotion than a college football rivalry. History plus proximity can lead to animosity, and when you sprinkle in national championship possibilities, things can get a little heated. Just think of the annual Georgia-Georgia Tech played game each November! Many of these rivalry games—like Yale vs. Harvard, Lehigh vs. Lafayette, or Wisconsin vs. Minnesota—have been played for over a hundred years.

The Lehigh-Lafayette rivalry is honored at the College Football Hall of Fame by a ball from their game in 1899, while the Yale-Harvard rivalry is represented by a 1906 game ball. For these and the other famous college football rivalries on “Rivalry Row” in *Game Time* at the College Football Hall of Fame, 60 minutes of football

dictates bragging rights for the next 364 days.

From your local neighborhood team all the way up to professional games in the NFL, every football game is played in four equal sets of time called “quarters.” For all football games, the total amount of playing time is found by adding up the minutes for the four quarters.

In this activity, you will compare the lengths of time played in a quarter of a football game at five different age levels: *Youth* (for 9-12 year olds), *Junior* (for 12-14 year olds), *High School*, *College*, and *Professional*. Just like the players at the younger levels are not as big as the college or professional players, their quarters are not as long either: the younger the player, the shorter the quarter. Remember, 4 quarters = 1 game!

Words to Know: *animosity, artifact, eliminated, professional, proximity, reduce, rivalry*

The chart on the next page shows the lengths of a quarter (1/4) in each of the five levels of football. Use it to answer the questions that follow. The last column in the chart will be filled in as you complete the questions. Show your work and use extra paper if you need it.

Name _____ Class _____ Date _____

Level	Length of 1 quarter, in minutes	Length of game playing time, in minutes
Youth	8	
Junior	10	
High School	12	
College	15	
Professional	15	

1. One quarter of a game for a junior football player is 8 minutes.
 - a) How long is the quarter in seconds? _____
 - b) How long is the whole game, in minutes? Write the answer in the last column of the chart.
2. One quarter of a game for a youth football player is 10 minutes.
 - a) How long is the quarter in seconds? _____
 - b) How long is the whole game, in minutes? Write the answer in the last column of the chart.
3. One quarter of a game for a high school football player is 12 minutes.
 - a) How long is the quarter in seconds? _____
 - b) How long is the whole game, in minutes? Write the answer in the last column of the chart.

Name _____

Class _____

Date _____

4. One quarter of a game for both a college and a professional football player is 15 minutes.

a) How long is the quarter in seconds? _____

b) How long is the whole game, in minutes? Write the answer in the last column of the chart.

5. What is the difference in minutes between the lengths of a complete junior game and a complete college game? Circle the best answer.

a) 8

c) 48

b) 28

d) 0

6. After two quarters are played, there is a short break called "half-time." At a high school football game, how many minutes have been played by half-time? Circle the best answer.

a) 16

c) 24

b) 20

d) 30

7. Which fraction shows that 45 minutes of a college or professional football game has been played? (Remember to reduce the fraction!) Circle the best answer.

a) $\frac{3}{4}$

c) $\frac{1}{45}$

b) $\frac{1}{4}$

d) $\frac{1}{60}$

8. If 8 minutes have been played in the first quarter of a high school football game, how much playing time left until half time?

9. If a junior game is tied with 2 minutes and 30 seconds left in the fourth quarter, how much football has been played so far?

10. In a college football game, a coach calls a time-out 9 minutes and 25 seconds into the third quarter. How much playing time is left in the whole game?

Name _____

Class _____

Date _____

The Extra Point

What other sports use different time lengths for different levels of play? Are high school basketball games the same length as college games? Are all baseball games nine innings? Why or why not? Pick one other sport besides football to compare the length of playing time at the junior or youth, high school, and college levels in minutes and seconds. Then offer explanations for the differences you find at each level.

IT'S A FOOTBALL FACT!

For many years, college football games could end in a tie when the fourth quarter was over. In 1996, rules were changed to include overtime, and tie games were eliminated.

IMAGE SUGGESTIONS

- Photo from one (or more) of these rivalries: Georgia vs. Georgia Tech, Yale vs. Harvard, Lehigh vs. Lafayette, or Wisconsin vs. Minnesota (with game and year identified in captions)
- Image of a game clock with time on it

Lesson 2: The Forces of a Football

Teacher Instructions

Time to play ball! The game of football is a creative, engaging way to illustrate Newton's Three Laws of Motion in your classroom. For example, a running back heading for a first down as fast as he can maintains that motion until he's knocked off course by a tackle from the other team - an "unbalanced force" as described by Newton's 1st Law. How far he is knocked off course depends on the size (mass) and pace (acceleration) of the tackler—Newton's 2nd Law. Where the running back (and the ball he was once clutching) may end up after the collision is determined by Newton's 3rd Law.

College football players Newton's laws to figure out where to catch, throw, or kick the ball during a game without even realizing they are working out science and math problems at the same time! The size and shape of a football have a lot to do with where it may end up on the field. Because it is not round, it bounces unpredictably, everyone—players, coaches, and even broadcasters—have to be ready for anything to happen. Newton's laws can be seen in full force at the "Call the Play Broadcast Booth inside *Game Time* at the College Football Hall of Fame.

There are more concrete ways to demonstrate these concepts using a football that do not require mastering the concepts of torque, centers of gravity, or the dynamics between offense and defensive players. Your students will use both a real football and a foam (Nerf™) football in this inquiry-based lesson plan to witness Newton's Laws of Motion in action for themselves.

Much like the quarterback who throws the ball, your students' hands will provide the unbalanced force needed to get the ball rolling, literally, to start the lesson. Contemplating reasons why the balls do not roll indefinitely and why they bounce off the floor when they fall off of a desk introduces the roles of force, friction, and gravity. Performing the activities with these two different kinds of footballs illustrates the effect that mass has on force.

Students should work in groups of two to four. Depending on the size your class and the availability of the supplies, you can also set the activities up as stations around the classroom. Check with your physical education department for the footballs. The real football can be any size (youth, junior, etc.), as long as it's heavier than the Nerf/foam one. For the Nerf ball, use a traditional Nerf Classic or Pro-Grip version. The units used to measure distance and weight in this activity can be whatever your students are most comfortable using because precise measurements are not as important as relative change. For example, it is more important to know which ball weighs more, rather than what that weight is.

For each of the three laws, students begin with a paraphrased version of Newton's statement. Then they will make predictions about what a football might do in certain situations involving the concepts in that law. Step-by-step directions follow for conducting the experiments and for completing the data charts. Each time the football is pushed, make sure the students are rolling it broadside, not end-over-end. Students will then analyze the results of their research and evaluate their initial hypotheses.

Tie this Science lesson to your Language Arts curriculum by using the “Words to Know” for your weekly spelling words and have students define them for homework before beginning the experiments. At the conclusion of the assignment, they will use them to write a

summary of what they learned about the Laws of Motion. Exposure to these physics terms will provide your students with a foundation to build upon as they progress in their understanding of the full implications and applications of Newton’s Three Laws in football and beyond.

Supplies for each group

- Regular football
- Nerf foam football
- Ruler or meter stick
- Masking tape
- Floor space
- Timer or clock with a second hand
- Desk or table
- Scale or balance

ANSWER KEY

Part 1

1. nothing
2. inertia
3. No, the friction slowed it down and stopped it
4. Answers will vary depending on the predictions they made.

Part 2

1. the real football
2. the Nerf football because it is lighter/has less mass
3. Force #2, 5 fingers; more strength gave more force
4. Answers will vary depending on the predictions they made.

Part 3

1. gravity
2. floor made the ball move (made it bounce)
3. should be the real ball, with more mass and thus more force.
4. Answers will vary depending on the predictions they made.

The Forces of a Football

Student Activity

Many centuries ago, a scientist and mathematician named Isaac Newton made some discoveries about how things will always move, or not move, here on Earth. We call his discoveries “Newton’s Three Laws of Motion.”

College football players use his laws to figure out where to catch, throw, or kick the ball during a game without even realizing they are working out science and math problems at the same time! The size and shape of a football have a lot to do with where it may end up on the field. Because it is not round, it bounces unpredictably, everyone—players, coaches, and even broadcasters—have to be ready for anything to happen.

You may even have a chance to see Newton’s Three Laws in full force at the “Call the Play Broadcast Booth” inside *Game Time* at the College Football Hall of Fame.

Just like a quarterback who throws the ball during a football game, your hands will be the force to get things moving in this activity. You will begin the same way every football game begins, with the ball sitting on the ground. Using two different footballs and two different forces, you will see for yourself what Newton figured out so long ago.

Words to Know: *acceleration, collide, data, force, friction, gravity, hypothesis, inertia, mass, observation, unpredictably*

Part 1

Newton’s First Law: *When something is moving, it will keep moving until something else stops it. If something is sitting still, it will keep sitting still until something else moves it. This is sometimes called the “Law of Inertia.”*

Predictions: What do YOU think will happen? (These predictions are your hypotheses.)

1. Would a football game where no one ever threw or kicked a ball be very interesting? What do you think would happen during a football game if no one ever touched the football? Why?

2. If you throw a football, do you think it will keep going forever? Why or Why not?

Experiment: Follow the steps below and record your data in the chart.

1. Gather your supplies: football, masking tape, timer or clock with second hand.
2. Make a starting line of the floor with a long piece of masking tape.
3. *Trial 1:* Place the real football on top of the tape starting line with the laces lined facing up, the same direction as the tape.

