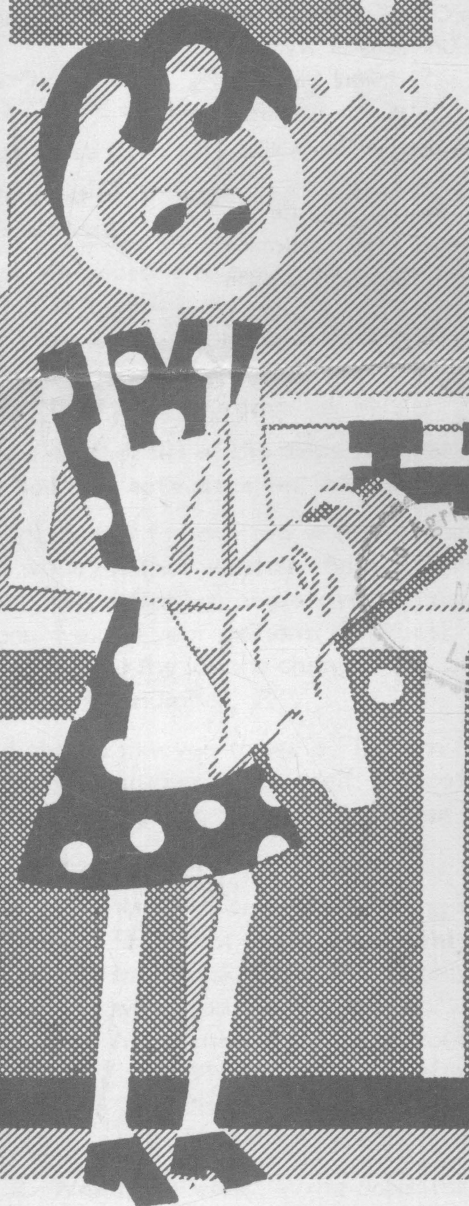


A PATTERN MOTION STUDY



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A Pattern Motion Study

A MOTION STUDY is a study of every step and motion used in the process of doing a job. You have certain habits of work, but most of you admit these habits may waste your time and effort.

Many homemakers have found they can do their various tasks in half the time by leaving out unnecessary motions. First they make a study of the motions used for each task; then they plan a new method which is easier and makes their work more interesting.

A scientific motion study tells you why it takes longer to do a job one way than it does another. It makes you aware of the fact that every motion counts in getting work done. It tells you how you can leave out unnecessary parts of the task, use a better order of work and find better conditions and equipment for the job.

In making a study of a task, you should get a picture of the entire job from the time it is started until it is completed. This includes getting the materials and equipment, carrying them to where the actual work is done, doing the job, and returning them to storage places. A written list of the things done and the order in which they are done is called a process chart.

How to Study Motions Using a Process Chart

There are three parts to a motion study of any task:

1. **Make a list of the steps and motions used in the present method of doing the task.** (This is the process chart.)
2. **Question yourself to see what improvements you can make.** (This is called analyzing the process chart.) The questions you may ask are:
 - a. What motions can I leave out?
 - b. What parts of the task can I combine?
 - c. Could I keep both hands working?
 - d. Is everything within easy reach?
 - e. Could I sit to do the job?
 - f. What tools would make the work easier?
3. **Make another list of the steps and motions used in the revised or changed method. See if the new method does save steps and motions.** (This is the revised process chart.)

It is better to have two or more persons work together in making a motion study. One performs the task while another watches and makes notes of what is done, motion by motion. Then together they analyze the motions and arrive at a new method. If you must work alone in making the motion study, count aloud your motions. Then ask yourself the six questions. When you have figured out a better method, do the job the changed way and again count aloud your motions or steps to see if you have reduced the number.

I should like you to see a "Pattern Motion Study" so that you would have a better idea of how to make motion studies for yourself. Suppose you study me while I prepare potatoes for baking. First, you will make a process chart of my **present** method of preparing potatoes for baking. To do this:

1. Prepare your sheet of paper.

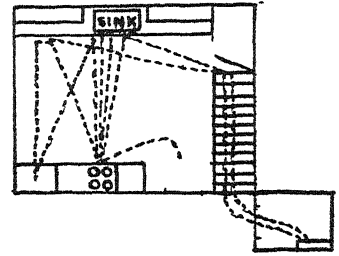
- a. Write down the task being studied.
- b. State that this is the **present** method of doing the task.
- c. Make a sketch of the place where the work is done to help your visualize the method when you analyze the job.
- d. Make three columns on your paper and head them:
 1. What is done (move by move)
 2. Distance traveled
 3. Time (when you start and end)

2. Watch me work. Write down the time I start; list every motion I make and the number of steps I take. I will have to work slowly enough that you can get all motions listed. For this reason the time taken may be longer than usual, but the motions will be the same. Your chart will probably look something like the following one, without the drawings.

