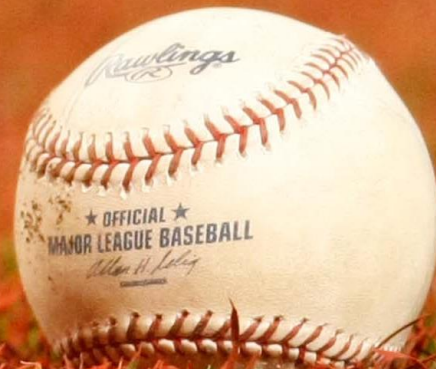




Baseball as a model for teaching STEM

Prof. Ricardo Valerdi
University of Arizona



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Biomechanics



Physiology

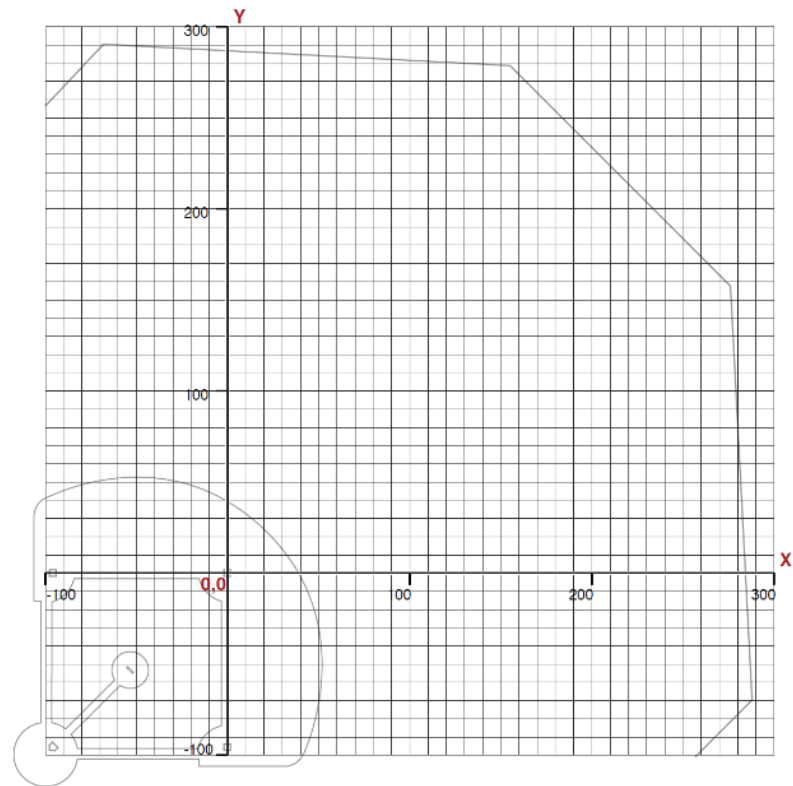
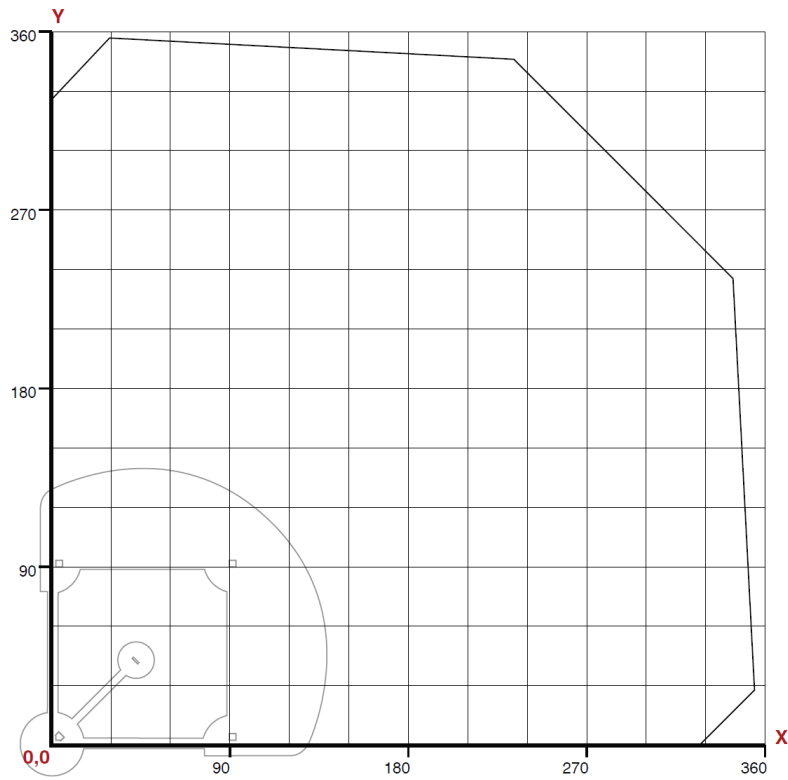


