

Whole packs lesson and practice

Worked model for seven brushes

A project needs at least 7 brushes.

For this task, all items are identical. Choose one supplier and buy only whole packs from that supplier. Packs can be bought repeatedly. There are no fees, discounts or refunds. Extra items are allowed. Find the least cash paid now to get at least the stated number; do not mix suppliers.

Supplier	Brushes in one pack	Price for one pack
A	6	\$12
B	4	\$10

A costs $\$12 \div 6 = \$2$ per brush. B costs $\$10 \div 4 = \$2.50$ per brush. A has the lower unit price.

But the shop sells packs. One A pack gives only 6 brushes, so it is short. Two A packs give 12 brushes and cost \$24. One B pack gives only 4; two give 8 and cost \$20.

Supplier	Least whole packs	Brushes obtained	Total paid	Extras after 7
A	2	12	\$24	5
B	2	8	\$20	1

B needs \$4 less cash now. Each total uses the least number of packs that meets the need: one fewer pack would be short, and every added pack costs more. Lower dollars per brush alone did not choose the lower purchase total.

Adding complete packs is valid equal-group reasoning. We cannot buy $7/6$ of an A pack or $7/4$ of a B pack under these rules. The extras are counted, not automatically called waste; we have no information about later use.

Explain what the unit price tells us and what we still had to check

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Guided work for twelve buttons

A costume group needs at least 12 buttons.

For this task, all items are identical. Choose one supplier and buy only whole packs from that supplier. Packs can be bought repeatedly. There are no fees, discounts or refunds. Extra items are allowed. Find the least cash paid now to get at least the stated number; do not mix suppliers.

Supplier	Buttons in one pack	Price for one pack
A	10	\$20
B	4	\$12

Find dollars per button. Then try whole numbers of packs until each purchase is enough. Check that one fewer pack is short. Use your own table or drawing to show packs, buttons, cost and extras.

Show both suppliers and choose the least total

A fictional learner says, “I divided 12 by 10, so I need 1.2 packs from A.” Explain what 1.2 describes and why it cannot be the purchase here. How many whole A packs are enough?

Explain the whole-pack restriction

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Practice when the need changes

Now compare two suppliers of identical counters.

For this task, all items are identical. Choose one supplier and buy only whole packs from that supplier. Packs can be bought repeatedly. There are no fees, discounts or refunds. Extra items are allowed. Find the least cash paid now to get at least the stated number; do not mix suppliers.

Supplier	Counters in one pack	Price for one pack
C	3	\$9
D	5	\$10

First, a game needs at least 6 counters. Find both unit prices, the least whole-pack purchase from each supplier, totals and extras. Which has the lower unit price? Which has the lower purchase total? Explain.

Purchase for at least 6 counters

A different game needs at least 8 counters. No counters from the first game are available. Reconsider both suppliers under the same rules. Show both least purchases, totals and extras. Does the lower-unit-price supplier win this time? What changed?

Purchase for at least 8 counters