Baseball Scoring & Statistics
An Introduction

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Plan for this talk

The Score Sheet

Making it to base

Fielding Positions

Outs

Batting Statistics

Plan for this talk

The Score Sheet

Making it to Base

Fielding Positions
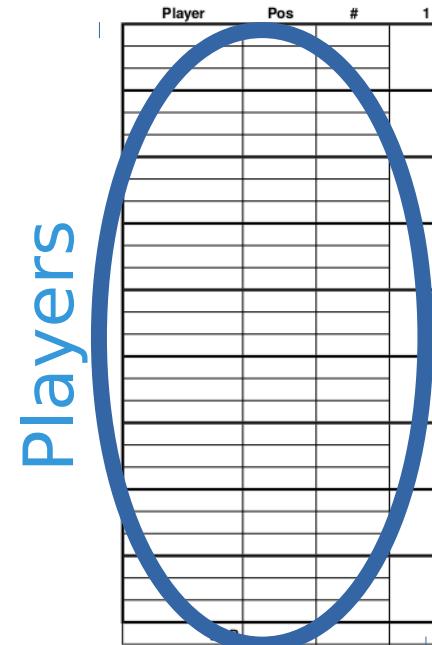
Outs

Batting Statistics

Most basic

Most basic

Players

Player	Pos	#	1	2	3	4	5	6	7	8	9	10	11		

Pitchers	#	IP	K	BB	H	R	ER	ERA	BA

		1	2	3	4	5	6	7	8	9	10	11	R	H	E

Most basic

Hit / out results by player by inning

Players

Player	Pos	#	1	2	3	4	5	6	7	8	9	10	11		
LOB															

Pitchers	#	IP	K	BB	H	R	ER	ERA	BA

	1	2	3	4	5	6	7	8	9	10	11	R	H	E

Most basic

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Player stats

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Most basic

Hit / out results by player by inning

Players

Player stats

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LOB															

Pitchers	#	IP	K	BB	H	R	ER	ERA	BA

Game scoring

Hit / out results by player by inning

Players

Player stats

Pitching stats (not covered today)

Game scoring

Most basic

Hit / out results by player by inning

Players

Player stats

Pitching stats (not covered today)

Player	Pos	#	1	2	3	4	5	6	7	8	9	10	11		

LOB

Pitchers	#	IP	K	BB	H	R	ER	ERA	BA

	1	2	3	4	5	6	7	8	9	10	11	R	H	E

Game scoring

Better sheet

This and others available at http://baseballscorecard.com/downloads.htm

Useful markings

End of a half inning (indicate last batter of prior inning, first batter of next inning)

#	Player	Pos	1	2	3	4	5	6	7	8	9	10	AB	R	H	RBI	E
	sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
	sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
	sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					

Player Substitution (indicate inning / at bat between when player was substituted

#	Player	Pos	1	2	3	4	5	6	7	8	9	10	AB	R	H	RBI	E
	sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
	sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
	sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					

Pitching Change (indicate batters between which the pitcher changed)

#	Player	Pos	1	2	3	4	5	6	7	8	9	10	AB	R	H	RBI	E
	sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
	sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
	sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					

Plan for this talk
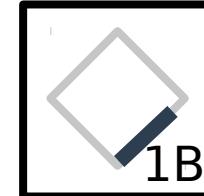
The Score Sheet

Making it to Base

Fielding Positions

Outs

Batting Statistics

13

A Hit!
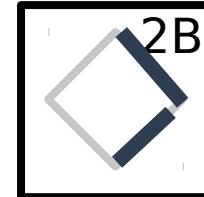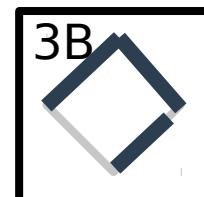
Single [1B]

Double [2B]

Triple [3B]
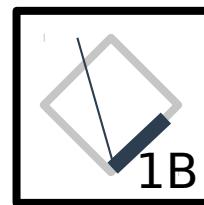
Home Run [HR]

Tracking the hit
Most useful for opposing team
Indicate direction of hit with thin line

Single toward left field

Pitching choices and mistakes
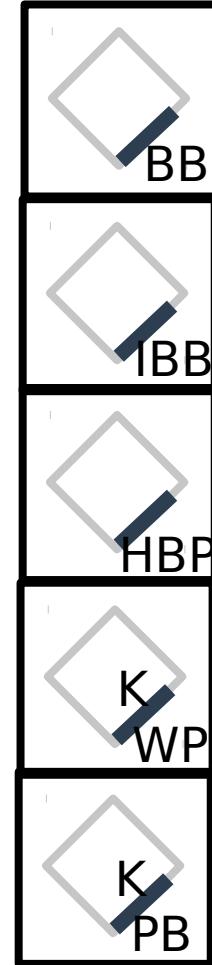
Base on balls (Walk) [BB]

Intentional Walk [IBB or IW]
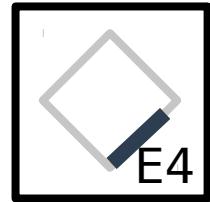
Hit by Pitch [HBP]

Dropped third strike: wild pitch [K WP]

Dropped third strike: Passed ball [K PB]

BB

IBB

HBP

K
WP

K
PB
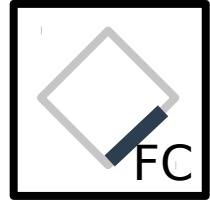
Not so good a hit...

Fielding Error
(by the first baseman)

E4

Fielders Choice
Batter makes it to base, but another runner is forced or tagged out

Ex: Runner on 1st; Grounder to 2nd, 2nd baseman tosses to SS, force runner out at 2nd. Batter makes it to 1st.

FC

Advancing the runners

A runner advances on a hit by another batter.
Note who advanced the runner to each base.
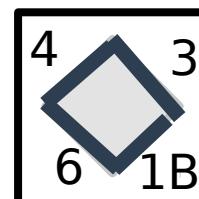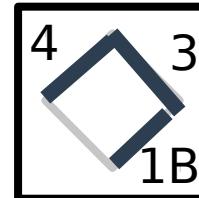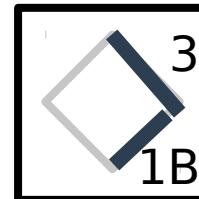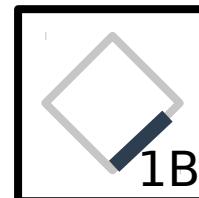
First base runner who had a single

Advances on a single by batter #3

Advances again on a single by batter #4

Gets a run by batter #6

Stolen bases and errors

Make note of when the runner advanced by who was batting

First base runner who had a single

Steals a base [SB] during batter #3 at bat
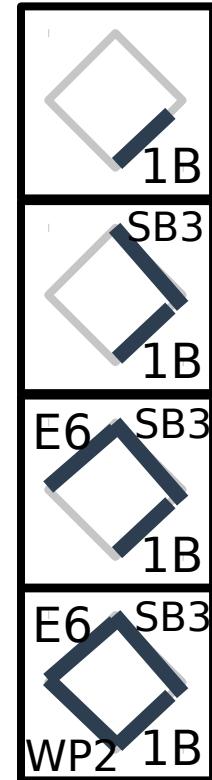
Advances on an error [E] by the shortstop (more details on this later)

