

Health

Name: _____

Immune Troops! Move In!

by Shauna Hutton

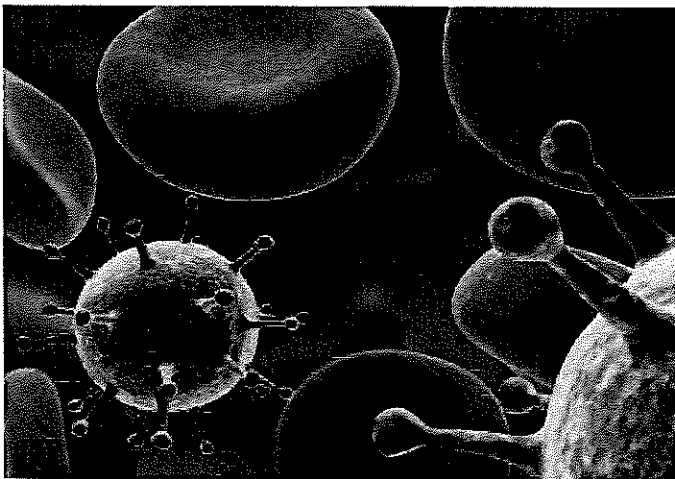
Your body has a very special system that protects you from illness and disease. It's called the immune system and it knows when there is something inside your body that should not be there.

All the cells in your body have a way to tell the immune system, "I belong here. I'm not going to do any harm." And so the immune system leaves those cells alone. Think about the cells in your body wearing name tags that say "self". Anything with a "self" name tag is a good guy. But things like bacteria, viruses, and parasites wear name tags that say "nonself". When the immune system sees a "nonself" name tag, it jumps into action and attacks those foreign invaders. Any foreign substance in your body that makes the immune system attack it, is called an antigen. These antigen invaders can be pollen from the air, a virus, or certain types of bacteria.

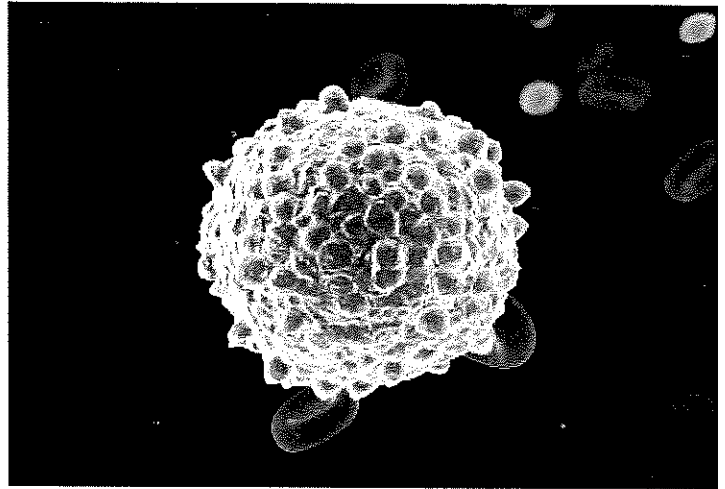
There are many different kinds of immune cells helping to keep you from getting sick. They can be grouped into phagocytes (pronounced fag-uh-sahyt) and lymphocytes (pronounced lim-fuh-sahyt).

Phagocytes are a type of white blood cell, and one of their jobs is to gobble up and digest antigens. They are always swimming around in your blood stream, always on the lookout for antigens. And when they see one, *GULP!*

Lymphocytes are also white blood cells and the main types are B cells, T helper cells, and T killer cells. Many antigens can be very sneaky (like viruses) and can hide from phagocytes, so it's the job of the lymphocytes to find them and get rid of them.



Viruses will kill healthy cells in the body.



White blood cells, like the one pictured above, attack the harmful bacteria, viruses, and parasites that enter your body.

B cells secrete (produce) substances, called antibodies, which stick to the antigen. When that happens, it alerts the T helper cells to come over and either:

1. help the B cells destroy the antigen, or
2. call the phagocytes or T killer cells to move in for the kill

T killer cells are really good at finding and killing cells that have been infected by a virus.

Once a B cell or T cell attacks an antigen, they create cells to "remember" it. Those "memory cells" hang out in your blood and if they see that same antigen again, they quickly recognize it so your immune system can act faster at killing it.

The "B" in B cells stands for **b**one marrow, which is where B cells, and all immune cells originate from. The "T" in T cells stands for **t**hymus. Young T cells start out in bone marrow, but they travel to the thymus to continue growing into mature T cells. The thymus is an immune organ located in the middle of your chest, near your heart. Its job is to produce mature T cells.

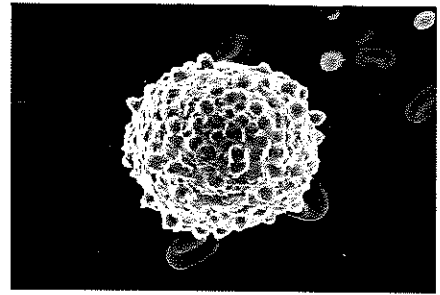
You have your own little army of cells inside you, always fighting to keep you healthy. And you can be a part of that army too! By getting plenty of sleep at night and eating nutritious foods, you'll help keep your immune system strong and ready to fight.