4. Do not touch the ball. Watch the ball for 30 seconds.
5. Record your observations of the ball during those 30 seconds in the chart below under "Trial 1."
6. *Trial 2*: Now push the football forward with one finger and observe its motion for 30 seconds.
7. Record your observations of the ball during the 30 seconds after you pushed it under "Trial 2" in the chart.

	Trial 1	Trial 2
30-second Observation		

Review your data: Look at your chart and answer these questions.

1. What did the ball do during the 30 seconds you were watching it on the starting line?

2. What is the scientific term for what you saw when you were not touching the ball? (Hint: Check your *Words to Know*)

3. Friction is a force that you cannot see. In Trial 2 of your experiment, there was friction between your ball and the floor. Once you pushed the ball, did it keep rolling forever? Why?

4. Were your hypotheses correct? Why or why not?

Part 2

Newton's Second Law: *Force is a combination of mass and acceleration. The more mass something has, the more force is needed to make it move, or accelerate, as far as something with less mass is able to move.*

Name _____ Class _____ Date _____

Predictions: What do YOU think will happen? (These predictions are your hypotheses.)

1. Hold the Nerf football in one hand and the real football in the other hand. Which one has more mass? Why?

2. Which football do you think would roll farther, if they were pushed the same way? Why?

Experiment: Follow the steps below and record your data in the chart.

1. Gather your supplies: real football, Nerf football, masking tape, ruler, scale.
2. Weigh the footballs one at a time and record their weights in this chart:

	Real football	Nerf football
How much does it weigh?		

3. Place the real football on top of the tape starting line you made in Part 1, with the laces lined facing up, the same direction as the tape.

4. Place one finger in the center of the laces and push the football forward on the floor.
5. When the ball stops rolling, use the ruler to measure the distance on the floor between the starting line tape and the laces on the football when it stopped.
6. Write the distance the ball rolled in the chart, below, next to "Force #1."
7. Put the ball back on the starting line and push it again using five fingers (one hand).
8. When the ball stops rolling, use the ruler to measure the distance on the floor between the starting line tape and the laces on the football when it stopped. Write the distance in the chart for "Force #2."
9. Repeat Steps #3 - #8 using the Nerf football.

Force	Real football	Nerf football
Push with one finger: Force #1		
Push with five fingers: Force #2		

Review your data: Look at your charts and answer these questions.

1. Newton figured out that an object with more mass experiences more force. Which ball has more mass? (Hint: Check your *Words to Know*)

2. Newton also figured out that the less mass an object has, the less force is needed to make it move. Which of the two footballs rolled the farthest for both of your forces? Why?

3. Newton also figured out that the more force is used, the more motion, or acceleration, an object has. Which force, #1 or #2, made both footballs roll the longest distance? Why?

4. Were your hypotheses correct? Why or why not?

Part 3

Newton's Third Law: *For every action, there is an equal but opposite reaction.*

Predictions: What do YOU think will happen? (These predictions are your hypotheses.)

Name _____ Class _____ Date _____

1. If you push a football off the edge of your desk or table, what do you think will happen? Why?

2. If both the real and the Nerf footballs are pushed off the same table, which ball do you think will bounce more times before stopping? Why?

Experiment: Follow the steps below and record your data in the chart.

1. Gather your supplies: real football, Nerf football, desk or table.
2. Place the real football along the edge of your desk or table.
3. Roll the ball off table and count the number of times it bounces.
4. Write the number of bounces in the chart, below.
5. Repeat Steps #2 - #4 with the Nerf football.

Force	Real football	Nerf football
Number of bounces		

Review your data: Look at your chart and answer these questions.

1. In Part 1, you learned about the invisible force of inertia. Another invisible force pulled the footballs down to the floor in this experiment. What is it called? (Hint: Check your *Words to Know*)

2. Newton figured out that when two objects collide, they push back against each other (even if we cannot see it) and the one with less mass has its motion changed more than the one with more mass. In this experiment, did the floor make the ball move, or did the ball make the floor move?

3. The football that bounces more times after it first hits the floor experiences more force than the other one. Which football bounced more? How does this fact match what you learned in Part 2?

4. Were your hypotheses correct? Why or why not?

Part 4

What did you learn? On separate paper, write a paragraph that explains what you learned about Newton’s Three Laws of Motion. Use as many of the *Words to Know* as you can in your sentences to explain how the footballs moved and why.

The Extra Point

For the experiments in this activity, the weight or mass of the ball was the variable and all other conditions were constant. Design and conduct a similar experiment to determine the effect of a ball’s shape on Newton’s Three Laws of Motion by comparing a football to a different kind of ball, such as a baseball or basketball, with both a different size and mass.

IT’S A FOOTBALL FACT!

A football is sometimes called a “pigskin” because centuries before, in the Middle Ages, football-type games were played with balls made from pig bladders filled with air!

IMAGE SUGGESTIONS

- Images of the various footballs from over the years (on display in the Hall) with their years in the captions.
- Image of a tackle or a block in situ, with this caption: Newton’s Laws also explain what can happen when two players collide on the field. How does this picture demonstrate the Third

Law? *For every action, there is an equal but opposite reaction.*

Lesson 3: What's the Score?

Teacher Instructions

If you have been to a college football game you understand that whoever scores the most points, wins. Points are scored in a football game when one team throws, or runs the ball into the other team's end zone, or kicks the ball through the goal post.

To score a touchdown, worth six points, a player must cross the goal line into the end zone either by running with the ball or by catching in the air. The team can then choose whether they want to try kicking the ball through the goal posts for one more point (called an "extra point") or to try to get it across the goal line again by running or catching, for two more points (called a "two-point conversion").

If the end zone is too far away to make a touchdown and a team is faced with a situation where the likelihood of making a first down is remote, they also might attempt a field goal. A field goal occurs when a team kicks the ball through the goal posts, worth three points.

Sometimes, a player gets tackled in his own team's end zone. When that happens it is called a "safety" and the other team gets two points.

In this lesson, your students are provided with a chart describing the ways points are earned in a college football game. They will use these amounts to practice addition, subtraction, multiplication, and division to manipulate combinations of plays and see how the same number solution can be obtained by more than one equation.

Finally, they will solve story problems about how scores were earned in five historically important college football games, many of which are featured in the College Football Hall of Fame. The topics related to these five games make this lesson plan easy to incorporate into a history or Social Studies curriculum using such themes as World War II, racial integration, and women in sports. Get fired up!

ANSWER KEY

1. Safety & 2-point conversion
2. $6+1+3+3=13$ points
3. (1) touchdown with no extra kick or 2-point conversion (2) 2 field goals (3) 3 Safeties
4. (a) 7, (b) 3
5. Duke had 16 points. Oregon State won.
6. Field goal
7. Alabama 7, USC 14.
8. Accept any reasonable combination of plays whose value adds to 21, in addition to her 3 point field goal, for the total 24 points. For example, (1) her field goal + 3 touchdowns with extra points for all 3 or (2) her field goal + 2 touchdowns with 2-point conversions for both + 1 safety + 1 field goal
9. Need 14 more points = 2 touchdowns at 6 points each, and an extra kick after both touchdowns

What's the Score?

Student Activity

If you have been to a college football game you understand that whoever scores the most points, wins. Points are scored in a football game when one team throws, or runs the ball into the other team's end zone, or kicks the ball through the goal post.

To score a touchdown, worth six points, a player must cross the goal line into the end zone either by running with the ball or by catching in the air. The team can then choose whether they want to try kicking the ball through the goal posts for one more point (called an "extra point") or to try to get it across the goal line again by running or catching, for two more points (called a "two-point conversion").

If the end zone is too far away to make a touchdown and a team is faced with a situation where the likelihood of making a first down is remote, they also might attempt a field goal. A field goal occurs when a team kicks the ball through the goal posts, worth three points. Sometimes, a player gets tackled in his own team's end zone. When that happens it is called a "safety" and the other team gets two points.

In this lesson, you will practice addition, subtraction, multiplication, and division to solve story problems about how scores were earned in some historically important college football games, many of which are featured in the College Football Hall of Fame. Get fired up!

Words to Know: *calculate, conversion, integrated, mural, tackled*

Use the chart below to answer questions about the point values of different plays in a college football game. You will also calculate scores from five historically important college games. Show your work in the space provided.

Point Value	Play	Description
6	Touchdown	A player carries or catches the ball in the end zone; can be followed by either a 2-point conversion or an extra point (but not both).
3	Field goal	A player kicks the ball through the goal posts, in place of a touchdown.
2	Safety	A player is tackled in his own team's end zone and the other team gets the points.
2	2-point conversion	A player carries or catches the ball in the end zone after a touchdown, but can only be earned <i>after</i> a touchdown has already been scored.
1	Extra point	A player kicks the ball through the goal post after a touchdown, but can only be earned <i>after</i> a touchdown has already been scored.

1. Which two plays have the same point value?

2. If your favorite college football team scores one touchdown with an extra-point kick in the first half of a game and two field goals in the second half, what is the team's final score? Write out the equation.

3. What are three different ways a team could earn six points?

4. (a) How many field goals would it take to earn 21 points? (b) How many touchdowns with an extra point would it take to earn 21 points?

5. In 1942, the Rose Bowl game was played in Durham, North Carolina, instead of its usual home—the Rose Bowl Stadium in Pasadena, California. It was moved out of fear after the Japanese attack on Pearl Harbor in December 1941. Hall of Fame coach Wallace Wade, who is one of the coaches featured in “The Coaches Desk” in *Game Time* at the College Football Hall of Fame, was the head coach at Duke University at the time.

