M2C3 Project – Abuelo's Birthday Student Work

The following provides Grade 3, 4, and 5 solutions for the Abuelo's Birthday Task. The two slides at the end of this document provide a sample solution path graphic organizer and teacher reactions to student solutions.

Making Sense of the Task: Group Brainstorm

What we know:

- Printer $120
- Alex earns $15 a week
- Sam earns $10 a week
- Elena earns $5 a week
- Jaden has $8
- Could have $38 at end of week
- $30 per person if they pay the same

What we need to know:

How much will each person pay?

What we need to assume:

- They will not all pay the same

What has been assumed for us:

- Time doesn't matter
- Alex, Sam, and Elena do not have savings

Factors that Students Considered

- How much time do they need?
- Should all siblings contribute money for the same amount of time?
- Should we consider money saved, or just weekly earnings?
- Should siblings give all of their weekly earning for the present, or a portion of their weekly earnings?
- Do we need to consider/include tax?

Connections to Students' Experiences

- Sharing responsibilities and jobs, everyone contributes, no one is left out
- Nuanced understandings about fairness

They will Pay 120 Dollars They will work for foor weeks till they get 120 Dollars. It is fair because they are all Paying for the present.

Jaden will only have to Pay 3 dollars because She does not have a job like the others.

Alex will Pay 60$.
Sam will Pay 40$.
Elen will Pay $17.
Jaden will Pay $3.

17+3=20
60+40=100
15+15+15+15=60
S 10+10+10+10=40
E 5+5+5+2=17
J 8-5=3
100+20=120

35+17+3
40+60
J
S
E
9

Each sibling contributes 4 weeks of earnings, so siblings' contributions are proportional to their weekly earnings.

The youngest sibling contributes $3 because she does not have a job.

4th grade

$120

Assume
• That each of them can pay for part of the printer.
• abuelo's Birthday is in 3 weeks.
• That the older kids already had saved some money.

Alex
$15 = $15 × 3 weeks

Sam
$10 × 3 weeks = $30

Elena
$15 = $5 × 3 weeks

Jaden
$8

1
45
30
+15
→ 90

90 + 30 = 120 dollars

Alex will pay $45 for the printer.
Sam will pay $30 for the printer.
Elena will pay $15 for the printer.
Jaden will pay her $8 for the printer

If she's not willing to pay half of her

Some of the older kids may be willing to pay some of the $ they already saved.

Jaden would have to save $22 to pay for the printer. But she probably wouldn't want to do that so maybe a few of the older kids would be willing to pay some of the money they already saved.

we need $30. more to pay for the Printer.

Alex's savings $60
Sam's savings $40
Elena's savings $20

give ↓
$9
give ↓
$7
$6
= $22

Each sibling contributes 3 weeks of earnings,.

This is not enough money, so the older siblings each contribute more from their savings, with the siblings who earn more contributing more.

The youngest sibling contributes all her savings.

4ᵗʰ grade

Each sibling contributes 2 weeks of earnings, plus the same amount from their savings.

The youngest sibling contributes half of her savings ($4 for tax).

{Abuelo's Birthday Present Plan}

ASSUMPTIONS

- They might get it at a store.

- Jayden is going to add $4.

- Sam has 20$ saved up.

- Elena has $ saved up

- 4 weeks until abuelos birthday.

-Alex Saved up $30

-Tax=$4

- Sam spent $10
- Alex spent $60
- Elena Spent $20
- Jayden spent $4

We think it is fair because each person is spending 2 weeks of their allowance and Jayden is spending $4 which is half of her allowance.

The rest of the money was from savings that they had before. 😊

Earnings
30 + 20 + 10 = 60
savings 30 + 20 + 10 = 60

60 + 60 = 120.00

$ + 120$ = 124.00

Total: 124 dollars

Mathematical Thinking

Savings
Alex - 30$
Elena - 10$
Sam - 20$

week 1
Alex - 15$
Sam - 10$
Elena - 5$

Week 2
Alex $15 = 30
Sam $10 = 20
Elena 5 = 10

How You can use it in a different situation is in real life. Like if its somebody b-day and ther people what to get the same gift as the other person. they can use this stratiger

Math thinking

14 Weeks in all — about 4 months.

Alex — 2 Weeks — 40

Sam — 4 weeks — 40

Elena — 8 weeks — 40

Little kid — 0 weeks — /$4 tax

Math Solution

tax.$4.00

$40 \times 3 = 120.00$

$120.00 - 119.99 = 1$

$120 \div 3 = 40$

each kid exept the first grader gets 40 dollars to help pay for the printer

Older siblings each contribute the same total amount ($40), but they each need to save their earnings for different amounts of time (2 weeks, 4 weeks, 8 weeks).

But then students added the weeks (2+4+8=14), not considering that money is earned concurrently.

The youngest sibling contributes $4 for tax.

Structure for Recording/Reporting Solutions

Assumptions:

Jaden Should not Pay because
She dose not erean money
ones a week Alex Pays
the mosot because she erens
the most but Juden dosent
eren money

How much should each child pay?

Alex : $50°
Sam : $40°
elena : $30°
Jaden'$0

Mathematical thinking:

$$50 + 40 = 90$$
$$90 + 30 = 120$$

How could you use your plan in a different situation?

me und my sister want to
biy a Big candy its $3⁹⁹¢
I make $2 a week she makes
$3 aweek we oesidid she
will Pay more because she
erens more

Teacher Reflections

- "Students had plenty of experiences saving up to buy something important" -- 4th grade teacher

- "All kids were excited and actually engaged for the entire session" -- 3rd grade teacher

- "Students wanted to alter the conditions of the task and make Jaden get a job" -- 5th grade

- "Students that don't participate regularly participate in these modeling tasks. They want to share their ideas and perspectives and they have a lot of say about fairness" -- 4th grade teacher