

## Sock-throwing and logistic models

### The sock-throwing activity

You will try throwing a sock into a box from different distances and with each hand. You will record the result (success or failure) and other variables (distance, hand, gender, and the score from a die).

This will generate binomial data which we will use to model the relationship between probability of getting the sock into the box and the covariates. We'll analyse the data in Excel using Solver, and in R with the `glm` function.

### What to do

Work in 4 groups. Each group needs a box, at least 1 sock, and a 10-sided die. You will need a tape measure for the initial set up.



1. Place the box against a wall, as shown in the photo on the right.
2. Measure from the wall and put marks on the floor at 2m, 3m, 4m, and 5m from the wall.
3. One of the group starts a new spreadsheet on their computer, with the columns shown below. The data can be entered directly into the spreadsheet. Please use the exact layout shown below so that the data from the groups can be combined.
4. The first person stands behind the 2m mark and throws the sock with their “good” hand, ie, the hand they use to write. They are allowed to bounce the sock off the wall. After throwing, they roll the die.
5. Enter the results in the first row of the spreadsheet. Result = 1 means the sock went in; gender.male = 1 for males; hand.good = 1 if you were using your good hand; die is the score from the die roll (0 to 9).
6. Repeat 4 and 5 for each combination of distance and good/bad hand, 8 throws and 8 rows in the spreadsheet per person.
7. Repeat 4 to 6 for each person in the group.
8. Copy the spreadsheet to a USB drive and pass to a facilitator. The combined results will be posted on the web.
9. Download the combined results (it will be a CSV file) and place in the workshop folder for Models & AIC.

	A	B	C	D	E	F	
1	Name	result	gender.male	distance	hand.good	die	
14	John	0	1	2	1	3	
15	John	1	1	2	0	4	
16	John	1	1	3	1	7	
17	John	1	1	3	0	9	
18	John	0	1	4	1	4	
19	John	1	1	4	0	9	
20	John	0	1	5	1	7	
21	John	0	1	5	0	8	
22	Amanda	1	0	2	1	9	
23	Amanda	1	0	2	0	5	
24	Amanda	0	0	3	1	3	