

DATA VISUALIZATION

Print Design 2 | Irene Musgrove | Summer 2014

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PROJECT STATEMENT

The task was to visualize a set of data with at least 300 parts using conceptual thinking and creating meaningful messages with aesthetic sophistication. My intent was to develop a visual solution representing a serious subject's data. I chose to go that route because of the positive, bright aesthetic tone of the work currently in my portfolio.

THE DATA SET

The data set I chose for my visualization came from Infochimps, an online data resource. I decided to focus on a set about the 50 most dangerous colleges in the United States between 2006 and 2008. The original data set ranked each college and showed the count for the amount of seven specific crimes. However, just from that data, it was unclear as to how and why the colleges were ranked in that order. I then searched for the original article on the subject. There, I saw that each specific type of crime was weighed based on severity, and did calculations to confirm the rankings.

campus.xls												
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Sheets Charts SmartArt Graphics WordArt												
	A	B	C	D	E	F	G	H	I	J	K	L
1	RankAndName	Murders	Rapes	Robberies	AggravatedAs	Burglaries	CarThefts	Arsons	Enrollment	Total Crime	Calculation	
2	1, Tufts University	1 (40)	36	100 (600)	119 (714)	174	49 (98)	1 (10)	10,252	480 (1672)	0.1461	
3	2, Harvard University	1 (40)	128	151 (906)	170 (1020)	909	157 (314)	1 (10)	27,651	1517 (3327)	0.1203	
4	3, Rutgers University-Newark	1 (40)	28	42 (252)	24 (144)	387	95 (190)	19 (190)	11,501	596 (1231)	0.107	
5	4, University of Hartford	0	16	36 (216)	21 (126)	221	56 (112)	0	7,212	350 (691)	0.0958	
6	5, University of Baltimore	0	2	55 (330)	20 (120)	17	47 (94)	2 (20)	6,265	143 (583)	0.093	
7	6, Howard University	0	7	90 (540)	27 (162)	160	43 (86)	0	10,573	327 (955)	0.0903	
8	7, North Carolina Central University	1 (40)	7	42 (252)	32 (192)	172	49 (98)	0	8587	303 (761)	0.0886	
9	8, Norfolk State University	1 (40)	6	23 (138)	11 (66)	151	21 (42)	12 (120)	6993	225 (563)	0.0805	
10	9, Morgan State University	1 (40)	0	49 (294)	13 (78)	133	13 (26)	0	7226	209 (571)	0.079	
11	10, New Jersey Institute of Technology	1 (40)	1	36 (216)	30 (180)	22	110 (220)	0	8840	200 (679)	0.0768	
12	11, Illinois Institute of Technology	0	7	44 (264)	25 (150)	98	38 (76)	0	7707	212 (595)	0.0772	
13	12, Washington University in St. Louis	1 (40)	22	59 (354)	30 (180)	159	144 (288)	1 (10)	13575	416 (1053)	0.0775	
14	13, Massachusetts Institute of Technology	0	18	9 (54)	21 (126)	536	21 (42)	2 (20)	10384	607 (796)	0.0766	
15	14, Johnson & Wales University	3 (120)	25	35 (210)	47 (282)	28	68 (136)	1 (10)	10709	138 (811)	0.085	
16	15, Temple University	1 (40)	34	192 (1152)	97 (582)	747	56 (112)	1 (10)	36507	1128 (2677)	0.0733	
17	16, University of Pennsylvania	4 (160)	27	176 (1056)	40 (240)	117	28 (56)	0	24599	364 (1656)	0.0673	
18	17, Brown University	0	18	35 (210)	18 (108)	196	16 (32)	1 (10)	8574	284 (574)	0.0669	
19	18, Columbia University	2 (80)	23	93 (558)	70 (420)	440	20 (40)	2 (20)	24230	650 (1581)	0.0652	
20	19, Stanford University	0	36	14 (84)	36 (216)	466	136 (272)	14 (140)	18498	702 (1214)	0.0656	
21	20, University of the Pacific	0	11	4 (24)	11 (66)	126	44 (88)	10 (100)	6401	152 (415)	0.0648	
22	21, Lesley University	0	5	23 (138)	25 (150)	20	40 (80)	0	6173	113 (393)	0.0636	
23	22, University of Michigan-Ann Arbor	1 (40)	119	83 (498)	225 (1350)	230	142 (284)	20 (200)	41674	820 (2721)	0.0652	
24	23, Wake Forest University	0	18	10 (60)	12 (72)	258	15 (30)	2 (20)	7079	298 (458)	0.0646	
25	24, DePaul University	0	21	143 (858)	56 (336)	87	92 (184)	4 (40)	25072	403 (1526)	0.0608	
26	25, Yale University	0	33	47 (282)	4 (24)	261	53 (106)	1 (10)	11593	399 (716)	0.0617	
27	26, Tulane University	0	15	9 (54)	56 (336)	199	27 (54)	2 (20)	11464	308 (678)	0.0552	
28	27, University of Maine	0	26	3 (18)	1 (6)	100	8 (16)	54 (540)	11894	192 (706)	0.0594	
29	28, North Carolina A & T State University	0	1	28 (168)	33 (198)	116	27 (54)	7 (70)	10614	212 (607)	0.0572	
30	29, Southern University and A & M College	0	3	10 (60)	20 (120)	218	18 (36)	0	7619	269 (437)	0.0574	
31	30, Northeastern University	0	26	130 (780)	72 (432)	120	82 (164)	6 (60)	27537	436 (1582)	0.0574	
32	31, Wayne State University	0	20	113 (678)	23 (138)	167	384 (768)	3 (30)	31786	710 (1801)	0.0567	
33	32, University of California-Berkeley	0	43	124 (372)	64 (384)	328	169 (338)	21 (210)	35830	749 (1675)	0.0571	
34	33, Virginia Polytechnic Institute and State University	33 (1320)	16	2 (12)	25 (150)	164	8 (16)	6 (60)	30870	254 (1738)	0.0563	
35	34, Buffalo State College	0	22	33 (198)	40 (240)	126	29 (58)	3 (30)	11714	253 (674)	0.0575	
36	35, University of California-Riverside	0	28	43 (258)	39 (234)	169	128 (256)	16 (160)	19384	423 (1105)	0.057	
37	36, University of Chicago	0	15	54 (324)	16 (96)	204	101 (202)	1 (10)	15094	388 (851)	0.0564	
38	37, Prairie View A & M University	0	7	5 (30)	15 (90)	256	30 (60)	2 (20)	8608	315 (463)	0.0538	
39	38, Fitchburg State College	0	8	2 (12)	25 (150)	186	5 (10)	1 (10)	7043	227 (376)	0.0533	
40	39, San Diego State University	1 (40)	41	41 (246)	74 (444)	161	366 (732)	7 (70)	32817	691 (1734)	0.0528	
41	40, University of Connecticut	0	30	51 (306)	51 (306)	281	134 (268)	13 (130)	25029	560 (1321)	0.0528	
42	41, University of Illinois at Chicago	1 (40)	28	90 (540)	100 (600)	61	66 (132)	1 (10)	26840	347 (1411)	0.0528	
43	42, Princeton University	0	55	1 (6)	12 (72)	163	25 (50)	9 (90)	7592	265 (436)	0.0574	
44	43, Texas Southern University	0	4	20 (120)	19 (114)	177	24 (48)	1 (10)	9394	245 (473)	0.0504	
45	44, University of Louisville	2 (80)	23	61 (366)	47 (282)	100	95 (190)	3 (30)	21016	331 (1071)	0.0509	
46	45, University of Massachusetts-Dartmouth	0	10	9 (54)	29 (174)	189	8 (16)	2 (20)	9302	247 (463)	0.0498	
47	46, Vanderbilt University	0	21	17 (102)	38 (228)	185	23 (46)	4 (40)	12506	288 (622)	0.0497	
48	47, Morehead State University	0	13	0	36 (216)	42	0	16 (160)	8822	107 (431)	0.0489	
49	48, La Salle University	0	7	25 (150)	7 (42)	90	7 (14)	1 (10)	6470	137 (313)	0.0484	
50	49, Northwestern University	0	13	23 (138)	16 (96)	615	28 (56)	3 (30)	19583	698 (948)	0.0484	
51	50, University of Miami	0	8	33 (198)	31 (186)	143	102 (204)	0	15629	317 (739)	0.0473	
52												



09.13.10

THE DAILY BEAST 50 Most Dangerous Colleges



Harvard and MIT may rack up academic accolades, but crime doesn't look at SAT scores. From murder to burglary, among the 458 colleges and universities ranked by The Daily Beast, these were the 50 with the worst grades.

For The Daily Beast's second-annual ranking of the most dangerous colleges in the U.S., we pored over the three most recent calendar years of campus security and crime data (2006-2008) compiled by the U.S. Department of Education, as well as the FBI and the Secret Service, in conjunction with the Clery Act, the federal mandate requiring all schools that receive federal funding to disclose crime information annually. The data reflect incidents reported to campus or local police, not convictions.

Gallery: The 50 Most Dangerous Colleges

- 50 Safest Colleges
 - Big Ten Crime Rankings
 - Ivy League Crime Rankings
- Some ground rules: We only ranked colleges with residential facilities, as well as at least 6,000 enrolled students, according to the National Center for Education Statistics. We also deferred to the NCES in determining what a "campus" is—for example, it groups the two main campuses for Tufts University as a single entity, even though they are seven miles apart (Tufts' Boston campus is the reason it ranked so poorly). This produced a total comparison of 458 schools across the country.

The statistics account for nine types of criminal incidents, which we weighted based on a subjective judgment of violence, asserting that an incident of murder represents a higher level of intrinsic threat to public safety than a robbery. Burglary carried the lowest value, with car theft weighed twice as much, assault or robbery six times, arson 10 times, negligent manslaughter 20 times and murder 40 times. All totals were then divided by the number of enrolled students, so that midsize and large campuses could be accurately compared.

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1, Tufts University

MEDFORD/SUMMERSVILLE, MA

Total enrollment: 10,252

Criminal Incidents (most recent 3 calendar years):

Murders: 1

Negligent Homicides: 0

Forcible Rapes: 36

Non-forcible Rapes: 0

Robberies: 100

Aggravated Assaults: 119

Burglaries: 174

Car Thefts: 49

Arsons: 1

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1 of 50

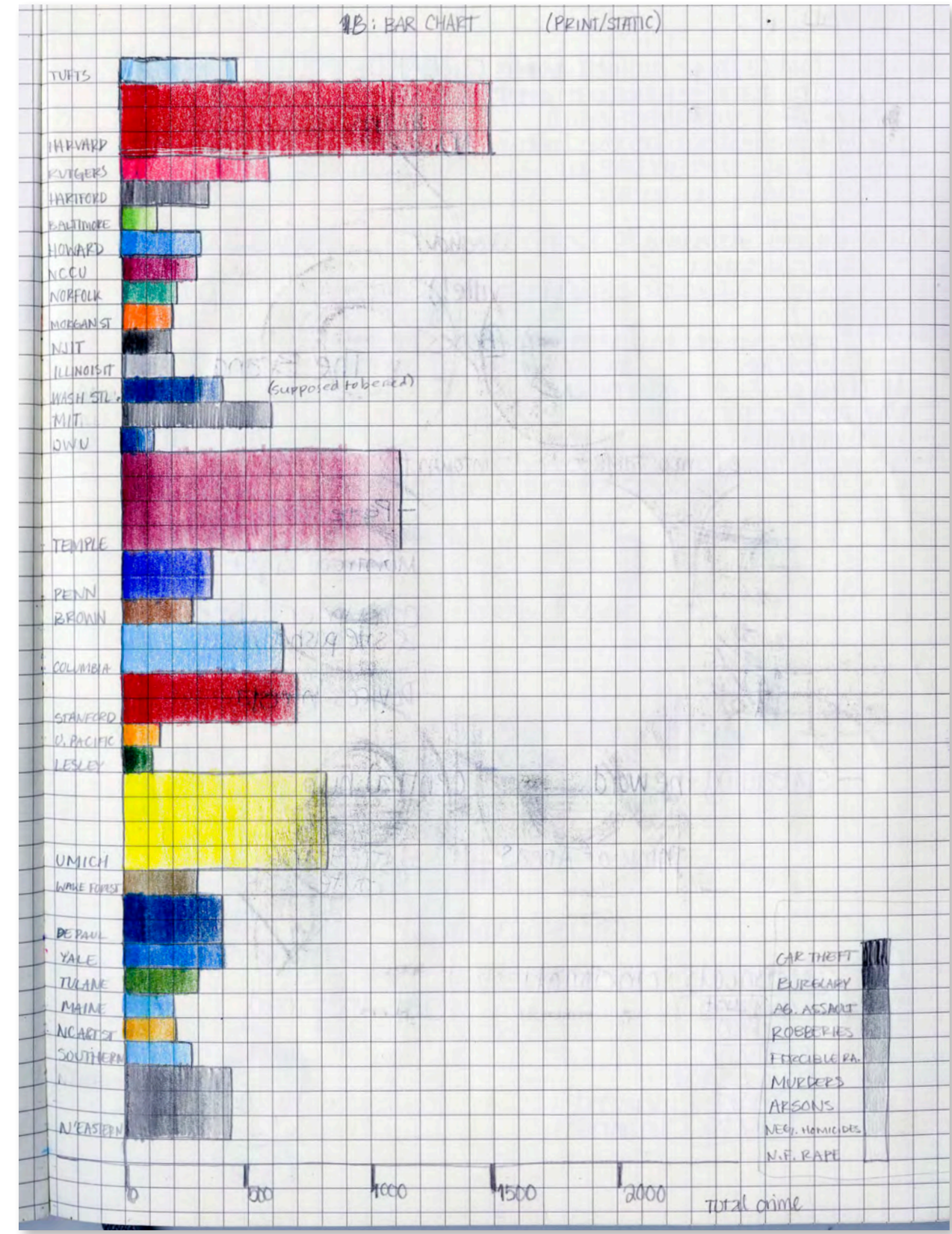
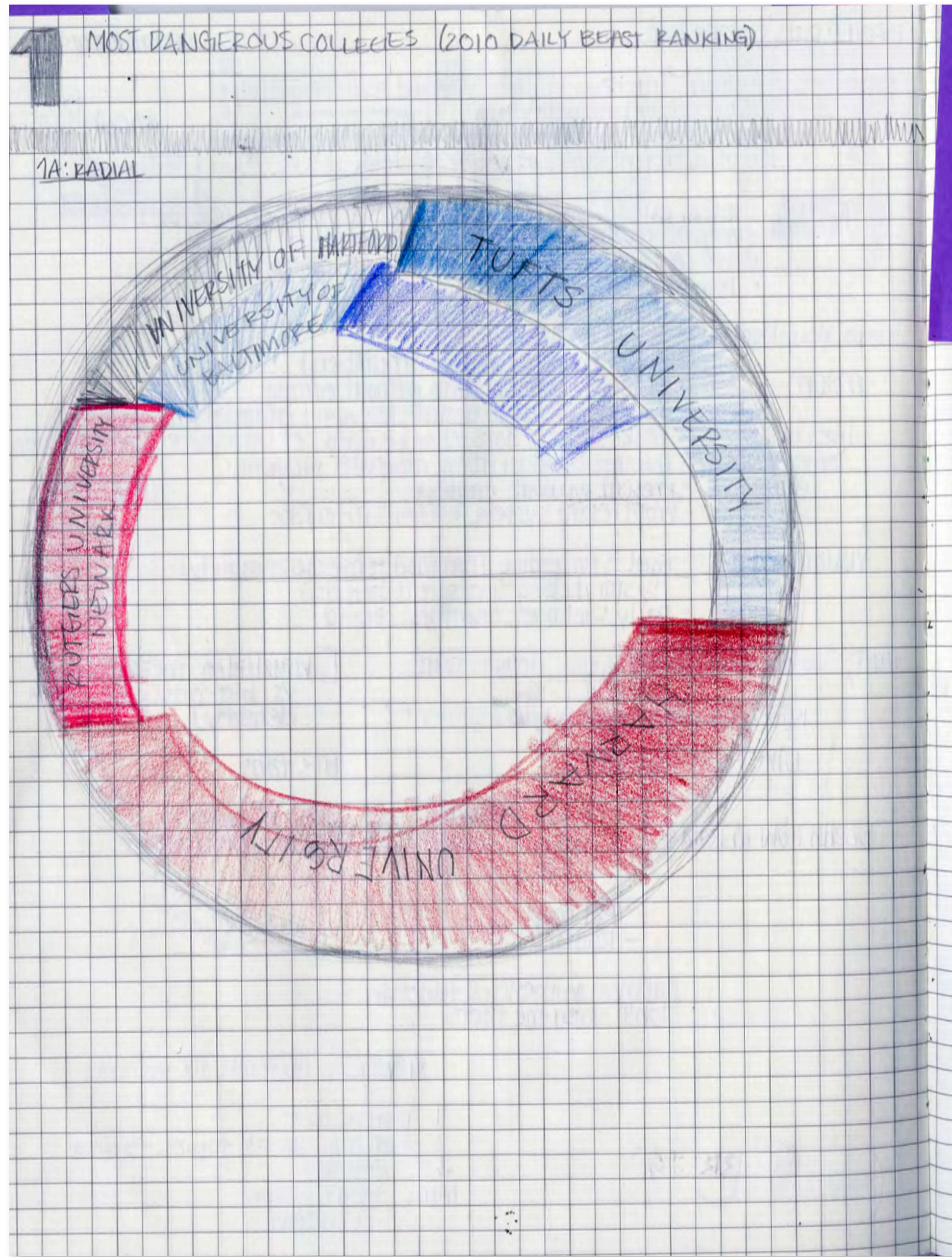
ENTER FULLSCREEN | **VIEW ALL (50)**