Pitcher hits the mascot (Wild Pitch [WP])

Catcher drops the ball (Passed Ball [PB])

Pitcher Balks [BLK]

Interference by player or spectator [I or INT]

1B

SB3
1B

E6   SB3
1B

E6   SB3
WP2 1B

Runner doesn't advance

When a runner fails to advance due to being tagged or forced out, terminate their path

First base runner who had a single
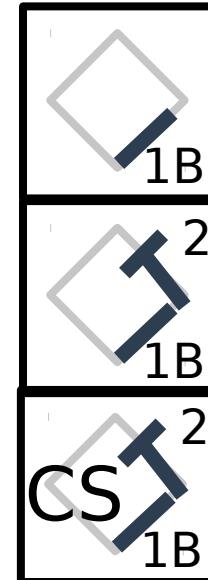
Forced out by batter #2

Caught stealing [CS]

Runner Interferes with fielder [INT]

Runner left base-path [LBP]

Picked Off [PO]

Left Base Early [LBE] (tries to advance on fly, reaches next base but ball is caught)

Plan for this talk
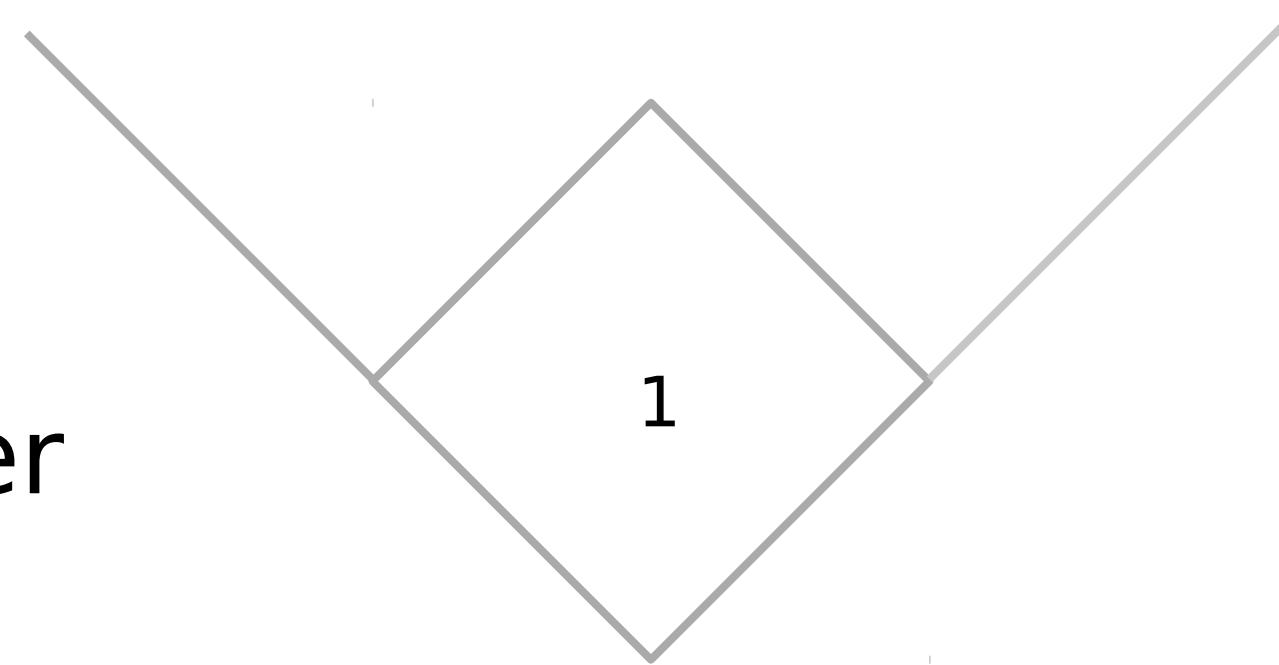
The Score Sheet

Making it to Base

Fielding Positions

Outs

Batting Statistics

Pitcher

1

Catcher

1

2

1st Base

3

1

2
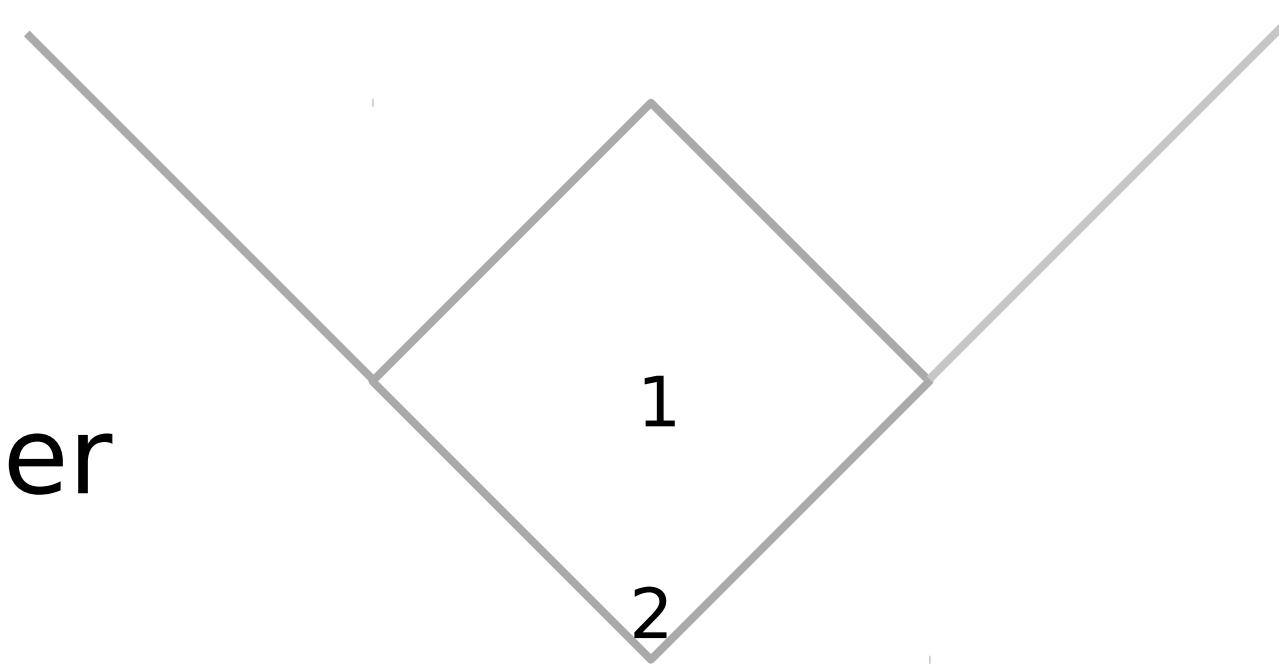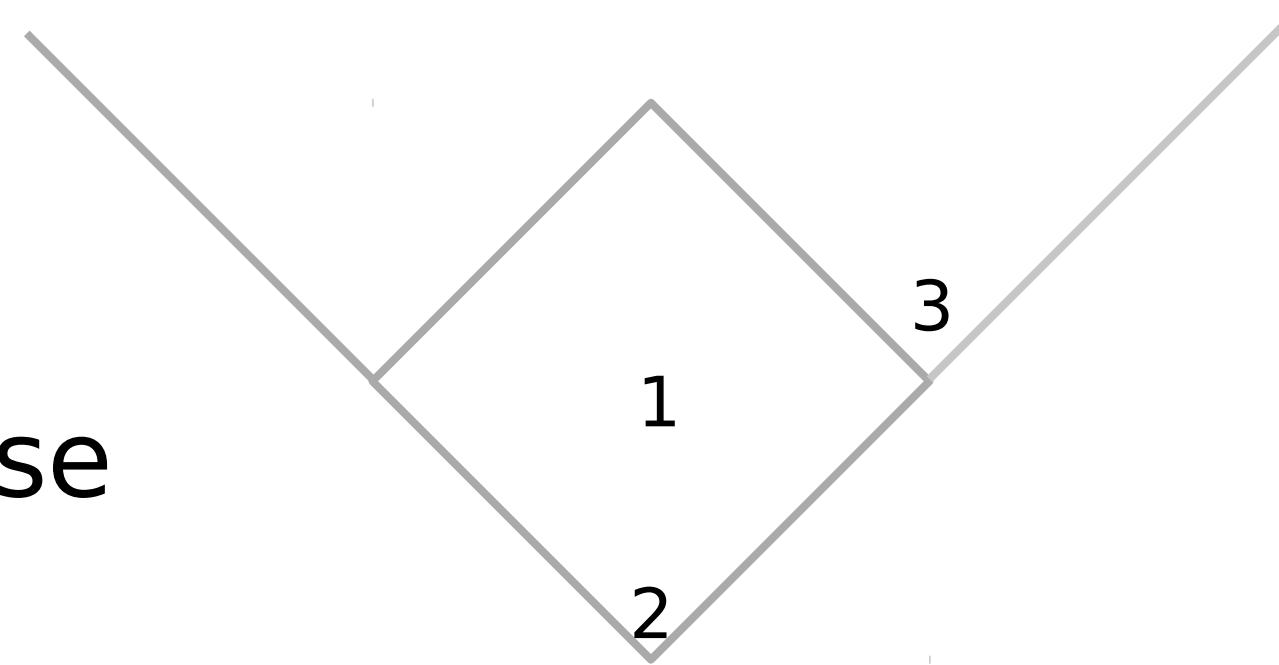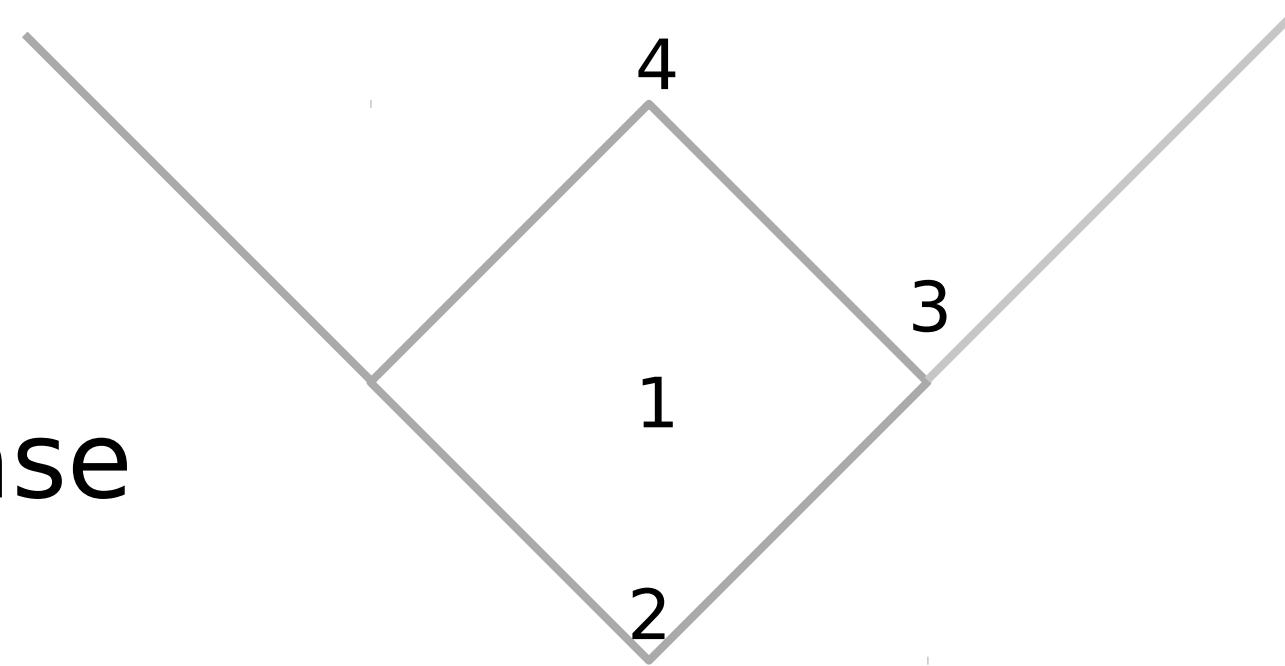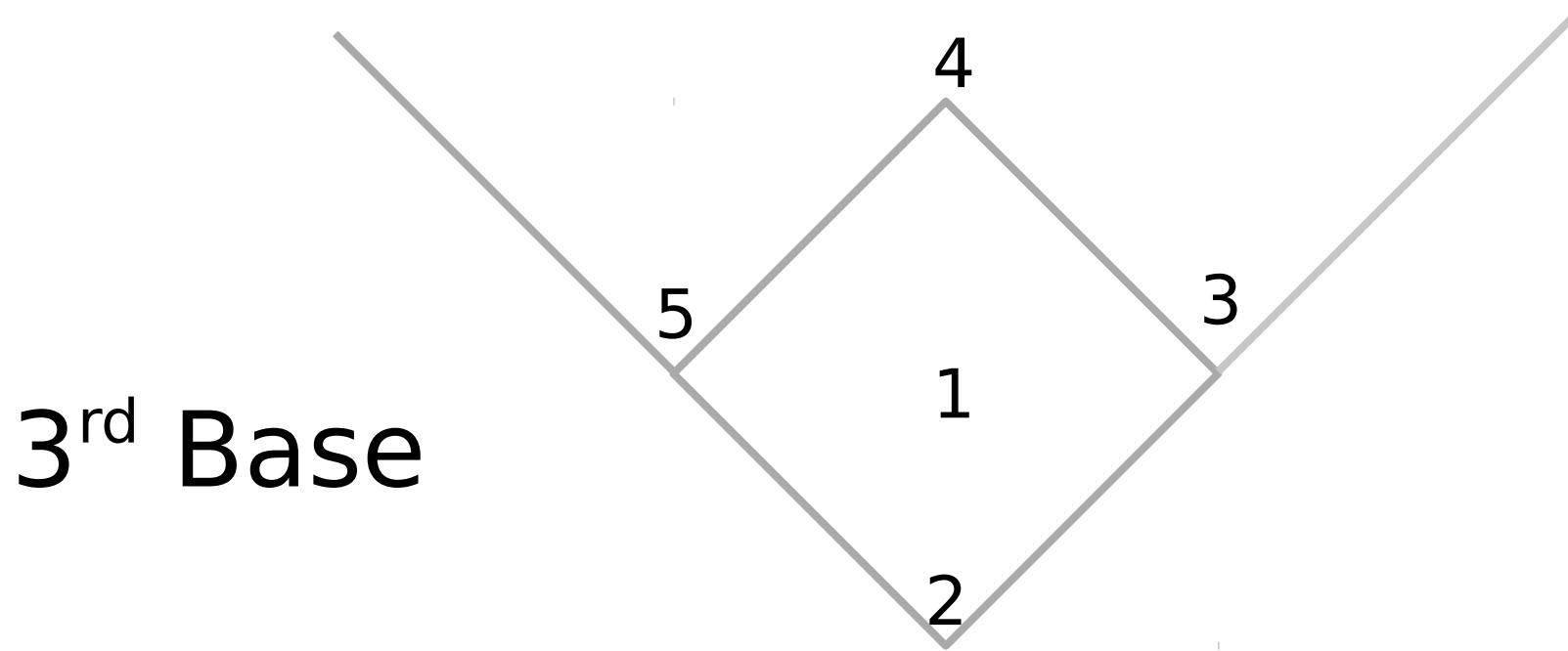
Fielding Positions

