

Putting Apples in their Proper PLACE

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It was a beautiful day in early fall. Sophie and Norman gazed out of the rolled down windows as the fields went by. A few trees had just begun to change color, but the landscape was still summer green. Sophie and Norman had started back to school a few weeks ago and hadn't had time to visit Ezra and Irma. Finally, they had the weekend off. Sophie was happy her parents were planning a visit with their friends at the farm. Norman was, of course, invited to come along. Sophie was glad because she and Norman had become good friends. They always had fun and learned something new when they visited Ezra and Irma at their farm stand or Amara and Ben at the farm.

As they pulled up at the stand, Sophie and Norman began waving excitedly at Irma who was just leaving the house at the moment they arrived.

“Irma!” Norman shouted, hopping out of the car almost before it stopped and rushing up to Irma, “Thank you for letting us visit!”

“Of course, Norman,” Irma said, giving him a hug. “It’s so good to see you both,” she added, turning to Sophie, who was carrying her backpack and Norman’s too, since he left it in the backseat. “I can’t wait to hear how school is going,” Irma said. “But first I have to run to the store. I’ll say hello to your parents and be on my way.” She started walking over to Sophie’s parents and then called back over her shoulder, “Ezra is in the barn preparing orders for customers. We received a large delivery of apples yesterday afternoon. Ezra could definitely use some help, and I’m sure he’ll be excited to see you!”

“Thank you Irma!” Sophie said. “Let’s go Norman.”

“See you two later,” Irma called back as Norman pushed open the door to the barn.

Along the wall were four of the largest bins Sophie or Norman had ever seen, all were full of apples. Along the opposite wall was a very long table where Ezra appeared to be at work. At the very end of the long table was a stack of folded up brown paper bags with handles. Ezra did not notice Sophie and Norman when they came in. They watched as Ezra walked to the large bins, filled a small basket with apples, and carried them to the end of the table without the bags.

Ezra unloaded the apples from the basket and then walked back to the bins to refill the basket with apples. Ezra had scarcely taken a step when several of the apples he had just removed from the basket rolled off the table. Ezra sighed, stopped, picked up the fallen apples, and put them into a half-filled bin that had a sign reading “DROPS FOR CIDER”. He then filled up his basket with apples from one of the other bins, carried them over to the table and added them to the apples already there. No sooner had Ezra turned when some apples rolled to the edge of the table and fell on the floor. Sophie and Norman could see that, if this kept up, Ezra would have a LOT of apples in the cider bin.

Norman turned to Sophie and said, “Whatever Ezra is trying to do is not working very well.”

“I know,” replied Sophie. “Let’s watch a little longer and then see if we can help.”

After carrying a third basket of apples to the table, Ezra pulled a crumpled piece of paper out of his pocket and flattened it on the table. “First order is for 25 apples,” he mumbled. “I think I have enough apples on the table to start counting.”

Ezra took one of the apples he had carried to the table and moved it to the other end of the long table where the bags were. He did the same thing with another apple and then another. As he moved each apple, Ezra counted, “1, 2, 3, 4.” Ezra’s count had just reached 11 when another apple rolled off the table. Ezra stopped to pick up the apple. Then he frowned. He had forgotten what he had counted to and had to begin all over again. He moved the apples he had counted back to their starting place. Just then another apple skittered off the table and rolled right up to Norman’s foot. Norman picked it up and bit into it with a CRUNCH!

The crunch startled Ezra and he turned around suddenly, knocking even more apples off the table. They made thudding sounds as they hit the floor. “Oh hello! Didn’t see you there!” Ezra said, almost tripping on the apples as he walked over to greet Sophie and Norman. “We are really busy with apple orders and I’m trying to fill them. But it is taking a long time. I’ve only filled two orders so far today.”

“We could help!” Norman said enthusiastically. “We could keep the apples from rolling off.”

“That would be a great help!” Ezra exclaimed. “Thank you.”

“I’ll stand on the side of the table,” Norman said. “Sophie, you stand in front. When the apples try to roll off, our arms will be there to keep them on.”

Handoff 1: Do you have ideas that might help Ezra keep the apples from rolling off the table?

Ezra started counting again and this time he got up to 25. Then Ezra moved the 25 apples further down the long table toward the bags at the far end. He put the apples into one of the sturdy paper bags with handles. The next order was for 18 apples. Ezra grabbed a basket and went to get some apples from the bin. There were a few still on the table but definitely not enough to fill an order for 18. After emptying the basket on the table Ezra started counting. He hadn't gotten to 5 when Norman asked, "When do the apples get delivered to the people who ordered them?"