Duke earned no points in the first quarter, made a touchdown followed by an extra point in both the second and third quarters, and then scored a safety in the fourth quarter. How many points did Duke have at the end of the game? Oregon State had 20 points. Which team won the game?

Name _____

Class _____

Date _____

6. In 1962, the University of Minnesota played the University of California-Los Angeles (UCLA) at the Rose Bowl. It was the first nationally televised college football game shown in color.

Minnesota won by a score of 21 – 3. What is the only way UCLA could have earned its points?

7. In 1970, the University of Alabama, coached by Paul “Bear” Bryant, lost to the University of Southern California (USC), coached by John McKay, with a score of 42-21. Both of these coaches are honored in the College Football Hall of Fame. Learn more about them in *Building a Champion* (including the mural of Hall of Fame coaches by artist Mike Luckovich). Coach Bryant was known for his hound’s-tooth fedora, the black-and-white checkered hat he wore at every game. When you enter *Fans’ Game Day* at the Hall of Fame, you will see a replica of one of the most recognizable hats in college football.

This particular Alabama-USC game in 1970 was the first time a fully racially integrated team played in the South. African-American players scored all six of USC’s touchdowns. If the two teams had scored all of their points just by field goals, how many field goals would each team have had?

8. In 2003, Tonya Butler became the first woman to kick a field goal in a NCAA football game. Her team from West Alabama defeated Stillman College (AL), 24 - 17. Include her field goal and list two different combination of plays by which West Alabama could have earned their final score.

9. In 2011, Drake University played the Mexican College All-Stars in the first college football game in Africa. Drake, who won the game by a score of 17 – 7, earned 3 points from a field goal in the first quarter of the game. Drake earned the rest of its points in the last quarter. What is the combination for the least number of plays by which Drake could have scored its other 14 points, if there were no safeties and no 2-point conversions?

The Extra Point

What is the lowest final score a college football game can have today? (*Hint: It's the same score that the South Carolina Gamecocks beat the Georgia Bulldogs by...way back in October of 1904!*) Remember there are no "tied" games in college football anymore. How would the points be made?

Name _____

Class _____

Date _____

IT'S A FOOTBALL FACT!

In 1916, Georgia Tech defeated Cumberland (TN), 220-0—the largest margin of victory in college football history. At the “Coaches Desk” in *Building a Champion*, look for the eyeglass case belonging to John Heisman, Georgia Tech’s coach at the time, inscribed “Coach John Heisman. The man behind the gun Ga Tech football squad, Southern Champions 1916.”

IMAGE SUGGESTIONS

- Image of Heisman’s eyeglass case to with the “football fact” above
- Image of a field goal kick, with the caption: A field goal is worth three points.
- One or more of the following:
 - Something from the 1962 Rose Bowl, with this caption: The 1962 Rose Bowl was the first game televised nationally in color.
 - The 1970 AL-USC game, Bear Bryant OR John McKay, identified and with this caption: In 1970, the University of Alabama, coached by Paul “Bear” Bryant, lost to the University of Southern California (USC), coached by John McKay.”
 - Tonya Butler or West Alabama, with this caption: In 2003, Tonya Butler kicked a field goal for West Alabama.
 - Drake University football game/players, with this caption: In 2011, Drake University played the Mexican College All-Stars in the first college football game in Africa.

Lesson 4: Football Forecast

Teacher Instructions

College football fans often wish for the stars to be aligned in favor of their team – especially on Saturdays. But do you realize how much astronomy actually has to do with football? As you know, the four seasons of the year are determined by the Earth’s location in its 365-day orbit around the sun and how much it is tilted on its axis towards or away from the sun.

A college football game played at the end of August feels a lot different from one played at the beginning of December, thanks to the Earth’s axis. Lightning, ice, rain, cold, snow, and heat can all affect how players perform in a game as well as how much the spectators enjoy being there. College football has strict rules about stopping games and evacuating everyone to safe areas when there is lightning.

College football players work out all year long. This training, along with good nutrition and hydration, gives them the endurance to play their best under many different circumstances. For example, players and coaches drink extra fluids, like water and Powerade®, during games and practices on very hot days. If the field is very wet, they may need to wear different cleats than they normally do and use extra tape to keep their ankles safe from slipping. To see firsthand how technology has changed to keep up with both the weather and improved safety measures, visit the “Evolution of Equipment” exhibit at the College Football Hall of Fame and look for displays of the cleats from 1904 and an early football jersey. Compare them with those used today.

In the two parts of this lesson your class will look at the effects that weather can have on the players, coaches, and fans during college

football season. They will consider preparations and precautions that might need to be made, depending on what the weather forecast is for game day. For younger students, consider assigning the “Words to Know” before the lesson begins so they are familiar with the terms that will be used. Part 1 and Part 2 can easily be separated into lessons for different days, depending on your schedule.

In Part 1, your students will read a weather chart to answer the questions that follow. The chart lists the average high temperature, low temperature, amount of daylight time, and chance of precipitation for 10 dates in Atlanta, GA (home of the College Football Hall of Fame), during college football season. Georgia is in the humid subtropical climate zone. The historical weather data for Atlanta was collected from www.weather.com.

In Part 2, they will conduct an experiment to decide which kind of uniform would be most beneficial for a college football game on a hot, sweaty, sunny day in late summer. They should come to the conclusion that light-colored clothes that breathe well are the best option.

The supplies listed for Part 2 are for each group of students working together. The containers can be as small as baby food jars, but they need to be the same size. The cloth samples must be pre-cut large enough to cover the top and drape over most of the jar. You will be providing the cloth samples to the students. Sample #1, the white cloth, needs to be polyester. Samples from an actual sports jersey would work best. Sample #2 needs to be very dark in color and made of cotton. They can come from clothing such as sweaters or jeans. You can find

garments for this lesson plan at thrift shops or enlist the help of parent volunteers for

donations of used clothing. Let's hit the field!

Supplies

- 2 clear cups or jars of equal size
- 2 thermometers
- Heat lamp
- 2 rubber bands
- 2 pieces of cloth, one white and one dark
- Ruler
- Marker
- Graph paper
- 2 colored pencils

ANSWER KEY

Part 1

1. Aug 7 89°
2. Dec 21 35°
3. Aug
4. Oct
5. (a) Sept 21, (b) 12 hrs 11 minutes (c) fall/autumn
6. (a) Dec 21, (b) 9 hrs 54 min (c) winter
7. letter "a"
8. Dec
9. Aug
10. Aug & Sept

Part 2

1. Dark cloth, its line goes up
2. White cloth, its line goes down
3. Sample 1
4. White, more comfortable/cooler

Football Forecast

Student Activity

What does astronomy—the study of stars and planets in outer space—have to do with football? More than you might think! The four seasons of the year are determined by the Earth’s location on its 365-day orbit around the sun and how much it is tilted on its axis towards or away from the sun.

A college football game played at the end of August feels a lot different from one played at the beginning of December, thanks to the Earth’s axis. Lightning, ice, rain, cold, snow, and heat can all affect how players perform in a game—and even who can be in the stadium. College football has strict rules about stopping games and evacuating everyone to safe areas when there is lightning.

College football players work out 11 months a year. This training, along with good nutrition and hydration, gives them the endurance to play their best under many different

circumstances. For example, players and coaches drink extra fluids, like water and Powerade®, during games and practices on very hot days. If the field is very wet, they may need to wear different shoes than they normally do and use extra tape to keep their ankles safe from slipping. To see for yourself how technology has changed to keep up with both the weather and improved safety measures, compare the cleats from 1904 and the early football jersey with those from today on your class visit to “Evolution of Equipment” exhibit at the College Football Hall of Fame.

In this lesson, you will look at the effects that weather can have on the players, coaches, and fans during college football season. For Part 1 you will practice reading a weather chart for “football season.” In Part 2, you will experiment with cloth to find the best one for a game day forecast of heat and sun. Let’s hit the field!

Words to Know: *absorb, average, endurance, equinox, evaporate, fluid, forecast, hydrated, hypothermia, orbit, precipitation, solstice*

Part 1

The chart below lists weather averages in Atlanta, GA (home of the College Football Hall of Fame), for ten dates during college football season from the middle of summer to the beginning of winter. It includes the average high temperature, low temperature, amount of daylight time, and chance of precipitation for each date, based on historical records. Read the chart and answer the questions.

Date	High	Low	Amount of daylight	Chance of precipitation
Aug 7	89 ^o	71 ^o	13 hrs 38 min	48%
Aug 21	88 ^o	70 ^o	13 hrs 12 min	45%
Sept 7	85 ^o	68 ^o	12 hrs 39 min	39%
Sept 21	81 ^o	63 ^o	12 hrs 11 min	36%
Oct 7	75 ^o	57 ^o	11 hrs 37 min	32%
Oct 21	71 ^o	52 ^o	11 hrs 08 min	33%
Nov 7	67 ^o	47 ^o	10 hrs 38 min	35%
Nov 21	62 ^o	43 ^o	10 hrs 16 min	37%
Dec 7	56 ^o	38 ^o	10 hrs 09 min	40%
Dec 21	53 ^o	35 ^o	9 hrs 54 min	39%

1. Which date has the hottest average high temperature? What is the temperature?

2. Which date has the coldest average low temperature? What is the temperature?

3. Which month has the highest chances of precipitation?

4. Which month has the lowest chances of precipitation?

5. (a) Which date has approximately the same amount of daylight and night time? (Hint! It's called an "equinox.") (b) How much daylight is there on that day? (c) Which season begins on this day?