Go immune troops! Go!

Name: _____

Immune Troops! Move In!

by Shauna Hutton



1. What does your immune system do?
- a. makes you sick
 - b. keep your brain sharp
 - c. protect your from illness
 - d. make energy for your body

2. Define the word *antigen*. Give 3 examples of antigens.

3. According to this article, your immune system works much like...

- a. the ocean
- b. an army
- c. an engine in a car
- d. a computer

4. Where are white blood cells made?

- a. in your bones
- b. in your thymus
- c. in your brain
- d. in your heart

5. B and T cells are both...

- a. phagocytes
- b. bacteria
- c. antigens
- d. lymphocytes

5. What can you do to keep your immune system strong?

Now try this: Draw a comic strip that shows white blood cells attacking a virus in the bloodstream.

BASEBALL

INSTRUCTIONS

This Learning Packet has two parts: (1) text to read and (2) questions to answer.

The text describes a particular sport or physical activity, and relates its history, rules, playing techniques, scoring, notes and news.

The Response Forms (questions and puzzles) check your understanding and appreciation of the sport or physical activity.

INTRODUCTION

Baseball is probably the one sport which is most clearly identified with “being American.” Former President Herbert Hoover once stated that baseball is the greatest of all team sports. For the past 150 years, baseball has become so intertwined in all aspects of American daily life that the baseball strike of 1994 seemed almost unthinkable. Who could imagine summer without hot dogs and soft drinks at the ball park or a warm summer evening spent cheering a favorite team to victory?



HISTORY OF THE GAME

Baseball, however “American” it may seem to us today, did not originate in America. It probably began in England with a game called “rounders.” The term “baseball” dates from 1744, when a book on sports described and illustrated a batter holding a bat with a catcher in position behind the batter and a pitcher ready to throw a ball. This English book was reprinted in America around 1762.

In 1845, an American amateur baseball player named Alexander Cartwright, along with other early baseball players, wrote the rules of the game. Many of these rules are still in effect today.

Baseball came to be dominated by professional players some time around 1869, when the first professional team, the Cincinnati Red Stockings, was organized. Later, many regional leagues were started, then dissolved. At this point in history, baseball was not a very lucrative business, and few teams were able to make money. In the late 1880s, the National League attempted to limit the salary that players could accept to a maximum of \$2,000.

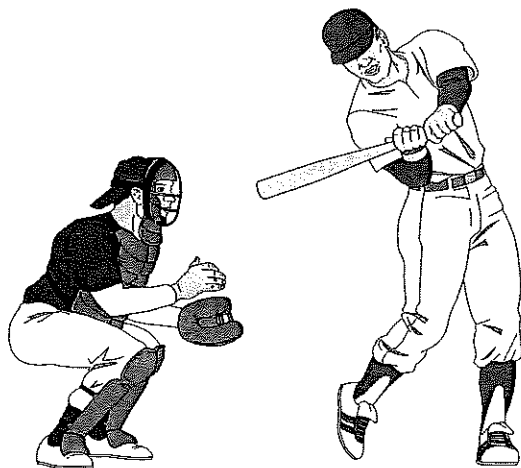
During the early period of league formation, rules for transferring players from one league to another were created. There were also strict rules for recruiting minor league players for the major leagues. At present, all major league teams maintain minor league teams called “farm clubs” where players are trained and eventually transferred to a major league.

In 1903, the first World Series was held. It was held every year since until the baseball strike of 1994. Today, baseball, despite the impact of the strike, continues to be a highly-organized and lucrative sport. The salaries of baseball players are the highest of all athletes who play team sports.

HOW THE GAME IS PLAYED

THE RULES OF THE GAME

In baseball, two teams of nine players compete with one another on a baseball “diamond” which in reality is a square field. The teams are comprised of a pitcher, catcher, a first, second and third baseman, a shortstop, and left, center and right fielders.

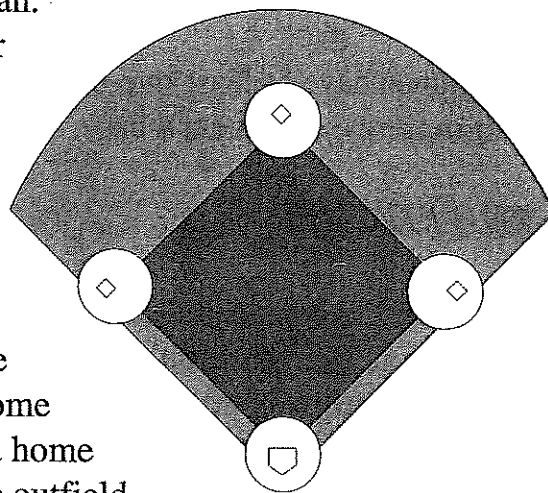


A catcher stands behind the batter and signals the pitcher as to what type of ball to throw. Each game is made up of nine innings. If the home team is ahead (that is, if it has scored more runs) at the end of the middle of the ninth inning, the home team wins.

