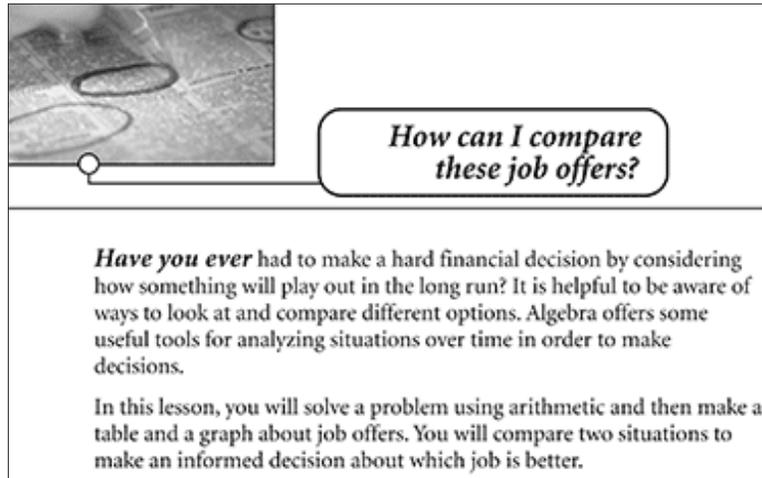


Narrative of a linear patterns activity in a Kansas ABE/PreGED classroom CASA Levels 5, 6 classroom

Resource: EMPower's *Seeking Patterns, Building Rules*: Lesson 8—Job Offers



I started the Algebra sessions with four students. When we were ready to start this lesson, one student's work schedule changed and he discontinued his participation. We then had only 3 students to work on the lesson. However, in the last session, a new student began participating so I have a total of four students to report about in classes of 40 minutes over 3 days.

What was planned and why

1. Students will understand how the tables they made in Lesson 1 can be applied to a real-life situation.
2. Students will be able to compare the patterns in the tables, equations, and graphs to make intelligent decisions (in this case, which job would pay the most).
3. Students will be able to present the same information in tables, equations, and graphs.
4. Students will work together in a group or in pairs.

These four students have made CASAS Math educational gains. One has taken and passed the GED test; one is in the process of GED pre-testing and the other two are nearly ready to start GED pre-testing. Study of algebra no doubt helps prepare them for these tests.

One of the students sometimes works more effectively by himself so, when necessary, I accommodated for that. New students might want to participate in the activities after we have started, and I plan to determine how to them up to speed.

The class begins...

In a group, we discussed the activity: Job Offers.



Activity: Job Offers



Who is right?

What a great week for Armand! He was offered both part-time jobs for which he had applied. Now he needs to decide which one to take. He told his partner, Cheri, that LaserLink offered to pay him \$200/week whereas QuinStar's offer was to pay \$150/week plus a \$2,000 sign-on bonus that he would get before he even started working.

"I am going to take the QuinStar job," he said, "because I do not intend to have to hold a second job for more than a year."

Cheri replied, "I don't know, Armand. I think you are being foolish. In a year, you would make more money at LaserLink. I bet you would make more money at LaserLink in six months!"

"No way! I will prove it to you." Armand shouted.

Who is right, Armand or Cheri?

This was an especially interesting discussion because at first glance, there was disagreement (as there was with Cheri and Armand) about whether Armand would be making more in a year at QuinStar or Laser Link. This discussion set the stage for tracking the changes over a year's time. We then worked on equations for each company. Then on page 103 we made a table showing the weeks worked and the pay accumulated for each job. We spent most of the rest of that class session determining at which week their pay would be the same and then what Armand's earnings would be at the end of the year.

$$\begin{array}{l} \text{1 month} = 4 \text{ wks.} \\ \text{4} \times \text{6} = \text{24} \\ \text{Laserlink} = 200 \times 24 \\ \text{QuinStar} = (150 \times 24) + 2000 \end{array}$$
$$\begin{array}{r} 200 \\ \times 24 \\ \hline 4800 \end{array}$$

\$4800 for 6 months

$$\begin{array}{r} 150 \\ \times 24 \\ \hline 3600 \\ + 2000 \\ \hline 5600 \end{array}$$