Although nine categories of crime are considered in this ranking, there were no incidents of negligent homicide or manslaughter, and since the audience, which is college-aged students, probably wouldn't know what differentiates a forcible rape from a non-forcible rape, the two categories were combined into the broad category of rape.

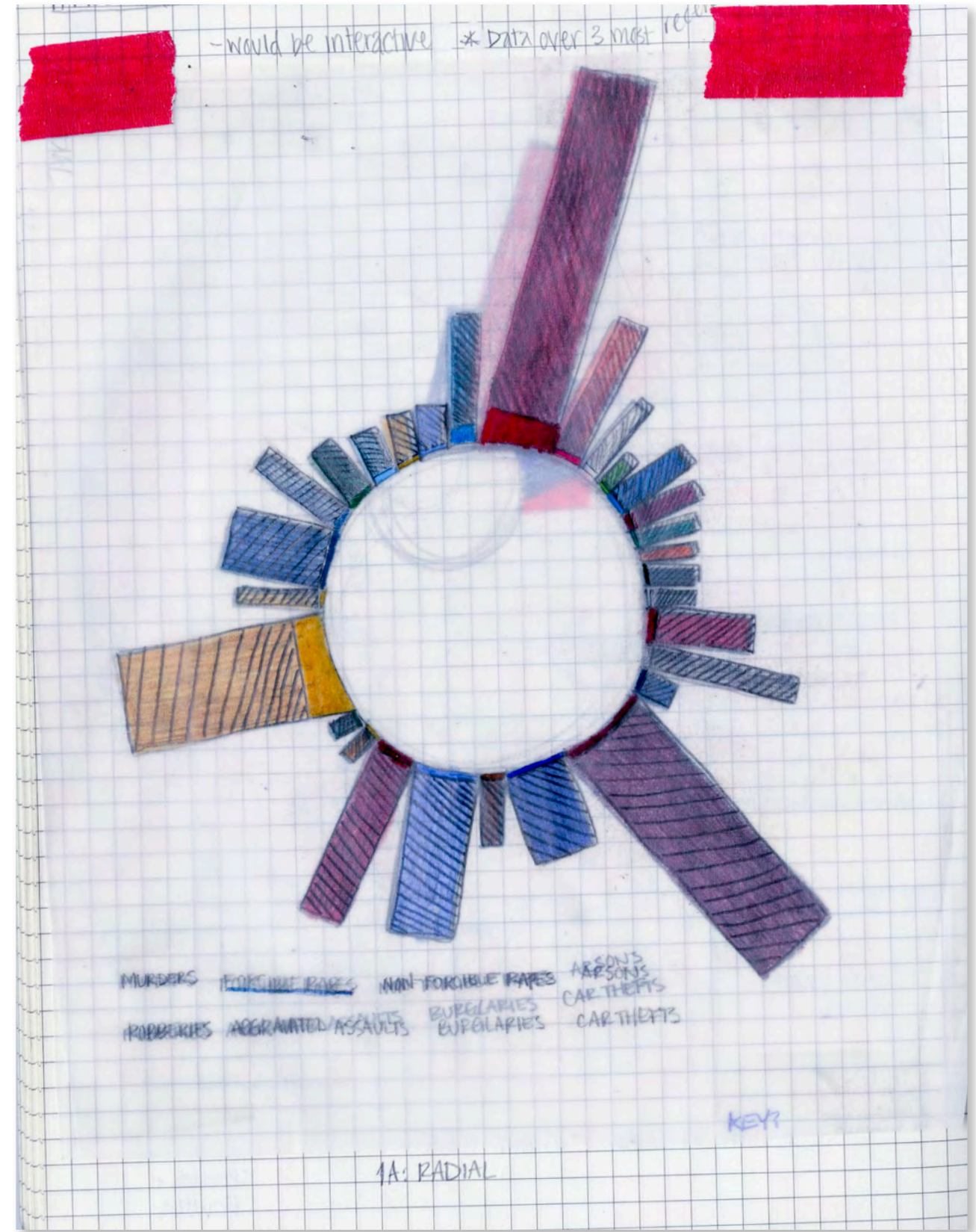
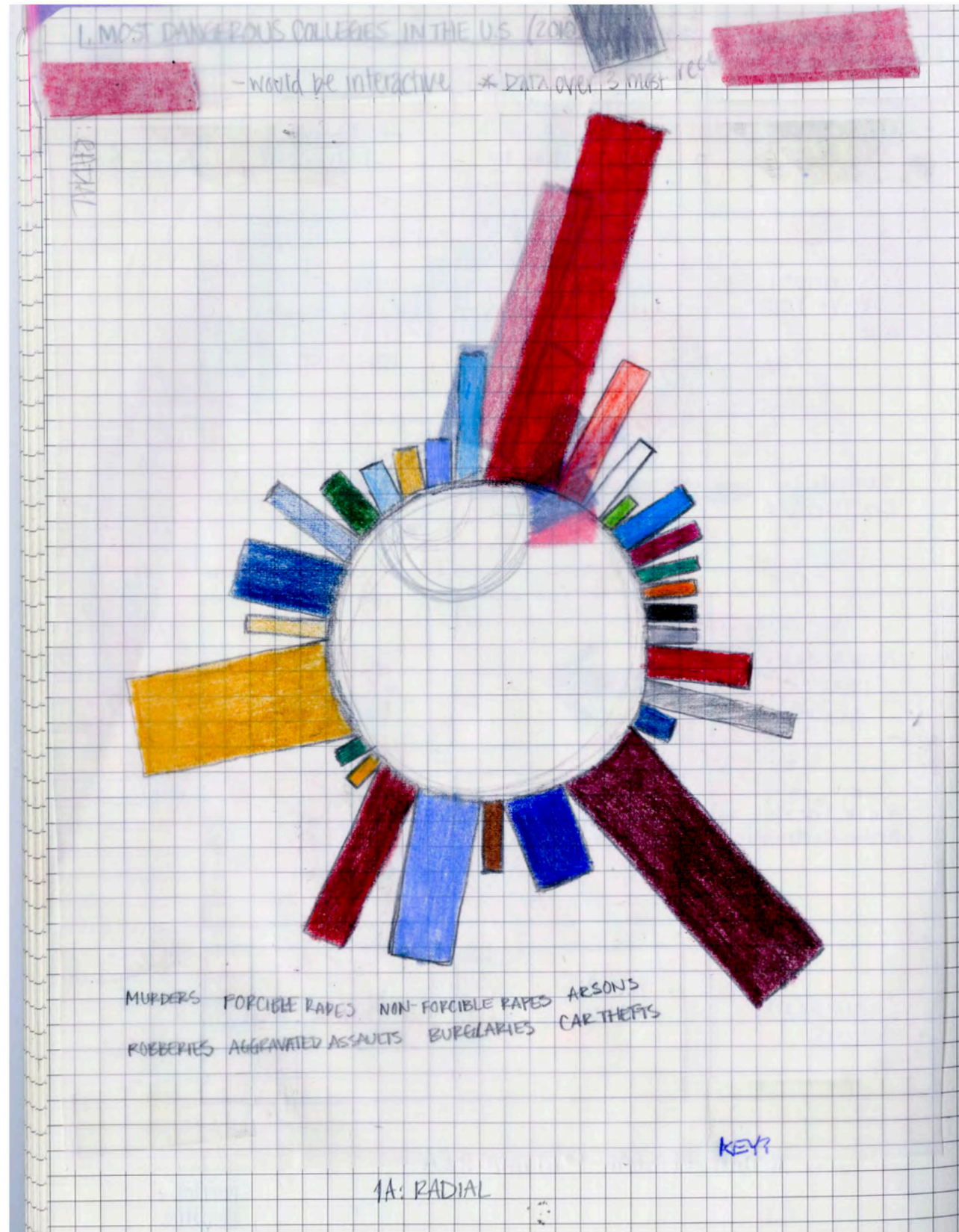
IDEATION

The process of developing a visualization that effectively displays this set of data about college crime was very thorough. It involved sketching to understand the data, exploring form through sketching, and using math to determine the appropriate scale for the development, readability, and legibility. Extensive color and information studies were performed to convey a serious tone that would best represent the data.

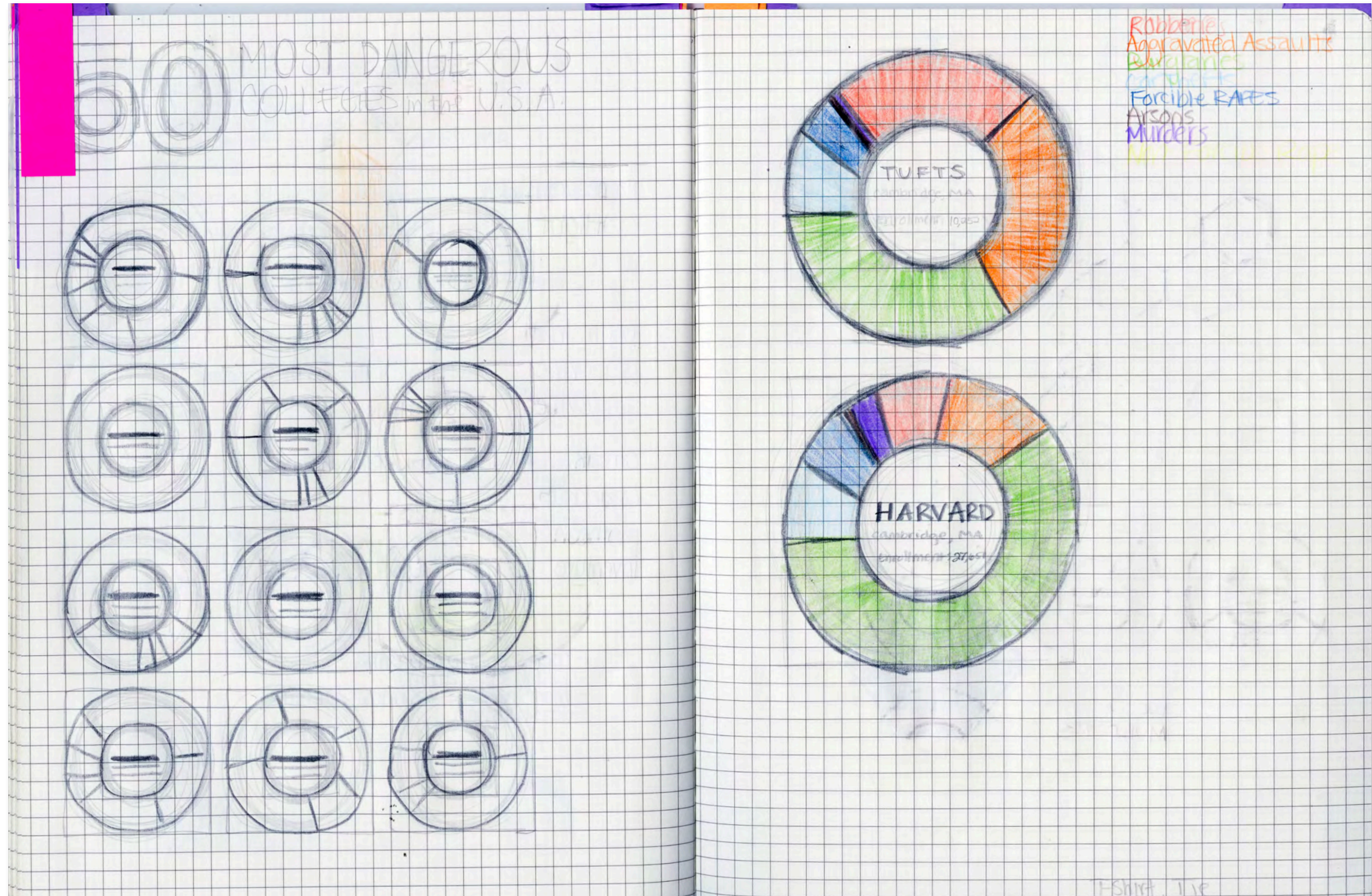
Phase One: Sketching to Understand the Data



