

Clock Buddies: An Engaging, Open-Ended Group Scheduling Activity

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(some work with Tom Haferd)



The Task:

- Find a different partner to meet in each time slot
- Meetings are between two people only
- Meetings must be written on both people's schedules
- Everyone in class must fill their schedule

Time	Name of Partner
1:00	
2:00	
3:00	
4:00	
5:00	
6:00	
7:00	
8:00	
9:00	
10:00	
11:00	
12:00	

Switching Appointments

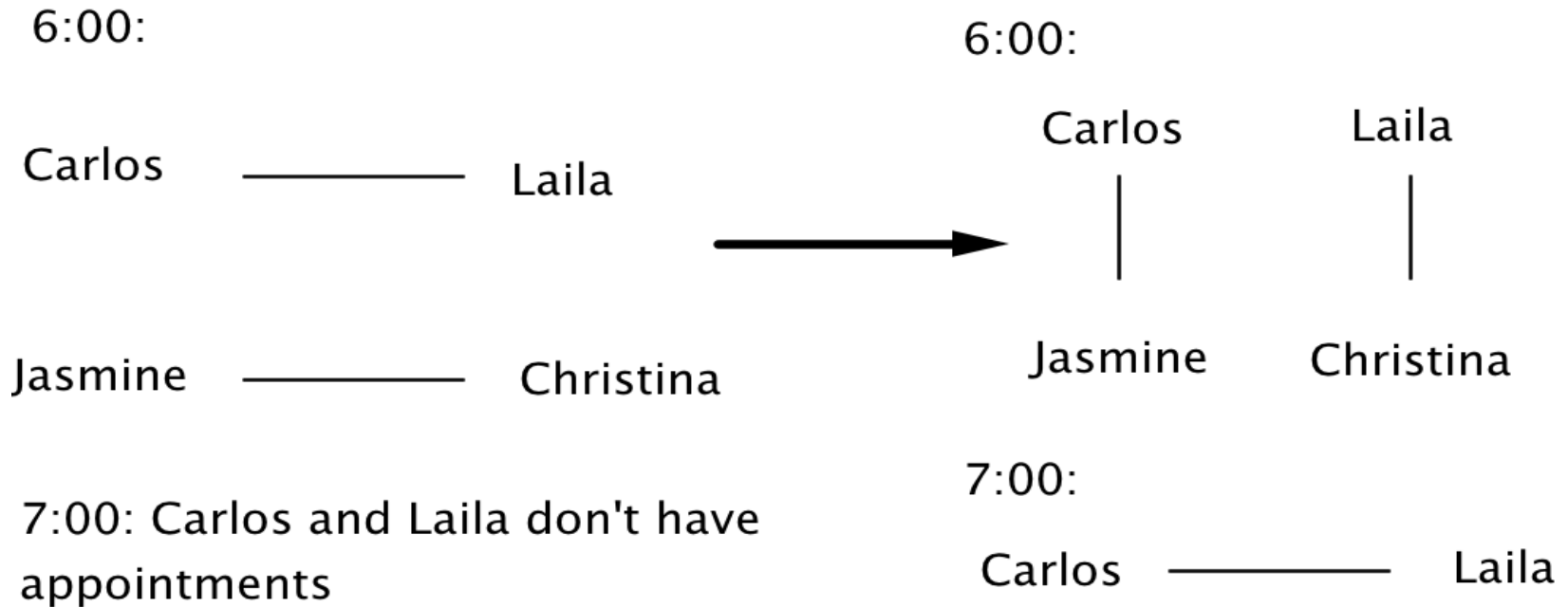
6:00:

Carlos ————— Laila

Jasmine ————— Christina

7:00: Carlos and Laila don't have
appointments

Switching appointments:



