K20 LEARN

Watch Out for Sharks!

Lesson Vocabulary

Essential Question

What is necessary to develop a business plan?

Lesson Objectives

- Use elements of a business plan to create a business pitch.
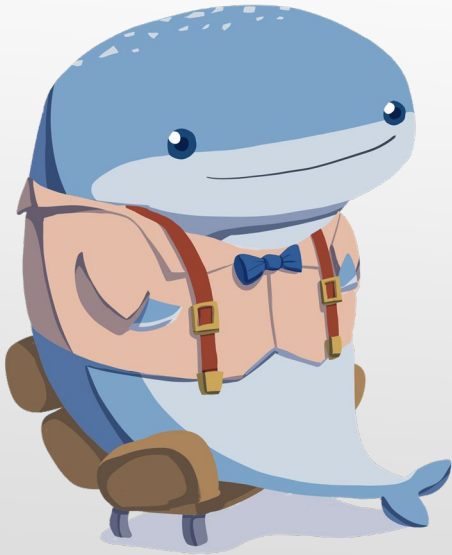- Use mathematical models to represent real-world, business-plan scenarios.

K20 CENTER

Essential Components of a Business Plan

- Business Description
- Product/Service Description
- Market Analysis
- Marketing Strategy
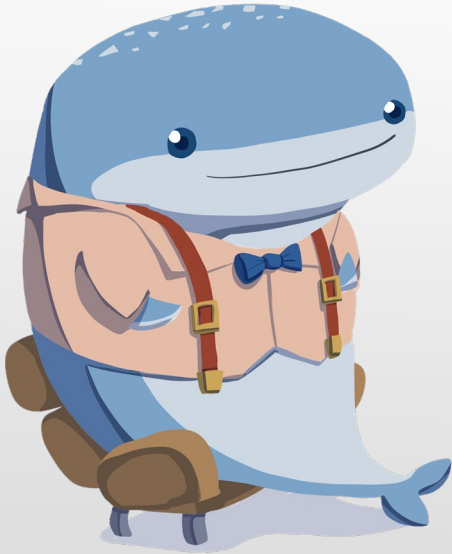- Operations Plan
- Financial Plan

Business Description

- What is your company name?
- Where will your business be located?
- How many employees are you going to have?
- What problem are you trying to solve?

Product/Service Description

- What is the name of your product or service?
- How is your product or service different from your competitors?
- What is your **selling price**?

Selling Price and Markup

- The **selling price** is the amount a customer will pay you for your product or service.
- The **markup** of a product is the difference between the selling price and the cost of making the product.
  - For example, if you spend $5 on the supplies to create 1 delicious sandwich, and you sell the 1 sandwich for $8, then the markup is $3.

Verbal Model to Algebraic Model

- We can create mathematical models to represent relationships between variables.

- **Verbal Model:**

$$\left(\begin{array}{c} Selling \\ Price \end{array} \right) - \left(\begin{array}{c} Product \\ Cost \end{array} \right) = \left(Markup \right)$$

- **Algebraic Model:** $s - c = m$

- Solve or Evaluate: $\left(\$8 \right) - \left(\$5 \right) = \left(\$3 \right)$

Market Analysis

- Do we have any competitors?
- What are the selling prices of our competitors or of those with similar products?

Marketing Strategy

- Who is your **target audience**?
  - A **target audience** is the group you anticipate buying your product/service.
  - Examples: parents, OKC residents, etc.
- How do you plan to promote or advertise your product or service?
- How are you going to make sure that your product or service sells?

Operations Plan

- What does it cost for your business to operate?

- It's the total of **fixed** & **variable costs**.
  - **Fixed costs** are expenses that are not dependent on how many items you sell.
    - Examples: property, insurance, etc.
  - **Variable costs** depend on the number of items you sell.
    - Example: How many sandwiches you sell determines how much money you spend on sandwich supplies.

Financial Plan

If you want a business to be successful, then you need to understand the financial side.

- Are you going to make or lose money?
- How many items do you need to sell to cover all of your expenses?

Profit and Revenue

- **Profit** is the difference between your revenue and your expenses.

$$\left(Profit\right) = \left(Revenue\right) - \left(Expenses\right)$$

- Your **revenue** is the amount of money your company brings in from selling n items, where n is the number of items.

$$\left(Revenue\right) = \left(\begin{array}{c} Selling \\ Price \end{array}\right)\left(\begin{array}{c} Number \\ of\ Items \end{array}\right)$$

Profit and Expenses

- Your **expenses** are the sum of your fixed costs and variable costs.

$$\left(Expenses \right) = \left(\begin{array}{c} Fixed \\ Costs \end{array} \right) + \left(\begin{array}{c} Variable \\ Costs \end{array} \right)$$

$$\left(Expenses \right) = \left(\begin{array}{c} Fixed \\ Costs \end{array} \right) + \left(\begin{array}{c} Product \\ Cost \end{array} \right) \left(\begin{array}{c} Number \\ of\ Items \end{array} \right)$$

Profit and Math Modeling

- $(Profit) = (Revenue) - (Expenses)$

$$(Profit) = \left(\begin{array}{c} Selling \\ Price \end{array} \right) \left(\begin{array}{c} Number \\ of\ Items \end{array} \right) - \left[\left(\begin{array}{c} Fixed \\ Costs \end{array} \right) + \left(\begin{array}{c} Product \\ Cost \end{array} \right) \left(\begin{array}{c} Number \\ of\ Items \end{array} \right) \right]$$

$$P = (s)(n) - \left[(f) + (c)(n) \right]$$

Profit and Breaking Even

- The **break-even point** is the number of items you need to sell to cover all of your expenses.
- What do you think that means for our profit equation?

$$(Profit) = (Revenue) - (Expenses)$$