Ezra started to answer but then frowned and said, "Hotcakes! I lost count again!"

"Sorry, Ezra," Norman said, his face reddening. "I forgot you were counting. I should not have interrupted you."

"It's okay," Ezra said, scratching his head. "Something always comes along that makes me lose track."

Sophie, meanwhile, was looking at a pile of shallow boxes of different sizes that were on the floor next to an apple bin. “I have an idea,” she said. “Let’s put these boxes on the table and fill **them** with apples. That way the apples will not be able to roll off and, even better, instead of counting each apple we can add the boxes together.”

Norman was not sure what Sophie had in mind but they all picked up a few boxes and moved them to the counting end of the table. They filled each of the boxes with apples. Two of the boxes could hold 3 apples apiece, another 4 apples, the next box 5, there were two boxes that held 6 apples, and the two largest held 8.

When all the boxes were filled with apples, Ezra said, “Okay, I need 18 apples. Now what?”

Norman was wondering the same thing. Not Sophie. She was looking at the boxes and said, “Well, we could have two boxes of 6, that’s 12 apples. Then add two boxes of 3.”

$$6 + 6 + 3 + 3 = 18$$

Norman had that Aha! look on his face that meant he understood. He saw how Sophie was using the boxes to add instead of having to count the apples one at a time. “There’s another way to get 18,” Norman said with a smile. “You could use the box of 8, plus the box of 6, plus the box of 4.”

$$8 + 6 + 4 = 18$$

Sophie said, “We can take turns carrying apples from the bins to keep the boxes full. Then we will use the boxes to fill the orders with the right number of apples.” Ezra could see that this would keep the apples from rolling off the table – a very good thing. He sort of understood how to add the apples but he wanted to see whether it would work with the orders he needed to fill. He handed Sophie and Norman the order slips.

Handoff 2. Can you help Sophie and Norman figure out how to use the different boxes to fill these apple orders?

10 17 23 30 31 35

Counting the apples by using the boxes was fun but it was also slow. There were often many ways to combine the boxes. Orders were piling up faster than they could fill them. Sophie, who was always looking around and thinking noticed some egg cartons stacked in the corner. Norman looked up because Sophie was no longer filling or adding boxes of apples. Sophie had that look on her face that told Norman she was thinking and imagining. “I have another idea,” she said.

Sophie continued, “What if we use boxes that are all the same size and hold the same number of apples, kind of like how all egg cartons hold 12 eggs? I think it would be easier to count the apples.”

“Hmm...” murmured Ezra, scratching his head.

“That sounds like a great idea,” said Norman, bobbing his head enthusiastically in agreement, “But apples are way too big to fit into the egg cartons...”

“Right. We need boxes that are all the same size AND with spaces that apples will fit into. But I don’t know where we could find anything like that,” Sophie noted, frowning.

Just then Irma walked in. “Irma!” Norman exclaimed. “We need boxes!”

“Boxes?” Irma asked. Sophie quickly explained what they had been doing with boxes and the idea to use boxes of the same size. “Hmmm.... I don’t think I... Wait!” Irma cried, her eyes lighting up. “I just ordered 120 jars. I need them because I’m making jam soon. The jars come in boxes of 10 with dividers to keep the jars from breaking. The jars are almost exactly the same size as apples. I think the boxes from the jars could work!”

“Boxes of 10,” Sophie repeated. Norman looked over at Sophie and noticed that, once again, she had that thinking and imagining look.

Handoff 3: What do you think Sophie is thinking and imagining about the jam jar boxes that hold 10?

Together Sophie, Norman, Irma, and Ezra removed all the jars and stacked them neatly on a shelf right where Irma would be making jam. Then they carried the 12 empty jam boxes from the house to the barn where Ezra was still working on apple orders.

“Thank you so much Irma,” Ezra said with a huge smile.

“Yes, thank you Irma,” Sophie and Norman echoed. “You’re the best.”

“Glad to help,” Irma said. “But now I’ve got to go get started on the jam. I’ll stop back to see how you all are doing in a bit.”

Ezra, Norman, and Sophie put the empty jam boxes in a stack at the back of the table against the wall. Then they each took two baskets and filled them with apples from the bin. They carried the baskets of apples back to the table and put them on the end of the table without removing any apples.