Phase One: Sketching to Understand the Data





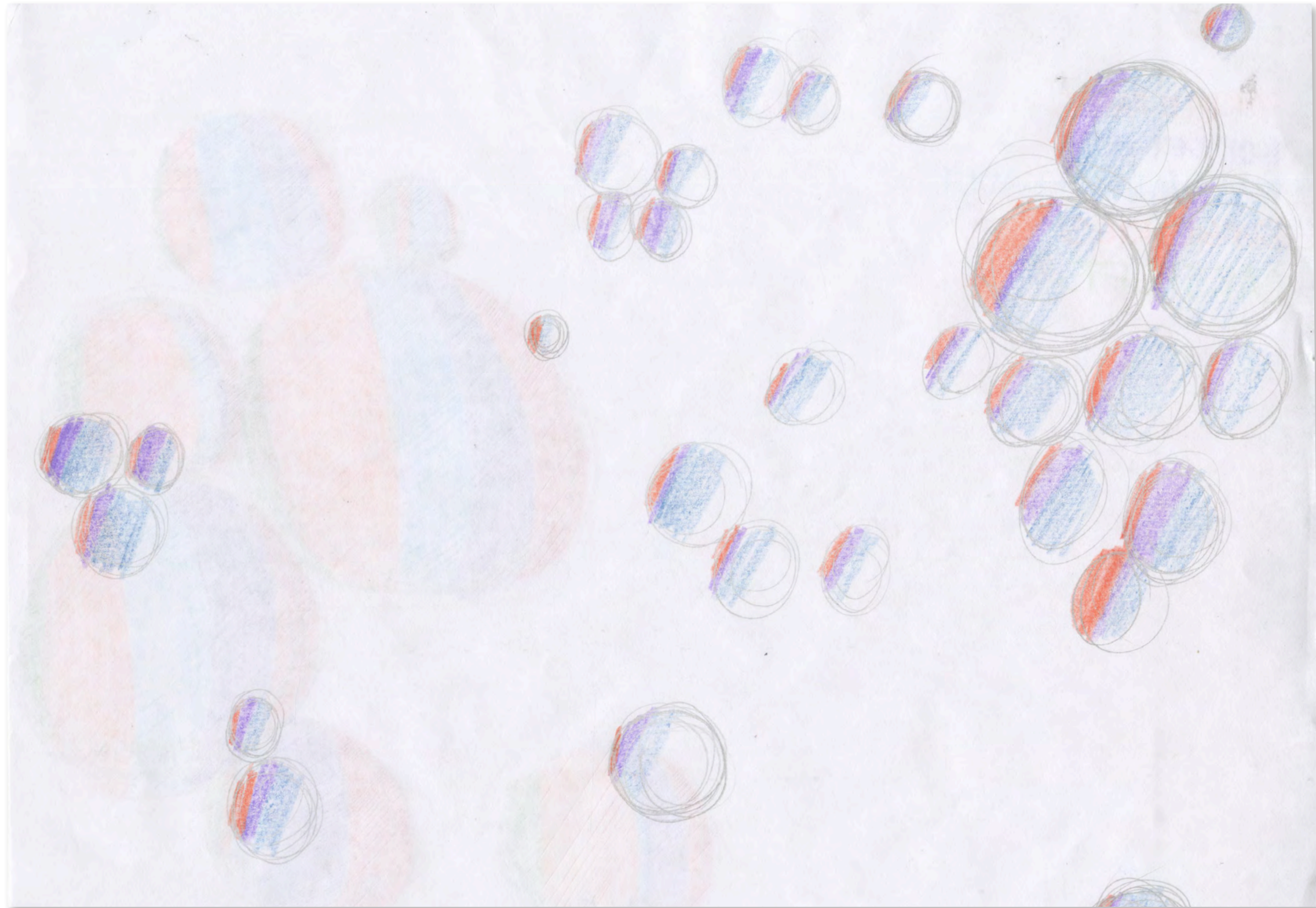


Showing the percentages of specific crimes for each specific school.



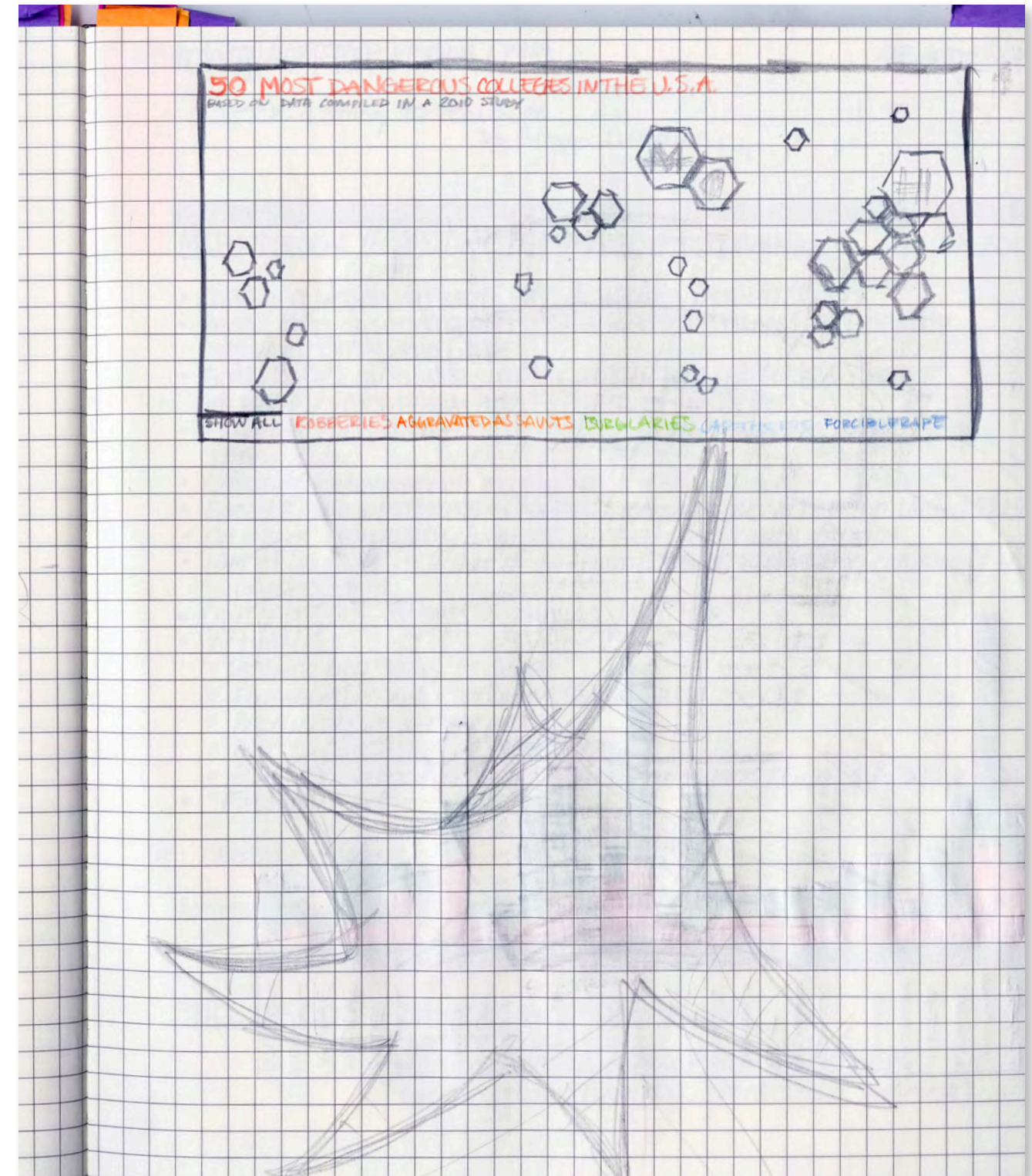
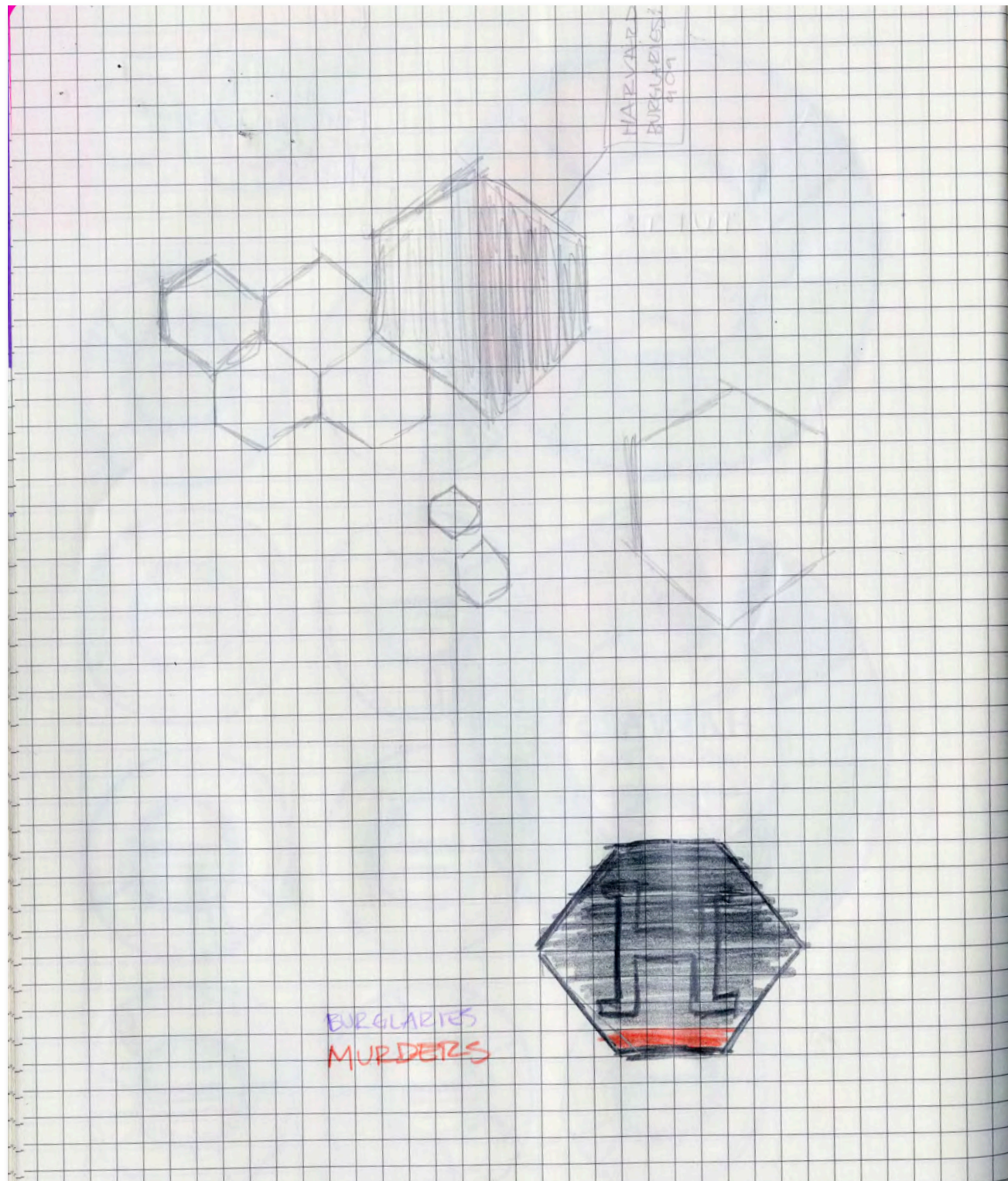
Showing the percentages of specific crimes for each specific school, along with school size and abstracted location.

