

Kid CEO (Chief Executive Officer): The Leaders of Our Next Generation

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INTRODUCTION

Students are driven and motivated by topics that apply to their own lives. Students commonly ask “How does this impact my life? Why should I listen?” Kid CEO (Chief Executive Officer) introduces a real business problem from everyday life into the classroom and teaches how to develop effective approaches to solving word problems while incorporating technology and multiple disciplines to engage the students. Lessons of number sense, algebraic reasoning, probability, and statistics will be included. Specific questions of fractions, decimals, percents, proportions, measure of central tendency, and graphing will be explored and practical applications will be given. Students typically show interest when discussions revolve around money. While these discussions about money are engaging to the students, the topic narrowed to a business that they are familiar with (such as a fast food or candy company) can also provide long term benefits to the students as well as multiple opportunities to introduce real life word problems. The topic of business can also be translated to multiple disciplines such as social studies, reading, and technology. The skills of understanding how a business works, reading word problems, and using technology will be incorporated to motivate students as well as show them the cross curricular element used in everyday world problems. The goal of this curriculum is to engage students in real world problems centering on money and business. Students will learn a problem solving strategy that can be utilized for all word problems. Students will also increase their vocabulary to help them understand the meaning of the word problems. Students will also be motivated by being monitored and rewarded daily based on their behavior and academic performance in class. In conclusion, students will seamlessly utilize the skills they have learned in decision-making problems that help them break down word problems and find the best solution.

The focus of this curriculum has been developed based on the needs of the population of the 7th grade students at Marshall Middle School. Marshall Middle School is a Fine Arts Magnet, Title I, inner city school located north of downtown. The demographics are 99% Hispanic. Some challenges facing these students are gang-related problems, parental involvement, and a lack of exposure to a world outside of their community. Kid CEO will bring into the classroom lessons to intrigue the students and provide exposure to how their math lessons can be applied outside of the Marshall Middle School community.

OBJECTIVES

TEKS : Math 7

The students will:

Objective 1

7.1A – compare and order integers and positive rational numbers.

7.1B – convert between fractions, decimals, whole numbers, and percents mentally, on paper, or with a calculator.

7.2B – use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals.

Objective 2

7.3B – estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units.

7.4B – graph data to demonstrate relationships in familiar concepts, such as conversions, perimeter, area, circumference, volume, and scaling.

Objective 5

7.11A – select and use an appropriate representation for presenting and displaying relationships among collected data, including line plots, line graphs, bar graphs, stem-and-leaf plots, circle graphs, and Venn diagrams, and justify the selection.

7.12A – describe a set of data using mean, median, mode, and range.

RATIONALE

I am a 7th grade math teacher with ten years of prior corporate work experience. I want to teach students skills in middle school math that will prove beneficial to them in their personal lives as well as in their future careers. One of the common issues with the students at my school is lack of motivation. The lack of motivation is due to an inability to envision what their future could hold for them. The unit will include real world examples where they can see how the skills they learn in school are useful in the real world and, thus, will open their mind to potential opportunities available to them. It is important to teach this unit because students need to be exposed to real life problems to which they can apply their skills. The unit is specifically framed around real businesses with which the students are familiar. The real life examples that they will deal with will help the students gain experience with word problems and see how there are math concepts all around us and used everyday. The unit contributes to the curriculum through practical opportunities to explore and apply their math skills of fractions, decimals, percents, proportions, and statistics. The students will express interest in this topic because they will be familiar with the businesses that they are assigned. The topic will become real life to them. They will also feel accountability because they will be assigned the same company throughout the entire unit. Students will embark on a learning experience from which they can understand and grow. Numbers will become more real than would numbers in a word problem dealing with a situation unfamiliar to them. The student's creativity will also be challenged as students will formulate multiple solutions to situations based on the given problem. Students will become aware that businesses have choices and the decisions are based on calculated data. The unit will help students develop the real-life skills they need to succeed: to be able to think and choose responsibly as consumers, savers, investors, citizens, members of the workforce, and effective participants in a global economy.