Launch angle

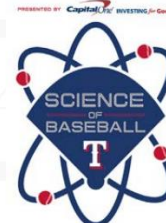
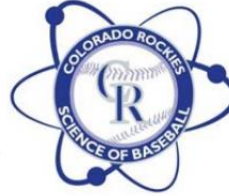
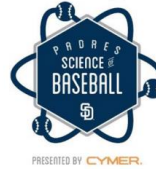


Speed & acceleration





#	Player	Pos.	1	2
18	Bloomquist	6	◆ ¹⁸⁸ ₁₁₂	◆
2	Hill	4	K ¹⁷	◆
10	Upton	9	+3 ⁸	◆
26	Montera	2	◆ ¹²⁷	◆
44	Talldschmidt	3	◆ ¹⁸⁷	◆
24	Young	8	◆ ²¹	◆
14	Roberts	5	◆ ¹⁴⁴	◆
14	Parra	7	◆ ¹⁴⁴	◆
31	Kennedy	1	◆ ¹⁸³	◆





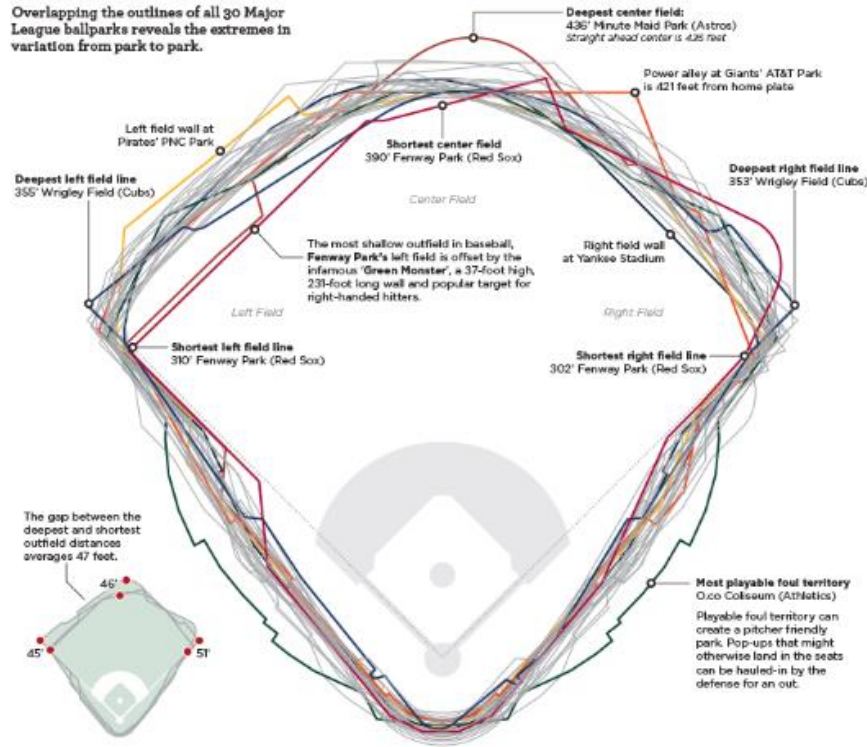
To understand baseball first try physics,
then physiology, then psychology.



Baseball's Many Physical Dimensions

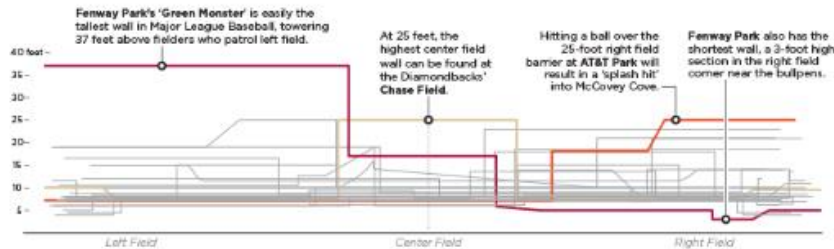
Unlike any other professional sport, baseball's contest is played upon fields that vary in size from park to park. With the exception of the infield diamond, whose strict rules regulate the location and height of the pitchers mound and distance between the bases, no two baseball stadiums are alike. From the shape of the field to the distances and height of the outfield walls, the cathedrals of Major League Baseball exhibit unique physical characteristics that distinguishes each from any other.

