

## Mod 1: Part 2 Task Analysis Set 2

### Task 2A. The Old Faithful

Old Faithful is geyser located in the Yellowstone National Park, in Wyoming, USA. Your family is taking a trip to the park.

*How long would you expect to wait between blasts of Old Faithful if you showed up at Yellowstone Park and Old Faithful had just finished erupting?*

This investigation involves data on wait times between successive eruptions (blasts) of geysers that were first collected by the National Park Service and the U.S. Geological Survey in Yellowstone National Park. The data were collected to establish some baseline information that could then be used to track and compare long-term behavior of geysers. Hundreds of thousands of people come to Yellowstone Park every year, and most of them include a visit to the Old Faithful geyser, and the question always arises about how long they will have to wait until Old Faithful erupts again. You will investigate some data from Old Faithful to conjecture about the time that someone might expect to wait for Old Faithful to erupt, as well about some factors that could affect that wait time.



**Directions:** In your group, you can either use the data listed on the next page and create graphs by hand. Or you can open a web tool (CODAP) that contains all the data and create graphs using the online tool. By Hand: pick any two rows of these wait times so that your group has two sample days of Old Faithful wait times. (A group member might be asked to pick two numbers between 1 and 16 to pick the two rows, so that every group does not pick the same two rows. Using a random device to pick the rows would be best, if one is available).

On Computer: Use [Data in CODAP](https://codap.concord.org/releases/latest/static/dg/en/cert/index.html#shared=22689) (plot Minutes on the x axis and Day on the y-axis.)  
<https://codap.concord.org/releases/latest/static/dg/en/cert/index.html#shared=22689>

**First, working individually, take the following steps:**

1. Look over the data. Is there anything you notice, or anything that you wonder about in your samples of data? Jot down some “notices” and “wonders.”
2. Create at least one type of graphical representation for the sample data to help you visualize any patterns in the wait times. Jot down any additional notices and wonders that occur to you.

**Next, working as a group, do the following:**

3. Share your graphical representation of the data in your group. What do you notice, or wonder about, as you look through your groups’ graphical representations?
4. Agree as a group on a graphical way to display your data. On the basis on your data, make a group decision about how long you would expect to wait between blasts of Old Faithful if you showed up at Yellowstone Park and Old Faithful had just finished erupting. Be prepared to present your graph to other groups in class and to defend your group’s data-based prediction for the expected wait time.

Task 2A continued: Old Faithful Data - Minutes Between Blast

Day	Wait times (in minutes) between geyser blasts on that day
1	86 71 57 80 75 77 60 86 77 56 81 50 89 54 90 73 60 83
2	65 82 84 54 85 58 79 57 88 68 76 78 74 85 75 65 76 58
3	91 50 87 48 93 54 86 53 78 52 83 60 87 49 80 60 92 43
4	89 60 84 69 74 71 108 50 77 57 80 61 82 48 81 73 62 79
5	54 80 73 81 62 81 71 79 81 74 59 81 66 87 53 80 50 87
6	51 82 58 81 49 92 50 88 62 93 56 89 51 79 58 82 52 88
7	52 78 69 75 77 53 80 55 87 53 85 61 93 54 76 80 81 59
8	86 78 71 77 76 94 75 50 83 82 72 77 75 65 79 72 78 77
9	79 75 78 64 80 49 88 54 85 51 96 50 80 78 81 72 75 78
10	87 69 55 83 49 82 57 84 57 84 73 78 57 79 57 90 62 87
11	78 52 98 48 78 79 65 84 50 83 60 80 50 88 50 84 74 76
12	65 89 49 88 51 78 85 65 75 77 69 92 68 87 61 81 55 93
13	53 84 70 73 93 50 87 77 74 72 82 74 80 49 91 53 86 49
14	79 89 87 76 59 80 89 45 93 72 71 54 79 74 65 78 57 87
15	72 84 47 84 57 87 68 86 75 73 53 82 93 77 54 96 48 89
16	63 84 76 62 83 50 85 78 78 81 78 76 74 81 66 84 48 93

**Image Source:** [https://en.wikipedia.org/wiki/Old\\_Faithful](https://en.wikipedia.org/wiki/Old_Faithful)

**Task adapted from:** Shaughnessy, M., Chance, B. L., Kranendonk, H. (2009). *Focus in high school mathematics: Reasoning and sense making in statistics and probability*. National Council of Teachers of Mathematics. (pp. 27-29).

### Task 2B. Boys' Basketball Heights

Listed below are the heights in inches of boys on a freshman basketball team. Make a box plot of these data. What is the 5 number summary for this data?

60 60 66 66 66 67 68 69 69 69 70 70 71 71 71