2nd Base

3rd Base

6   4

5   3

1

Short
stop

2
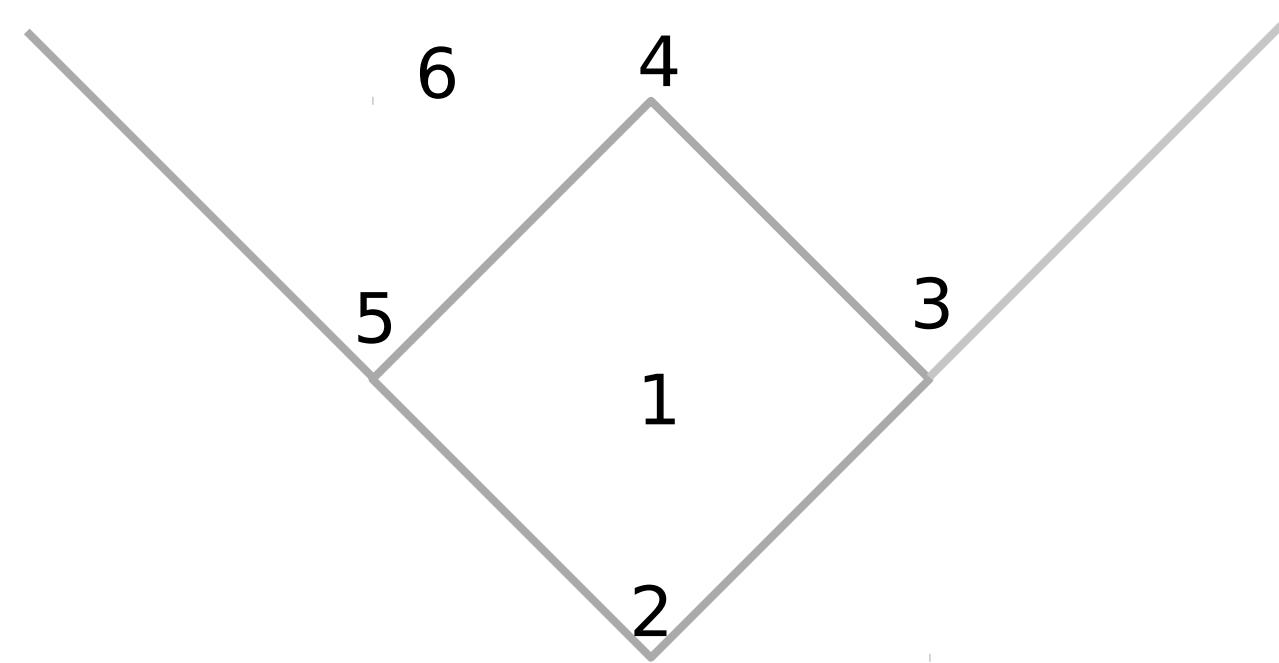