Phase Two: Exploring Form through Sketching

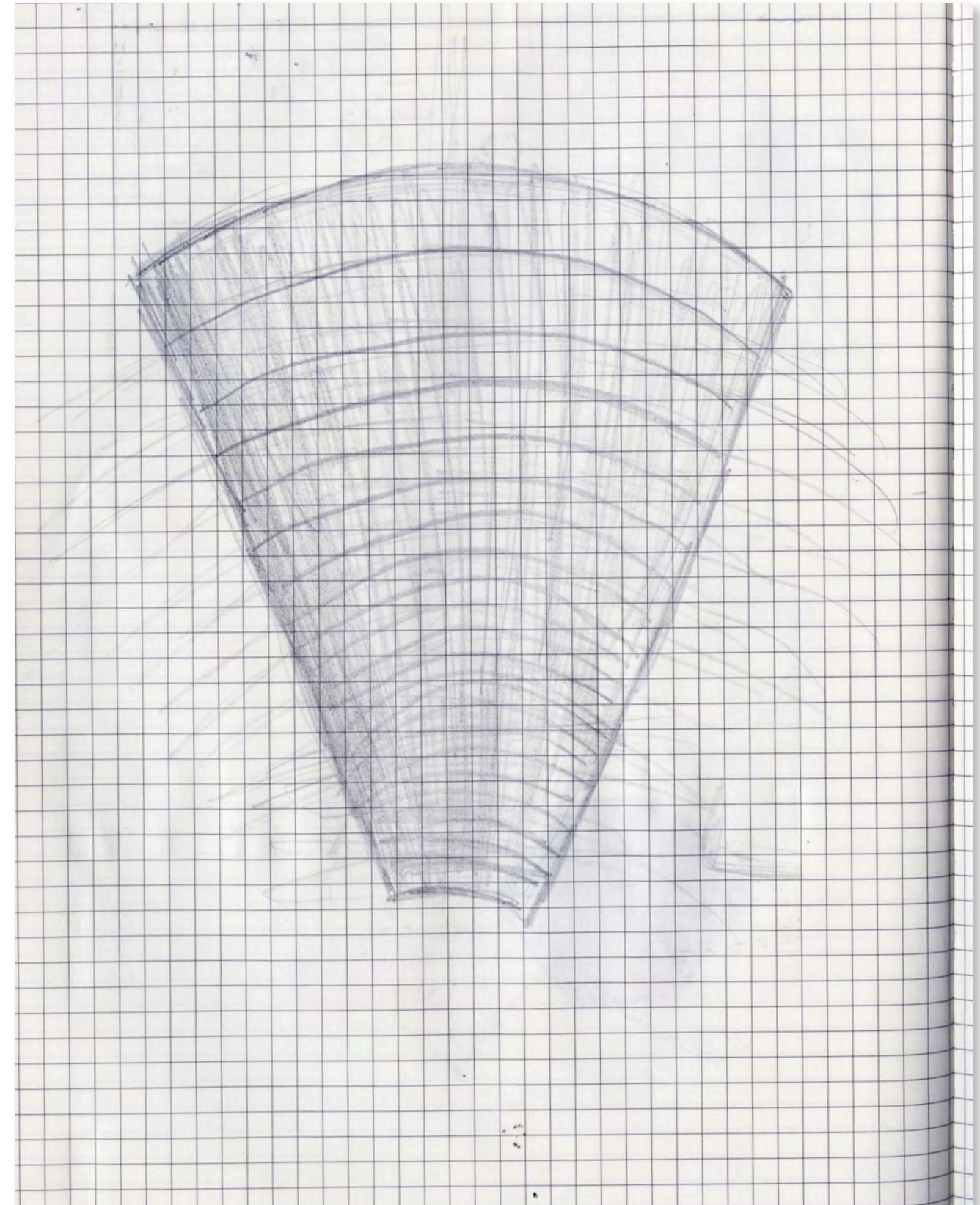
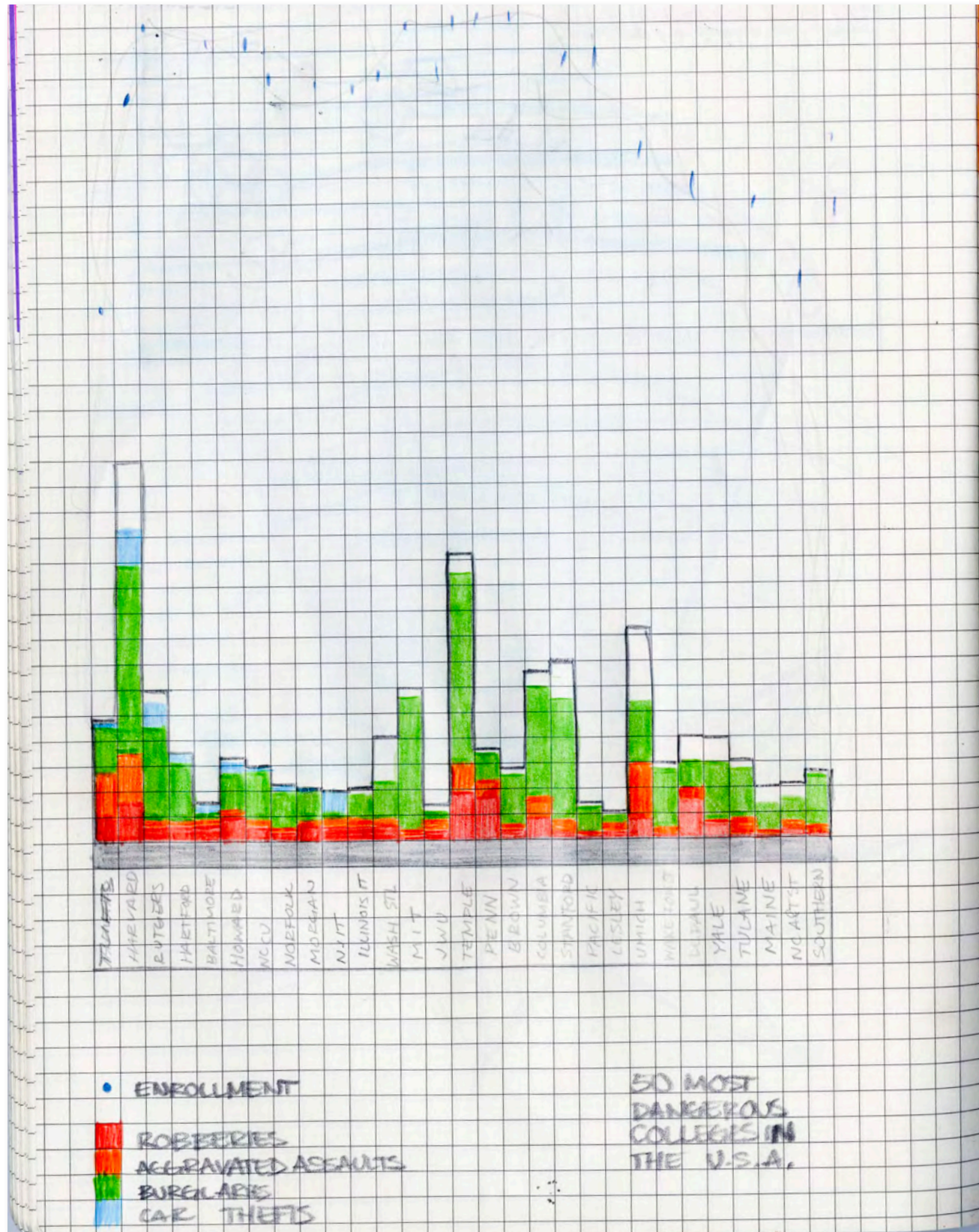


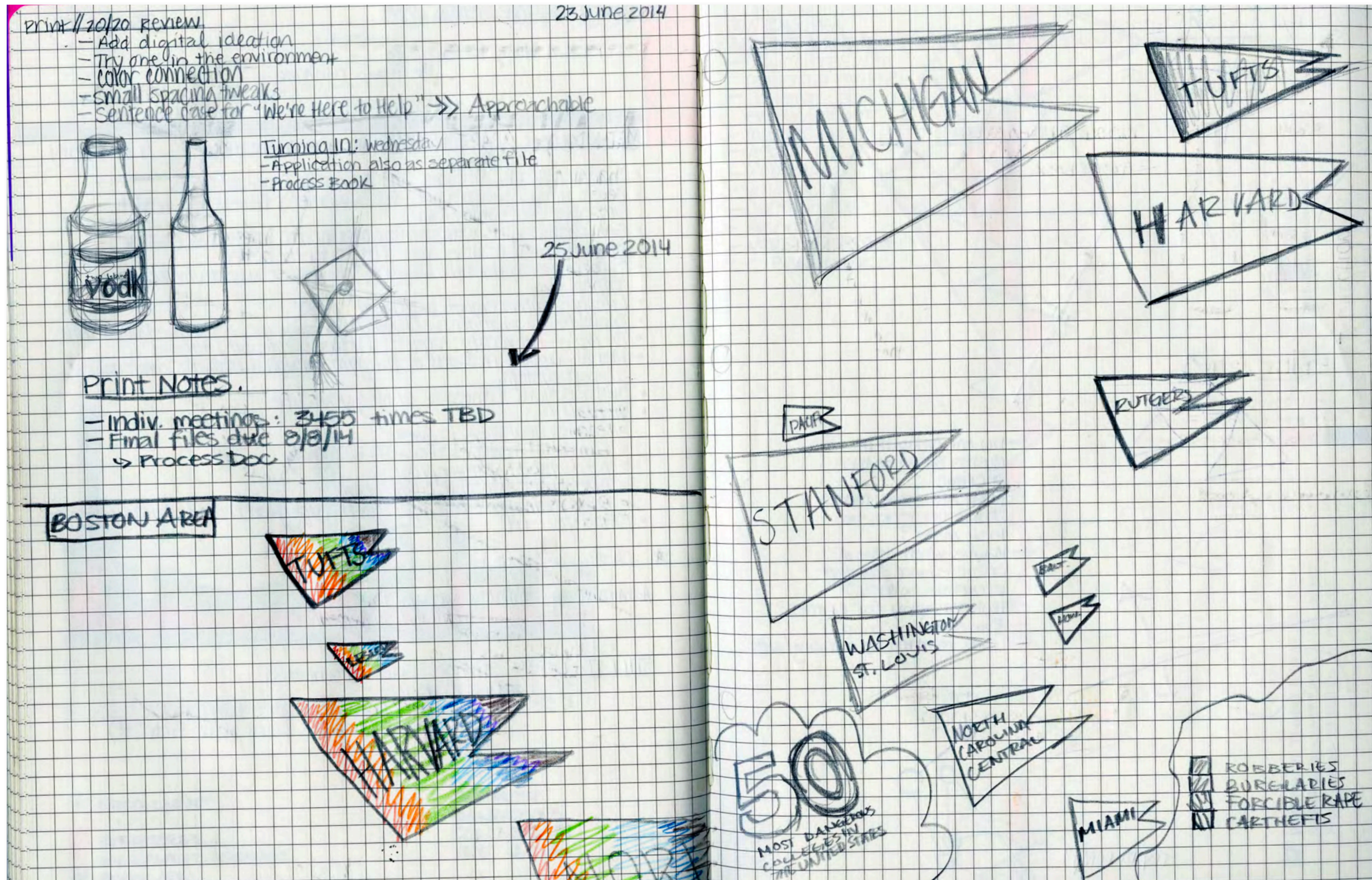
Showing the percentages of specific crimes for each specific school, along with school size and abstracted location.

Phase Two: Exploring Form through Sketching

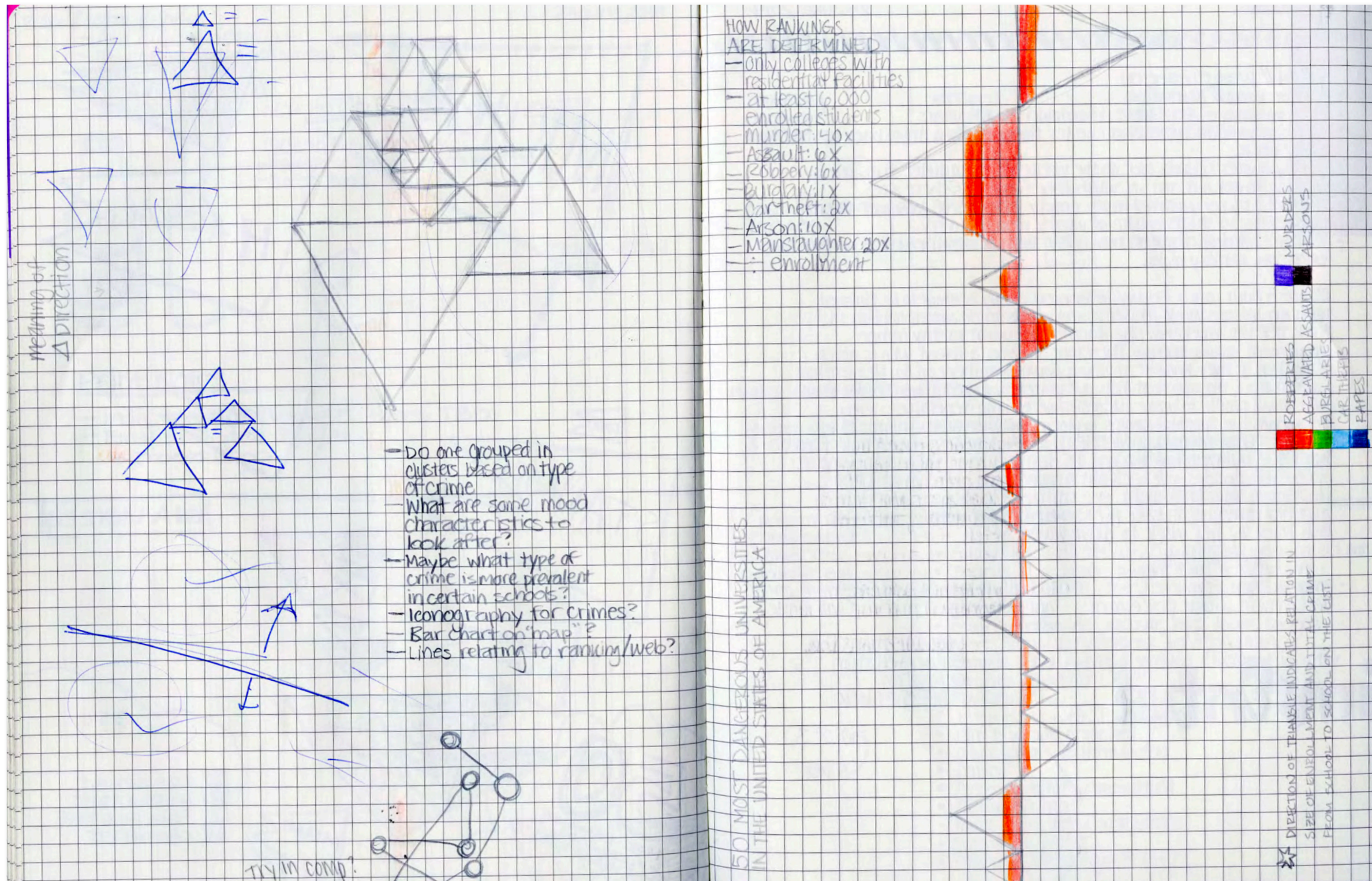


Showing the percentages of specific crimes for each specific school, along with school size and abstracted location.



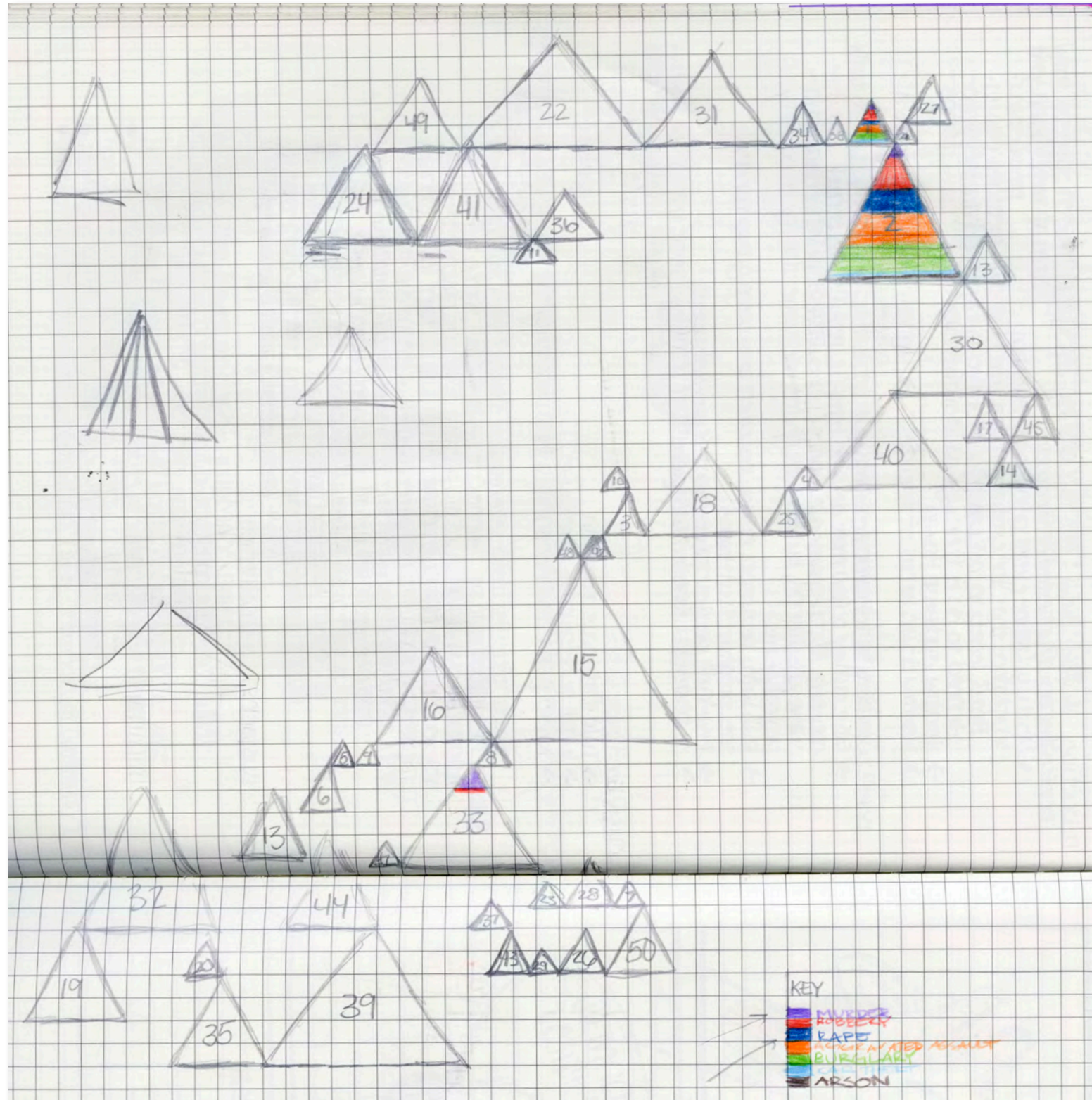


Showing the percentages of specific crimes for each specific school, along with school size and abstracted location, using a "college pennant" theme.