“Next order is for 25 apples,” announced Ezra.

“Let’s try our boxes of 10 and see how this works,” said Norman.

Without slowing down to count, Sophie took apples from a basket and placed them in a jam box. When the box was full she pushed it to the side and said, “That’s 10.” Norman had already filled the next box. He handed it to Sophie who slid it next to the other box of 10 and said, “That’s 20.”

“I get it!” shouted Ezra. “5 more apples and we will have our order of 25. This is a much easier way to put the orders together.” Ezra put 5 apples next to the two full boxes.

Handoff 4: Can you help Ezra figure out how many boxes of 10 and how many loose apples he will need for these orders?

49 11 52 33 27

Norman picked up the next order slip. “Here’s the biggest order so far,” he remarked. “96 apples.”

“Ezra, why don’t you give this one a try?” inquired Sophie.

“Hmmm...” said Ezra, wondering aloud. “96 is 90 plus six. Hmmm.”

Sophie was filling boxes as fast as she could. Ezra moved each full box to Norman who stacked them for the order. As he stacked Norman counted by 10’s. “10, 20, 30, 40, 50, 60, 70, 80, 90. That’s it. 9 boxes with 10 apples in each box!” he exclaimed.

“And then we still need 6 more,” said Sophie, counting out 6 from a basket. Ezra took the 9 boxes and 6 loose apples and put them into the bags. When the boxes were empty he slid them back to the other end of the table.

It was really busy. The boxes of 10 system was working well. Around noon apple orders slowed down but Ezra warned that it would get very busy after lunch. He was right. The orders came in so fast they could hardly keep up. "I have an idea," stated Norman. "Instead of waiting for an order before we fill boxes of 10, let's fill the boxes of 10 as fast as we can. That way Ezra will have all the boxes of 10 he needs without having to wait."

"Great idea Norman! Then when an order comes in Ezra just has to count boxes of 10 and add loose apples," said Sophie smiling.

"Ready Ezra?" asked Norman.

"Ready," replied Ezra. Sophie and Norman had all 12 boxes of 10 filled with apples when the next order came in. It was for 42 apples. They watched as Ezra took a box and said, "10." He took the next, "20." The next, "30." One more box, "40."

"2 loose apples and that will do it! 4 boxes of 10 and 2 more," Ezra proudly declared.

“Norman, do you realize that the number sentences we are learning in school fit these problems?” asked Sophie.

“Yes.” said Norman. “4 boxes of 10 and 2 more make 42. Is just like $10 + 10 + 10 + 10 + 2 = 42$.”

Handoff 5: Can you help Sophie and Norman write number sentences for each of the orders Ezra filled?

23 55 25 60 29 108

They worked together filling orders and were just completing one for 28 apples when Irma came in. She said, “The person who just ordered 28 apples called back and said she wants 40 apples.”

Ezra started to take the apples out of the bag thinking they had to start over again when Norman said, “We don’t have to start over again. I think we can add on to the 28 that are already in bags.”

“You’re right.” declared Sophie. “We have 28 and another box of 10 makes 38. Then we need 2 loose apples to make 40. So, one box plus 2 more apples added to the 28 in the bag make 40.”

As Sophie was explaining, Ezra put the box of 10 along with 2 loose apples into the bags that already had 28 apples.

“Can we do a few more?” asked Norman. “I want to be sure I understand this.”

“No problem,” answered Ezra. “Irma has already let me know that some orders we have already filled need to be changed.”

Handoff 6: Can you help Ezra fix these orders that have been changed? How many more boxes of 10 and loose apples does Ezra need to fill these orders?

	old order (in bags)	new order
Jacob	50 apples	65 apples
Bree	32 apples	64 apples
Maddy	16 apples	50 apples
Erik	75 apples	99 apples

By the middle of the afternoon they had filled all the changed orders and they were working as a team. Sophie would read the order, then Norman would count out how many boxes of ten they needed and hand the filled boxes to Ezra. Sophie would add the loose apples and the order would be ready to go!

“I have an order for 46 apples, Norman,” Sophie said.

“10, 20, 30, 40,” Norman counted as he passed boxes of 10 to Ezra.

“And 6,” Sophie said, handing 6 apples to Ezra. She picked up the next order form. “112 apples,” she read.