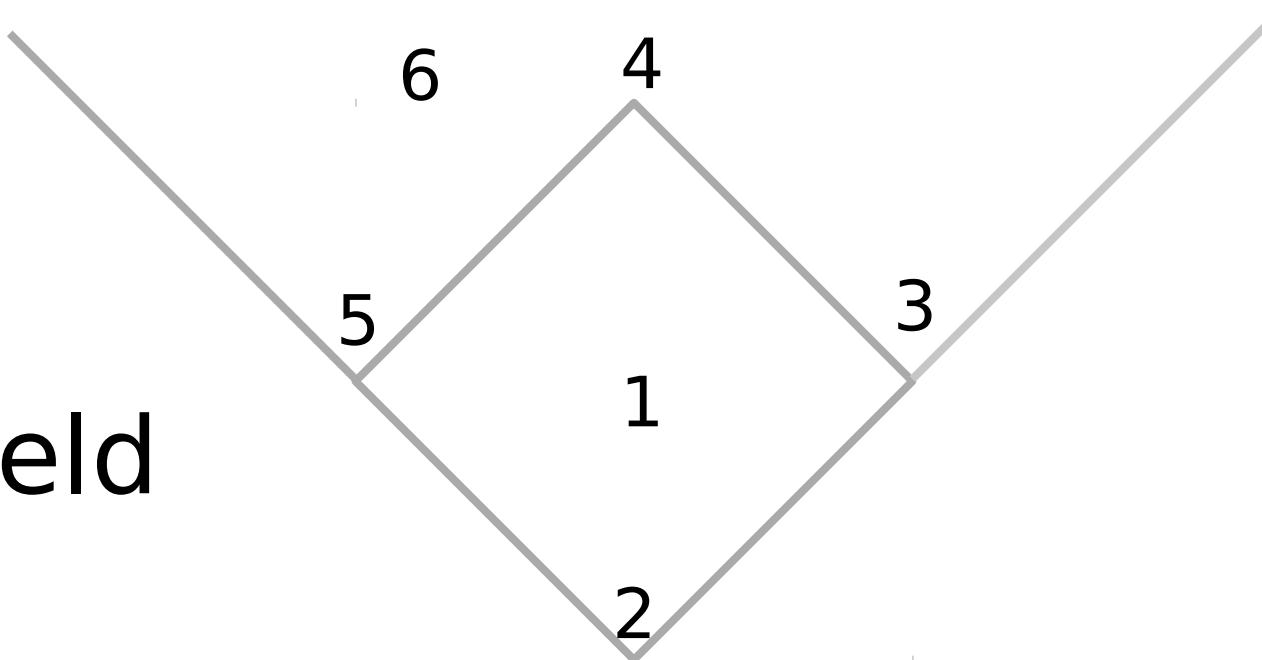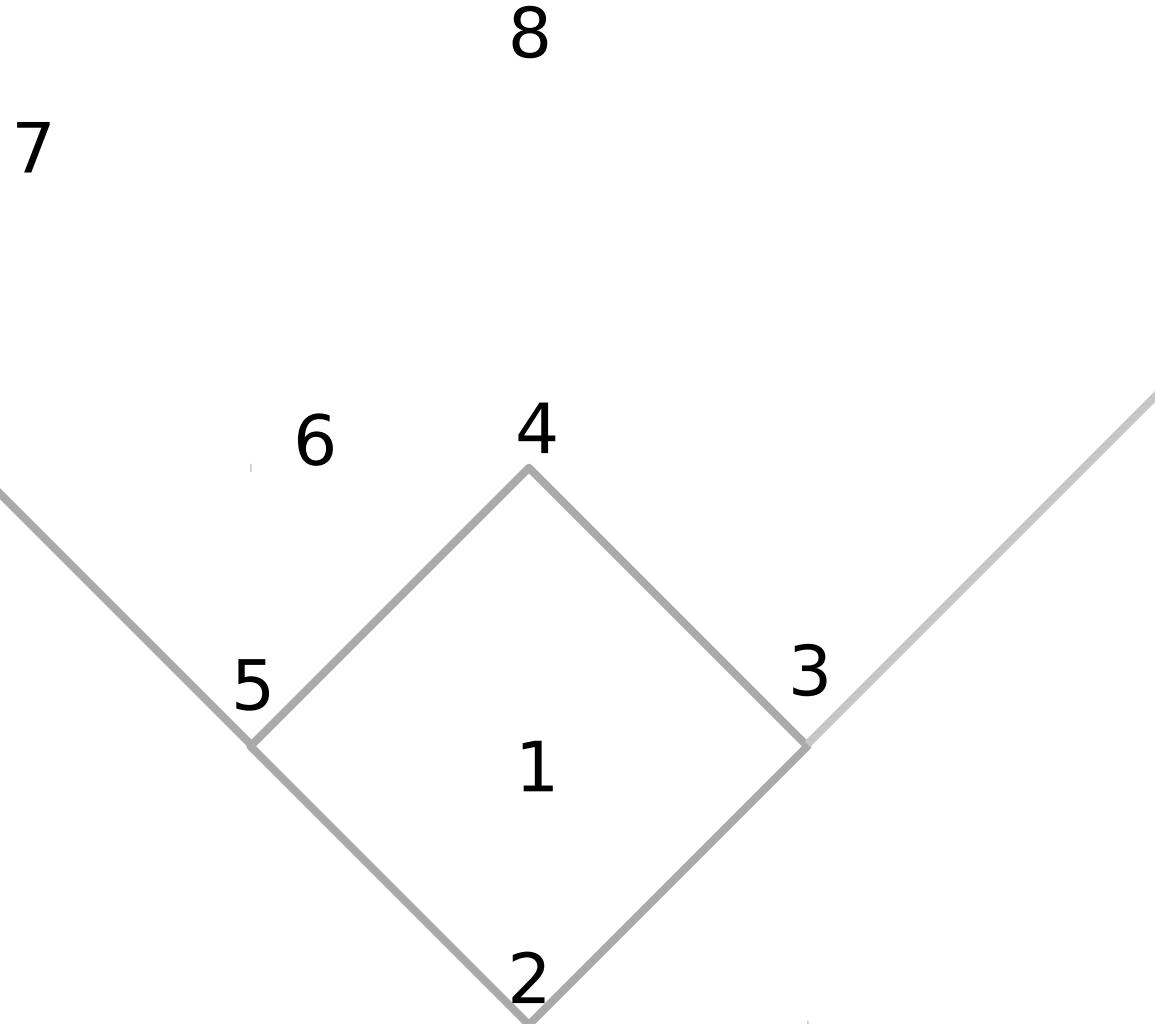
Fielding Positions

