

INTERNATIONAL ECONOMICS

Evaluating Supply-Chain Risk and Resilience

Detailed practice, calculation, decision-making, and assessment

GRADES 9-12	TIME 2 x 42 min	GROUPING I / pairs / whole	PRODUCT Brief
YOUR CHALLENGE Map lead time, score risks, compare resilience investments, stress-test a disruption, and recommend a budget-feasible strategy.			

International Choices Link Opportunity Cost, Currency Values, and Supply-Chain Risk

A low-cost supply chain may be fragile if it depends on one supplier, route, port, currency, or forecast. Resilience can require higher normal costs in exchange for faster recovery, alternative sources, visibility, quality control, or inventory protection.

Term	Student-friendly meaning
Supply chain	Connected steps used to source, make, move, and deliver a product.
Lead time	Elapsed time from order or step start to availability.
Single-source risk	Dependence on one supplier for an important input.
Safety stock	Extra inventory held to reduce stockout risk.
Resilience	Ability to prepare for, respond to, and recover from disruption.
Landed cost	Purchase price plus stated costs of bringing an item to its destination.
CLASSROOM USE All people, employers, figures, brackets, and documents in this packet are fictional. Never place a real Social Security number, employer ID, bank number, or tax document in classroom work.	

Part 1 - Map a Fictional Supply Chain

A school store orders calculators. Identify each step and dependency.

Step	Location/lead time	Key dependency	Failure signal
Chip supplier	Country A / 18 days		
Assembler	Country B / 12 days		
Ocean freight	20 days		
Port/customs	5 days typical		
Regional warehouse	3 days		

Calculate normal total lead time and identify data needed to avoid double counting.

Part 2 - Score Supply-Chain Risks

Likelihood and impact are scored 1-5; risk score = likelihood x impact.

Risk	Likelihood	Impact	Score	Reason
Single chip supplier	4	5		
Port delay	3	4		
Demand forecast error	4	3		
Currency change	3	3		
Quality failure	2	5		

Rank risks, but explain why identical scores may need different responses.

Part 3 - Compare Resilience Options

Annual demand is 1,000 calculators. Base landed unit cost is \$18.

Option	Unit cost	Upfront/annual extra cost	Lead time	Expected disruption units avoided
Current single source	\$18	\$0	58 days	0
Second supplier	\$19.50	\$2,000 qualification	42 days	180
Safety stock	\$18	\$3,600 holding cost	58 days	140
Regional supplier	\$22	\$1,000 setup	15 days	220

Calculate annual purchase plus extra cost and cost per disruption unit avoided versus current.

Part 4 - Stress-Test a Disruption

A 30-day port disruption affects 300 due units. Each stockout unit creates an estimated \$8 lost margin and \$4 rush/administrative cost.

Option	Units still unavailable	Loss per unit	Disruption loss	Annual option cost	Combined scenario cost
Current	300	\$12			
Second supplier	120	\$12			
Safety stock	160	\$12			
Regional supplier	80	\$12			

Use annual option costs from Part 3. Explain the limits of combining annual and event figures.

Part 5 - Write a Supply-Chain Resilience Recommendation

The store prioritizes availability but cannot spend more than \$5,000 above the current annual purchase cost.

Decision check	My evidence
Normal lead time	
Top risk	
Annual current cost	
Option extra cost	
Units avoided	
Disruption cost	
Budget test	
Qualified recommendation	

Write 150-200 words using at least six figures and four monitoring controls.