Overlapping the outlines of all 30 Major League ballparks reveals the extremes in variation from park to park.



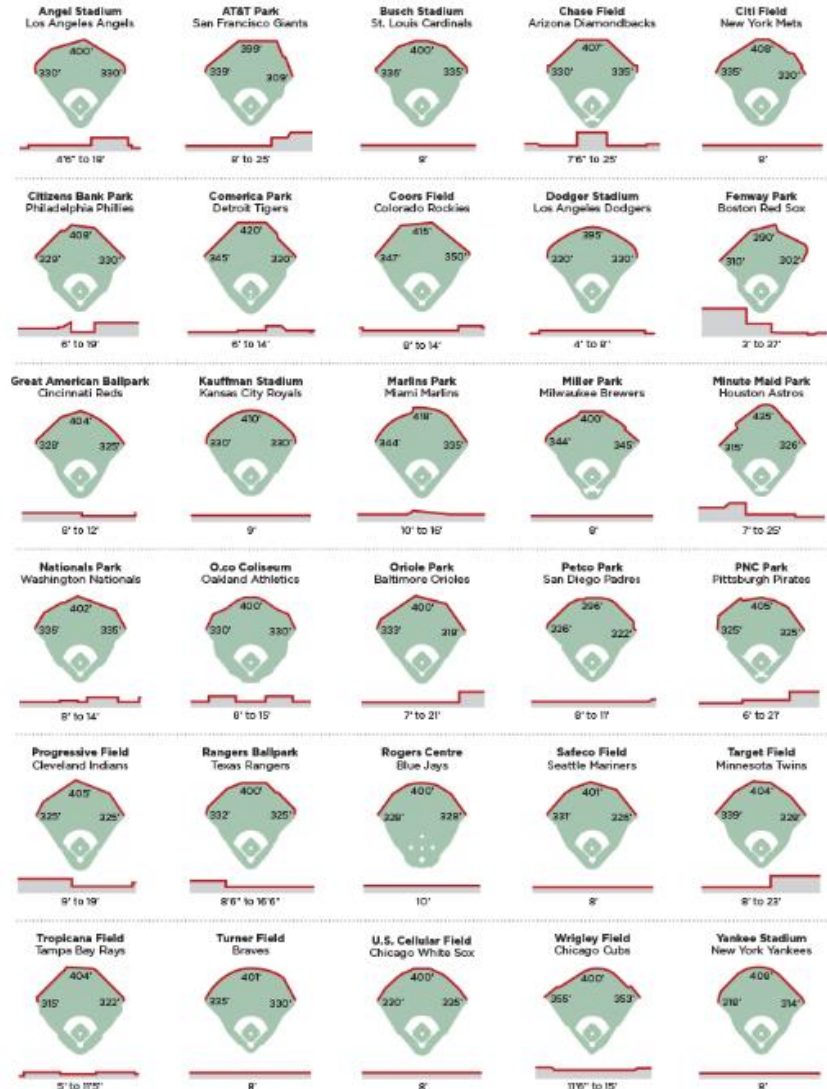
While the typical outfield wall height is about eight to ten feet, they range widely from a scant three feet to a lofty 37 feet as illustrated by overlapping all 30 outfield wall profiles.

Note: Vertical height exaggerated for clarity.