7

6   4

5   3

1

Left Field

2

8

7

6   4

5   3

1

Center
Field

2

Fielding Positions

8

7

9

6   4

5   3

1

Right
Field

2

Rover
(Softball)
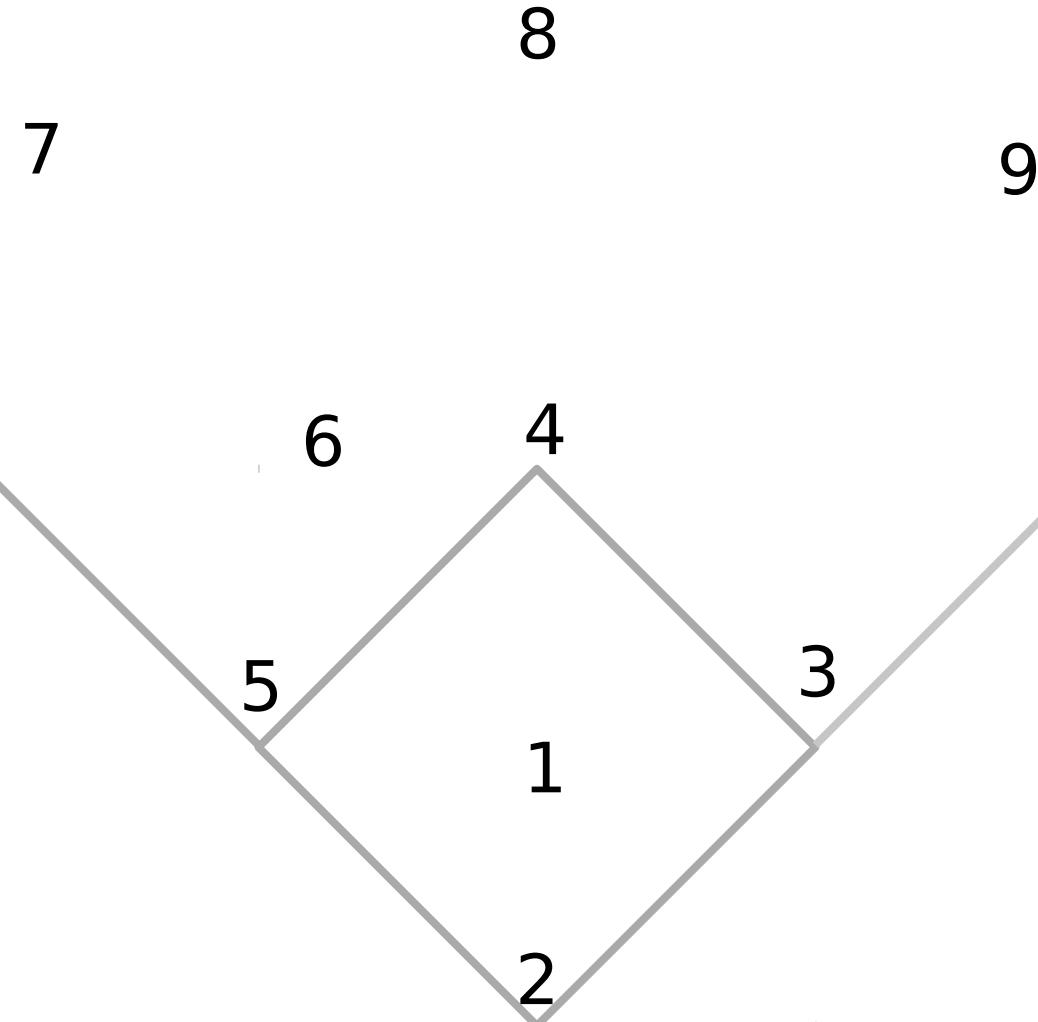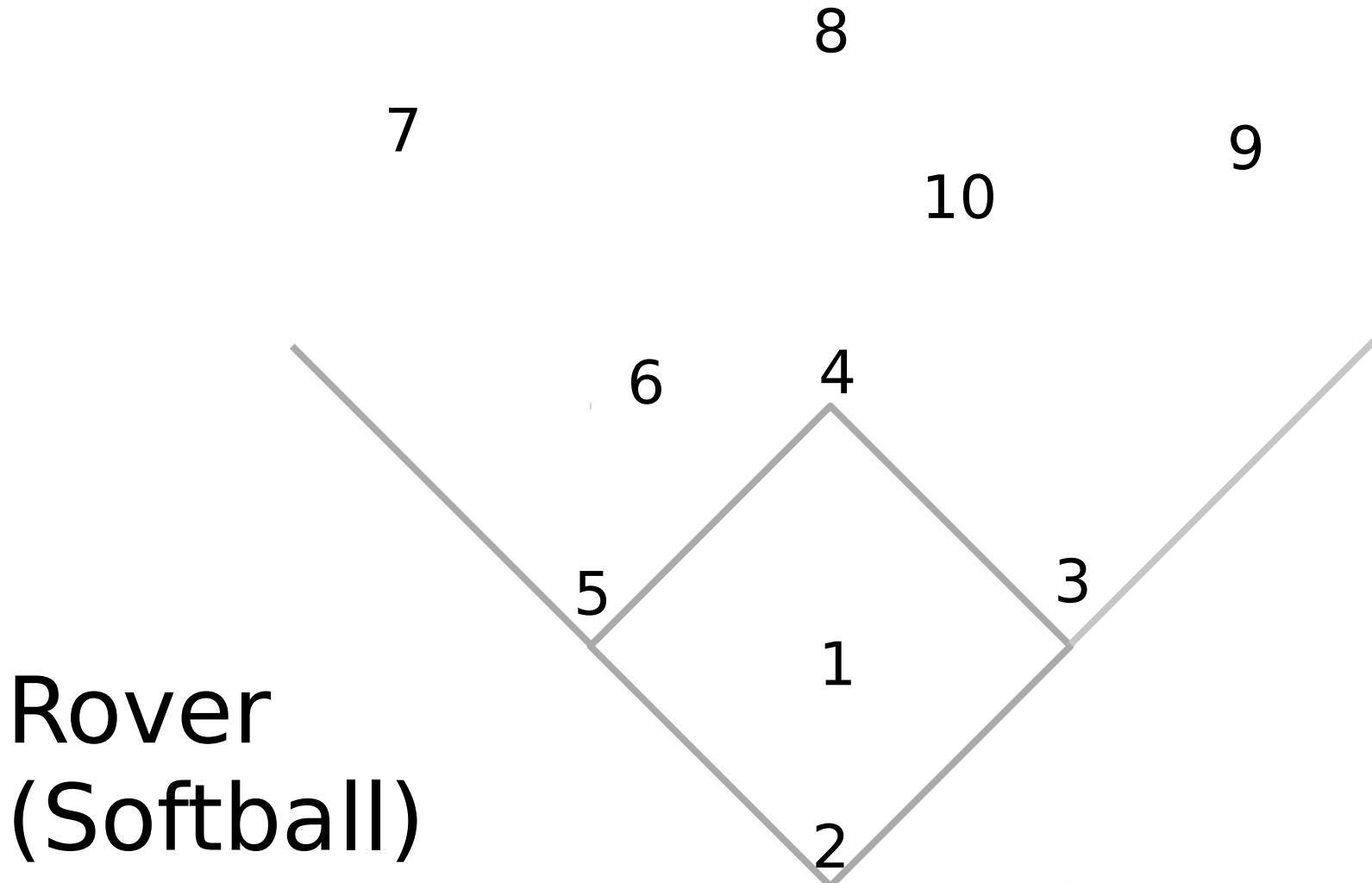
Plan for this talk

The Score Sheet

Making it to Base

Fielding Positions
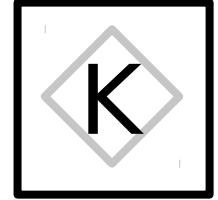
Outs

Batting Statistics
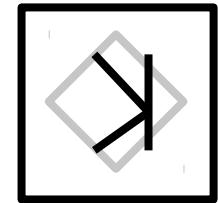
Strikeouts (K)

Strikeout swinging
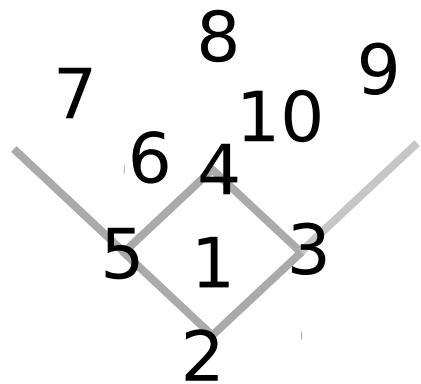
Strikeout called (looking / watching)

