Project Management Plan

Now that the building has been designed, Ms. Kim needs to figure out how long each stage of the building process will take and how much she will have to pay the workers. One way to do this is to put together a project management plan. When have you made or seen a plan? What sort of information was in the plan? How might a plan help Ms. Kim with her building project?

✎ Plan It

Use spreadsheets to make a project management plan and a chart for Ms. Kim's building project. Look at the following example:

	A	B	C	D	E	F
1	**Project Management Plan**					
2						
3	**Building Stage**	**Total Hours to Finish**	**Number of Workers Needed**	**Number of Days to Finish Stage**	**Hourly Cost of Each Worker**	**Cost of Workers for Stage**
4	Floor	75	4	2.34	$15.00	$1,125.00
5	Walls	100	6	12.50	$15.00	$1,500.00
6	Roof	75	4	9.38	$15.00	$1,125.00
7	Windows and Doors	50	2	6.25	$15.00	$750.00
8	Electricity	100	2	12.50	$20.00	$2,000.00
9	Plumbing	100	2	12.50	$18.00	$1,800.00
10	Painting	50	4	6.25	$12.00	$600.00
11	Furniture	25	4	3.13	$12.00	$300.00
12			**Total Number of Days to Finish Building**	64.84	**Total Cost of Workers for All Stages**	$9,200.00

Project Plan / Time Chart /

Project Management Plan Worksheet Example
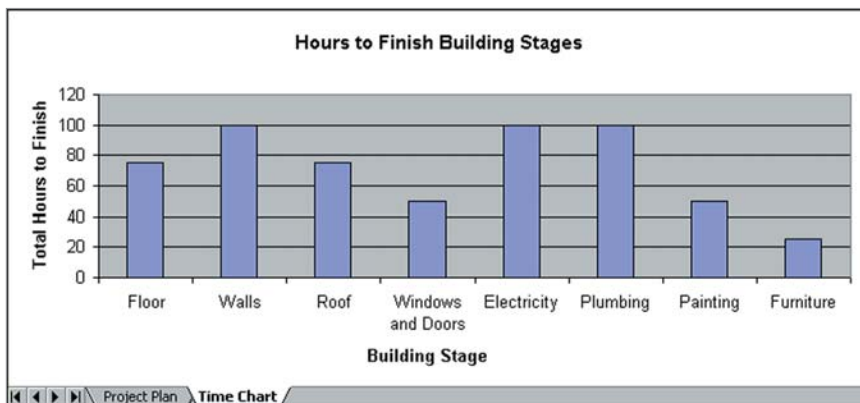
Project Management Plan Column Chart Example

Think about the following questions, and discuss your ideas with your partner. You might want to write your ideas on a sheet of paper.

▪ What are some stages in the building process? How might you put those stages in order?

▪ How many total hours might it take to finish each stage? How many workers might be needed to finish each stage in that amount of time? How many hours would a worker work in a normal day?

▪ How much money should each worker earn for one hour of work?

Remember to use the rubric as a guide as you plan, do, review, and share.

For help on how to do certain skills, look at the following groups in the *Help Guide:*

▪ **Spreadsheets Group 3:** Using Worksheets

▪ **Spreadsheets Group 4:** Adding and Working with Information

▪ **Spreadsheets Group 5:** Changing the Look of Information and Worksheets

▪ **Spreadsheets Group 7:** Doing Math

▪ **Spreadsheets Group 8:** Making Charts

Do It

1. Start the spreadsheet software, and open a new, blank spreadsheet.

2. In cell A1, type a title for your project management plan worksheet.

3. In cell A3, type "Building Stage" as the column's label. Then, in the cells below cell A3, type each stage of the building process in its own cell. If needed, make the column wider, or change the text wrapping so the information fits on two lines.

4. In cell B3, type "Total Hours to Finish" as that column's label. Change the text wrapping in that cell, and make the column wider so the information fits on two lines.

5. In the cells below cell B3, type the total number of hours you think will be needed to finish each stage. (**NOTE:** You can change this information later, so do not worry too much about whether your numbers are correct.)

6. In cell C3, type "Number of Workers Needed" as that column's label. Change the text wrapping in the cell, and make the column wider so the information fits on two lines.

7. In the cells below cell C3, type the number of workers needed to finish each stage.

8. In column D, you need to figure out how many days each stage will take based on the number of workers. Start by typing "Number of Days to Finish Stage" in cell D3. Change the text wrapping in the cell, and make the column wider so the information fits on two lines.

9. In cell D4, type a formula that divides the total number of hours to finish (cell B4) by the number of workers for that stage (cell C4), and then divide that figure by the number of hours a person might work in a typical day. For complex formulas like this with more than two numbers, put parentheses **( )** around the part of the equation that you want to calculate first.

10. Apply the formula to the other cells in column D to calculate the number of days for the other building stages. Then, change the format of all of the numbers in column D so only two decimal places are shown.

11. Look at the numbers in column D that show the number of days it will take to finish each building stage. If it seems that any of the stages will be finished too quickly, you might want to put a higher number of hours for that stage in column B. And if it seems that any of the stages will take too long, try typing a higher number of workers for that stage. Notice how the new numbers change the information in column D. In some spreadsheet software programs, the formula may need to be reapplied.

12. In cell E3, type "Hourly Cost of Each Worker" as the column's label. Change the text wrapping in the cell, and make the column wider so the information fits on two lines.

