Are you a people person?

Employees of five occupations were profiled. Each professional interacted with a constant number of people throughout his or her workday. The chart below contains starting and finishing times for the employees' workdays as well as the total number of people the employee interacted with at that time.

1. Write the comparison for time of day and the number of people interacted with as a coordinate in the table. Convert the time of day to military time (0000-2400). See the example provided in the chart.

Occupation	Start	Number of people	*(Start, # people)*	Finish	Number of people	*(Finish, # people)*	*Unit rate # people per hour*
Teacher	7am	0	(7, 0)	3pm	176	(15, 176)	
Judge	8am	0		4pm	64		
Restaurant manager	5pm	0		11pm	132		
Inventor	Noon	0		7pm	0		
Physical therapist	7am	0		3pm	32		

2. Graph the lines containing coordinates for each profession on graph paper. (one line for each profession).

Give your graph a title and label the axes with the appropriate variables.

Find equations for the 'line of best fit' for each career (you may use your calculator to help you with this, write your equations in slope-intercept form y = mx + b).

Are there any intersections (overlaps) on your graph?

What conclusions can you draw from the graph about the different careers mentioned?

Student questions:

1. Which professions interact with the most people throughout the day? How can you tell this by looking at your graph?

2. Approximate the time of day that the physical therapist and judge will interact with the same number of people. How can you tell by looking at the graph?

3. Which occupations interact with the same number of people in a workday? How can you tell by looking at the graph?

4. How many hours did each professional work? How can you tell this by looking at the graph?

5. How many interactions will each occupation have *per hour*?

> Teacher _____
>
> Judge _____
>
> Restaurant manager _____
>
> Inventor _____
>
> Physical therapist _____

6. How do your answers to number 5 relate to the slope of the line?

7. Ask one of your parents (or another adult) his or her start and finish time for work. Then ask how many people he or she interacts with throughout a workday. Graph a line to model the number of people your parent interacts with during the day. Compare and contrast the slope of your parent's line to the given lines.

ANSWER KEY

Occupation	Start	Number of People	(Start, # people)	Finish	Number of People	(Finish, # people)
Teacher	7am	0	(7, 0)	3pm	176	(15, 176)
Judge	8am	0	(8, 0)	4pm	64	(16,64)
Restaurant Manager	5pm	0	(17, 0)	11pm	132	(23, 132)
Inventor	Noon	0	(12, 0)	7pm	0	(19, 0)
Physical Therapist	7am	0	(7, 0)	3pm	32	(15, 32)

Answers to student questions:

1. Which professions interact with the most people throughout the day? How can you tell this by looking at your graph?

    The teacher and restaurant manager both interacted with 22 people per hour. The lines modeling these occupations were the steepest.

2. Approximate the time of day that the physical therapist and judge will interact with the same number of people. How can you tell by looking at the graph?

    The physical therapist and judge will have interacted with the same number of people at 9am. 9am is the x-coordinate when the lines intersect.

3. Which occupations interact with the same number of people in a workday? How can you tell by looking at the graph?

    The restaurant manager and the teacher interact with the same number of people throughout the day. Their lines are parallel; likewise, they have the same rates of change.

4. How many hours did each professional work? How can you tell this by looking at the graph?

    The number of hours worked is found by finding the horizontal change between the coordinates.
    Teacher: 8, Judge: 8, Restaurant Manager: 6, Inventor: 7, Physical Therapist: 8

5. How many interactions will each occupation have *per hour*?

    Examples:
    The teacher has classes of 22 students.
    The judge interacts with a total of 8 people per hour. They may be lawyers, prisoners, or jury members.
    The restaurant manager interacts with 22 customers per hour.
    The inventor works alone throughout the day. (0)
    The physical therapist sees 4 patients in an hour.

6. How do your answers to number 5 relate to the slope of the line?

The slope is the number of people each professional interacts with per hour.

Sample of completed graph

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