6. (a) Which date has the least daylight time? (Hint! It's called a "solstice.") (b) How much daylight is there on that day? (c) Which season begins on this day?

Name _____

Class _____

Date _____

7. Compare the temperatures on each date with their amounts of daylight time. Which sentence is true? Circle the letter.

a) As the amount of daylight per day decreases, the average temperatures also decrease.

b) As the amount of daylight per day decreases, the average temperatures increase.

8. Temperatures below 40° can cause hypothermia. List the months when players on the field and fans in the stands could be at risk for developing hypothermia. What do you do to stay warm when you are outside during winter?

9. In the month of August, 48% of the precipitation comes from thunderstorms while in December, only 7% of the precipitation comes from thunderstorms. Which month has a higher risk of lightning strikes? What do you do to stay safe when there is lightning?

Name _____

Class _____

Date _____

10. In which months should players, coaches, and fans take steps to avoid overheating?
-
-

Part 2

There are many ways players, coaches, and fans can stay cool during football games when the temperature is high, like eating well, drinking a lot of water, and wearing sunscreen. Even the clothes you have on and the uniforms worn on the field that day can make a difference. If you were a player on the Georgia Southern University football team, which jersey would you rather wear for opening day in August, the white one for away games or the dark blue one for home games? Now you will do an experiment to decide which kind of football uniform might be best for a hot, sweaty, sunny day in late summer.

Supplies

- 2 clear cups or jars of equal size
- 2 thermometers
- 2 rubber bands
- 2 pieces of cloth, one white and one dark
- Ruler
- Marker
- Graph paper
- 2 colored pencils

Steps

1. Fill the two jars with the same amount of water. Use the ruler to measure the water and make sure they are equal. Use the marker to mark the water level on the outside of the jar.
2. Use the marker to write “#1” on the outside of one jar and “#2” on the other.
3. Take the temperatures of the water in the two jars (add warm or cold water as needed to get them to the same temperature). Write them in the “Temperature” chart below in the “Start” row.
4. Use the ruler to see how much water is in the jar and write the amount in the “Water Level” chart. Find the water level in the jars by placing the ruler against the outside and measuring up from the bottom of the jar to the top of the water level you marked in Step #1.
5. Cover jar #1 with the white cloth and secure it with a rubber band. Repeat for jar #2 with the dark cloth.
6. Place the jars outside in the sun, next to a sunny window, or under a lamp in your classroom if it’s a cloudy day.
7. Every 30 minutes, remove the cloth, check the temperatures of the water in the jars, and replace the cloth. Record the readings in the “Temperature” chart. You will do this for a total of 120 minutes (two hours).
8. Each time you check the temperature, measure the water level and record those numbers in the “Water Level” chart.
9. Create two line graphs on your graph paper—one for the temperatures of the water in the two jars over time and one for the water levels. Use two different colored pencils to show the measurements for the two different cloths on the graphs.

Name _____

Class _____

Date _____

Temperature Chart

Time	#1. White cloth	#2. Dark cloth
Start		
30 minutes		
60 minutes		
90 minutes		
120 minutes		

Water Level Chart

Time	#1. White cloth	#2. Dark cloth
Start		
30 minutes		
60 minutes		
90 minutes		
120 minutes		

1. In which jar did the water temperature increase the most over time? Describe its line on the temperature line graph. These measurements indicate which sample absorbed the most heat from the sun.

Name _____

Class _____

Date _____

2. In which jar did the water level decrease the most over time? Describe its line on the water level line graph. These measurements show the cloth's ability to let moisture escape by passing through the material.

3. The best football uniform material would not absorb heat and would allow your sweat to evaporate easily, which is how your body gets rid of excess heat. Which cloth sample fits this description?

4. Many sports teams, including football, have at least two different uniforms for games. One, worn for away games, is usually white while the other is in the school colors. Which one would you rather wear to play football outside on a sunny August day in Atlanta? Why?

The Extra Point

Based on what you learned from the weather chart, how can you prepare to watch your favorite college football team play in an outdoor stadium where you live, as the seasons change from summer to winter? Develop guidelines and a list of recommendations for both hot and cold game days.

IT'S A FOOTBALL FACT!

At the University of Georgia, football players drink more than 25,000 gallons of Powerade and use more than 100 miles of athletic tape each year!

IMAGE SUGGESTIONS

- Scenes from college football games played in extreme weather (heavy rain, snow, ice, etc.), with captions that identify the games.
- Images of cleats (then & now) on display in the hall, with caption that identifies them with their years and says: The weather can even determine what kind of cleats a player will wear in a game.
- Image of jerseys (then & now) on display in the hall, with caption that identifies them with their years and says: Which one would you rather wear?

Lesson 5: *Fans' Game Day* Logic Puzzle

Teacher Instructions

In this lesson, your class will read a short story about a field trip to the College Football Hall of Fame and solve a logic puzzle that matches four fictitious students to their favorite topics explored in *Fans' Game Day*: marching bands, mascots, cheerleading, and tailgating.

To solve the puzzle, read each clue carefully. Use the chart to help you keep track of what you do and do not know about what each student's favorite part of the *Fans' Game Day* experience. Because each student in the puzzle can only have one favorite topic, and each topic can only have one student, you will use the process of elimination to solve the mystery. If a clue tells you that a person does NOT like something, then place an X in the box for that person and that particular topic. When you are able to match a student to his or her favorite part, put a checkmark in that box.

For example, the first clue says that Sylvester did not enjoy the section on cheerleaders as much as he liked some of the other topics. Because we now know that Sylvester's favorite part cannot be cheerleading, there should be an X in the box where the row with his name meets the column for cheerleading. This first clue has been marked on the answer grid for your students

Keep reading the clues. Write an X on the answer grid for what you know is not true and use a checkmark for what you know is true until you have matched all the students with their favorite part of *Fans' Game Day* at the College Football Hall of Fame. Watch out for any trick plays!

ANSWER KEY

- Katie = Mascots
- Tonya = Marching bands
- Sylvester = tailgating
- Ashley = cheerleading

Fans' Game Day Logic Puzzle

Student Activity

In this lesson, you will read a short story about a field trip to the College Football Hall of Fame and solve a logic puzzle that matches four students to their favorite parts of *Fans' Game Day*: marching bands, mascots, cheerleading, and tailgating.

To solve the puzzle, read each clue carefully. Use the chart to help you keep track of what you do and do not know about each student's favorite part of the *Fans' Game Day* experience. Because each student in the puzzle can only have one favorite topic, and each topic can only have one student, you will use the process of elimination to solve the mystery. If a clue tells you that a person does NOT like something, then place an X in the box for that person and that particular topic. When you are able to match a student to his or her

favorite part, put a checkmark in that box.

For example, the first clue says that Sylvester did not enjoy the section on cheerleaders as much as he liked some of the other topics. Because we now know that Sylvester's favorite part cannot be cheerleading, there should be an X in the box where the row with his name meets the column for cheerleading. This first clue has been marked on the answer grid for you. Watch out for any trick plays!

Keep reading the clues. Write an X on the answer grid for what you know is not true and use a checkmark for what you know is true until you have matched all the students with their favorite part of *Fans' Game Day* at the College Football Hall of Fame. Do you agree with any of them?

Words to Know: *elimination, grid, mascot, tailgating*

The Story

Four students agree that the favorite part of their time at the College Football Hall of Fame was the *Fans’ Game Day* experience. However, they disagree on which was the best part of that particular gallery. Their teacher overheard the conversation on the bus ride after the field trip and could not wait to tell the other teachers back at school how much the students had learned on the field trip. But by the time they returned to school, the teacher could only remember parts of the friends’ conversation. Help the teacher by reading the clues below and matching each student to his or her favorite theme in *Fans’ Game Day*.

The Clues

1. Sylvester did not enjoy the section on cheerleaders as much as he liked some of the other topics.
2. Ashley’s favorite part does not involve making music.
3. Sylvester’s favorite part is either about cheers and cheerleading or tailgating.
4. Katie loves mascots, especially Buzz—the Georgia Tech Yellow Jacket.

	Marching bands	Mascots	Cheerleading	Tailgating
Sylvester			x	
Katie				
Tonya				
Ashley				

Name _____

Class _____

Date _____

IT'S A FOOTBALL FACT!

At the University of Tennessee and the University of Washington, the fans don't just tailgate. Some "sailgate" and arrive at the stadium by boat on the Tennessee River and on Lake Washington.

IMAGE SUGGESTIONS

- Scene of "sailgating" at UT or Washington to go with football fact, above, and caption that identifies it as such.
- One or more of the following:
 - scenes from tailgating before a game
 - scenes of cheerleading
 - Buzz (GA Tech mascot)
- Photo of *Fans Game Day* gallery

Interdisciplinary Project Ideas

A field trip to the College Football Hall of Fame has connections to multiple content areas at the elementary school level. These additional interdisciplinary activities and inquiry-based project ideas can be incorporated into Social Studies and Language Arts classes. Let's get everyone in the game!

1. While the world was in the Great Depression in the 1930s, those years were the golden age of radio as the main form of communication and entertainment. New technology made live broadcasts possible and people could stay home on Saturdays to listen to the games for free. In fact, the growing numbers of empty seats in their football stadiums made some schools try to ban or restrict radio broadcasts in 1932. Today, football games are still on the radio but we can also watch them on television or online. Some fans become so loyal to a particular person announcing the game on the radio that they even watch their team's games with the TV on mute, so they can still hear the radio broadcast!