13. In the column E cells below, type the amount of money each worker should be paid for an hour of work on each project stage. Format the numbers in the column so they look like currency, or money.

14. In cell F3, type "Cost of Workers for Stage" as the column's label. Change the text wrapping in the cell, and make the column wider so the information fits on two lines.

15. In cell F4, type a formula that multiplies a worker's hourly pay for that stage (cell E4) by the total number of hours needed to complete that stage (cell B4). If needed, format the number to look like currency, or money. Now you can see how much workers will need to be paid to complete the building stage.

16. Apply the formula to the other cells in column F to calculate this cost for the other building stages. If needed, format the numbers in that column so they look like currency, or money.

17. In the first empty cell at the bottom of column D, insert a **Sum** function to calculate the total number of days required to finish the building. In the empty cell to the left in column C, type "Total Number of Days to Finish Building" as a label for the information. Change the text wrapping of the cell, and if needed, make the column wider.

18. At the bottom of column F, insert a **Sum** function to calculate the total cost for the workers who will help finish the building. In the empty cell to the left in column E, type "Total Cost of Workers for All Stages" as the label for the information. Change the text wrapping of the cell, and if needed, make the column wider.

> **Challenge:** In cell G3, type "Percent of Total Worker Cost" as the new column's label. In cell G4, type a formula that divides that stage's worker cost (cell F3) by the total worker cost at the bottom of column F. When typing the formula, make sure you use an absolute cell reference for the total worker cost by putting a dollar sign symbol, **$,** in front of both the column letter and row number. (For help, see Spreadsheet Skill 7.12: To keep a cell reference from shifting when filling a formula.) Then, apply the formula to the other cells to calculate the percentage of total worker costs for the other building stages. Be certain to format the numbers so they look like percentages. (See the Project Management Plan Worksheet Challenge Example at the end of this section.)

19. Change the look of the information to make it easier to read. For example, you might change the position or alignment of the information inside the cells, or change the look of the words. You might also make the column labels in row 3 and the grand total information at the bottom of the worksheet stand out by adding cell borders or filling the cells with color.

20. Use the information in columns A and B to make a column chart that compares the total number of hours required to finish each building stage. Make sure you add a title to your chart, and label both the x-axis and y-axis. Save the chart on a new sheet, and delete the legend.

> **Challenge:** Use the information in column A and column F to make a pie chart that shows the relationship of each stage's cost to the total cost for all stages. Make sure you give the chart a title, and pick the labels you want for the pie slices. Save the chart on a new sheet. (See the Project Management Pie Chart Challenge Example at the end of this section.)

21. Rename your worksheet and chart tabs, and delete any unused worksheets. If needed, change the order of the tabs so the worksheet comes before the chart.

22. Save your work as directed.

	A	B	C	D	E	F	G
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4	Floor	75	4	2.34	$15.00	$1,125.00	12.23%
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6	Roof	75	4	9.38	$15.00	$1,125.00	12.23%
7	Windows and Doors	50	2	6.25	$15.00	$750.00	8.15%
8	Electricity	100	2	12.50	$20.00	$2,000.00	21.74%
9	Plumbing	100	2	12.50	$18.00	$1,800.00	19.57%
10	Painting	50	4	6.25	$12.00	$600.00	6.52%
11	Furniture	25	4	3.13	$12.00	$300.00	3.26%
12			**Total Number of Days to Finish Building**	64.84	**Total Cost of Workers for All Stages**	$9,200.00	

Project Plan / Time Chart / Cost Chart /

Project Management Plan Worksheet Challenge Example
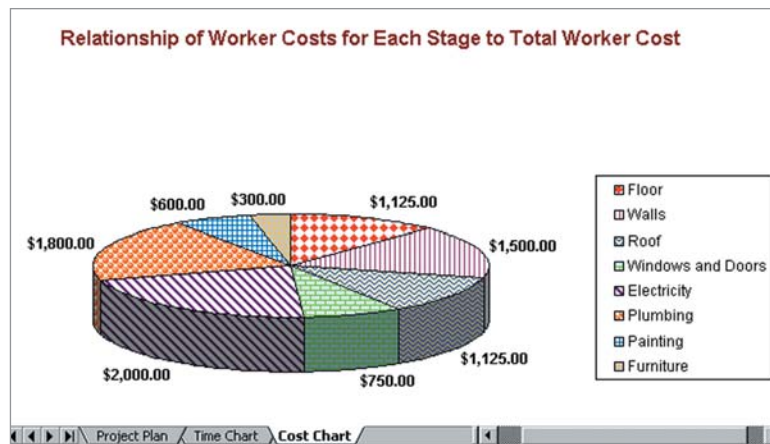
Project Management Plan Pie Chart Challenge Example

Review It

Look over your project management plan. Make sure it has the following elements:

- Worksheet that lists the building stages, the number of hours needed to finish each stage, and the number of workers needed

- Formulas that calculate the number of days that will be needed to finish each building stage

- Formulas that calculate the cost of workers for each building stage

- Sum formulas that calculate the total number of days to finish the entire building and the total cost of workers for all stages

- Column chart that compares the number of days needed to finish each building stage

If any elements are missing, add them now. If you want, make other changes, as well. Remember to save your work when you are finished.

Share It

Be prepared to discuss your answers to the following questions:

- How would this plan help Ms. Kim manage her building project?

- Which of the spreadsheet features that you used today was the most helpful? Why?

- For what other types of projects might people need to make schedules? What information might be found in different types schedules?