The baseball field has four bases which are spaced ninety feet apart from each other. The batter’s box, the area where the batter stands, is located 60 feet and six inches from the pitcher’s mound. The two foul lines run the length of the field and define the playing area.

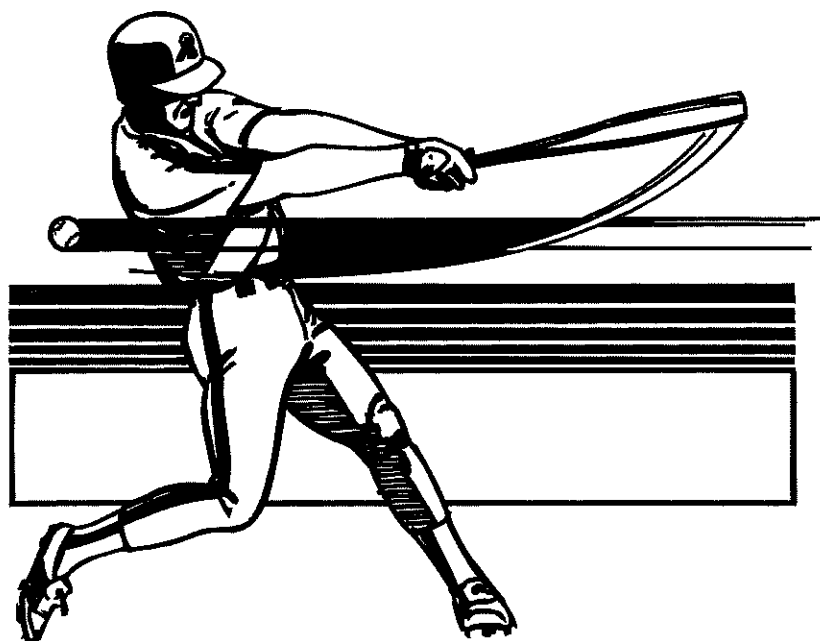
The batter's objective is to get a hit. Once the ball is hit, the batter (now called the "runner") must get to first base before the ball is caught by the first baseman. Once the ball is caught, the runner is tagged or the first baseman touches first base before the runner touches it. If the batter can get to first base safely, it is called a "single."

A "double" occurs if the batter can run to second base, and a triple occurs when a batter makes it to third base. A home run means that the batter runs around all the bases and reaches home plate ahead of the ball. The batter can also hit a home run by hitting the ball over a wall or fence in the outfield.



The defensive team in the field tries to keep the offensive team's batters from scoring. One way of getting a batter out is to pitch three strikes. A strike occurs when the batter swings and misses or doesn't try to hit a ball that is pitched within the strike zone. If a batter already has two strikes and hits a ball into foul territory, the foul does not count as a strike. A foul ball counts as a strike under all other conditions.

If a pitcher throws a ball that does not cross home plate between the batter's armpits and knees (the strike zone), the pitch is "a ball." When a pitcher throws four balls to any one batter, the batter is able to go to first base without having to hit the ball—technically called "a walk."



Once the ball is hit and is in the air, the players in the field attempt to catch the ball before it hits the ground. If a fly or line ball is caught, the batter is automatically out. A ground ball, when caught, is thrown to a base in order to get the runner out.

Baseball players can also slide into a base to keep from being tagged out. Sliding is more

difficult than it appears to be and requires practice to be done properly. The body falls to the ground in a controlled manner by a fall backward on the outer surface of the knee and lower leg, or just by diving head first.

All games have at least one umpire to call balls and strikes. Major league games have four umpires, one at each base.

THE PITCHER

The pitcher is considered the most important defensive player on a team. This position is the most physically demanding spot on the team as well as the position with the most control over the game. A pitcher needs excellent control over the ball in order to throw the ball where he or she aims it. Pitchers have been known to throw the ball 100 miles per hour.

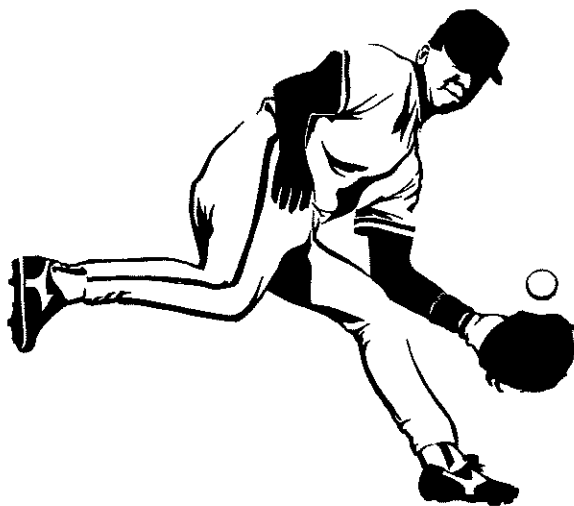


Various styles of throwing the ball may be used to achieve different results. For example, a curve ball swerves from a straight line to the left or right, depending on which arm the pitcher is using. A fast ball is just that—a ball thrown extremely fast. A “slider” is a cross between a fast ball and a curve ball and seems to “slide” away from the batter.

