Unit 9 · College & Career ROI Cheat Sheet

Unit 9 focus: estimate net price, borrowing and education alternatives

1 PRICE & AID VOCABULARY

Term	Meaning / quick example
Cost of attendance	Tuition, fees, housing, food, books and other costs.
Net price	Attendance cost minus grants and scholarships.
Grant / scholarship	Gift aid; check renewal and eligibility terms.
Loan	Borrowed money; does not lower net price.

2 FROM PRICE TO CASH GAP

For one academic year; gift aid only reduces net price.

Example: Cost \$30,500; grants \$13,000; family cash \$8,000; earned work income \$4,000.
Net price: $30{,}500 - 13{,}000 = 17{,}500$
Remaining gap: $17{,}500 - 8{,}000 - 4{,}000 = 5{,}500$

Answer: \$5,500 still to fund

3 AID IS NOT ALL THE SAME

Type	How to treat it
Gift aid	Reduces price if requirements are met.
Work-study	Earned through an eligible job; not guaranteed cash upfront.
Student loan	Repay with interest; compare contract terms.
Parent loan	Parent's debt; do not assume student owes it.

Compare aid letters using the same costs and year. Aid may change after the first year.

4 LOAN PAYMENT

$$D = \frac{Pi}{1-(1+i)^{-N}}$$

P = balance dollars when repayment begins; i = monthly decimal interest rate; N = monthly payments; D = monthly dollars.

$i = \frac{r}{12}$; r = annual interest rate.

Use the **repayment balance**, not just original borrowing; unpaid interest or fees may add to it.

Fixed-rate model; at zero interest, $D = \frac{P}{N}$.

5 FOUR-YEAR BORROWING MODEL

Assume \$5,500 each year for 4 years, no fees or in-school interest; then 6.5% over 120 months.

Example: Repayment principal = \$22,000.
Monthly: $D \approx 249.81$
Annual payments: $12D \approx 2{,}997.67$
Salary share at \$55,000: $\frac{12D}{55{,}000} \times 100\% \approx 5.45\%$

Answer: About \$249.81 monthly

6 INTEREST & COMPLETION

Term	Meaning / quick example
Subsidized	Borrower may receive an interest subsidy during eligible periods.
Unsubsidized	Interest generally accrues while in school.
Capitalization	Unpaid interest added to principal under loan terms.
Completion risk	Costs and debt may remain even without the credential.

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More practice: compare costs, completion risk and career gains

1 WHICH PATHWAY PAYS BACK?

Certificate costs $12,000 and adds $6,000 yearly earnings. Degree costs $40,000 and adds $10,000. Same baseline; ignore tax, raises and financing.

Example: Simple payback = cost ÷ annual earnings gain.

Certificate: $\frac{12{,}000}{6{,}000} = 2$ years

Degree: $\frac{40{,}000}{10{,}000} = 4$ years

Answer: Certificate pays back sooner

2 SOONER VS. LARGER RETURN

The certificate wins on **speed** in that model. Over 10 working years after completion:

Certificate: $60,000 gain − $12,000 = **$48,000**.
Degree: $100,000 gain − $40,000 = **$60,000**.

The degree has a larger modeled 10-year gain. Different completion times, job placement, missed earnings or personal goals can reverse the choice.

3 COUNT OPPORTUNITY COST

Economic education cost = net price + earnings forgone + financing costs, using a consistent baseline.

Two years with $20,000 yearly earnings forgone plus $15,000 total net price:
$2(20{,}000) + 15{,}000 = 55{,}000$

$55,000 before financing costs

Subtract earnings while studying. Count only living-cost differences if baseline costs are already included.

4 EARNINGS WITH STEADY RAISES

$$S = a\frac{(1+g)^n - 1}{g}$$

a = first-year earnings dollars; g = annual decimal raise; n = earning years; S = total nominal earnings.

$40,000 first year, 3% yearly raises, 3 years:
$40,000 + $41,200 + $42,436

$123,636 total

At zero raises: $S = an$. No unemployment, tax or discounting in this model.

5 BEFORE COMMITTING

- Compare net price across all years, not only year one.
- Check completion, transfer-credit and job-placement outcomes for the actual program.
- Estimate realistic local earnings, not only a national high salary.
- Compare apprenticeship, certificate, transfer and direct-to-work routes.
- Model affordable payments using expected take-home pay.
- Check whether aid requires a GPA, enrollment level or annual application.

6 REMINDERS & MISTAKES

✓ Do remember

- Use multiple earnings and completion scenarios.
- Loan payments compete with rent and other needs.

✗ Common mistakes

- Loans are a discount: they finance the price.
- Starting salary decides ROI: include time, costs and risk.
- Borrowing below salary is always safe: test a full budget.
- Sticker price = your cost: compare gift aid and net price.