“10, 20, 30, 40, 50,” Norman began to count, “60, 70, 80, 90, ten-ty, wait,” he paused. “ten-ty doesn’t sound right.”

Norman thought about how he counted and mumbled to himself, “Seven-ty is 7 tens, eight-ty is 8 tens, nine-ty is 9 tens. Ten-ty is 10 tens...” Ten-ty must be right he thought.

Handoff 7. Can you help Norman with the name for 10 tens?

It took Norman a few seconds to realize the name for 10 tens. “10 tens!” he exclaimed loudly enough for everyone to hear. “That’s a hundred!”

Sophie looked over at Norman with a big smile. “Yes!” she said excitedly. “Remember what our teacher said. 10 is a very important number!”

“Speaking of 10,” Ezra piped in. “Irma’s boxes of jam jars came in a bigger carton that holds 10 of these boxes! I’m going to get it.”

In a few minutes Ezra returned with a big cardboard carton. “This will work great for large orders,” Ezra declared. “We can put in 10 boxes of 10 and that will be a hundred apples in a big carton.”

“The problem is we only have 12 boxes. That’s why we are taking the apples out of the boxes and putting them in bags. It would be great to leave them in the boxes. The apples wouldn’t bump into each other and get soft spots,” said Sophie.

Just then Irma rushed excitedly into the room. She caught her breath and said, “I was watching you work while it was so busy. I saw that it would be better to leave the apples in the boxes. And now that you have a carton that holds 100, it is even more important to leave the apples in the boxes of 10.”

Ezra, Norman, and Sophie were all nodding their heads in agreement. “We were just thinking that too,” said Norman. “But we only have 12 boxes of 10.”

“Not anymore,” replied Irma. “Just by luck, the woman who runs the box factory stopped by for some carrots, saw that we were using boxes from jelly jars. She told me that the jelly jars have changed and she has to make new boxes for them to fit into.”

“How does that help us?” asked Ezra.

With the biggest smile ever, Irma said, “She had already made a huge number of the old boxes and had no idea what they would be good for. She said she would be happy to put them to good use and we could have them for free. To be fair, I told her we would buy the boxes for the same price we pay for bags. She was very happy. And now WE have all the boxes of 10 and cartons of 100 that we need.”

Sophie, Norman, and Ezra were eager to start filling orders that could stay in boxes, especially since the orders people were placing were getting bigger and bigger.

They returned to the order they had been working on. Norman started to pack boxes of 10 into the big box. “10, 20, 30, 40, 50,” he counted. “60, 70, 80, 90, ONE HUNDRED,” he said loudly as he added the last box.

“How many was that order for again, Sophie?” Norman asked.

“112,” Sophie said.

“Well we have 100, so we need 12 more,” Norman said. “Which means 1 more box of 10.”

“And 2 loose apples,” Sophie said.

Handoff 8: Can you help Sophie, Norman, and Ezra figure out how many cartons of 100, boxes of 10 and loose apples Ezra will need to fill these orders?

Graham 364 apples

Benita 292 apples

Jonah 87 apples

Deb 135 apples

Some of the orders were from local restaurants. Ezra, Sophie, and Norman had filled several of these orders and the restaurant people came to the farm stand and picked them up. A little while later they were getting ready to fill more orders. Irma walked over.

“I have just been talking to some of the restaurant people,” Irma said. “They all realize that apple pie is going to be more popular than they had predicted! They will need more apples.”

Ezra sighed, “They just drove away with their orders.”

“Don’t worry,” replied Irma. “One of the chefs lives nearby and will pick up more apples for all the restaurants on her way to work. They told me how many more boxes of 10 and loose apples they now want. But I have to figure out how many apples were in their whole order. I think I’ll need help.”

Handoff 9: Can you help Sophie, and Norman figure out how many apples are in the total orders?

	now	how many more they want	total
Miss Flo's Diner	114 apples	2 boxes of 10 8 loose apples	
Pie Bar	254 apples	2 boxes of 10 3 loose apples	
Hometown Eatery	189 apples	3 boxes of 10 7 loose apples	
Margarita's Bistro	237 apples	1 carton of 100 2 boxes of 10 6 loose apples	

“Wow! We have had a busy day,” Norman said.

“We sure have,” Ezra agreed, “And tomorrow we will be busy too, we have some big orders to fill...hmmm....” his voice trailed off as he started thinking, “I wonder what would happen if we put 10 cartons of 100 together...”

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