

Calder Reach Building: bid, build, on time?

Student workbook | Pearson Edexcel A level Business (9BS0), Year 13, exams in 2027 | Original TBS three-lesson project case

Over three lessons you will advise the managing director of a small building firm. Lesson 1: use a decision tree and expected values to decide whether and how to bid for a council contract. Lesson 2: use critical path analysis to find how long the building job takes, which activities cannot slip and which have float. Lesson 3: combine both to decide how to protect the job against a late delivery, and write a recommendation of about 180 words.

Calder Reach Building Ltd, Hallbeck Town Council, Vantage Steel Ltd and every person, price, probability and date in this case are fictional. You need a calculator. This is original classroom practice, not an exam paper.

The business

Calder Reach Building Ltd is a family-owned builder in Hallbeck, a market town in the north of England. It has 22 employees and builds house extensions, school classrooms and small community buildings. Rhian Calloway, whose parents founded the firm, is Managing Director. Dev Malhotra is Finance and Contracts Manager, Bryn Oakes is Site Manager, and Hannah Wu is the estimator who prepares tenders.

The invitation to tender

Hallbeck Town Council wants a new single-storey sports pavilion at Meadow Park, with four changing rooms, a social room and a kitchen. Builders submit a tender (a price for the job) and the council picks one. Preparing a tender costs Calder Reach £6,000 (Hannah's time, drawings and a quantity surveyor's fee). The £6,000 is paid whether or not the bid wins.

The contract says the pavilion must be handed over by the end of week 20 after the site starts. For every whole week it is handed over late, the builder pays the council £4,000.

Dev Malhotra's three options

Option	What it means
A: Premium tender	A high price. The profit is large if the council accepts it, but councils often prefer cheaper bids.
B: Keen tender	A low price. The council is more likely to accept it, but the margin is thin, so a cost overrun can wipe out the profit.
C: Do not tender	Use the site team on two private house extensions that have been offered. The team cannot build the pavilion and the extensions, and the extensions would keep it busy for about the same time.

Free sample

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Contents of the full pack

Lesson 1: Should we tender?

Lesson 2: The pavilion programme

Lesson 3: Protecting the programme

Student workbook and teacher guide, as PDF and as editable Word files.

The teacher guide has lesson plans, full worked answers and indicative guidance.

This sample is the cover and the first two pages of Lesson 1 of the student workbook. It contains no answers. The pages that follow are exactly as in the full pack.

Lesson 1: Should we tender?

A decision tree shows the choices a business can make and the possible results of each. The square is a decision node. Each circle is a chance node. The lines are branches. Each branch from a chance node has a probability, and the probabilities from one chance node add up to 1. The expected value (EV) at a chance node is each result multiplied by its probability, added together.

Starter: tree words (5 minutes)

Write the word from this list that matches each meaning: decision node, chance node, branch, probability, expected value, net result.

Meaning	Word
1. A square where the business chooses between options	
2. A circle where the result is uncertain	
3. A line from one node to the next result	
4. A number from 0 to 1 showing how likely a result is	
5. The weighted average of the possible results at a chance node	
6. The profit or loss at the end of a branch, after all costs on that route	

Calculate: a project has a 0.35 chance of a £20,000 profit and a 0.65 chance of a -£4,000 loss. What is its expected value?

Task 1: net results (individual, 8 minutes)

Givens: the tender costs £6,000 and is paid whether the bid wins or loses. Profit figures are before the tender cost. Net result = profit before tender cost minus tender cost. If a tender loses, the profit before tender cost is £0. Option C has no tender cost.

No.	What happens	Chance	Profit before tender cost (£)	Tender cost (£)	Net result (£)
A1	Premium tender wins	0.30	62,000	6,000	
A2	Premium tender loses	0.70	0	6,000	
B1	Keen tender wins; job within budget	0.55, then 0.75	34,000	6,000	
B2	Keen tender wins; cost overrun	0.55, then 0.25	4,000	6,000	
B3	Keen tender loses	0.45	0	6,000	
C1	Both extensions start on time	0.65	14,000	0	
C2	One client delays	0.35	6,000	0	

Working space:

b. Which outcomes have the lowest net result, and which has the highest? Give the net result of each.