OUTFIELDERS AND INFIELDBERS

Long or high balls, or ground balls that go past the infield, are caught by one of the three outfielders. Outfielders must have superior throwing ability. The center fielder is generally the fastest of the three outfielders since he or she has the most area to cover. Center

fielders must also have a “strong arm,” as they must throw balls to third base and home plate. Some of the most famous names in baseball were outfielders—among them Babe Ruth, Ty Cobb, Joe DiMaggio, Ted Williams and Mickey Mantle.

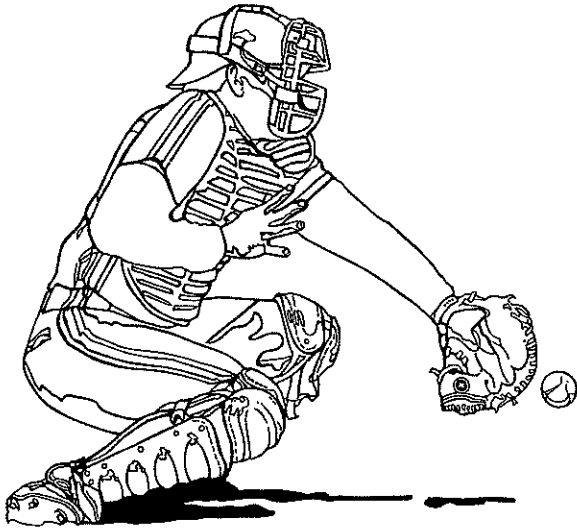


The job of the infielder, the player who is on the bases and the shortstop, is to try to prevent balls from going into the outfield. These players also attempt to throw or tag out the batter once a ball has been hit. In particular, the short-

stop has the most demanding position and must have a strong throwing arm and quick reactions.

The history of baseball is full of famous infielders, including Lou Gehrig, Rogers Hornsby, Jackie Robinson and Ernie Banks.

THE CATCHER



The position of catcher is considered to be very important. The catcher is the “brains” or strategy planner for the game. His or her judgment in choosing pitches can determine the best defensive play for the rest of the team.

The catcher is thought by many to be the hardest-working member of a team. He or she has to know all the weaknesses and strengths of the pitchers. He or she covers third or first base when no one else is on base, and wears more equipment than any other player.

DESIGNATED HITTER

A tenth starting player in the American League, minor leagues and many amateur leagues is a player used only to bat. This player has no defensive role and bats instead of the weakest hitter (usually the pitcher).

KEEPING SCORE IN BASEBALL

The box score (records of both individual players and games) is kept by an official scorer. Also, newspapers and baseball clubs keep detailed records of the players’ batting averages, fielding averages and pitching records.

Batting averages are calculated by taking the number of hits and dividing that figure by the number of times a player is at bat. If a batter “walks,” it is not counted as a time at bat. Nor is it counted as a hit. Fielding averages are figured by taking the total put-outs and assists and dividing them by the total number of put-outs, assists and errors.

An error occurs when a player gets to first base because the defensive player did not

catch the ball or, having caught the ball, threw it poorly to another player.

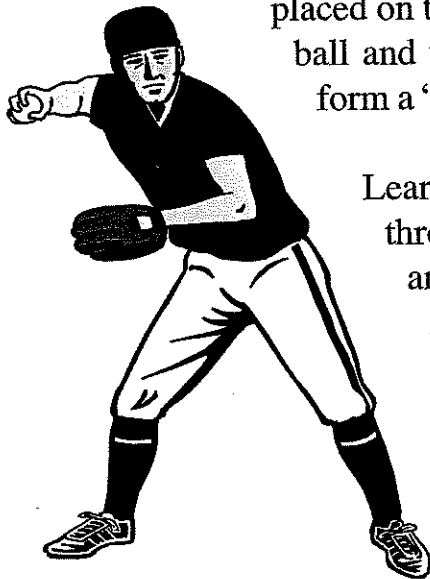
Pitching records indicate the number of games won and lost and earned-run averages (total earned runs allowed, divided by the number of innings pitched, then multiplied by nine).

PLAYING TECHNIQUES

THROWS IN BASEBALL

Developing a good throwing technique is an important skill in baseball. Throwing is the most complicated of all the baseball skills to execute effectively. It calls for speed, accuracy and long hours of practice. Good throwing takes into account the following steps:

The first step in learning a correct throwing technique is a proper grip. The player should grip the ball by placing the index and middle fingers over one of the four long seams on the baseball. The inner side of the thumb is placed on the underside of the ball in line with the middle finger. The ball and the point where the index finger and thumb meet should form a “V” shape. The ball is held loosely, almost in the fingertips.



Learn the proper stance for throwing. As the player prepares to throw the ball, his or her elbow should be up, shoulders level, and wrist cocked with fingers behind and on top of the ball. As the ball is released from a point over and in front of the player's head, the player's fingers should be behind the ball.