(Backwards K)
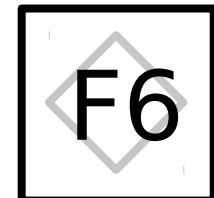
Fly balls (F) and Foul Outs (FO)
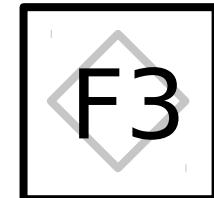
Fly Ball to Left Field — **F7**
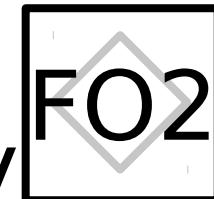
Fly Ball to Short Stop — **F6**

Fly Ball to 1st Base — **F3**
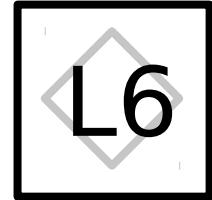
Fly Ball in Foul Territory to Catcher — **FO2**

8
7   9
10
6 4
5 1 3
2
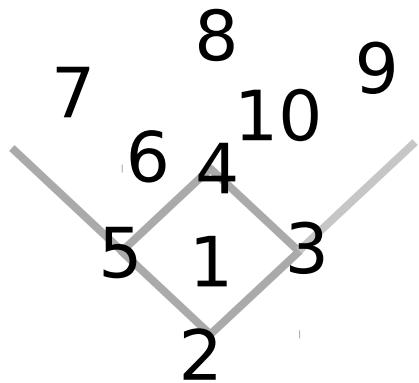
Line Drives (L)

Line to short stop

L6
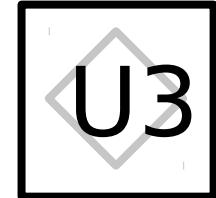
Line Drive To 1st Base

L3

```
        8
   7        9
      6  10
        4
    5  1   3
        2
```
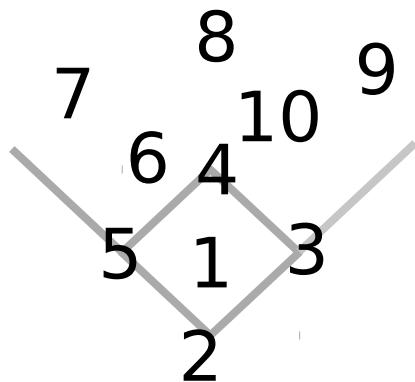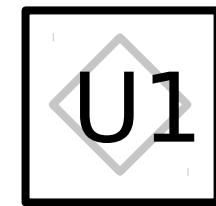
Unassisted (U)

Ground ball to 1st Base

U3
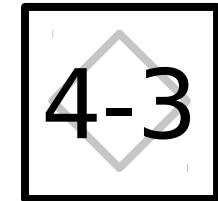
Ground ball to pitcher

U1

8
7
9
10
6 4
5 1 3
2
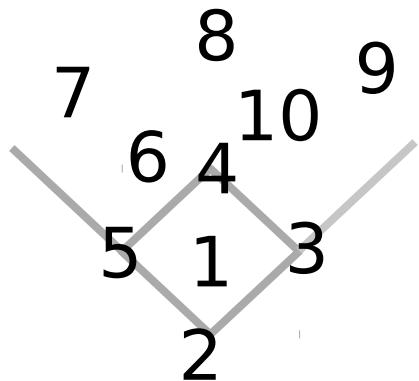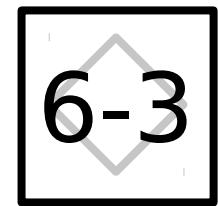
Assisted plays (batter out)

Ground to 2nd, throw (out) at 1st

4-3
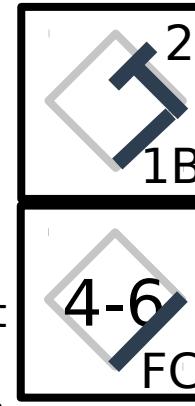
Ground to shortstop, throw to 1st

6-3
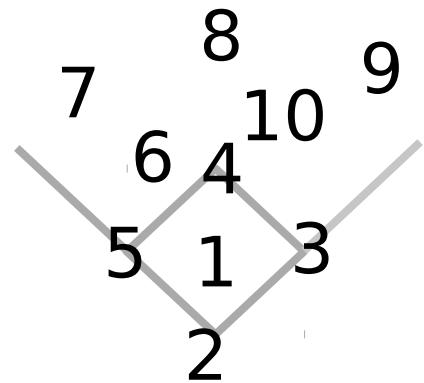
Back to fielders choice (FC)
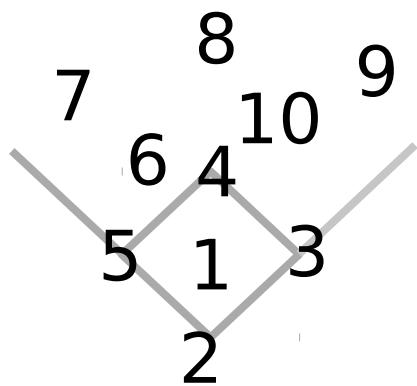
Ground to 2nd,
toss to SS,
forceout at 2nd,
batter reaches 1st
on fielders choice
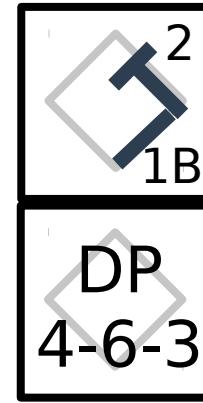
2
1B

4-6
FC

Show runner
that was
forced out by
terminating
their
baserunning
and indicate
who was
responsible

8
7
9
10
6 4
5 1 3
2

Multiple Outs with assist
Double plays (DP)

Ground to 2nd, toss to SS, forceout at 2nd, throw to 1st, forceout at 1st
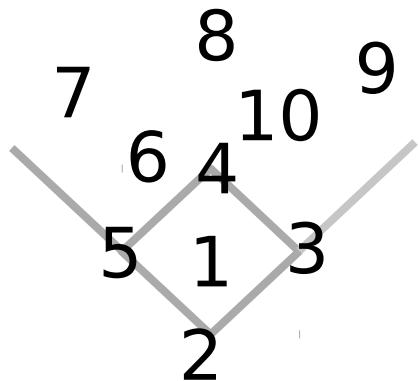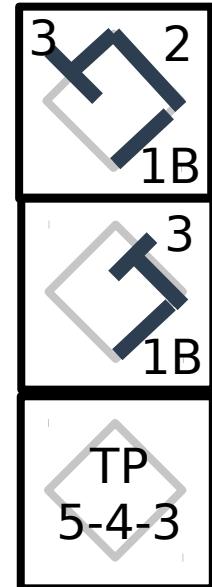
2
1B

DP
4-6-3

Show runner that was forced out by terminating their baserunning and indicate who was responsible

8
7   9
6 10
4
5 1 3
2

Multiple Outs with assist
Triple plays (TP)

Ground to 3rd, forceout at 3nd, throw to 2nd, forceout at 2nd, throw to 1st, forceout at 1st

8

7   9

6 4 10

5 1 3

2

Infield Fly Rule [IFR]

When there is a fly ball that can reasonably be caught by an infield player, there is less than two outs, and there are runners on 1st and 2nd (and optionally 3rd).