Find a sporting event televised in your community that also has a radio broadcast and compare what the announcers say during the game. Have your students use a Venn diagram to compare announcing a sporting event on television and announcing it for radio.

IT'S A FOOTBALL FACT!

The Red River Rivalry, the annual game between Texas and Oklahoma, has been on the radio since 1922, a sell-out since 1946, and nationally televised since 1953.

IMAGE SUGGESTIONS

- [Photo from Texas vs Oklahoma Red River Rivalry, to go with football fact, above](#)

2. A college football stadium can have more than one name. At some schools, the football field itself has a different name than the stadium. For example, the University of Nebraska has Tom Osborne Field at Memorial Stadium and the University of Florida has Ben Hill Griffin Stadium at Florida Field. But both of these stadiums are also known by their nicknames, the "Sea of Red" (Nebraska) and the "Swamp" (Florida). Stadiums get their nicknames for different reasons. It can honor a particular person, describe the geographic setting, or relate to a time-honored school tradition. Others are historical. Your students will research the stories behind the names of these famous college football stadiums.

- University of Georgia: *Between the Hedges*
- Louisiana State University: *Death Valley*
- Texas A& M University: *Home of the 12th Man*
- University of Michigan: *The Big House*
- Ohio State University: *The Horseshoe*
- University of Notre Dame: *The House that Rockne Built*
- University of Wisconsin: *The Camp*

IMAGE SUGGESTIONS

- Any of the stadiums listed above, with caption identifying it
3. What is the mascot for your favorite college football team? Is it Zippy the Kangaroo from the University of Akron in Ohio? Is it the Fighting Camels from Campbell University in North Carolina? Perhaps it's Zippy the Owl, of Kennesaw State? Or maybe your team is the Tigers or Bulldogs—two of the most common college football mascots.

Instruct your students to design a survey to take a poll among the class for their favorite college team mascot. At the conclusion, they will tally the results and present them in a bar graph. Let them ask other teachers, too, or expand the sample size of their research to include other classes and grade levels in your school. Have the students present their results by grade, age and gender and explain any patterns they discerned.

IT'S A FOOTBALL FACT!

The mascot for the University of Georgia is "Uga," a white English bulldog. Uga became the only mascot ever to both be on the cover of *Sports Illustrated* and in a major motion picture, *Midnight In The Garden of Good And Evil*.

IMAGE SUGGESTIONS

- Uga (UGA mascot) to go with football fact, above
4. Are any of your students on a team for a sport that is traditionally played by boys? Do your local Little League teams let boys and girls play baseball and football? Do your students think girls should be able to participate in sports like wrestling or football in middle school, high school, and college if they are good enough to make the team? Why or why not? After conducting some research, have your students use the experiences of female college football kickers Liz Heaston, Ashley Martin, Tonya Butler, Katie Hnida, and Brittany Ryan to write a persuasive essay stating their opinion. Next, have students brainstorm a list of roles that women currently have in college football such as athletic trainers, cheerleaders, reporters, or recruiters. What additional careers can your class add to this list?

IMAGE SUGGESTIONS

- Photo of the shoe Kent mentioned, that is in storage/conservation, with caption identifying it
5. Did you know that the first college football cheerleaders were not girls? More than 100 years ago, they were called "Pep Clubs" and "Yell Leaders" and they were all male. Female cheerleaders did not appear at college football games until the 1920s. They didn't become popular until World War II, when girls started to fill in while the boys were off at war. Now, cheerleading requires years of training, long practice hours, and a lot of strength, coordination, and flexibility—a lot like what it takes to be a football player.

Do your students think cheering is a sport? Do they consider cheerleaders to be athletes? Why or why not? After a class discussion, instruct everyone to make a list of sentences that could be used to write a persuasive speech on whether or not cheerleading is a sport. For each sentence that is an opinion, they should give at least one fact to support it.

IT'S A FOOTBALL FACT!

Texas A&M Yell Leaders began in 1907 as a desperate attempt to keep female fans from leaving a game the Aggies were losing badly. The new strategy worked and the girls stayed. Now elected by students, Yell Leaders use elaborate hand signals to pump up the Aggie faithful.

IMAGE SUGGESTIONS

- Image from Texas A&M Yell Leaders or artifacts from the Hall relating to them, identified, to go with football fact above

Puzzle Tiles: Bear Bryant

Artifacts relating to Coach Paul “Bear” Bryant are found throughout the College Football Hall of Fame, including a Coca-Cola bottle with his picture on it and a black-and-white checkered hat like the one he always wore. Although Coach Bryant is best known as the head football coach at the University of Alabama (1958 – 1982), he was also a head coach at Maryland, Kentucky, and Texas A&M University.

Coach Bryant’s coaching style and the advice he gave to his players applied to more than just football. He knew

that winning only comes with hard work and by working together. He was inducted into the College Football Hall of Fame in 1986.

To solve this puzzle, rearrange the tiles below until the groupings of letters, spaces, and punctuations form one complete sentence—a quote from Bear Bryant. Two tiles have already been placed to get you started. Begin by looking for the tile that has a capital letter (that will be the first tile) and for the one with a period (that will be the last tile). Roll Tile Roll!

Words to Know: *artifact, inducted*

o p l e	T l a	h t i	d o .
h p e	S t ,	T o u g	m e s
d o n ‘	B u t	t o u g	

Name _____ Class _____ Date _____

Write your answer here:

	h	T	i				
--	---	---	---	--	--	--	--

			o	p	l	e	
--	--	--	---	---	---	---	--

IT'S A FOOTBALL FACT!

Paul "Bear" Bryant was born in 1913 and grew up as the 11th of 12 children in the small town of Moro Bottom, Arkansas.

IMAGE SUGGESTIONS

- Photo of Bear Bryant or images of artifacts in the Hall related to Bear Bryant

Name _____

Class _____

Date _____

Word Search: First Bowl Games

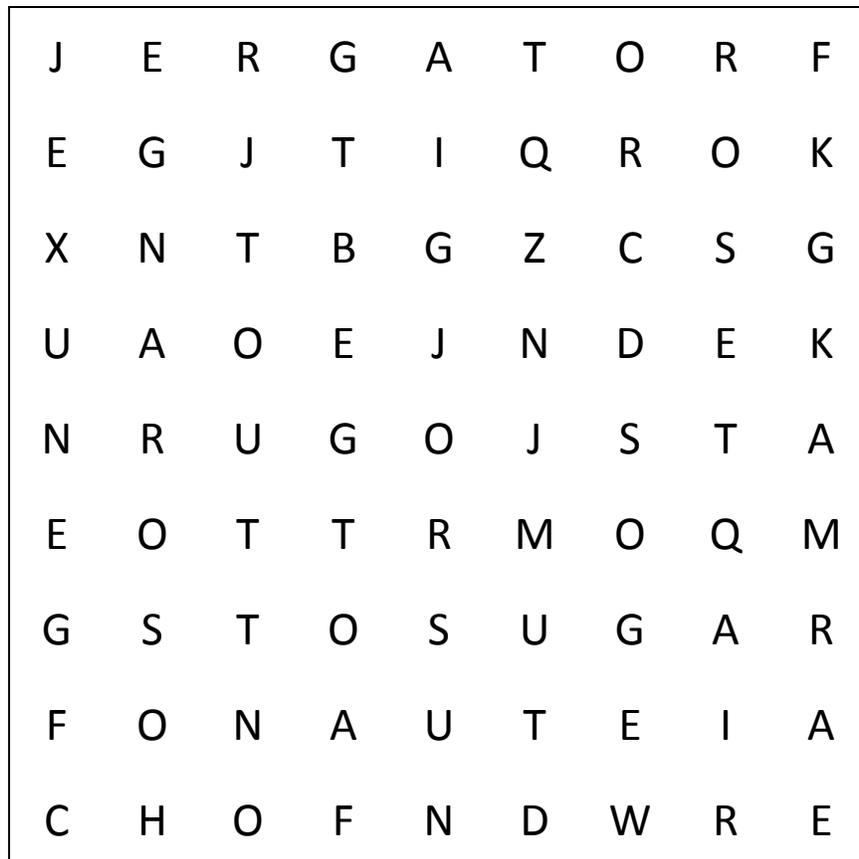
The words you are searching for in this puzzle are the names of six historic college football bowl games. All of these bowl games are still played today, but they may be known by a different name. Look for the trophies awarded every year to teams who win the bowl games in *Why We Love College Football* at the College Football Hall of Fame.

The Rose Bowl, nicknamed the "Granddaddy of them all," is the oldest bowl game. It was first played in January, 1902. The Gator Bowl is the youngest of the six bowls on this list. It has been played since January 1946. Let's go bowling!

COTTON
GATOR

ORANGE
ROSE

SUGAR
SUN



IT'S A FOOTBALL FACT!

College football bowl games that no longer exist include the Glass Bowl, Oil Bowl Raisin Bowl, Refrigerator Bowl, and the Salad Bowl.

IMAGE SUGGESTIONS

- Photos from one or more of the bowl games listed at the beginning, with identifying captions

Name _____ Class _____ Date _____

2.

4	6	25	9	20	8	23	2	25	8
---	---	----	---	----	---	----	---	----	---

3.

25	2	5	9	20	8
----	---	---	---	----	---

25	6	9	4	9	5
----	---	---	---	---	---

IT'S A FOOTBALL FACT!

Long before they were Presidents of the United States, both Franklin D. Roosevelt and George W. Bush were cheerleaders!

