

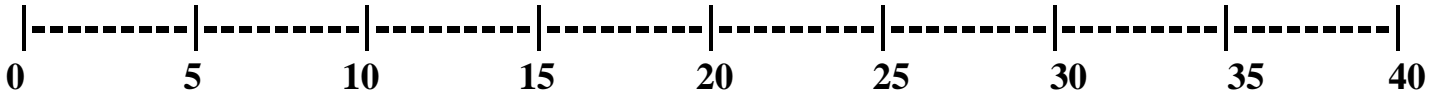
# The JellyBlubber Colony

<b>Objective:</b>	<p>This activity introduces the Simple Random Sample (SRS) to students, and shows why this process helps to get an unbiased sample statistic. Relying on our perceptions can often be deceiving. In this exercise students are asked to determine the average length of a jellyblubber (a recently discovered marine species) using a variety of techniques. The student will learn that a Simple Random Sample (SRS) is the most accurate method of determining this parameter, and that intuition can be deceptive.</p>
<b>Materials:</b>	One 'The JellyBlubber Colony' worksheet and one ruler per student.
<b>Time:</b>	1 period
<b>Instructions:</b>	<p>Pass out the worksheet upside down. Ask students to not look at the sheet until they are instructed.</p> <p>Tell the students a story about the recently discovered colony of jellyblubbers, a new marine species, and that our task is to try to determine the average length (measured horizontally) of a blubber.</p> <p>Allow the students to look at the Colony for five seconds. They will then estimate the average length of a blubber. The teacher plots the students' guesses as a dotplot, then leads the entire class in a discussion of the dataset.</p> <p>The student is now told to choose a representative sample of 10 blubbers. Once they have made their choice, they measure the length of each blubber and calculate the mean length. The teacher plots these values on a new dotplot, followed by a whole class discussion of dataset.</p> <p>Now the student takes a SRS of 10 blubbers, as follows. Each blubber is numbered from 1 to 100. They generate 10 random numbers from a random number table in the range 1 to 100. They calculate the mean length of those ten blubbers. The teacher plots these means on a third dotplot. Each dotplot must have the same scale for comparison purposes.</p> <p>The class discusses the difference in the distributions - location, spread, outliers, etc.</p> <p>The actual average length of a blubber is 19.4 cm. Which method gave the best estimate? How accurate was it? How much spread was there around the correct value?</p>
<b>Discussion:</b>	A student decides to generate a random sample by closing her eyes and pointing at the sheet of blubbers randomly. She chooses the blubber to which her finger is closest. Comment on this method of generating a SRS.
<b>Extension:</b>	A similar exercise can be conducted by putting a number of pieces of string of varying lengths into a bag and having students pull out a 'random sample' of lengths of string. Since a longer piece is more likely to be selected than a shorter one, the sample generated in this fashion is likely to give a biased result - one that is too large.
<b>References:</b>	<i>Statistics, Concepts and Controversies, 4th Edition, David S. Moore</i>

## *The JellyBlubber Colony*

Blubber #	Length		Blubber #	Length
1	9		51	35
2	5		52	37
3	9		53	9
4	33		54	25
5	22		55	5
6	5		56	10
7	10		57	9
8	40		58	45
9	20		59	40
10	10		60	8
11	12		61	20
12	5		62	25
13	8		63	10
14	41		64	8
15	5		65	37
16	32		66	8
17	5		67	20
18	10		68	13
19	21		69	34
20	20		70	42
21	34		71	40
22	5		72	40
23	32		73	40
24	5		74	30
25	9		75	20
26	40		76	7
27	5		77	5
28	49		78	25
29	9		79	17
30	41		80	8
31	5		81	8
32	20		82	5
33	43		83	13
34	7		84	42
35	20		85	10
36	10		86	5
37	5		87	10
38	14		88	27
39	15		89	30
40	10		90	10
41	41		91	42
42	5		92	6
43	17		93	10
44	15		94	25
45	40		95	7
46	5		96	40
47	30		97	8
48	8		98	5
49	5		99	40
50	40		100	20

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