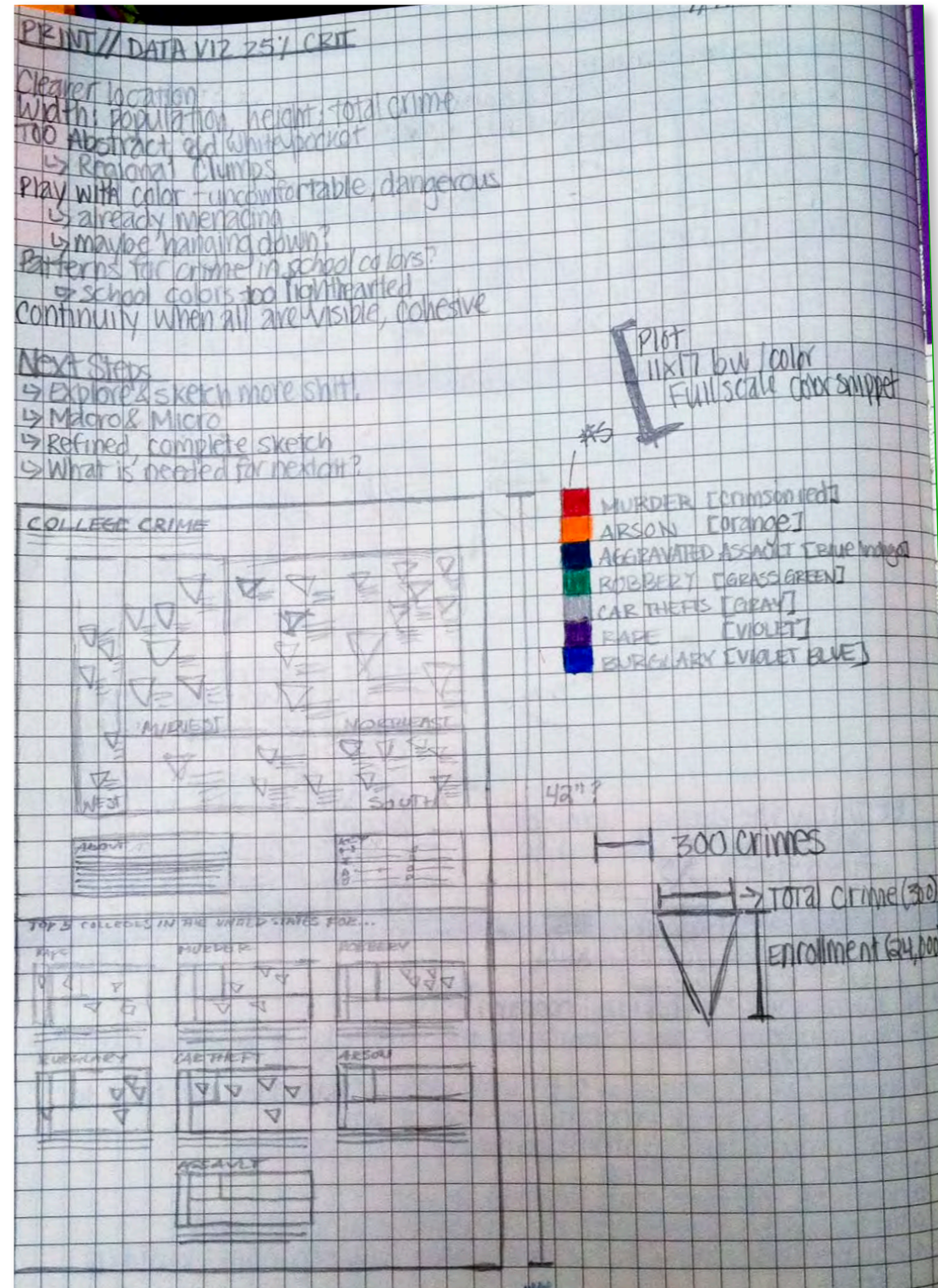


Showing the percentages of specific crimes for each specific school, along with school size and abstracted location, using an abstraction of a "college pennant" theme.

Phase Three: Refining Direction through Sketching



Showing the percentages of specific crimes for each specific school, along with school size and abstracted location, using an abstraction of a "college pennant" theme. Schools are simply represented by numbers.



Showing the percentages of specific crimes for each specific school, along with school size and abstracted location, using an abstraction of a “college pennant” theme. Colors were assigned, and composition was thought out in more detail.

Phase Four: Final Visualization Development

COLLEGE CRIME
50 MOST DANGEROUS COLLEGES IN THE UNITED STATES
FROM THE DAILY BEAST'S 2010 RANKINGS



(unweighted): 698

Assaults: 16

UNIVERSITY OF CHICAGO
Chicago, IL
Enrollment: 15,094
Total Crime (weighted): 851
Total Crime (unweighted): 388
Arsons: 1
Aggravated Assaults: 16
Robberies: 54
Car Thefts: 101
Rapes: 15
Burglaries: 204

DEPAUL UNIVERSITY
Chicago, IL
Enrollment: 25,072
Total Crime (weighted): 1,526
Total Crime (unweighted): 403
Arsons: 4
Aggravated Assaults: 56
Robberies: 143
Car Thefts: 92
Rapes: 21
Burglaries: 87

UNIVERSITY OF MICHIGAN
Ann Arbor, MI
Enrollment: 41,674
Total Crime (weighted): 2,721
Total Crime (unweighted): 820
Murders: 1
Arsons: 20
Aggravated Assaults: 225
Robberies: 83
Car Thefts: 142
Rapes: 119
Burglaries: 230

UNIVERSITY OF ILLINOIS AT CHICAGO

Enrollment: 26,840
Total Crime (weighted): 1,411
Total Crime (unweighted): 347

ILLINOIS INSTITUTE OF TECHNOLOGY
Chicago, IL
Enrollment: 7,707
Total Crime (weighted): 595
Total Crime (unweighted): 212
Aggravated Assaults: 150
Robberies: 264
Car Thefts: 38
Rapes: 7
Burglaries: 98

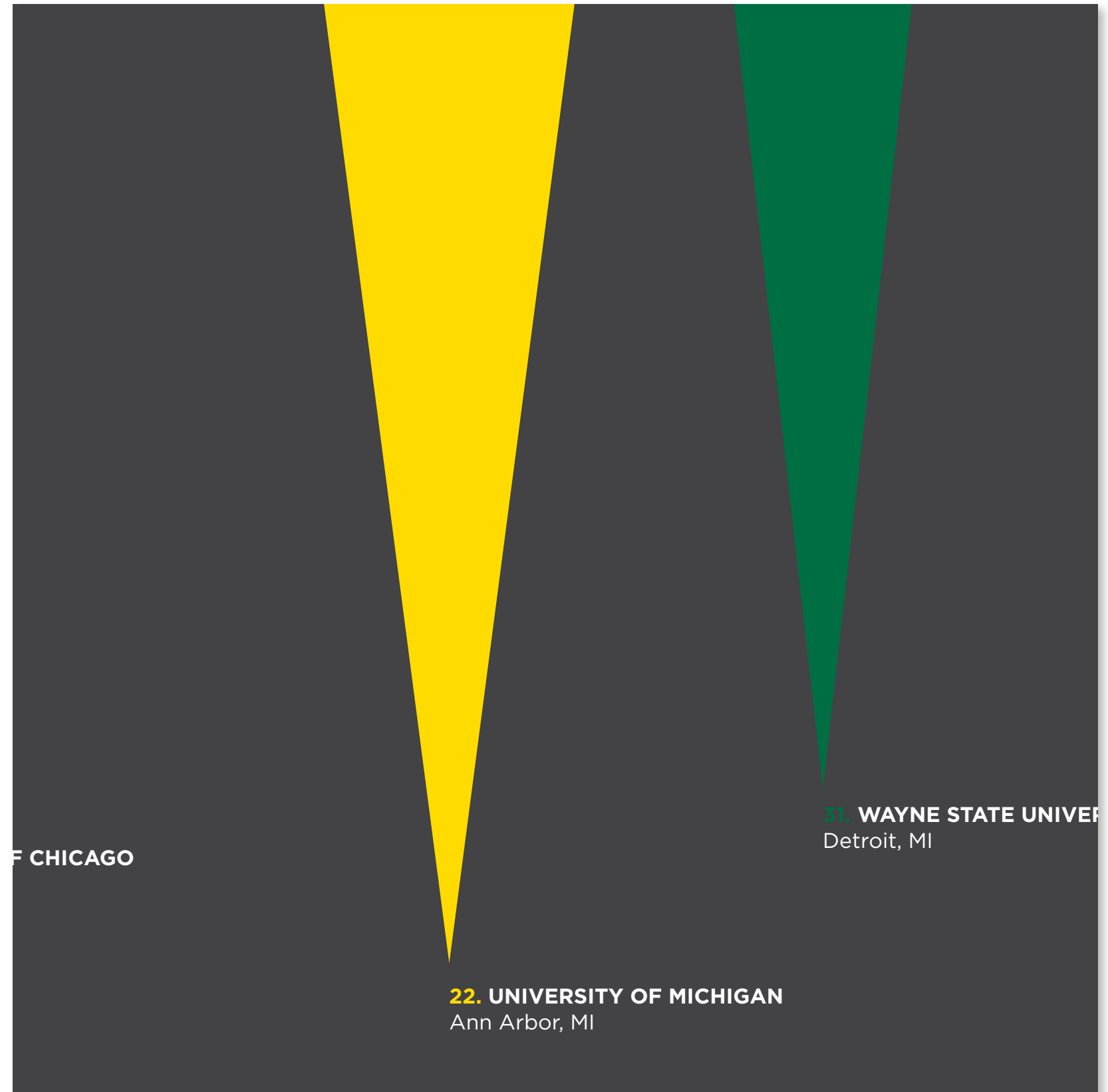
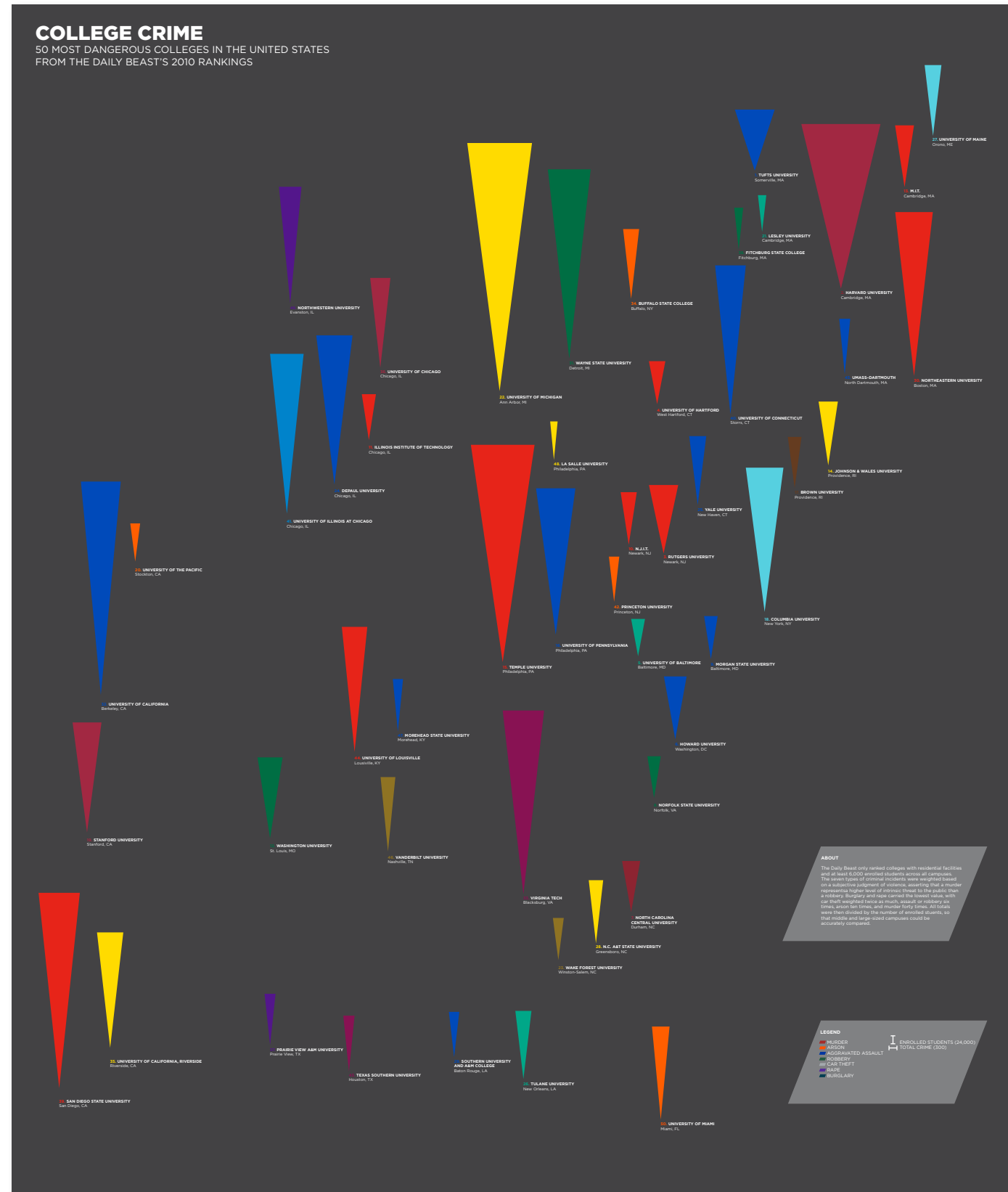
Aggravated Assaults: 100

