

## Constructing a Marigram

To understand how tides behave on a particular coast, scientists construct a graph of high and low tides. They measure the high and low tides using a tide gauge. The height of the tide can be read visually from a marked vertical stake on a dock or set up in quiet waters of a bay where it is not affected by surface waves. For long-term measurements, scientists mount a piece of scientific equipment that measures the height of the tide electronically and store the data for retrieval and downloading into a computer.

This graph of high and low tides is called a **marigram**, and has a variety of uses. Marigrams look very different in different parts of the world. Along the coast of Florida there is less than one foot of difference between high and low tide. In the Bay of Fundy in eastern Canada, the difference between low and high tide may exceed 50 feet. An interesting comparison is that the 100 billion tons of water moved in and out of the Bay of Fundy during each tide is the amount of water moved by the Mississippi River in 140 days.

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**Example Activity:**

1. Using the information below, graph the high and low tides that occurred during the month of May, 2000, for the Seldovia tide district. Label the high tides and low tides for each day.

May 00		HIGH TIDES				LOW TIDES			
		AM	FT.	PM	FT.	AM	FT.	PM	FT.
1 Mon	☞	1:21	17.0	1:38	16.6	7:30	1.4	7:39	1.0
2 Tue	☞	1:55	18.5	2:22	18.0	8:09	-0.7	8:18	0.3
3 Wed	☞	2:29	19.8	3:05	19.1	8:47	-2.5	8:57	-0.1
4 Thu	☞	3:05	20.8	3:48	19.6	9:27	-3.9	9:37	-0.1
5 Fri	☞	3:43	21.3	4:33	19.6	10:09	-4.6	10:20	0.3
6 Sat	☞	4:23	21.2	5:20	19.0	10:52	-4.7	11:04	1.1
7 Sun	☞	5:06	20.5	6:11	18.0	11:39	-4.0	11:53	2.2
8 Mon	☞	5:54	19.2	7:08	16.8	-----	-----	12:31	-2.8
9 Tue	☞	6:50	17.6	8:13	15.8	0:49	3.4	1:30	-1.3
10 Wed	☞	7:57	15.9	9:26	15.3	1:55	4.4	2:38	0.1
11 Thu	☞	9:17	14.7	10:40	15.5	3:16	4.7	3:54	1.0
12 Fri	☞	10:44	14.4	11:44	16.3	4:42	4.0	5:07	1.3
13 Sat	☞	-----	-----	12:02	15.0	5:54	2.6	6:08	1.2
14 Sun	☞	0:36	17.2	1:03	15.8	6:51	1.0	6:58	1.1
15 Mon	☞	1:19	18.1	1:53	16.7	7:36	-0.4	7:41	1.1
16 Tue	☞	1:55	18.8	2:36	17.3	8:16	-1.5	8:20	1.2
17 Wed	☞	2:29	19.2	3:14	17.7	8:52	-2.2	8:56	1.5
18 Thu	☞	3:00	19.3	3:51	17.8	9:27	-2.5	9:32	1.9
19 Fri	☞	3:32	19.2	4:28	17.6	10:01	-2.4	10:07	2.5
20 Sat	☞	4:04	18.8	5:05	17.1	10:34	-1.9	10:43	3.3
21 Sun	☞	4:37	18.1	5:43	16.3	11:09	-1.2	11:20	4.1
22 Mon	☞	5:12	17.1	6:25	15.4	11:45	-0.3	-----	-----
23 Tue	☞	5:49	16.0	7:10	14.5	0:00	5.1	12:24	0.8
24 Wed	☞	6:32	14.7	8:02	13.8	0:45	5.9	1:09	1.9
25 Thu	☞	7:26	13.6	9:01	13.4	1:40	6.6	2:02	2.9
26 Fri	☞	8:33	12.7	10:02	13.7	2:49	6.8	3:05	3.6
27 Sat	☞	9:52	12.5	10:57	14.4	4:05	6.2	4:13	3.7
28 Sun	☞	11:07	13.0	11:45	15.6	5:13	4.8	5:15	3.5
29 Mon	☞	-----	-----	12:13	14.2	6:08	2.9	6:09	2.9
30 Tue	☞	0:29	17.0	1:09	15.6	6:56	0.7	6:58	2.2
31 Wed	☞	1:11	18.5	1:59	17.1	7:40	-1.5	7:45	1.6



January 7

Full Moon

January 1