Decided by umpire. Batter is out, runners don't advance

IFR
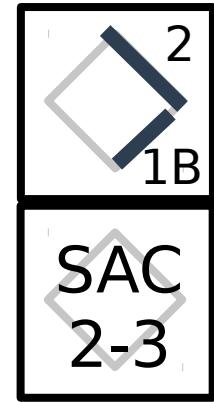
Sacrifices

Sacrifice play

Batter intentionally hits in such a way that they are out but runners advance

Sacrifice Fly: SF

Sacrifice Bunt: SH or SB or SAC

Outs 10/11

Summary of Outs

Fly (F)

Foul Out (FO)

Line Drive (L)

Strikeout (K) or (⟩)

Unassisted (U)

Double Play (DP)

Triple Play (TP)

Infield Fly Rule (IFR)

Indicate all fielders involved in each play.

Indicate batter who is responsible for advancing or eliminating runners.

Caught Stealing (CS)

Picked off (PO)

Plan for this talk

The Score Sheet

Making it to Base

Fielding Positions

Outs

Batting Statistics

Batting Raw Statistics

At-Bats [AB]: Number of times a batter hit the ball leading to an out or one or more bases. Excludes walks and hit by pitch. Includes dropped 3rd strike.

Hits [H]: Number of times a batter reached any base via a hit, including dropped 3rd strike.

Walks [BB]: Number of times a batter reached first base due to being pitched 4 balls, including intentional walks

Hit By Pitch [HBP]: Number of times a batter was hit by a pitch.

Strikeouts [K or SO]: Number of times batter struck out

Runs batted in [RBI]: Number of runners batter advanced to a run.

Total Bases [TB]: Number of bases a batter achieved from at-bats (i.e. a single = 1 base, a double = 2 bases, etc.)

Doubles [2B]: Number of times batter got a double

Triples [3B]: Number of times batter got a triple

Home Runs [HR]: Number of times batter got a home run

Batting calculated statistics

Batting Average [BA or AVG]:

fraction of the time batter gets to base via a hit

$$AVG = H / AB$$

On Base Percentage [OBP]:

Fraction of the time the batter gets to base by any means

$$OBP = (H + HBP + BB) / (AB + HBP + BB)$$

Slugging Percentage [SLG]:

Average number of bases a batter achieves in an at-bat

$$SLG = TB / AB \text{ } or \text{ } (1B + 2*2B + 3*3B + 4*HR)/AB$$

Other stats

Baseball is a stats game

Waaay too many individual stats to cover here.

Wikipedia lists about 40 batting stats, a similar number of pitching stats, and about 20 additional other stats. You can probably find dozens more.

Probably some data science jobs available for analysis – contact your favorite MLB team or fivethirtyeight

Pitching stats

Frequency of giving up hits, HR, runs, etc. etc.

Fielding stats

Tracking who makes the outs allows some degree of fielding capabilities

#	Player		Pos	1	2	3	4	5	6	7	8	9	10	AB	R	H	RBI	E
		sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
		sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
		sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					
		sub		◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					

Score sheets usually have columns for AB and H, sometimes for R, RBI,
And sometimes for other stats

Usually all other stats are kept separately

AB	H	BB	TB	RBI	AVG	OBP	SLG
4	0	1	1	0	.000	.200	.000
4	1	1	2	1	.250	.400	.250
4	1	0	4	2	.250	.250	1.000
3	1	1	2	0	.333	.500	.666
4	2	0	2	0	.500	.500	.500
4	0	0	0	0	.000	.000	.000
3	2	1	4	0	.666	.750	1.333
4	1	0	0	0	.250	.250	.250
1	0	0	0	0	.000	.000	.000
1	0	0	0	0	.000	.000	.000
1	0	0	0	0	.000	.000	.000
1	0	0	0	0	.000	.000	.000

Summary

Hits & walks

1B / 2B / 3B / HR / BB / IBB or IW

Show advancing runners and indicate credit for advance

Outs

Indicate all fielders involved in the play.

Fielders order: Pitcher, Catcher, infield (1st→3rd), SS, OF (left→ right)

Mark line drives (L), flys (F), foul outs (FO), double (DP) and triple (TP) plays

Stats

Raw: AB, BB, H, RBI

Calculated: AVG, OBP, SLG

Extras: Pitching Statistics

Innings Pitched [IP]: the total number of outs during which the pitcher was pitching, divided by 3. Special note: when written in decimal rather than as a fraction, 1/3 inning is written as 0.1, and 2/3 as 0.2. Yes, this is wrong.

Hits [H]: the total number times that a batter reached 1st base or more through hitting the ball, excluding fielders choice or errors

Walks [BB]: the total number of walks that the pitcher gave up.

Strikeouts [K]: the total number of strikeouts that the pitcher gets.

Home Runs [H]: the total number of home runs that the pitcher gives up.

Runs [R]: the total number of runs that the pitcher gave up.

Earned Runs [ER]: the total number of runs that the pitcher gave up and was responsible for. This acknowledges that errors or other situations allow runs to occur that a pitcher has little to no control over.

Extras: Pitching Calculated Statistics

Earned Run Average [ERA]: An estimate of how many runs an opposing team will get in a game for a pitcher.

ERA = ER / IP * 9

Note: Use decimal IP – so 5 1/3 innings is 5.1, not 5.33333.

Walks & Hits per inning pitched [WHIP]: Pretty much what is says

WHIP = (BB + H) / IP

Extras: Pitching Game Statistics

Wins [W]: Pitcher was pitching when the team took the lead, then eventually won the game.

Loss [L]: Pitcher who gave up the runs that lead to loss of game.

Save Opportunities [SO]: A pitcher enters the game with

- A lead of three or fewer runs and pitches one inning
- Enters the game with the potential tying run on base, at back, or on deck
- Pitches 3 or more innings and is credited with a save by the scorer

Save [SV]: A pitcher enters the game in which their team is winning with a lead of 3 runs or less, and there was a save opportunity, and they are not the winning pitcher.

Extras: Fielding Stats

Assists [A]: # of times a player is involved in a play, but does not physically tag or force out a runner.

Put Out [PO]: Number of times a player tags or forces out a player or catches a foul out, fly ball or line drive, or appeals a runner.

Errors [E]: # of time a player was responsible for allowing a runner to reach a base due to mishandling the ball.

Total Changes [TC]: # of times fielder was involved in a play

TC = A + PO + E

Innings Played [INN]: # of innings the fielder plays

Range Factor [RF]: Average number of plays the fielder is involved in per game. Estimate of how much field the player can cover.

RF = (A + PO) / INN * 9

Fielding Percentage [FP]: How many times a player is involved in a play and doesn't fuck it up.

FP = (A + PO) / TC