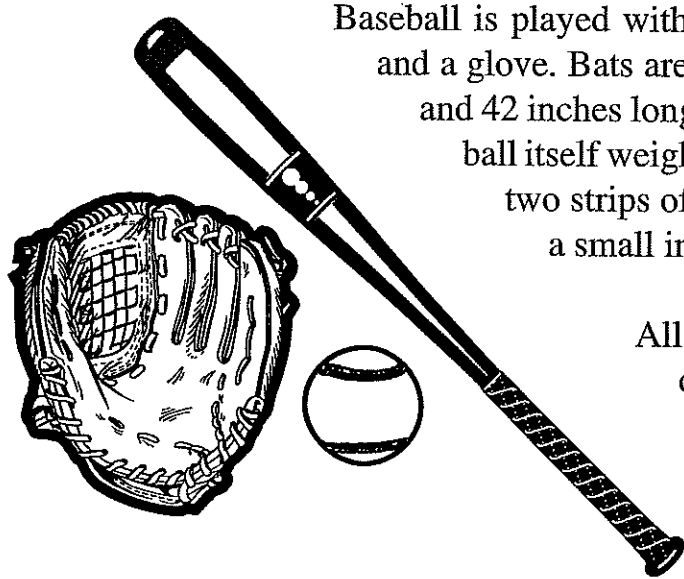
Remember that a player's arm does not work alone in throwing the ball. The player's entire body needs to be propelled forward in order to build arm speed for the throw. The player needs to take an exaggeratedly long step forward toward the target. The length of that step, however, depends on how far the ball has to travel. For example, an outfielder's step will be long because he has to throw the ball up to 300 feet away.

Follow-through is important! The technique of throwing does not end when the ball is released from the hand. If there is no follow-through, the ball will lose a great deal of speed and accuracy. The throwing arm should continue

to move downward across the front of the body and behind the left hip if the right arm is being used. Both feet should be parallel to the target and pointing toward it.

Players need to take special care of their arms because of the intense workout the arm gets in a game of baseball. Warm-up exercises should always be done before practice or a game. Many players ruin their chances at a pro or amateur career in baseball by abusing their arms. Watch that arm—it is your most valuable asset in the years of baseball playing ahead of you!

EQUIPMENT AND CLOTHING



Baseball is played with very simple equipment—a ball, a bat and a glove. Bats are no more than 2-3/4 inches in diameter and 42 inches long. They can be of any weight. The baseball itself weighs about five ounces and is covered with two strips of white horsehide stitched together with a small inner core of cork or rubber.

All players on a team use gloves. A standard baseball glove may not exceed 12 inches in length and 8 inches in width. The first baseman and catcher usually wear gloves that are thicker than those of the other players.

BASEBALL NOTES AND NEWS

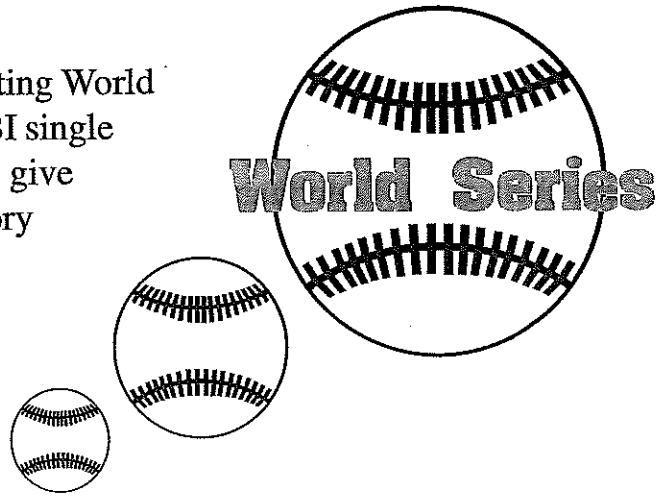
As many people remember, 1994 went down in baseball history as a lost season. It was the year of the first season-ending strike in the history of a sport that has long been regarded as America's "National Pastime." The repercussions of the strike were far-reaching. For the first time in 90 years, there was no World Series. The strike lasted 34 days and covered 669 games cancelled. Owners lost over \$400 million in revenues.

Bleachers were full, however, during the 1999 World Series. What else could it be for a New York Yankees team that is surely one of the greatest in Major League Baseball history? Roger Clemens and the Yankees put the finishing touch on another dominant season by beating the Atlanta Braves 4-1 in the fourth game for a record 25th World Series championship. Yankee pitcher Mariano Rivera, who had two saves and a victory in the Series, was selected MVP.

For the 2000 World Series it was the New York Mets and the New York Yankees, battling it out in what was referred to as the “subway series.” The Yankees won their third straight World Series title and fourth in five years by beating the New York Mets 4-2 in game five.

In what was hailed as one of the most exciting World Series of all times, Luis Gonzalez hit an RBI single with one out in the bottom of the ninth to give the Arizona diamondbacks a 3-2 game victory over the New York Yankees in the 2001 World Series.

“Iron Man,” Cal Ripken, announced his retirement after 21 years as an Oriole. His fabulous career ended on September 30, 2001 at the Yankee Stadium.