IMAGE SUGGESTIONS

- Photos of one of these presidents playing football or of their schools' teams during the years they played: Richard Nixon, Gerald Ford, or Ronald Reagan, with identifying captions

ANSWER KEY

Puzzle Tiles: "Tough times don't last, but tough people do."

Word Search:

J	E	R	G	A	T	O	R	F
E	G	J	T	I	Q	R	O	K
X	N	T	B	G	Z	C	S	G
U	A	O	E	J	N	D	E	K
N	R	U	G	O	J	S	T	A
E	O	T	T	R	M	O	Q	M
G	S	T	O	S	U	G	A	R
F	O	N	A	U	T	E	I	A
C	H	O	F	N	D	W	R	E

OVER, DOWN, DIRECTION

COTTON 1, 9, NE

GATOR 4, 1, E

ORANGE 2, 6, N

ROSE 8, 1, S

SUGAR 5, 7, E

SUN 5, 7, S

Cryptogram: 1. Richard Nixon, 2. Gerald Ford, 3. Ronald Reagan

A	B	C	D	E	F	G	H	I	J	K	L	M
9	18	14	8	6	23	4	24	3	26	13	20	21

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
5	2	10	19	25	11	17	15	12	1	16	22	7

COLLEGE FOOTBALL 101

Keep this reference guide handy as you introduce your class to the basics of college football. Be prepared to tackle their questions about the field, the player positions, the point system, and the College Football Hall of Fame itself. Get ready to play!

THE PLAYING FIELD

Field	Rectangle, 120 yards long by 53 1/3 yards wide
Sidelines	Borderlines on each side of the field, 6-feet wide
End zone	Part of the field inside the end line where touchdowns are scored, 10-yards deep
Goal line	Line that runs across the front of the end zone, 8-inches wide
Yard lines	A solid white line that runs across the 100 yards of playing area on the field every 5 yards, and includes a number every 10 yards
Hash marks	Short white lines on the field 53 feet and 4 inches in from the sidelines, spaced exactly 1 yard apart down the length of the 100 yard playing area 53' 4"
Goal posts	Poles that designate the area for a field goal to score at the back of either end zone with a 10-foot vertical pole connected to a cross bar, 18 feet and 6 inches long, with upright poles on either end of the cross bar that are at least 22 feet tall
Coaches box	Area on the sidelines where the coaches and team members not playing must remain, between the 25-yard marks

IMAGE SUGGESTIONS

- Diagram of a field.

THE POSITION NAMES

Offense

Role	Position	
Offensive linemen	C	Center
	G or OG	Offensive guards
	T or OT	Offensive tackles
Backs & receivers	QB	Quarterback
	RB	Running backs (TB/tailback, HB/halfback, FB/fullback, WB/wingback, SB/slotback)
	WR	Wide receivers (split end, flanker, slot receiver)
	TE	Tight ends (H-back)

Defense

Role	Position	
Defensive linemen	DT	Defensive tackles (defensive guard, nose tackle/middle guard)
	DE	Defensive ends
Linebackers	MLB	Middle linebacker (middle linebacker)
	OLB	Outside linebacker (strong side, weak side)
Defensive backs	CB	Cornerback
	S	Safety (strong safety, free safety)

Special Teams

Role	Position	
Kickers	K	Placekicker
	H	Holder
	LS	Long snapper
	P	Punter
	PR	Punt returner
	KR	Kick returner

THE POINTS

Value	Play	Description
6	Touchdown	A player carries or catches the ball in the end zone
3	Field goal	A player kicks the ball through the goal posts, in place of a touchdown
2	Safety	A player is tackled in his own team's end zone
2	2-pt conversion	A player carries or catches the ball in the end zone after a touchdown
1	Extra point	A player kicks the ball through the end zone after a touchdown

THE HALL OF FAME

The National Football Foundation's College Football Hall of Fame represents the highest level of achievement for players and coaches and serves as a shrine for all of amateur football. Almost 5 million scholar-athletes have played college football since the first game on November 6, 1869, but less than a thousand have been inducted into the Hall of Fame. The criteria for eligibility are as follows (from www.cfbhall.com)

1. First and foremost, a player must have received first team All-America recognition by a selector recognized by the NCAA and utilized to comprise their consensus All-America teams.
2. A player becomes eligible for consideration by the NFF's Honors Court ten years after his last year of intercollegiate football played.
3. While each nominee's football achievements in college are of prime consideration, his post-football record as a citizen is also weighed. He must have proven himself worthy as a citizen, carrying the ideals of football forward into his relations with his community. Consideration may also be given for academic honors and whether or not the candidate earned a college degree.
4. In accordance to the 50-year rule*, players must have played their last year of intercollegiate football within the last 50 years. For example, to be eligible for the 2013 ballot, the player must have played his last year in 1961 or thereafter. In addition, current professional players and / or coaches are not eligible until retirement.

5. A coach becomes eligible three years after retirement or immediately following retirement provided he is at least 70 years old. Active coaches become eligible at 75 years of age. He must have been a head coach for a minimum of 10 years and coached at least 100 games with a .600 winning percentage*.

** Those players that do not comply with the 50-year rule may still be eligible for consideration by the FBS and Divisional Veterans Committees, which examine unique cases.*

THE AWARDS

IMAGE SUGGESTIONS

- NFF photo of John Heisman, with caption: The coveted Heisman Award for Most Outstanding Player in Division 1 is named for John Heisman. [OR any of the other guys on this list, with the identifying caption.]

Annual Player Awards

- Heisman Memorial Award – Outstanding Player
- William V. Campbell Trophy – Top Scholar Athlete
- Maxwell – Outstanding Player
- Walter Camp Award – Player of the Year
- Doak Walker Award – National Running Back Award
- Johnny Unitas Golden Arm Award—Outstanding Senior Quarterback
- Davey O’Brien Award – National Quarterback Award
- Fred Biletnikoff Award – Outstanding Wide Receiver
- John Mackey Award – Outstanding Tight End
- Outland Trophy – Outstanding Interior Lineman
- Vince Lombardi/Rotary Award – Outstanding Lineman
- Rimington Trophy – Outstanding Center
- Chuck Bednarik Award – Defensive Player of the Year
- Bronko Nagurski Award – Defensive Player of the Year
- Dick Butkus Award – Outstanding Linebacker
- Jim Thorpe Award – Outstanding Defensive Back
- Lou Groza Award – Place-kicker Award
- Ray Guy – Outstanding Punter
- Ted Hendricks – Defensive End of the Year
- Walter Payton Award – FCS Offensive Player of the Year
- Buck Buchanan Award – FCS Defensive Player of the Year
- Harlon Hill – NCAA Div II Outstanding Player
- Gagliardi Trophy – NCAA Div III Outstanding Player
- Danny Wuerffel Trophy – Top Citizen

Annual Coach Awards

- FWAA/Eddie Robinson Coach of the Year
- Liberty Mutual Coach of the Year
- Home Depot Coach of the Year

Recommended Reading

Check this out – of your school library! Before or after a class trip to the College Football Hall of Fame, you will want to use these lists as a starting point to create your own “Literary Hall of Fame” exploring the science, math, history and fun of college football. These books are divided by reading level into YOUTH: Elementary School, JUNIOR VARSITY: Middle School and VARSITY: High School, which is also appropriate for adults. Huddle up and start reading!

YOUTH

Elementary School: Grades 3 - 5

- Gibbons, Gail. *My Football Book*. HarperCollins, 2000.
- Gigliotti, Jim. *Kick-off: How Football Began*. Beach Ball Books, 2011.
- Golanty, Eric. *Ahead of Their Time*. Eric Golanty & Associates, 2010.
- Gordon, Samantha & Ari Breuning. *Sweet Feet: Samantha Gordon's Winning Season*. Walker Childrens, 2013.
- Herzog, Brad. *T is for Touchdown: A Football Alphabet*. Sleeping Bear Press, 2004.
- Jacobs, Greg. *The Everything Kids' Football Book: The all-time greats, legendary teams, today's superstars--and tips on playing like a pro*. Adams Media, 2010.
- Malott, Zachary. *I'm With the Team: My Summer with the Harvard Football Team*. CreateSpace Independent Publishing, 2009.
- Sports Illustrated. *Sports Illustrated Kids 1st and 10: Top 10 Lists of Everything in Football*. Sports Illustrated, 2011.
- Sports Illustrated. *Sports Illustrated Kids' Football Playbook: Games, Activities, Puzzles, and Fun!* Sports Illustrated, 2011.
- Stewart, Mark. *Touchdown: The Power and Precision of Football's Perfect Play*. Millbrook Press, 2009.
- Thomas, Keltie. *How Football Works (How Sports Work)*. OwlKids Books, 2010.
- Wiese, Jim. *Sports Science: 40 Goal-Scoring, High-Flying, Medal-Winning Experiments for Kids*. Wiley, 2002.

JUNIOR VARSITY

Middle School: Grades 6 – 8

- Barr, George. *Sports Science for Young People (Dover Children's Science Books)*. Dover Publications, 2011.
- Biskup, Agnieszka. *Football: How It Works (The Science of Sports)*. Capstone Press, 2010.
- Coffland, Jack. *Football Math: Touchdown Activities and Projects for Grades 4–8*. Good Year Books, 2005.
- DeCock, Luke. *Great Teams in College Football History*. Heinemann-Raintree, 2005.
- Frederick, Shane. *The Best of Everything Football Book (All-Time Best of Sports)*. Capstone Press, 2010.
- Frederick, Shane. *Football: The Math of the Game*. Capstone Press, 2011.
- Gardner, Robert. *Science Projects about the Physics of Sports*. Enslow Publishers, 2000.
- Goodstein, Madeline. *Sports Science Projects: The Physics of Balls in Motion*. Enslow Publishers, 1999.
- Hantula, Richard. *Science at Work in Football*. Marshall Cavendish Children's Books, 2011.