Robberies: 10

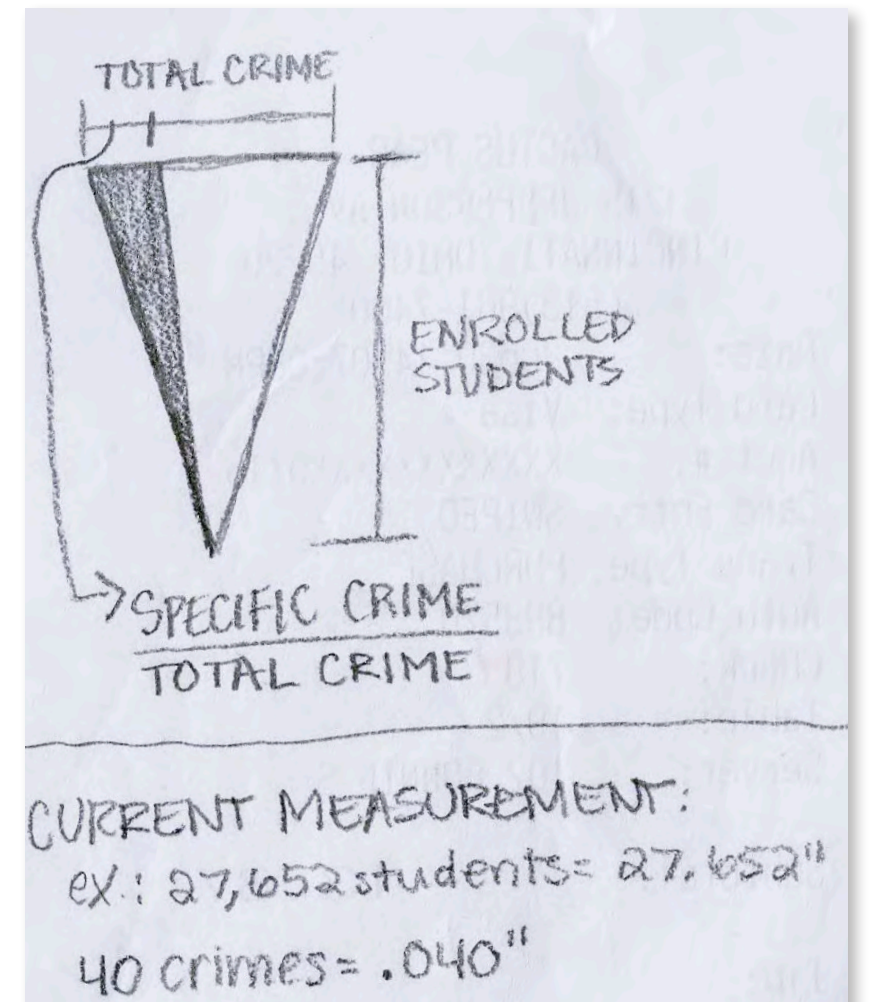
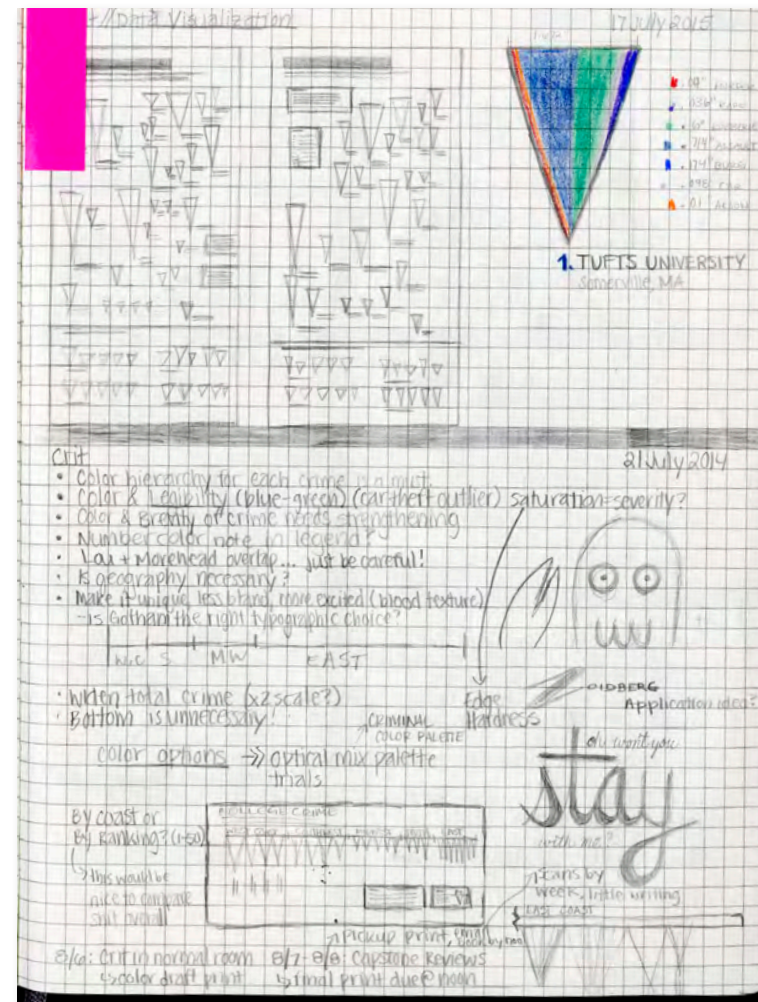
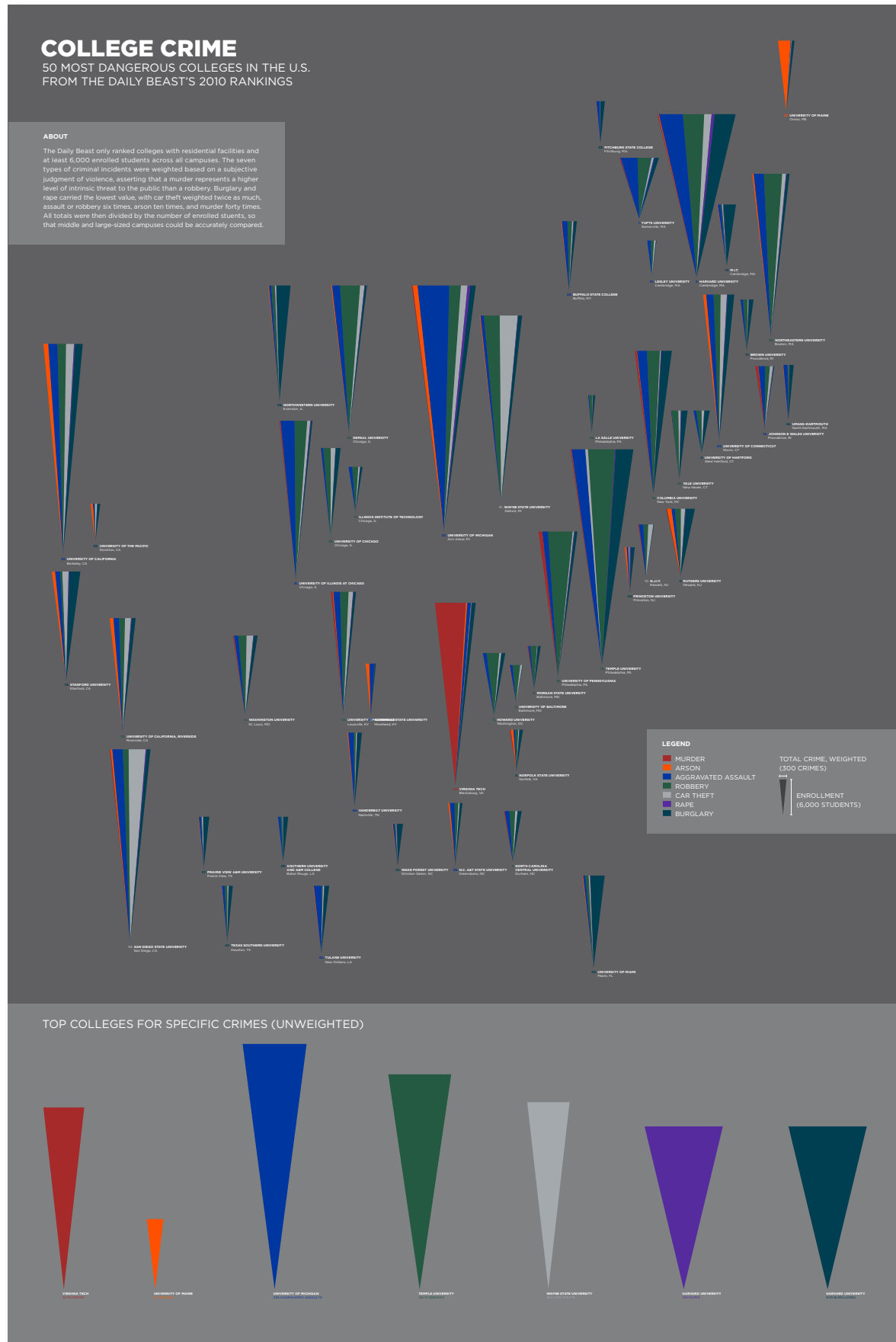
Car Thefts: 6