Preparing Potatoes for Baking

Present Method

Kitchen
10 x 12

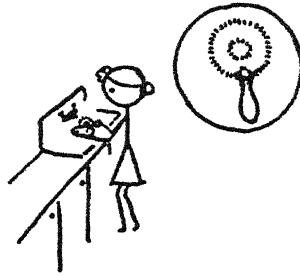


What is done:

		Distance traveled	Time	
1. Goes to range		3 steps	10:45	
2. Turns on switch				
3. Goes to cupboard		5 "		
4. Opens door (right hand)				
5. Takes out pan (right hand)				
6. Transfers to left hand				
7. Closes door				
8. Goes to basement stairs			6 "	
9. Opens door				
10. Goes downstairs to store room			15 "	
11. Opens door				
12. Goes to potato bin				
13. Picks up potato			3 "	
14. Puts in pan				
15. Picks up another potato				
16. Puts in pan				
17. Picks up 2 potatoes				
18. Puts in pan				
19. Leaves storeroom		3 "		
20. Closes door				
21. Goes upstairs		15 "		
22. Closes stair door				
23. Goes to sink				
24. Sets pan in sink			5 "	
25. Turns on water				
26. Turns off water				
27. Opens cupboard below sink				
28. Takes out brush				
29. Closes door				
30. Picks up potato				

(over)

<u>It's left is done (cont'd)</u>		<u>Distance traveled</u>	<u>Time</u>
31	Scrubs potato		
32	Lays potato on drain		
33	Picks up second potato		
34	Scrubs		
35	Lays it on drain		
36	Picks up third potato		
37	Scrubs		
38	Lays it on drain		
39	Picks up fourth potato		
40	Scrubs		
41	Lays it on drain		
42	Chops brush in sink		
43	Picks up 2 potatoes		
44	Goes to oven	5 steps	
45	Opens door		
46	Puts potatoes in oven		
47	Goes to sink	5 "	
48	Picks up 2 potatoes		
49	Goes to oven	5 "	
50	Puts in potatoes		
51	Closes door		
52	Back to sink	5 "	
53	Picks up brush		
54	Rinses		
55	Shakes brush		
56	Opens door		
57	Puts in cupboard		
58	Closes door		
59	Empties pan		
60	Rinses		
61	Goes to towel	5 "	
62	Takes down towel		
63	Tips pan		
64	Hangs towel		
65	Goes to cupboard	5 "	
66	Opens door		
67	Replaces pan		
68	Closes door		
68	Motions used	85 steps	<u>10:55</u> 10 min. used



Analyzing the Present Method or Process Chart

IT DOESN'T SEEM POSSIBLE that I could use so many motions and steps to get four potatoes ready for baking. But the process chart says I did! Well, let's see what I could do to reduce some of these motions. The Home Management Committee on Work Simplification has set up six questions to help analyze a process. Let's ask ourselves these questions and list changes that could be made.

1. What motions can I leave out?

- a. Opening and closing the cupboard door.
- b. Reaching for pan. Pan not necessary.
- c. Transferring pan to other hand.
- d. Going to basement and returning. Keep week's potato supply at sink.
- e. Opening and closing basement door.
- f. Opening and closing storeroom door.
- g. Turning water on and off once. Leave water on while working.
- h. Opening and closing door for brush. Have it hanging out.
- i. Dropping brush in sink. Hang it up.
- j. Two trips to range with potatoes. Use shallow pan. Will also make it easier to remove potatoes from oven.
- k. Trip back to sink. Clean up before putting potatoes in oven.
- l. Trip to towels. Not needed because no pan to dry.
- m. Wiping and putting away pan.
- n. Opening and closing cupboard door. Pan not used.

2. What parts of the task can I combine?

- a. Pick up two potatoes instead of one.
- b. Put potatoes directly into sink. No pan needed.
- c. Turn on water and reach for brush at same time.
- d. Lay potatoes directly on baking pan.
- e. Clean brush and hang it up instead of coming back to pick it up again.
- f. While at the job, scrub enough potatoes for the next meal.