Hauser, Dan, Ed Turner, & Dan Gennantonio. *Antique Sports Uniforms & Equipment: Baseball - Football - Basketball 1840-1940*. Schiffer Publishing, 2008.

Sports Illustrated. *Sports Illustrated: The College Football Book*. Sports Illustrated, 2008

VARSIITY

High School: Grades 9 – 12, Adult

Beck, Stan. *College Sports Traditions: Picking Up Butch, Silent Night, and Hundreds of Others*. Scarecrow Press, 2013.

Dosh, Kristi. *Saturday Millionaires: How Winning Football Builds Winning Colleges*. Wiley, 2013.

Freedman, Samuel G. *Breaking the Line: The Season in Black College Football That Transformed the Sport and Changed the Course of Civil Rights*. Simon & Schuster, 2013.

Gallian, Joseph A., ed. *Mathematics and Sports*. Mathematical Association of America, 2010.

Gay, Thomas. *The Physics of Football: Discover the Science of Bone-Crunching Hits, Soaring Field Goals, and Awe-Inspiring Passes*. It Books, 2005.

Goff, John Eric. *Gold Medal Physics: The Science of Sports*. The Johns Hopkins University Press, 2009.

Koreivo, Stephen J. *Tales From The Tailgate: From the Fan who's Seen Them All*. AuthorHouse, 2011.

Layden, Tim. *Blood, Sweat & Chalk: The Ultimate Football Playbook: How the Great Coaches Built Today's Game*. Sports Illustrated, 2010.

Mac Cambridge, Michael, ed. *ESPN College Football Encyclopedia: The Complete History of the Game, unabridged*. ESPN, 2005.

Miller, John J. *The Big Scrum: How Teddy Roosevelt Saved Football*. Harper, 2011.

Oriard, Michael. *Bowled Over: Big-Time College Football from the Sixties to the BCS Era*. The University of North Carolina Press, 2009.

Sporting News. *Every Saturday in Autumn: The Sporting News Presents College Football's Greatest Traditions*. McGraw-Hill/Contemporary, 2001.

Sporting News. *Saturday Shrines: Best of College Football's Most Hallowed Grounds*. Sporting News, 2005.

St. John, Allen & Ainissa G. Ramirez. *Newton's Football: The Science Behind America's Game*. Ballentine Books, 2013.

Vizard, Frank. *Why a Curveball Curves: The Incredible Science of Sports (Popular Mechanics)*. Hearst, 2009.

Watterson, John Sayle. *College Football: History, Spectacle, Controversy*. The Johns Hopkins University Press, 2002.

Whittingham, Richard. *Rites of Autumn: The Story of College Football*. Free Press, 2001.

Touchdown Timeline

America was still recovering from the Civil War when Rutgers beat Princeton 6-4 on November 6, 1869, in New Brunswick, NJ, in what is considered to be the first college football game. Today, little if anything looks as it did then in either the nation or the game. Through world wars, social, political and economic progress and upheaval, college football grew steadily in appeal, and now counts its fan base at nearly 100 million people. Forecasting the nation's future is tougher than picking bowl game winners, but one thing is certain: Americans will always love college football!

AMERICAN HISTORY AND COLLEGE FOOTBALL

- 1865** **The Civil War ends and President Lincoln is assassinated.**
- 1869** The first college football game is played between Rutgers and Princeton in New Brunswick, NJ. This game uses a soccer-style round ball. The field is 120 yards long and 75 yards wide with 25 players on each side. The first team to score six goals wins.
- 1874** Harvard travels to Montreal to play McGill University in a game more akin to rugby than soccer where players were able to carry the ball. From this game, American football moves from a kicking game to one that features running and tackling.
- 1876** A cross bar is added to the goal posts at a height of 10 feet. It is still in use today. The number of players on each team is reduced to 15.
- 1883** **The Brooklyn Bridge opens.**
- 1880** The number of players is reduced to 11 on each side by Walter Camp, who also developed the line of scrimmage.
- 1888** Rules are changed to allow tackling below the waist.
- 1892** The Flying Wedge play or "V trick" is introduced by Harvard. The dangerous tactic remains legal for only one more season.

IMAGE SUGGESTIONS:

- **Flying Wedge Belt, 1890:** This belt helped players hang onto each other in the flying wedge, in which they formed a "V" shape and plowed down the field. The flying wedge was banned in 1894 along with similar formations considered dangerous.
- **Yale-Eaton Game Program, 1873**

- 1908** **Henry Ford introduces the Model T.**
- 1902** On January 1, the first Rose Bowl game is played at Pasadena's Tournament Park.
- 1905** The field is now marked with transverse lines every five yards running parallel to the sidelines. This checkerboard appearance gives the field a nickname that sticks: The Gridiron.
- 1905** President Theodore Roosevelt convenes a summit to address the concerns of some schools over violence and injuries resulting from "mass momentum" plays. Two rules committees merged to form what would become the NCAA, and made radical changes to increase player safety.
- 1906** The Intercollegiate Athletic Association (today's NCAA) is created.

- 1909** The first homecoming game takes place at Baylor University in Waco, Texas.
- 1917** **The U.S. enters World War I.**
- 1911** Rules are changed to make it illegal to hide the ball under clothing.
- 1912** The value of a touchdown is raised from five to six points and end zones are added.
- 1922** Rules are changed to bar players who are removed from the game in the first half from playing until the second half.

IMAGE SUGGESTIONS:

- **Hand Protector used by Adam Walsh, 1924:** Captain and an All-America center for 1924 national champion Notre Dame, Adam Walsh led the offensive line, known as the “Seven Mules,” that blocked for the famed “Four Horsemen” backfield.
- **Game Program & Ticket from Army-Navy Game, 1924**

- 1929** **The stock market crashes.**
- 1932** In order to protect players, the ball is ruled dead when any part of the ball carrier (other than hands or feet) touch the ground. Flying blocks and flying tackles are declared illegal.
- 1937** Numbers are required on both the front and back of the jerseys.
- 1939** All players must wear helmets.
- 1941** **The United States enters World War II.**
- 1941** The first penalty flag is introduced.
- 1943-45** Many schools temporarily discontinue football because so many players have gone off to fight the war. College teams regularly schedule games against service teams from military training bases.
- 1947** The National Football Foundation is created to promote amateur football and encourage leadership and academic excellence among American youth.
- 1951** The National Football Foundation establishes the College Football Hall of Fame and inducts its first class.

IMAGE SUGGESTIONS:

- **First Penalty Flag, 1941:** Youngstown State coach Dwight Beede devised the first penalty flag, but his wife Irma sewed it, becoming the Betsy Ross of college football. Before the flag, officials used horns or whistles to signal penalties.

- 1969** **Neil Armstrong walks on the moon.**
- 1957** A penalty for grabbing an opponent’s facemask is created. Two-point conversions are added the following year.
- 1965** In December, Nat Northington signs with Kentucky, becoming the first African-American football player to sign with an SEC school. Other schools in the South are still reluctant to sign African-American players.
- 1966** The first artificial surface, AstroTurf, is created and installed at the AstroDome in Houston, Texas. Players complain of serious rug burns.

IMAGE SUGGESTIONS:

- UCLA Liberty Bowl Pennant commemorating the United States Bicentennial, 1976
- Medallion celebrating 100 years of College Football, 1969

1976 **The United States celebrates its Bicentennial.**

1972 NCAA declares college freshmen eligible to play football.

1982 “Tearaway” jerseys are banned from the game.

1984 The Supreme Court rules that individual schools, not the NCAA, own the television rights to their college football games. This allows schools to sell their own television rights, which eventually leads to an explosion of college football on TV.

1989 **The Berlin Wall falls.**

1989 The NCAA bans the use of kicking tees for field goal attempts. Kickers are now required to kick the ball straight off the ground.

1990 Air Force running back, Chris Howard, is awarded the first NFF Campbell Trophy as college football’s top scholar-athlete.

1995 The NCAA further strengthens academic requirements with the passage of Proposition 16, which established minimum GPA and SAT scores. Prop. 16 increases minimum class requirements and creates a sliding scale that balances GPA with standardized test scores.

1996 Tie games are eliminated, and overtime rules are put in place starting with the 1995 bowl season. The first ever overtime game was the 1995 Las Vegas Bowl when Toledo beat Nevada, 40-37.

1999 Tennessee beats Florida State at the Tostitos Fiesta Bowl to win the first BCS National Championship.

2001 **September 11th terrorist attacks**

2002 Riddell develops a helmet designed to reduce concussions called the Revolution, similar to the Schutt DNA Pro Adult Helmet. A University of Pittsburgh Medical Center study says these types of helmets reduce concussions by 31%.

2006 The Bowl Championship Series (BCS) National Championship Game becomes a separate bowl game to determine the National Champion of the NCAA Division I Football Bowl Subdivision. Originally, the game rotated between the Rose, Fiesta, Orange and Sugar Bowls.

2010 Specific rules are put in place that do not allow a player with a possible concussion to return to the game until he has been cleared by medical personnel. The player must miss at least one play, even if he has been cleared by team doctors.

2012 Conference commissioners announce the formation of a four-team playoff, the first of its kind at the FBS level. The new entity is called the College Football Playoff and replaces the BCS.