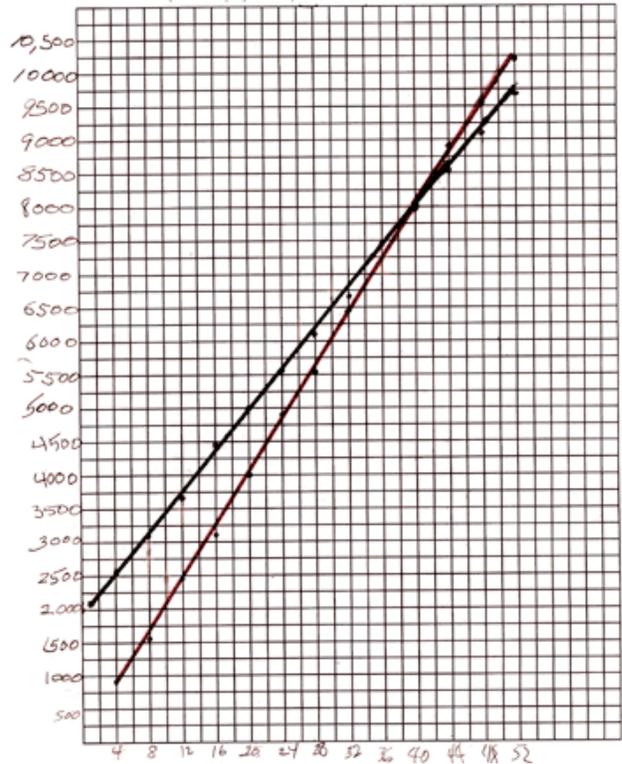
\$5600 for 6 months

Laserlink = \$4800
QuinStar = \$5600
QuinStar would be better for the 6 month period.

The next class session we made a graph (on right), using increments of four weeks across the x-axis and increments of \$500 for the y-axis to plot a few points for each job. One student was the graph maker and he assisted the others' understanding of the process. (The next step for the others would be to do Lesson 9 for more practice making the graphs.)

After the graph was completed, the third session included a discussion of the information in the graph. We discussed what stays the same over time, what changes over time, and other observations they had about the graphs.

- QuinStar = $y = 150x + 2000$
 - LaserLink = $y = 200x$
- Comparing Pay for QuinStar + LaserLink



Week	QuinStar	LaserLink	Difference
4	2,600	800	1,800
8	3,200	1,600	1,600
12	3,800	2,400	1,400
16	4,400	3,200	1,200
20	5,000	4,000	1,000
24	5,600	4,800	800
28	6,200	5,600	600
32	6,800	6,400	400
36	7,400	7,200	200
40	8,000	8,000	—
44	8,600	8,800	200
48	9,200	9,600	400
52	9,800	10,400	600

Our new student joined the group and participated well in the discussion even though it was his first night of involvement. He made his own table and graph (on left) since he had started participating after the group table and graph-making activities.

While all four students appeared to have understood the concepts initially, it appears they did gain understanding, particularly from the tables and graphs. As Level 5 and 6 students, they all had a basic understanding of algebra prior to their participation.

$$\text{Quin Star } 150x + 2,000 = y$$

$$\text{Laser Link } 200x = y$$

The Teacher's Reflection

It was particularly interesting to observe the understanding of which company would offer the best pay upon looking at the graph. Reviewing the graph gave the students a quick and easy way to determine for which company they would prefer to work. The discussion as we looked at the graph appeared to be very enjoyable for all of the participants. Had we not been so pressed for time, I would have expanded this learning opportunity into Lesson 9, Phone Plans. All of the students have cell phones, so I believe this would definitely have resulted in some interesting conversation. The learners had previously been studying algebra so they had prior knowledge.

Lesson 8 worked well in the limited time we had available. The graph work successfully supported the students' understanding of the equations as a visible means of comparing the pay for the two companies. The students were able to get the questions answered that I asked them to do in the rest of Lesson 8.

The discussions related to this lesson were very interesting. I particularly enjoyed hearing them talk about what the graph showed when comparing the pay rates of the two companies. One student noted that if you were going to work for one of the companies, you would need to think about whether you planned to work there for a year, or less than that. It was his viewpoint that the best job for him would be QuinStar since he probably wouldn't work there very long. That, of course, led to the question of whether any of the bonus would need to be repaid if you quit the job before the year is up. They were able to see that LaserLink is the better choice for the 52 weeks because the total salary would be \$600 more than it would be at QuinStar.

My advice for anyone who does do these exercises in a group setting such as mine, is **be flexible!**