Rapes: 1

Phase Four: Final Visualization Development

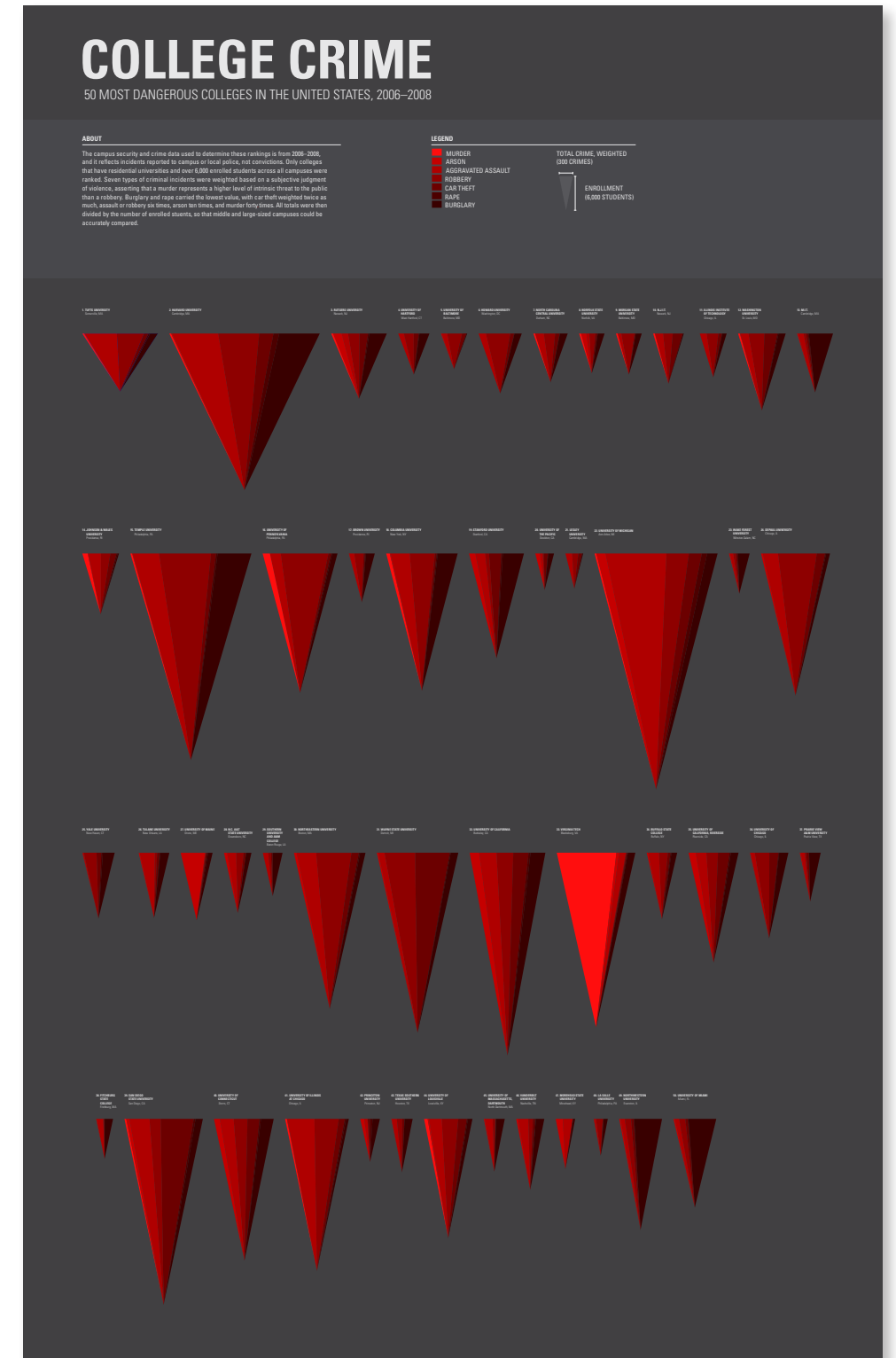


Phase Four: Final Visualization Development

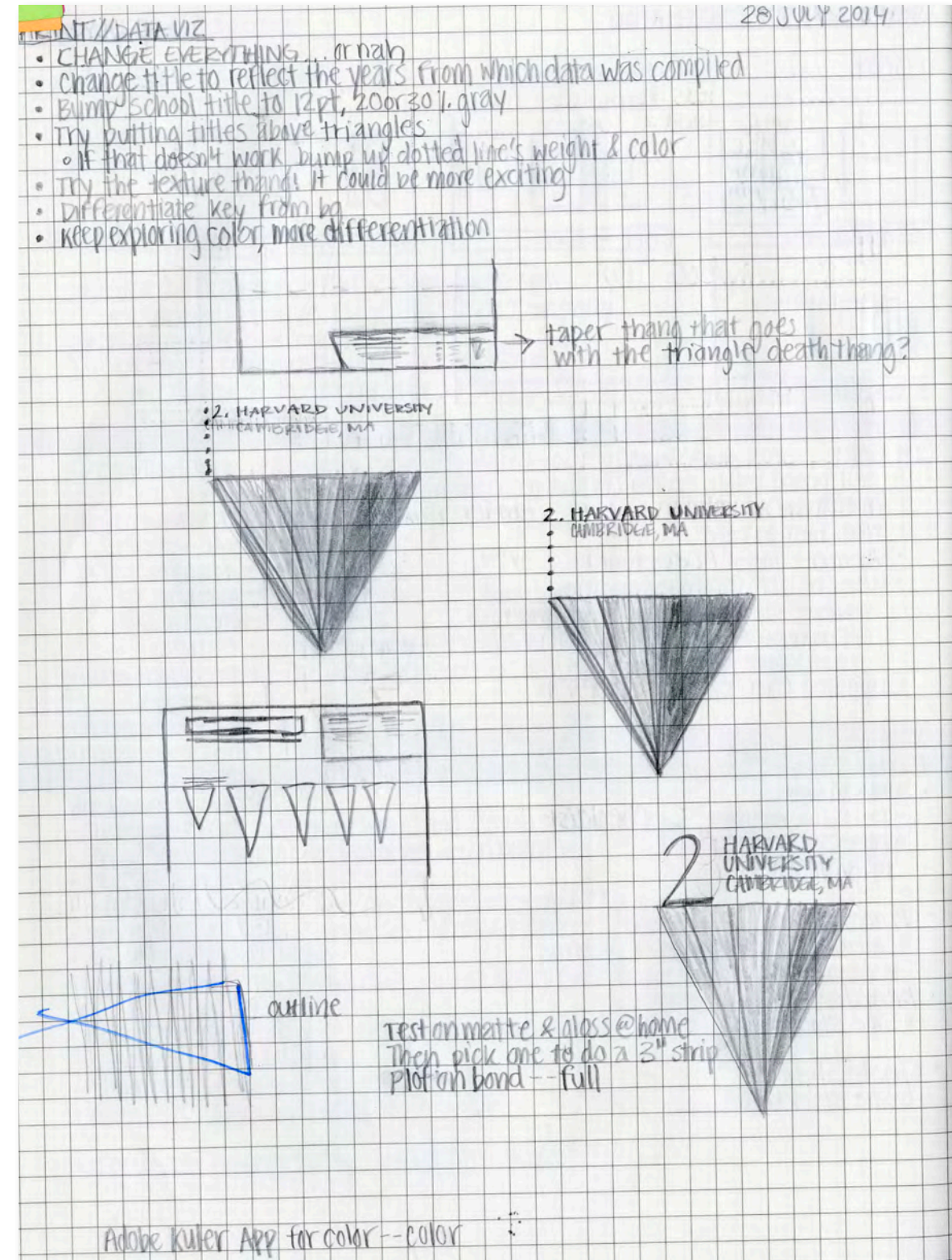
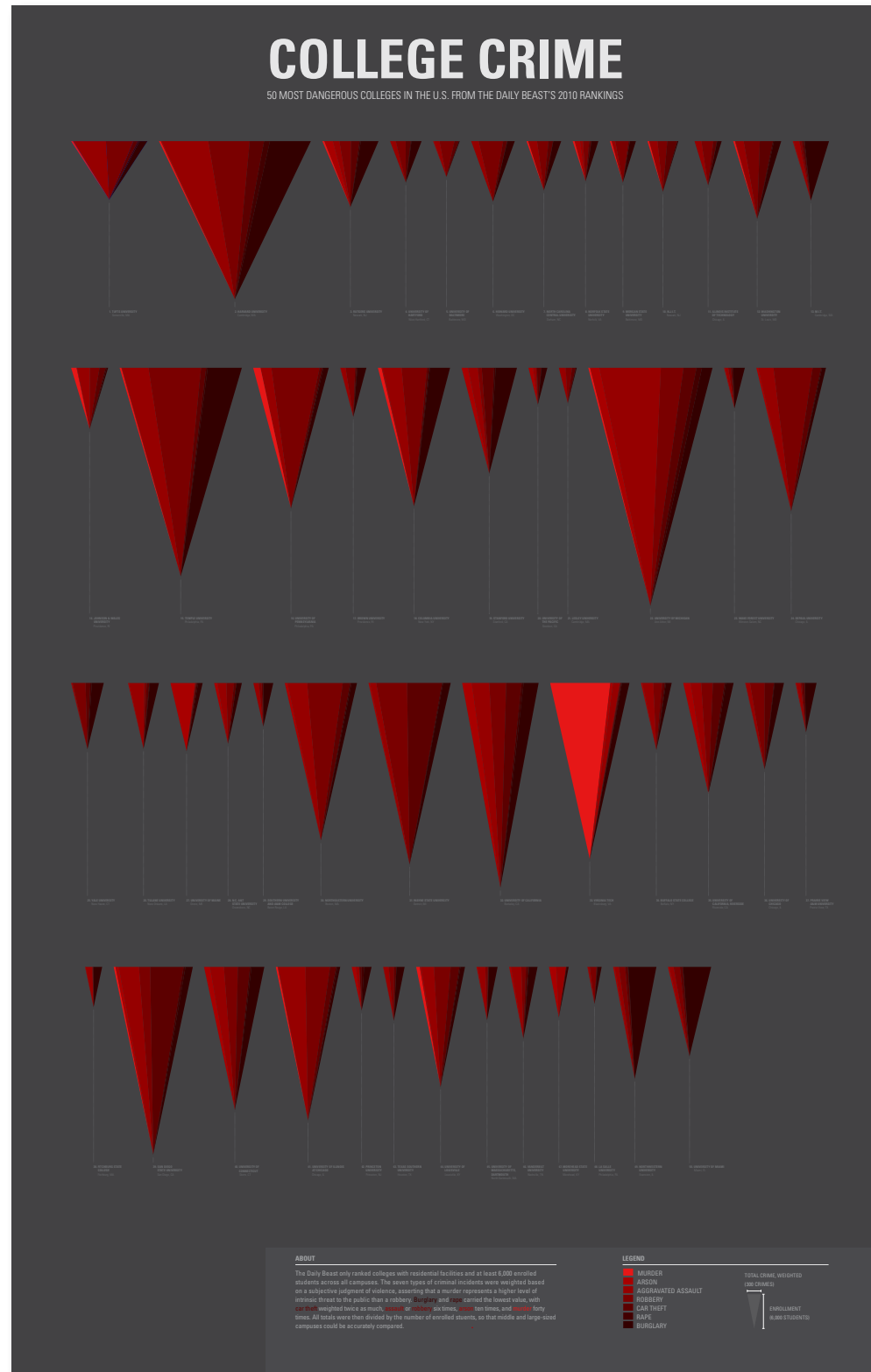




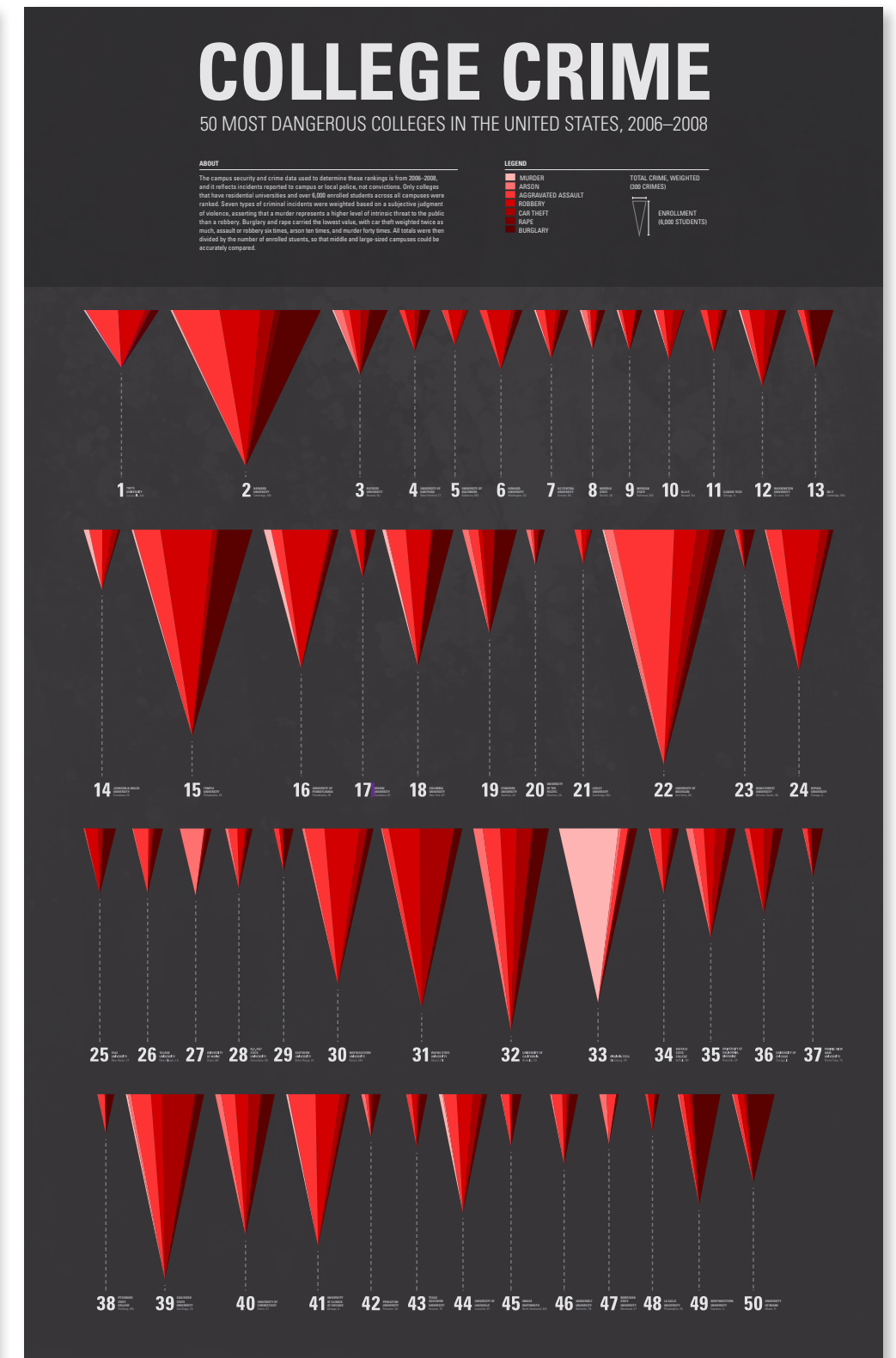
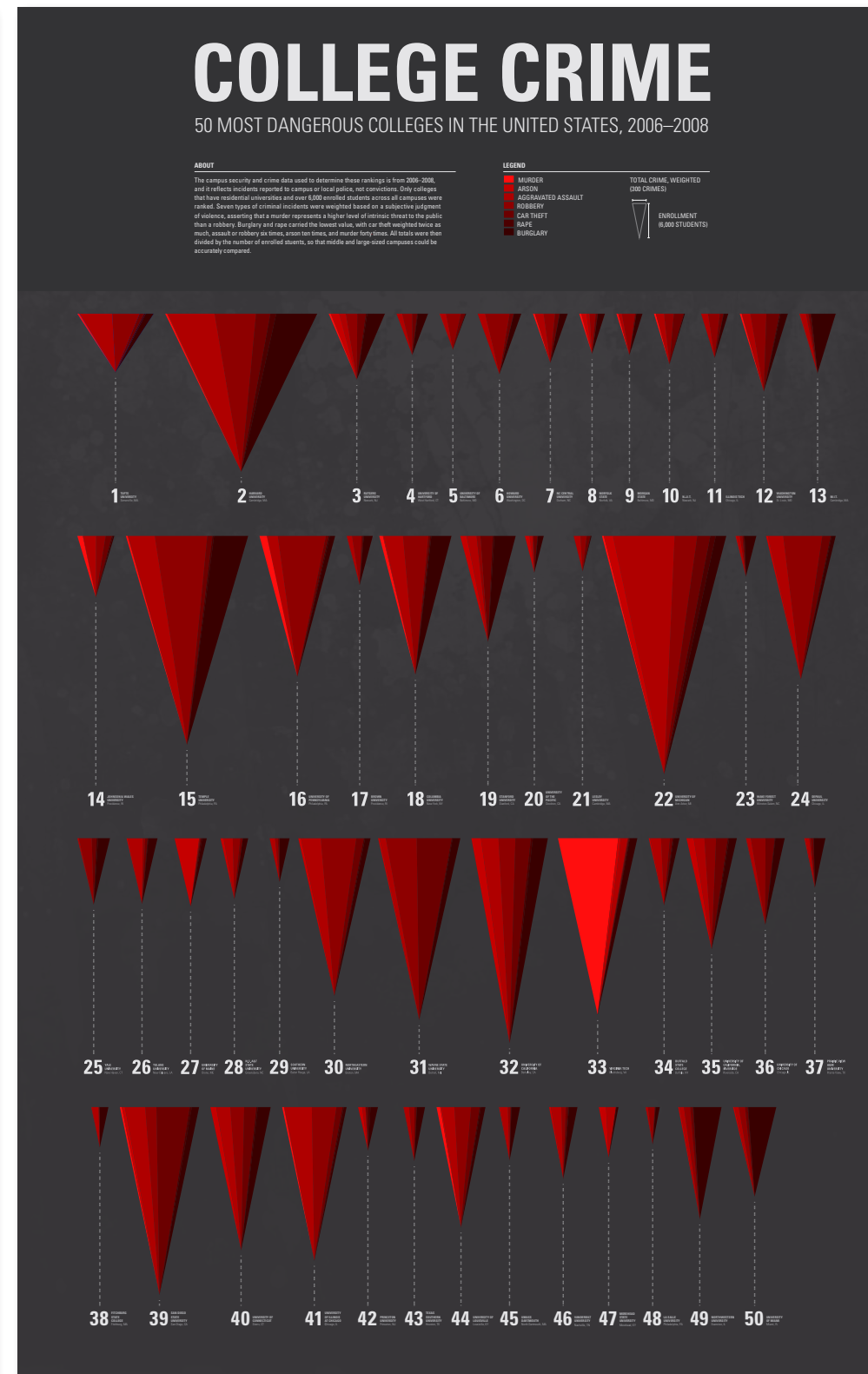
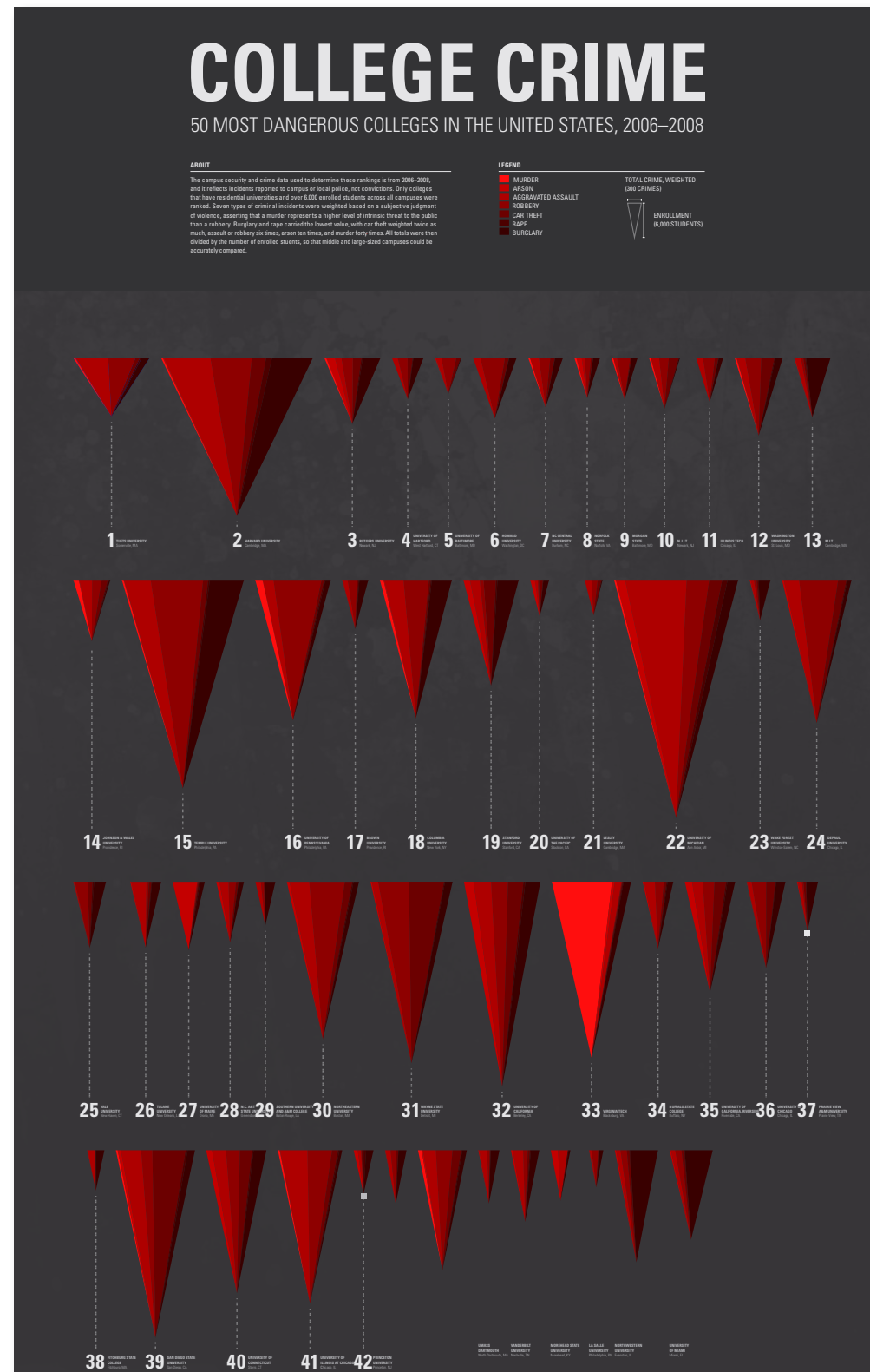
Color and name placement studies, after it was determined that abstracted locations of the colleges were unnecessary for the user to understand and be engaged with the information.