In 2002, the Anaheim Angels won a world series for the first time by defeating the San Francisco Giants 4-1 in Game 7. Gareret Anderson was the hitting hero for the Angels. It was Anderson’s bases-loaded double in the third inning that paved the way for the Angels victory. The Angels, whose first season was in 1961, join the 1997 Florida Marlins as the only wild-card teams to win a World Series.



Sammy Sosa was ejected from a game with Tampa Bay on June 3, 2003 for using an illegal bat. Sosa claimed the bat that shattered and contained cork was one he uses to put on home run displays in batting practice. He still, however, received a seven day suspension.

Baseball is also an Olympic sport. The team from the United States defeated Cuba to win the Gold Medal in the 2000 Sydney Olympic Games. Before the Games began, the coach for team USA, Tommy Lasorda, promised America it would know the USA baseball team members when all was said and done. Now, with gold medals draped around their necks, players like Doug Mientkiewicz and Ben Sheets are coming home to find Lasorda’s promise was true.

For more information visit these web sites to stay informed about baseball:

<http://www.sportsline.com/u/baseball/college/index.html>

<http://www.majorleaguebaseball.com/>

<http://www.baseball.com/>

STUDENT RESPONSE PACKET

BASEBALL

NAME _____

DATE _____

WHAT TO DO

The following questions will help you to have a greater appreciation and understanding of baseball. Write your answers in the spaces below the questions. If there is not enough room, write on the backs of these sheets. Be neat, spell correctly, and write in complete sentences.

1. Baseball is often identified as the great American sport, yet it didn't begin in America. How and where did this game originate?
2. What are some of the physical benefits to be gained from playing baseball?
3. What are "farm teams" and how are they used?
4. How many people make up a typical baseball team and what positions do they play?

5. What is a “single”? a “double”?

6. When does a “ball” occur?

7. How is a good slide into a base performed?

8. Why is the pitcher considered the most important defensive player on the team?

9. Name at least four factors involved in performing a good throw:

10. What are some of the effects of the baseball strike in 1994? In your opinion, will baseball ever return to its pre-1994 status as the most popular spectator sport in America?

VOLLEYBALL

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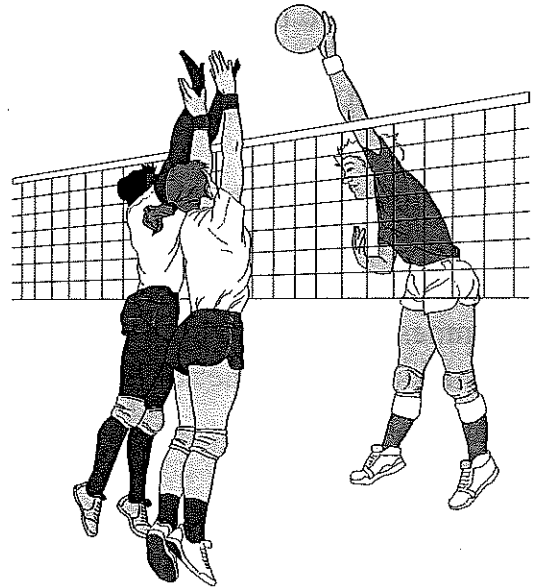
The text describes a particular sport or physical activity, and relates its history, rules, playing techniques, scoring, notes and news.

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INTRODUCTION

Volleyball is a popular sport which can be played both indoors and outdoors. It appeals to people of all ages and skill levels. It is fast-paced, with constant jumping and running, and thus provides a strenuous aerobic workout. It also requires mental alertness and quick, precise physical reactions.

Many associate volleyball with the beaches of southern California and in fact, a number of professional players get their start by playing beach volleyball. However, volleyball is popular not only on the beaches, but in virtually every country of the world. In 1964, it was officially recognized as part of the Olympic Games.

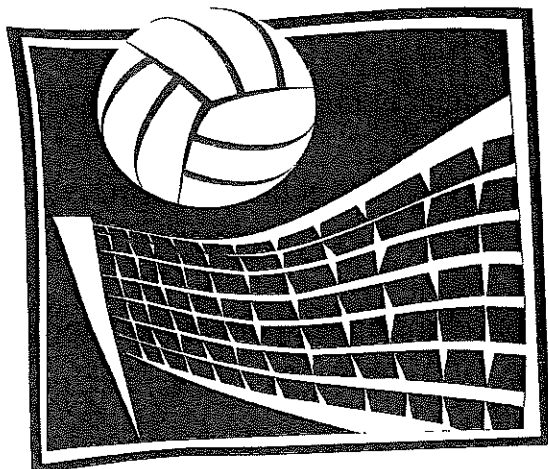


HISTORY OF THE GAME

Volleyball originated in Massachusetts in 1895 when the director of a local YMCA used the bladder of a basketball for a ball and a tennis net as the first volleyball net. The game was regulated by the YMCA until 1928 when the United States Volleyball Association was founded.

HOW VOLLEYBALL IS PLAYED

The name “volleyball” is not an entirely accurate description of this sport. The object of the game is hit the ball over the net in such a way that the opposing team cannot return it.