3. Could I keep both hands working?

- a. Use both hands to place potatoes in sink.
- b. Set down baking pan (left hand) and close cupboard door (right hand).
- c. Turn on water (left hand) and reach for brush (right hand).
- d. Turn potato (left hand) and brush (right hand).
- e. Turn off water (left hand) and hang brush (right hand).

4. Is everything within easy reach?

- a. The daily supply of potatoes could be kept in a pail under the sink or in a ventilated bin just to the left. This will eliminate a trip to the storeroom every meal time.
- b. The shallow baking pan should be kept in the same cabinet as the potatoes.
- c. The brush might be hung within reach.

5. Could I sit to do the job?

No, it doesn't seem practical. But if I were doing a task which takes several minutes, such as fixing potatoes for a larger crowd, podding peas, or ironing, it would save time and energy to sit while working.

6. What tools would make the task easier?

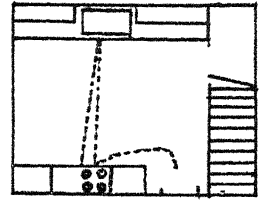
- a. A stiff, dark-fiber brush, with shorter, firmer bristles scrubs better and quicker than a soft, white-bristled one.
- b. A shallow baking pan for carrying the potatoes, both to and from the oven, saves trips.
- c. A pail or bin for storing a week's supply of potatoes at the sink.

Now you will want to see if all of these new ideas work. You are ready for the third part of our Motion Study — the revised process chart. In making this study of preparing potatoes for baking you would prepare another sheet of paper like the first one, except that you would indicate "revised method" instead of "present method." Then I would **prepare potatoes for baking** the new way suggested. You would list the motions on your revised chart which would look something like the one on the next page. Unless you make the revised motion study, you do not know whether you have improved your method or made it worse.

Preparing Potatoes for Baking

Revised Method

Kitchen
10 x 12

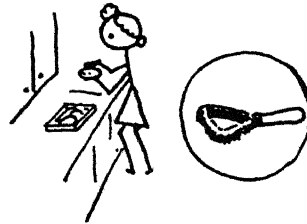


What is done:

Distance
traveled

Time

1. Goes to range
2. Turns on switch
3. Goes to sink
4. Opens door
5. Takes out 4 potatoes (uses both hands)
6. Places in sink
7. Takes out baking pan (left hand)
8. Places pan on left drain & closes door (right hand)
9. Turns on water (left hand) & reaches for brush (right hand)
10. Picks up potato
11. Scrubs
12. Lays on pan
13. Picks up second potato
14. Scrubs
15. Lays on pan
16. Picks up third potato
17. Scrubs
18. Lays on pan
19. Picks up fourth potato
20. Scrubs
21. Lays on pan
22. Rinses brush
23. Shakes brush
24. Hangs brush (right hand) Turns off water (left hand)
25. Picks up potato pan
26. Goes to oven
27. Opens door
28. Puts pan in oven
29. Closes door



3 steps

11:10

5 "

5 "

13 steps used

11:14

4 min. used

28 motions used

Every Motion Counts

The new or revised method of preparing potatoes for baking took 40 less motions and 72 less steps. More than half the motions were left out, and only one-sixth the steps were used. This shortened process saved 6 minutes. Can you see that if I can reduce that many motions on such a simple job, I could do the same thing on the many jobs I do during a day? A few motions saved on every task will make work easier and quicker.

WOULD YOU BE WILLING TO DO THIS SAME JOB — PREPARING POTATOES FOR BAKING — IN YOUR OWN KITCHEN? Ask your children, husband, or neighbor to do the charting, or at least to count your motions for both the present and revised or changed methods. Then take another simple task to study—like making coffee, setting the table, or dusting. Don't try a long one at first. After you have improved short tasks, then find better ways of doing longer ones.

Keep trying to find a better way to do each job

Suggestions if you are demonstrating this Pattern Motion Study:

- Ask everyone to write your motions as you demonstrate.
- Have them all help you think over ways of doing the job an easier way, using the six questions as guides. Write the suggested changes on the board, if possible.
- Perform the revised method, having the group write the new motions. This is the real proof of the study. Don't omit it.
- If you can give your demonstrations in a real kitchen, do so. If that is not possible, let a table represent the sink (face the audience), another table can be the range and a door or window at the side will be the basement storeroom. You may need to pretend basement stairs and built-in cupboards, opening imaginary doors. A pan of water may be set on the (sink) table to substitute for running water.

**FOR FURTHER HELP ON HOW TO STUDY YOUR MOTIONS IN HOMEMAKING,
CALL AT YOUR COUNTY EXTENSION SERVICE OFFICE**