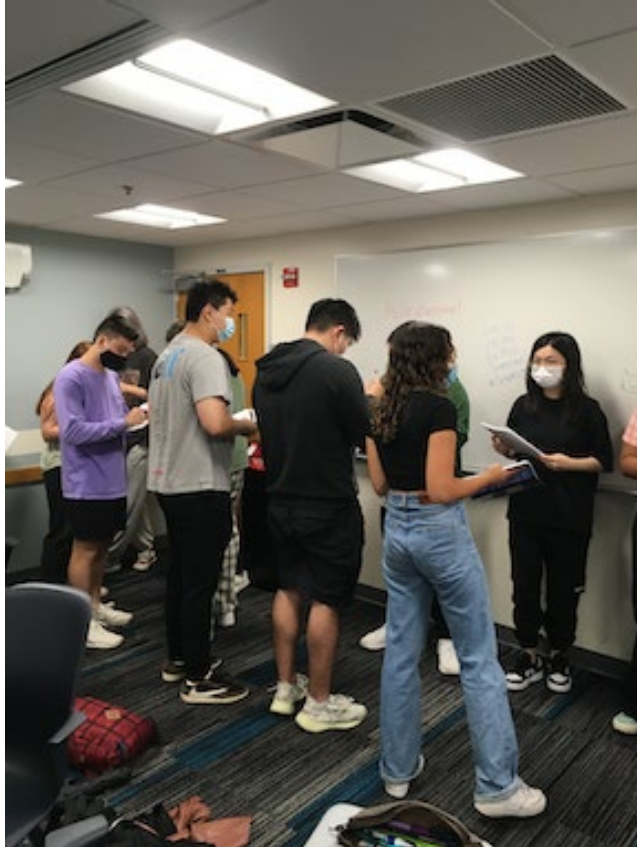
Instructions for small groups

- We are starting over, and brainstorming strategies for making 12 appointments each for 20 people
- Please get in groups of 3-4 people. Briefly introduce.
- Person who has traveled the furthest is the reporter
- About 5 minutes in the group, 5 minutes to share strategies
- If you've seen this problem before, no spoilers, and try to think of a new approach.

Ideas:

- Do one appointment at a time
- Speed dating – two lines, then meet w/it own groups
- Scheduling one person at time

Speed Dating/Two Lines strategy:

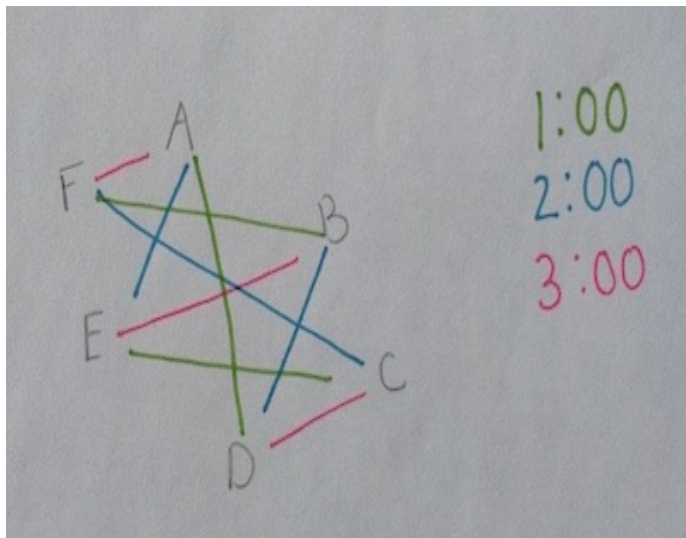


Representing schedules:

Clock Buddies
Four People

	Mel	Nicole	Matt	Justin
1	Nicole	Mel	Justin	Matt
2	Matt	Justin	Mel	Nicole
3	Justin	Matt	Nicole	Mel

Chart representation ↑



1	A+B	C+D	E+F	G+H	F
2	A+C	D+B	E+H	G+F	G H
3	A+D	B+C	E+G	H+F	
4	A+E	B+F	C+G	H+D	
5	A+F	B+E	C+H	G+D	
6	A+G	B+H	C+F	D+E	
7	A+H	B+G	C+E	D+F	

Representing schedules:

1:00 1→5 2→6 3→7 4→8	2:00 2→5 3→6 4→7 1→8	3:00 3→5 4→6 1→7 2→8	4:00 4→5 1→6 2→7 3→8
5:00 1→3 5→7 2→4 6→8	6:00 1 3 5 7 + + + + 2 4 6 8	7:00 1 3 5 7 1 3 2 4 6 8 6 8	

