Design a Retirement Strategy

Turn a first paycheck into a lifetime plan — and see what inflation really does to "a million dollars."

Unit 10: Retirement & Inflation | 2–3 class periods | Individual

Name(s) _____ Period ____ Due _____

Introduction

Retirement feels far away, which is exactly why decisions made at 24 matter so much. You will design a retirement strategy for Andre, measure it in today's dollars, and stress-test it against inflation and return assumptions.

> Andre, 24, earns $55,000 (assume constant in today's dollars). His employer matches 50% of contributions up to 6% and offers both traditional and Roth 401(k) options. He wants retirement income of 75% of his salary in today's dollars at 67, and expects about $21,000/yr from Social Security (today's dollars).

Learning goals

- Model inflation and convert future dollars to today's dollars.
- Project retirement balances with employer matching.
- Compare contribution levels and account types.
- Estimate the nest egg needed and identify gaps.
- Write and defend a strategy.

Supporting documents and data

Plan details (fictional employer)

Feature	Detail
Employer match	50% of contributions up to 6% of salary
Vesting	25% per year; fully vested after 4 years
Account types	Traditional or Roth 401(k)
Fund options	Target-date fund (0.12%), stock index (0.04%), bond index (0.05%), stable value (0.30%)

Assumptions (adjust in Task 4)

Assumption	Base case
Average return (hypothetical)	6% per year
Inflation	2.5% per year
Withdrawal guideline	4%
Years to retirement	43

Tasks

Task 1: Inflation warm-up

1. What will $55,000 of spending cost in 43 years at 2.5% inflation?
2. What is $1,000,000 in 43 years worth in today's dollars?

Deliverable: Inflation calculations.

Task 2: Contribution scenarios

1. For 3%, 6%, and 10% contributions, compute monthly employee and employer amounts.
2. Project balances at 67 (future dollars) and convert to today's dollars.

Deliverable: Scenario table.

Task 3: How much is enough?

1. Compute the nest egg needed (today's dollars) using the 4% guideline.
2. Which scenario meets the goal? Find the gap for the others.

Deliverable: Gap analysis.

Task 4: Stress test

1. Re-run the 6% plan with a 4% return and with 3.5% inflation.
2. What contribution rate would close the gap in the pessimistic case?

Deliverable: Stress test.

Task 5: Strategy memo

1. Recommend a contribution rate, account type (traditional or Roth), and a plan to increase contributions over time.

Deliverable: Strategy memo.

Reflection

1. Why does the match matter so much?

2. How did converting to today's dollars change your view?

3. What is your own first step toward retirement saving?

Submission checklist

- ☐ Inflation calculations
- ☐ Scenario table
- ☐ Gap analysis

- [ ] Stress test
- [ ] Strategy memo
- [ ] Reflection

Scoring rubric

Category (points)	Exemplary (100%)	Proficient (~80%)	Developing (~60%)	Beginning (~30%)
Financial understanding (20)	Uses vocabulary precisely and explains every financial concept involved, including assumptions.	Mostly accurate explanations with minor vocabulary gaps.	Partial understanding; some concepts misapplied.	Little evidence of understanding.
Mathematical accuracy (25)	Inflation, projections, and gap calculations correct.	1–2 minor errors that do not change conclusions.	Several errors or missing work.	Calculations largely missing or incorrect.
Analysis & comparison (20)	Compares every option on the same basis and tests at least one changed assumption.	Compares options with small gaps.	Comparison superficial or uneven.	Little analysis.
Justification (15)	Recommendation is supported by specific numbers and weighs non-financial factors and risks.	Mostly supported.	Mostly opinion.	No justification.
Communication & presentation (10)	Clear, organized, well-labeled tables, charts, and writing.	Minor clarity issues.	Hard to follow in places.	Disorganized.
Completion (10)	Every checklist item complete.	One item missing.	Two or three items missing.	Most items missing.

Total: 100 points. Alternative recommendations earn full credit when supported by accurate evidence.

ALL PEOPLE, BUSINESSES, PLACES, AND NUMBERS IN THIS PROJECT ARE FICTIONAL. RATES AND COSTS ARE ILLUSTRATIVE ASSUMPTIONS.