More color and compositional studies.

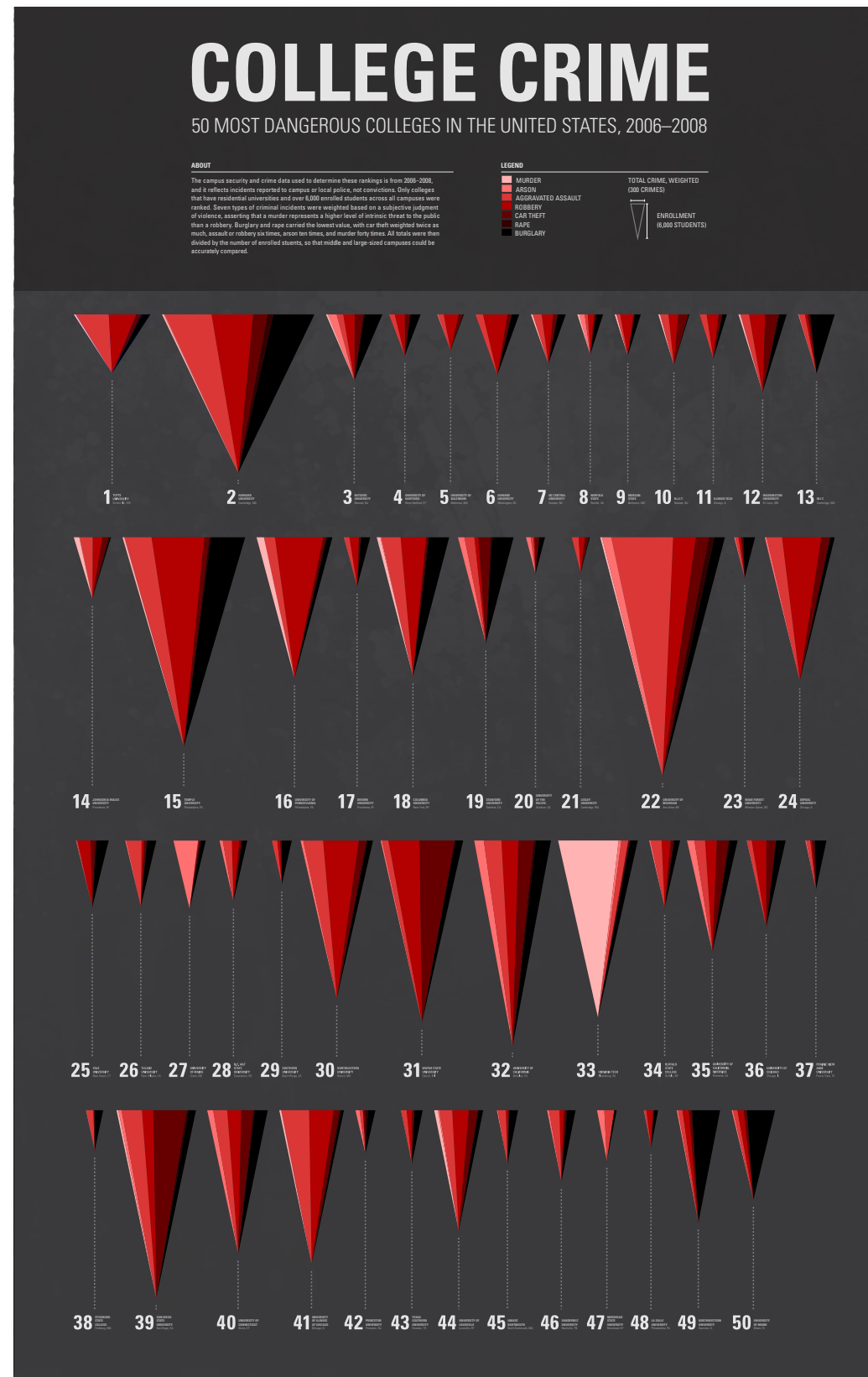


Working to finalize composition and color.



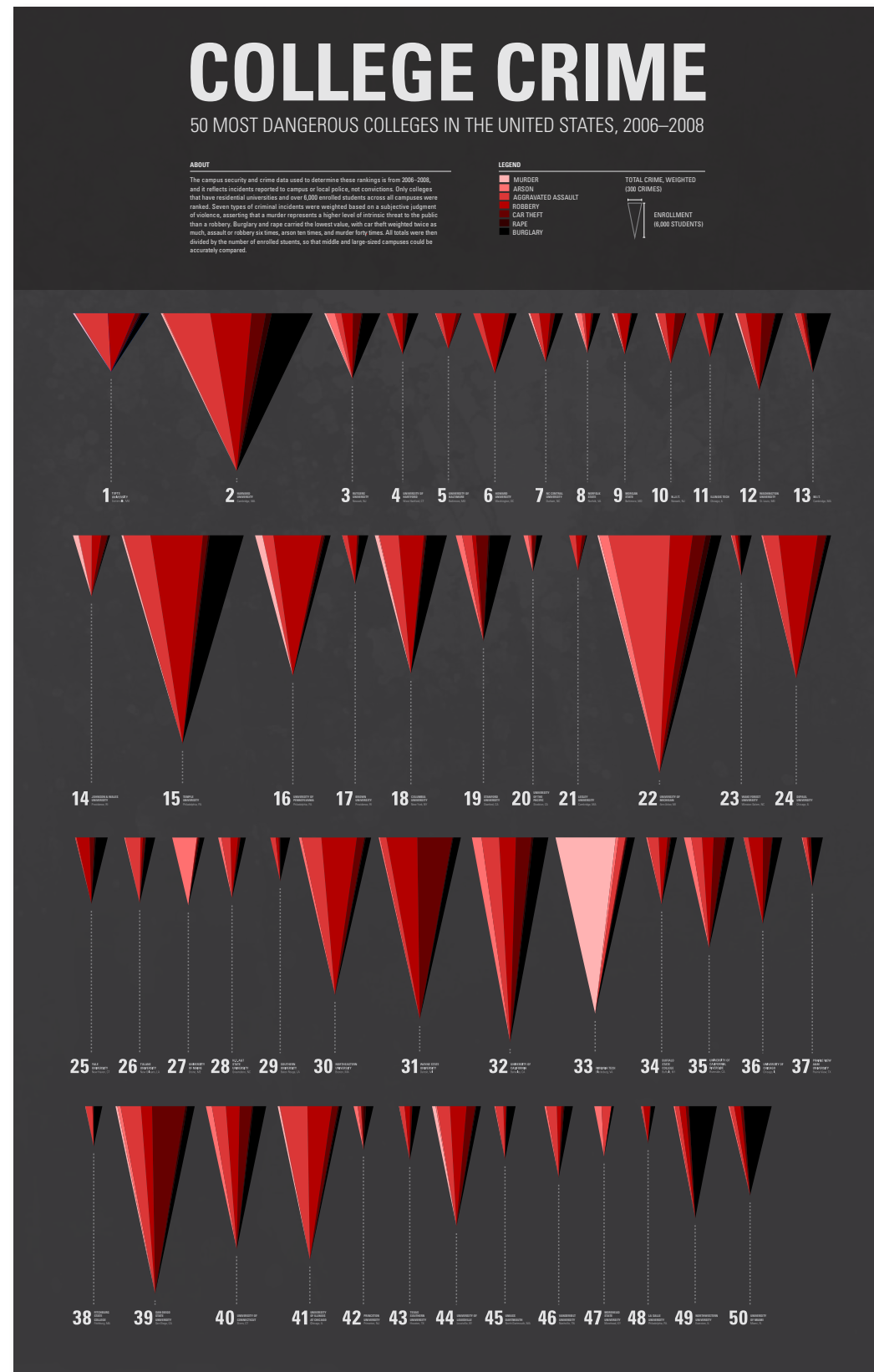
Working to finalize composition and color. A color scheme comprising of reds and blacks, along with using Univers as a typeface, creates a scary and serious tone representative of crime, especially for colleges.

FINAL DATA VISUALIZATION



60"

Plotted on Bond Paper (Satin proved to plot blacks that were too dark).

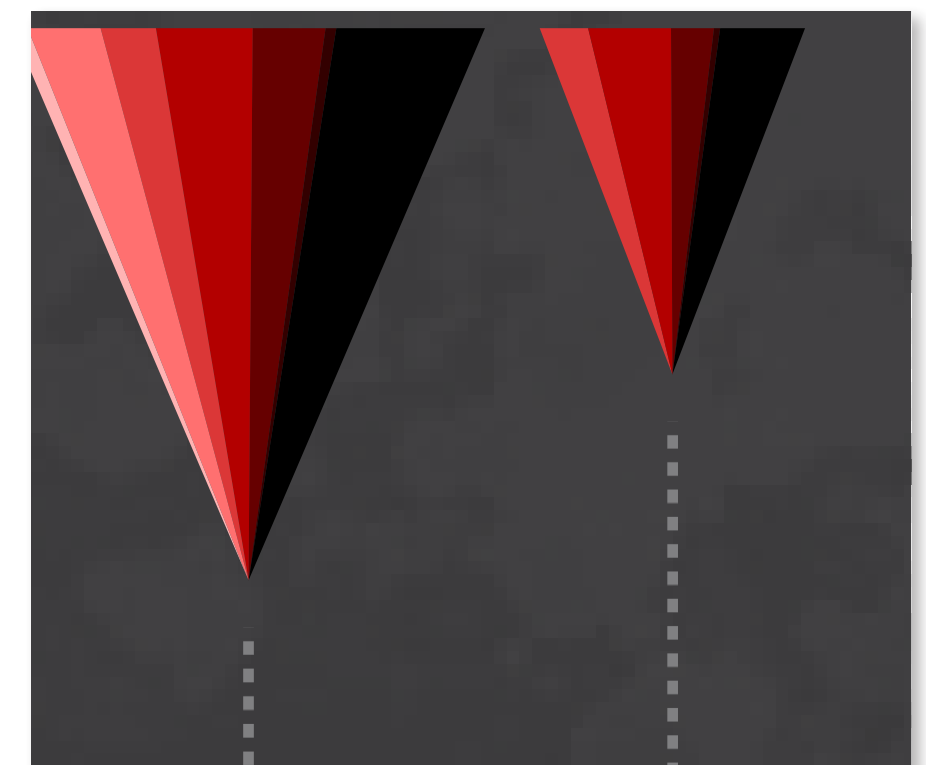
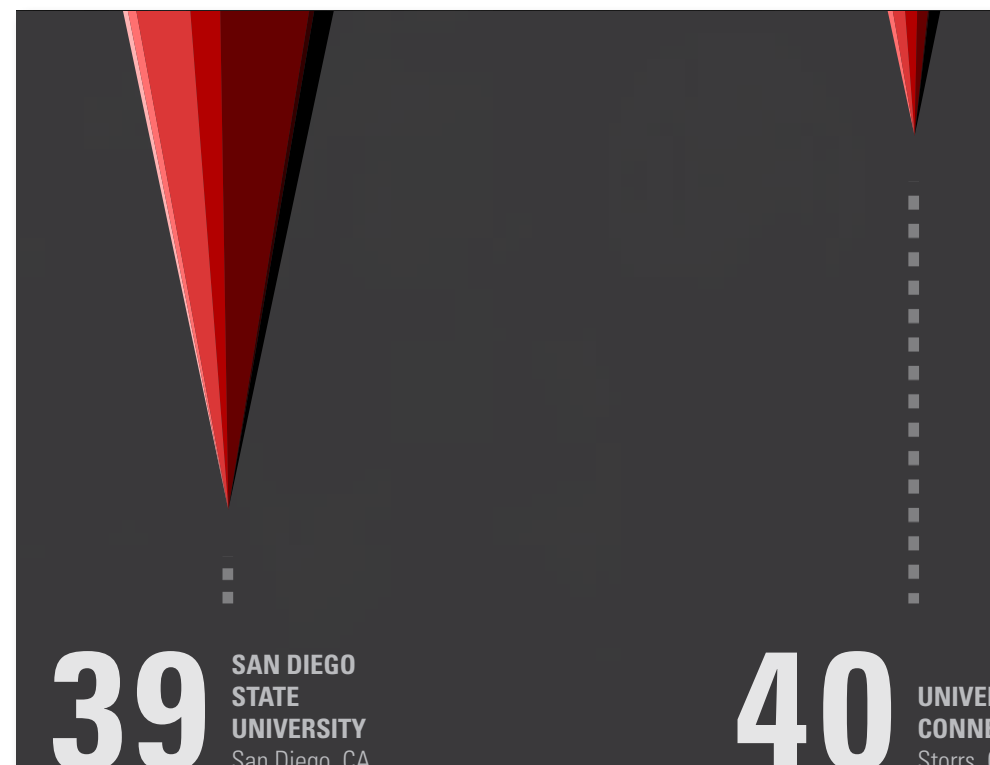


CC

50 MOST

ABOUT

The campus security and crime data used to determine these rankings is from 2006-2008, and it reflects incidents reported to campus or local police, not convictions. Only colleges that have residential universities and over 8,000 enrolled students across all campuses were ranked. Seven types of violence, asserting that a murder represents a higher level of threat to the public than a robbery. Burglary and rape earned the lowest value, with car theft weighted twice as much, assault or robbery six times, arson ten times, and murder forty times. All totals were then divided by the number of enrolled students, so that middle and large-sized campuses could be accurately compared.



CONCLUSION

This assignment allowed me to use sketching to develop a well-designed data visualization that accurately represents a set of data and that is both readable and legible. Learning how to design printed material for a large scale has proved to be useful since I aspire to be an environmental graphic designer, and I will be working at an experiential design company this Fall. This assignment has also taught me that I need to work on my color skills since it was something I struggled with for the duration of the assignment.