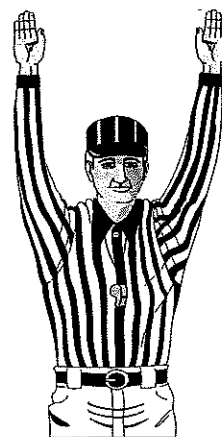


Volleyball is played on a court 30 feet wide by 60 feet long. The net is three feet high and spans the width of the playing area. The top of the net is positioned eight feet (in men's volleyball) from the floor or playing surface. The modern volleyball is about the size of a soccer ball.

The game is played by two opposing teams, with six players on each team. Once the ball is put into play, it is “volleyed” back and forth between the teammates up to three times before it is hit over the net or until it falls to the floor, is hit out of bounds or a team commits a foul. The same player may not make a hit twice in a row. Even if the ball hits a player by accident, it counts as one of the three touches allowed per side. However, if a player blocks a spike, the block is not considered a “hit.”

The game has a total of 15 points. If a team fails to serve properly, return the ball, or commits any other fault, the opponent wins the rally and scores the point. Each game must be won by a two-point margin. A match consists of either three or five 15-point games. The team which wins two (in a three-game match) or three (in a five-game match) games is the winner of the match.

Volleyball requires a referee, who generally has the final word regarding points in dispute, an umpire who assists the referee, a scorekeeper, a timekeeper and linesmen. Even though there may be officials present during a game, players who commit fouls are expected to call out their own mistakes.



SKILLS AND TECHNIQUES

THE READY POSITION AND JUMP

One of the basic positions in volleyball is called the “ready position.” The knees are slightly bent with hands at waist level and elbows near the body to allow the player to concentrate on the ball. Players should learn this position so that time is not wasted

when the ball is hit. Jumping is always done near the net. Players should practice jumping so that they do not touch the net, or bump into or injure other players. They should also remember always to jump parallel to the net.

THE SERVE: OVERHAND AND UNDERHAND

Serving is a crucial skill for the volleyball player to learn. The cardinal rules of serving are simple: do not step on a boundary line, and get the ball over the net.

The overhand serve is the most popular and effective serve. It is similar to a tennis serve. The ball is thrown into the air so that it rises a few feet above the server's head. As the ball comes down, the right arm (if you are right-handed) is raised up and back while the elbow comes forward. The arm is then extended at the elbow and the server hits the ball with the heel of the hand.

The underhand serve is a good serve for beginners to use. It is simply another way of getting the ball over the net. The ball is held in one hand and hit by the heel of the other hand. The underhand serve is generally not as effective as the overhand serve.



THE PASS OR SET



The pass is a difficult move for many beginning players. This skill looks easier than it actually is when performed. Once the ball is served, the player who will pass the ball gets into position under the ball with knees bent, hands up and fingers cupped. All the fingers and the two thumbs contact the ball, but the ball does not touch the palm of the hand.

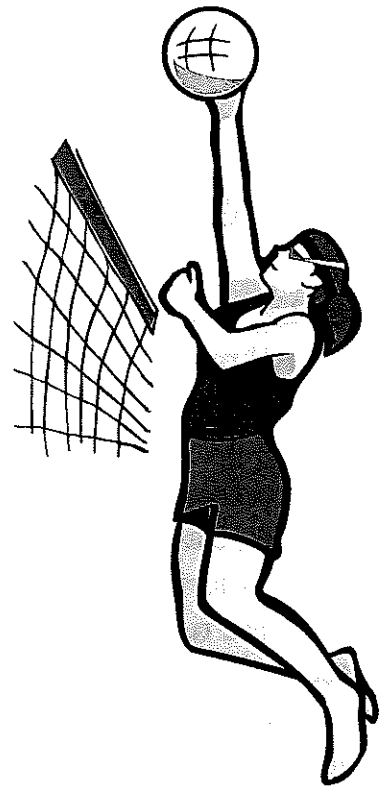
When the ball is in the air over the serving side's court, it may be passed up to three times before it is returned over the net. One player cannot pass the ball twice in a row.

Note that overhead passes are not used when the returning ball is a “spike.”

THE SPIKE

The spike is one of the most difficult plays in volleyball: a player has to run, jump and hit the ball to a specific spot on the other side of the net. However, it is the best offensive move in volleyball, and it should be learned.

Generally, a spiked ball is hit with an open hand. However, unless a player is quite experienced, spiking a ball can sometimes result in the ball going out of bounds or into the net. Remember that practice in timing, jumping and hitting are required to spike correctly. A spiked ball, hit properly, can move up to a hundred miles an hour.



THE FOREARM BOUNCE PASS-BUMP

The bump is used for receiving serves and spike balls. This shot is easy to execute because the ball simply bounces or bumps off the clasped hands, wrists or forearms.

The purpose of this shot is to bounce the ball into the air so that a teammate can get under it to make a set-up (a move usually used to direct the ball to the spiker).