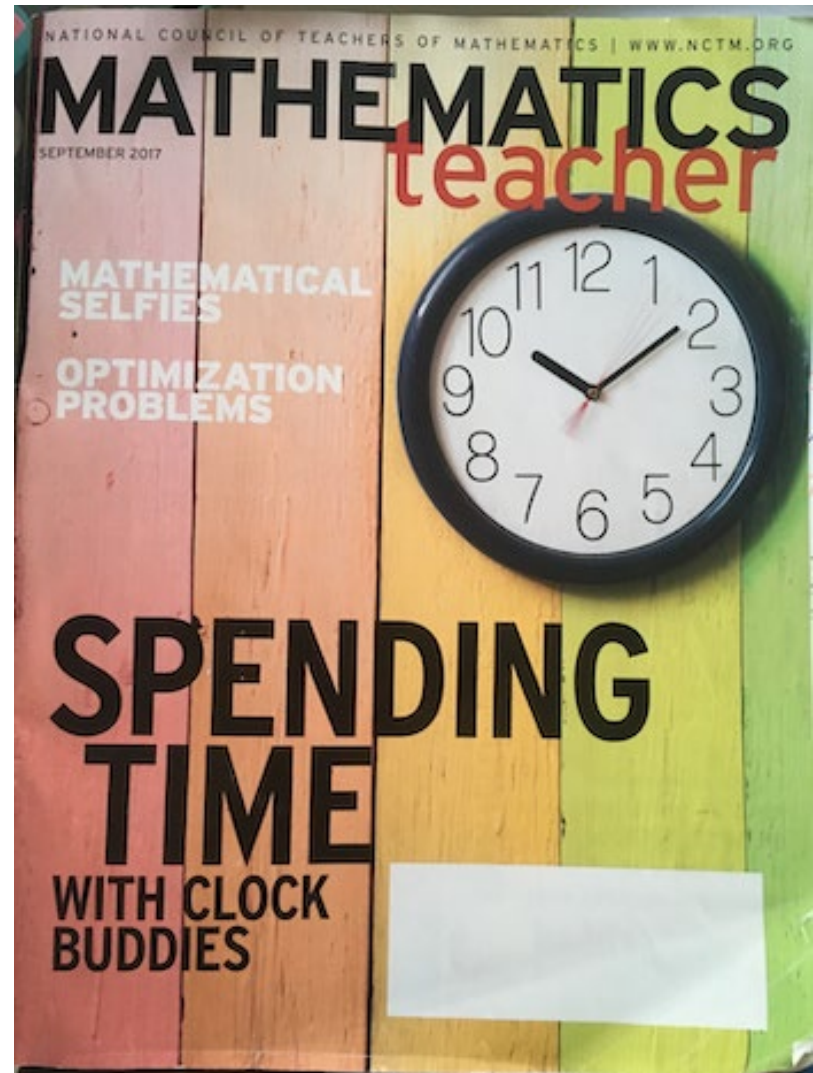
		A	B	C	D	E	F	G	H
1)	A	1	1	2	3	4	5	6	7
2)	B	1	1	3	4	5	6	7	2
3)	C	2	3	1	5	6	7	1	4
4)	D	3	4	5	1	7	1	2	6
5)	E	4	5	6	7	1	2	3	1
6)	F	5	6	7	1	2	1	4	3
7)	G	6	1	1	2	3	4	1	5
8)	H	7	2	4	6	1	3	5	1

Underlying Mathematics:

- Graph Theory
- Number Theory
- Algorithms
- Modeling
- Probability
- Some research questions

Mathematics Teacher Article

Borkovitz, D.K. and Haferd, T. (2017). Clock Buddies: An Accessible, Engaging Problem Solving Activity with Rich Mathematical Content. *The Mathematics Teacher*, 111:1, 16-24.



Thank you!

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<http://debraborkovitz.com>

[youtube.com/dborkovitz](https://www.youtube.com/dborkovitz)