2014 The 100th Rose Bowl Game is played in Pasadena, California.

IMAGE SUGGESTIONS:

- **NFF 50th Anniversary Coin**
- **Program, Ticket & Patch from first BCS Championship Game, 2006:** In 2006, the Bowl Championship Series (BCS) title game became an independent event—rotating at the sites of

the Fiesta, Orange, Sugar and Rose Bowls, but separate from the bowl games themselves. Florida beat Ohio State, 41-14, in a game hosted by the Fiesta Bowl.

Curriculum Correlations

We know how important it is for you to be able to justify field trips and document how instructional time is spent outside of your classroom. With that in mind, both the activities in this Teacher's Guide and the experiences your class will have at the College Football Hall of Fame have been directly correlated to the Common Core State Standards for Mathematics and English Language Arts along with the Next Generation Science

Standards and the C3 Framework for Social Studies State Standards.

In addition you will find specific state requirements for: Alabama (Science, Social Studies), Florida (Science, Health, Social Studies), Georgia (Science, Health & Physical Education, Social Studies), North Carolina (Science, Health, Social Studies), South Carolina (Science, Health), and Tennessee (Science, Social Studies).

GRADE 3

Common Core State Standards: Mathematics

Content: CCSS.Math.Content.3.OA.A.1, CCSS.Math.Content.3.OA.A.2, CCSS.Math.Content.3.OA.A.3, CCSS.Math.Content.3.OA.A.4, CCSS.Math.Content.3.OA.B.5, CCSS.Math.Content.3.OA.B.6, CCSS.Math.Content.3.OA.C.7, CCSS.Math.Content.3.OA.D.8; CCSS.Math.Content.3.NF.A.1, CCSS.Math.Content.3.NF.A.3; CCSS.Math.Content.3.MD.A.1, CCSS.Math.Content.3.MD.A.2, CCSS.Math.Content.3.MD.B.4

Practice: CCSS.Math.Practice.MP1, CCSS.Math.Practice.MP2, CCSS.Math.Practice.MP3, CCSS.Math.Practice.MP4

Common Core State Standards: English Language Arts

CCSS.ELA-Literacy.RI.3.3, CCSS.ELA-Literacy.RI.3.4, CCSS.ELA-Literacy.RI.3.7; CCSS.ELA-Literacy.W.3.1, CCSS.ELA-Literacy.W.3.2, CCSS.ELA-Literacy.W.3.7; CCSS.ELA-Literacy.L.3.4

Next Generation Science Standard

3-PS2-1., 3-PS2-2., 3-ESS2-1., 3-ESS2-2., 3-ESS3-1., 3-5-ETS1-3.

C3 Framework for Social Studies State Standards

D1.1.3-5, D2.His.2.3-5., D2.His.3.3-5., D2.His.9.3-5., D2.His.14.3-5., D3.1.3-5., D3.4.3-5., D4.2.3-5.

Alabama

Science: 3.4, 3.12

Florida

Science: SC.3.E.6.1, SC.3.N.1.1, SC.3.N.1.3, SC.3.N.1.4, SC.3.N.1.6, SC.3.N.3.1, SC.3.P.8.1, SC.3.P.8.2, SC.3.P.10.4

Health: HE.3.B.5.3

Social Studies: SS.3.G.3.1

Georgia

Science: S3CS2, S3CS3, S3CS4, S3CS8, S3P1
Health: HE3.5, HE3.7

North Carolina

Science: 3.P.1.1, 3.P.1.2, 3.P.1.3, 3.P.3.2, 3.E.1.1
Social Studies: 3.H.2.1

South Carolina

Science: 3.S.1A.1, 3.S.1A.2, 3.S.1A.3, 3.S.1A.4, 3.S.1A.5, 3.S.1A.6, 3.S.1A.7, 3.S.1A.8, 3.S.1B.1, 3.P.2A.1, 3.P.2A.3
Health Education: P-3.5.1, I-3.6.1

Tennessee

Science: GLE 0307.Inq.1, GLE 0307.Inq.2, GLE 0307.Inq.3, GLE 0307.Inq.4, GLE 0307.Inq.6, GLE 0307.T/E.3, GLE 0307.6.1, GLE 0307.8.4, GLE 0307.10.1, GLE 0307.10.2, GLE 0307.11.1, GLE 0307.11.2
Social Studies: 3.3.02, 3.5.02

GRADE 4

Common Core State Standards: Mathematics

Content: CCSS.Math.Content.4.OA.A.1, CCSS.Math.Content.4.OA.A.3, CCSS.Math.Content.4.OA.B.4, CCSS.Math.Content.4.NF.A.1, CCSS.Math.Content.4.NF.A.2, CCSS.Math.Content.4.NF.B.3, CCSS.Math.Content.4.MD.A.2

Practice: CCSS.Math.Practice.MP1, CCSS.Math.Practice.MP2, CCSS.Math.Practice.MP3, CCSS.Math.Practice.MP4

Common Core State Standards: English Language Arts

CCSS.ELA-Literacy.RI.4.3, CCSS.ELA-Literacy.RI.4.4, CCSS.ELA-Literacy.RI.4.7; CCSS.ELA-Literacy.W.3.1, CCSS.ELA-Literacy.W.3.2, CCSS.ELA-Literacy.W.3.7; CCSS.ELA-Literacy.L.4.4

Next Generation Science Standards

4-PS3-2., 4-PS3-3., 3-5-ETS1-3.

C3 Framework for Social Studies State Standards

D1.1.3-5, D2.His.2.3-5., D2.His.3.3-5., D2.His.9.3-5., D2.His.14.3-5., D3.1.3-5., D3.4.3-5., D4.2.3-5.

Alabama

Science: 4.3, 4.4
Social Studies: 4.12

Florida

Science: SC.4.E.5.3, SC.4.N.1.1, SC.4.N.1.3, SC.4.N.1.4, SC.4.N.1.6, SC.4.P.11.1, SC.4.P.8.1, SC.4.P.12.1
Health: HE.4.B.5.3
Social Studies: SS.4.G.3.1

Georgia

Science: S4CS2, S4CS3, S4CS4, S4CS8, S4E2, S4E3, S4E4, S4P3

Health and Physical Education: HE4.2, PE4.1

North Carolina

Science: 4.P.2.1, 4.P.3.2

Health: 4.PCH.3.2

South Carolina

Science: 4.S.1A.1, 4.S.1A.2, 4.S.1A.3, 4.S.1A.4, 4.S.1A.5, 4.S.1A.6, 4.S.1A.7, 4.S.1A.8, 4.S.1B.1, 4.E.2B.1, 4.E.2B.3, 4.E.3B.4

Tennessee

Science: GLE 0407.Inq.1, GLE 0407.Inq.2, GLE 0407.Inq.3, GLE 0407.Inq.4, GLE 0407.Inq.6, GLE 0407.T/E.3, GLE 0407.6.1, GLE 0407.8.2, GLE 0407.9.1, GLE 0407.10.1, GLE 0407.10.2, GLE 0407.11.1, GLE 0407.11.2, GLE 0407.11.3

GRADE 5**Common Core State Standards: Mathematics**

Content: CCSS.Math.Content.5.NBT.B.5, CCSS.Math.Content.5.NF.A.2, CCSS.Math.Content.5.NF.B.3

Practice: CCSS.Math.Practice.MP1, CCSS.Math.Practice.MP2, CCSS.Math.Practice.MP3, CCSS.Math.Practice.MP4

Common Core State Standards: English Language Arts

CCSS.ELA-Literacy.RI.5.3, CCSS.ELA-Literacy.RI.5.4, CCSS.ELA-Literacy.RI.5.7; CCSS.ELA-Literacy.W.5.1, CCSS.ELA-Literacy.W.5.2, CCSS.ELA-Literacy.W.5.7; CCSS.ELA-Literacy.L.5.4

Next Generation Science Standards

5-PS2-1., 5-ESS1-2., 3-5-ETS1-3.

C3 Framework for Social Studies State Standards

D1.1.3-5, D2.His.2.3-5., D2.His.3.3-5., D2.His.9.3-5., D2.His.14.3-5., D3.1.3-5., D3.4.3-5., D4.2.3-5.

Alabama

Science: 5.6

Florida

Science: SC.5.E.7.4, SC.5.E.7.5, SC.5.E.7.6, SC.5.N.1.1, SC.5.N.1.4, SC.5.P.8.1, SC.5.P.13.1, SC.5.P.13.2, SC.5.P.13.3, SC.5.P.13.4

Health: HE.5.B.5.3

Georgia

Science: S5CS2, S5CS3, S5CS4, S5CS8

Health: HE5.1, HE5.7

Social Studies: SS55, SS5H9

North Carolina

Science: 5.P.1.1, 5.P.1.2, 5.P.3.2, 5.E.1.1, 5.E.1.2

Health: 5.PCG.3.2

South Carolina

Science: 5.S.1A.1, 5.S.1A.2, 5.S.1A.3, 5.S.1A.4, 5.S.1A.5, 5.S.1A.6, 5.S.1A.7, 5.S.1A.8, 5.S.1B.1, 5.P.5A.1,
5.P.5A.2, 5.P.5A.3, 5.P.5A.4

Health: I-5.7.1

Tennessee

Science: GLE 0507.Inq.1, GLE 0507.Inq.2, GLE 0507.Inq.3, GLE 0507.Inq.4, GLE 0507.Inq.6, GLE
0507.T/E.3, GLE 0507.10.2, GLE 0507.11.1, GLE 0507.12.1

Social Studies: 5.5.08, 5.5.14