ONE-HAND BOUNCE PASS-DIG

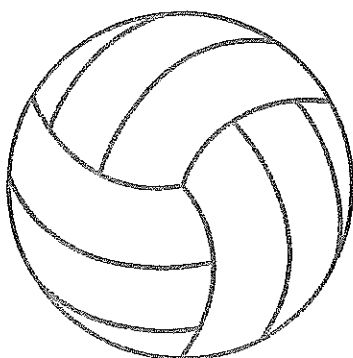
This is a recovery shot, and is used if the ball received is low and off to the side of a player. If you cannot make a bump pass, use a dig or save pass instead. In this move, the hands are cupped. They are then placed under the ball just before it hits the floor.

THE BLOCK

This move is used chiefly as a defensive position to stop spiked balls. As with spiking, timing is important in blocking.

A player must anticipate an opponent's spike and position him or herself accordingly. The blocker then jumps just after the spiker has jumped. The blocker's arms should be extended upward with fingers spread wide apart. This allows the ball to bounce off the

heels of the blocker's hands and land on the opposite side of the net.



This is the only move in volleyball that allows the player's hands to go over the top of the net.

EQUIPMENT AND CLOTHING

Standard clothing for playing volleyball is comfortable sportswear which allows for free movement. Gym shoes are a must since most gyms do not allow anyone on the floor in regular shoes. When played on the beach, attire ranges from gym clothes to swimsuits. Many play bare-foot in the sand.

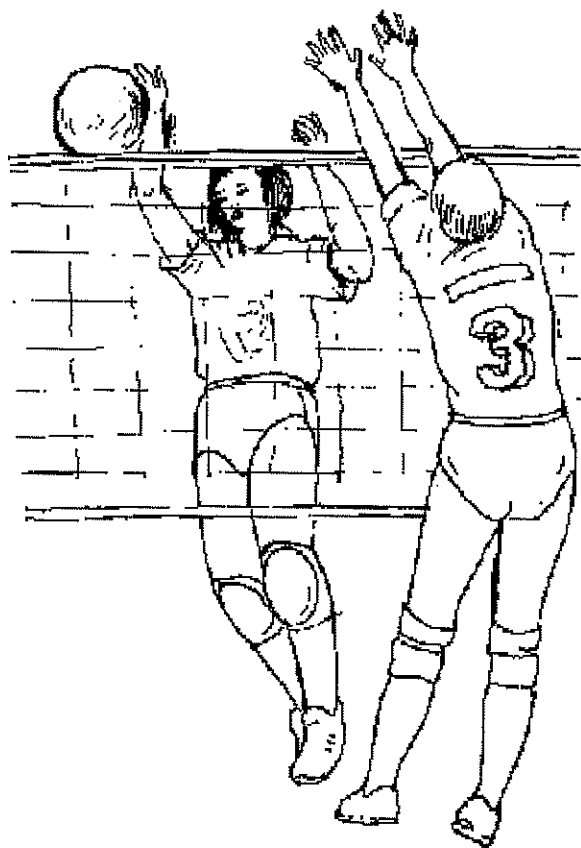
VOLLEYBALL NOTES AND NEWS

During the 2002-03 school year the NCAA Volleyball tournament saw #3 seeded Division II Lewis University of Romeoville, Illinois upset #1 seeded Brigham Young University 3-2 (42-44, 30-27, 30-21, 30-23, 15-12). The National Title, held at Long Beach State University's "The Pyramid," is the first of any kind for the Romeoville, Illinois school. The championship is also the first Volleyball title for a non-division I school. The championship tournament was held on May 3, 2003.

On the women's side, Southern California dethroned defending national champion and Pacific-10 foe Stanford 3-1 (30-27, 23-30, 30-24, 30-26) on December 21, 2002 to claim its first NCAA Division I Volleyball Championship since 1981.

Volleyball is also an Olympic sport. At the 2000 Olympics, both women and men had 12 teams in competition.

Medalists in the 2000 Sydney Olympic Indoor and Beach Volleyball competition are



listed below.

Indoor Competition:

Men's:

GOLD - YUGOSLAVIA

SILVER - RUSSIA

BRONZE - ITALY

Women's:

GOLD - CUBA

SILVER - RUSSIA

BRONZE - BRAZIL

Beach Competition:

Men's:

GOLD - USA

SILVER - BRAZIL

BRONZE - GERMANY

Women's:

GOLD - AUSTRALIA

SILVER - BRAZIL

BRONZE - BRAZIL



In addition to these national and international contests, local volleyball competitions are held in most states. Check your local schools and volleyball associations for coverage.

You can also find out more by visiting these volleyball web sites on the internet:

<http://www.ncaachampionships.com/>

<http://www.volleyball.org>

STUDENT RESPONSE PACKET

VOLLEYBALL

NAME _____

DATE _____

WHAT TO DO

The following questions will help you to have a greater appreciation and understanding of volleyball. Write your answers in the spaces below the questions. If there is not enough room, write on the backs of these sheets. Be neat, spell correctly, and write in complete sentences.

1. Why is volleyball considered to be such a good aerobic exercise?
2. How many total points can be scored in a game of volleyball?
3. What does "a match" in volleyball consist of?
4. What clothing is typically worn for playing volleyball?

5. What is “the ready position” in volleyball and how is it used?

6. What is an overhand serve?

7. What is an underhand serve?

8. What is a pass and how is it used?

9. How is a spike ball hit?

10. How is a block used?