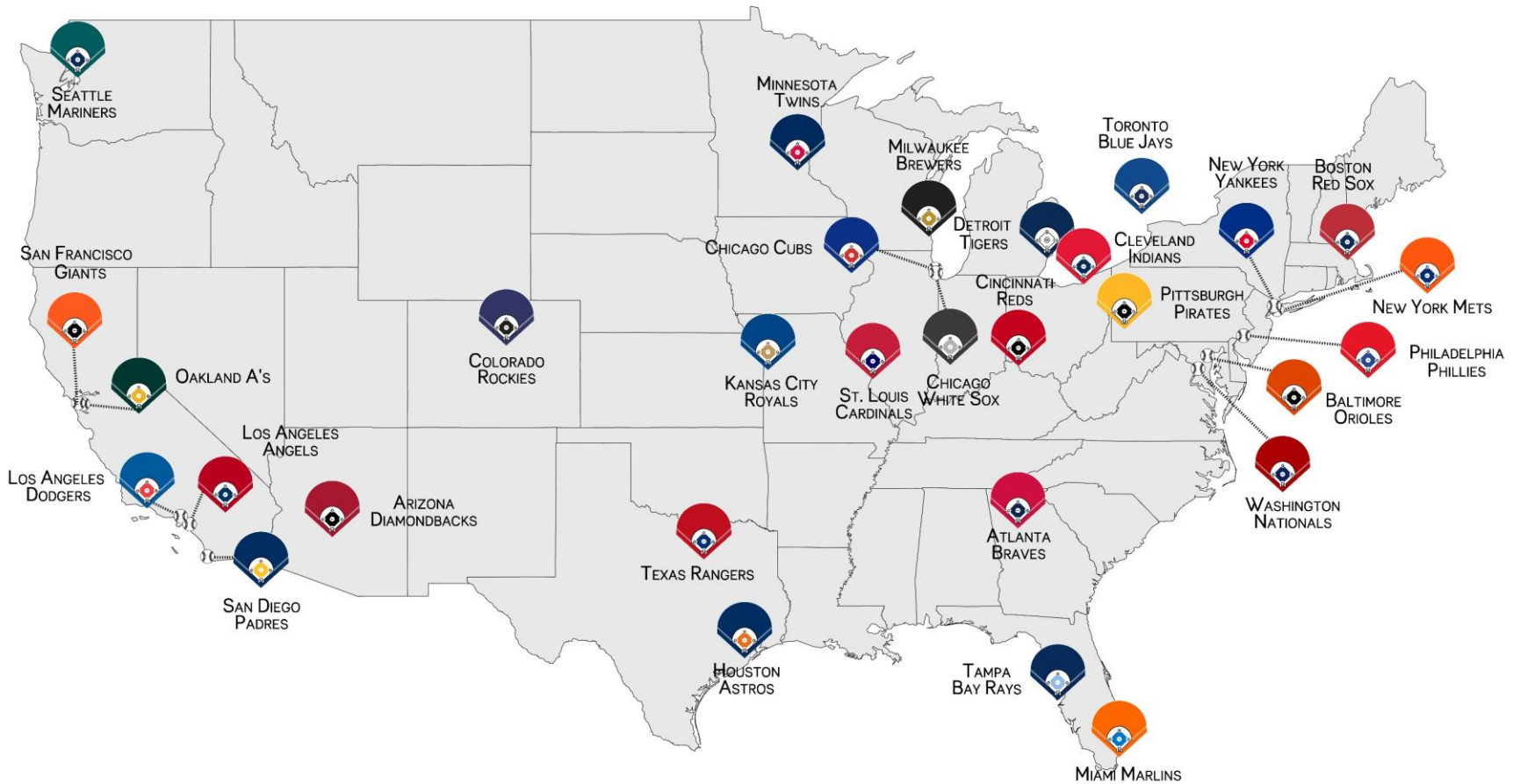


A 'Spotters Guide' for the 30 Major League Baseball venues illustrates the shape and depth of each field in addition to the minimum and maximum height of the outfield wall.

Note: Vertical height exaggerated for clarity.



MLB Stadiums





HOME	PERIOD	GUEST
188	8	188
FOULS	PLAYER	FOULS
18	888	18
SCORE	MATCH	SCORE



PAUL GOLDSCHMIDT | 1B #44

Ht: 6'3 Wt: 245 Bats: Right Throws: Right
Born: 9-10-87, Wilmington, DE Home: The Woodlands, TX

Drafted #8 overall in June, 2009 by the Diamondbacks, "Goldy" as he's known in Phoenix, is known for his humility and eagerness to learn as much as his hitting power.

YR	TEAM	G	AB	R	H	2B	3B	HR	RBI	SB	BB	SO	SLG	AVG
11	MOBILE	103	366	84	112	21	3	30	94	9	82	92	.626	.306
11	D-BACKS	48	156	28	39	9	1	8	26	4	20	53	.474	.250
12	D-BACKS	145	514	82	147	43	1	20	82	18	60	130	.490	.286
13	D-BACKS	160	602	103	182	36	3	36	125	15	99	145	.551	.302
MLB TOTALS		353	670	1272	368	88	5	64	233	37	179	328	.505	.279



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dbacks.com







ERA = 2.53
Pitch count = 54
Height = 6' 2"
Weight = 225 lbs

Speed = 90 mph
Angular velocity = 400 degrees/sec
Weight = 9 oz
Temp = 78 degrees

Batting Avg. = 245
Balls = 2
Strikes = 2
HR = 5