More than nine in ten adults and students believe that it is important for the people of the United States to have a good understanding of economics. Virtually all adults believe that economics should be included in high school education. However, only half of high school students say they have ever been taught economics in school. Much of this instruction, when it does occur, appears to happen in 12th grade. (Marko and Bagnaschi)

UNIT BACKGROUND

Based on my ten years of experience in the corporate world, I wanted to incorporate as much of my prior knowledge from the business world to lessons that would prove interesting and provide real life applicability to students. My prior work experience includes working for a management consulting firm where I programmed accounting software for an oil and gas company, and then I worked as a financial analyst for Hewlett Packard. I also received my MBA in Finance from Rice University. I have learned from my work experience that there are people who have “business sense” and those who do not. I would like to teach students some very basic business concepts at an early age to incorporate some business sense in their education. I feel that by starting early to teach them about business, students can learn their required mathematics skills and see the applicability in real world concepts.

Through a combination of resources, including technology, literacy, and kinesthetic activities, students will be engaged in learning about business. Students will be presented with a company to be accountable for. The students will act as CEO by making calculations to make business decisions. The company will be of interest, such as a fast food company or candy company. Students will be introduced to a problem-solving model to be used to guide them through solving all word problems. Then the students will be guided through three basic business concepts – salaries, expenses, and profit and currency conversion. The concepts were chosen to be relatively easy to understand yet have the capability of offering challenging problems to the students where they can use the middle school skills (such as fractions and percents) that they learn in class. The teacher will introduce the lesson, and then the student will practice the lesson on his or her own company. For example, the students will be given facts about the company, such as income and expenses. Using their assigned company, the students will calculate business scenarios by applying their skills from class. The business curriculum unit will enrich each student’s learning experiences by providing a real life scenario with a company with which they are familiar. A business case scenario will offer multiple opportunities to appeal to different learning types through all the learning units. Some possible teaching strategies are to group the students based on prior achievement scores to differentiate the abilities in the classroom. Another teaching strategy could be to have a classroom “business case” for the teacher to use to model the focused lesson. Therefore, the students can be more successful in applying the lesson to their own individual business case. Students can also be given projects where they need to problem solve and apply multiple skills to arrive at a solution. The benefit of a business case is that it allows the students to problem solve a real-world case that they can relate to and are familiar with.

The following explains in more detail the background behind each lesson:

Problem Solving Strategies

Before beginning any business lessons, I felt it was important to have a whole lesson on problem solving strategies. The lesson will teach students the importance of thinking through a problem and having a plan before trying to solve the problem. A big problem that my students face when solving word problems is not knowing how to solve the problem. My students get very overwhelmed by the words and numbers and quite often guess a mathematical operation to use to find an answer. Through the lesson, I want the students to learn to use a strategic plan whenever faced with a word problem. Students are faced with problems in their daily lives which they solve without fear. These problems often take a similar planned approach, though it may not be consciously applied. The students should understand that though word problems are given in a math class, they can also be solved using a planned approach. I want students to further understand that this concept is not only used in middle school, but used by professionals to solve many decision making problems. As an introduction to the lesson, the teacher can introduce a simple real life problem to the students and ask how the students would solve it. For example, the

teacher may ask the students, if the students forgot their lunch money at home, what should they do? The teacher should guide the students through how their response would follow a problem solving plan.

The following problem solving plan should be explained and modeled to students. (See Appendix C)

EXPLORE – What are you trying to find? Restate the problem.

PLAN – Pick a problem solving strategy.

SOLVE – Use the problem solving strategy to solve the problem.

CHECK – Is the answer reasonable?

The following problem solving strategies should be explained and modeled to students. (See Appendix B)

- 1) Guess and Check
- 2) Look for a Pattern
- 3) Make a list/table
- 4) Draw a picture
- 5) Solve a simpler problem
- 6) Work backward
- 7) Use logical reasoning
- 8) Estimate reasonable answers
- 9) Use a graph

Salaries

I chose Salaries as the first lesson to motivate the students to learn about business because it is a topic with which they are familiar. Students always want to find out how much people make. The topic of salary will get them thinking about the business world and how different careers with different education levels earn varying levels of salary. The purpose of this lesson is also for the students to explore online the earning potential of different jobs available. I hope to encourage students to keep working hard in school so that they can one day make the salary that they investigate online.

Through an online investigation, students should explore the different salaries based on different education levels. Students should also understand that “salary” does not mean “take home salary.” Students will understand the different costs taken out in their salaries: tax, health insurance, social security. Students will calculate “take home salary” based on the given published salary and the tax rate. The teacher should provide an example of a paycheck so that students understand “net pay” vs. “gross pay.”

The definition of “net pay” and “gross pay” are as follows:

Net pay is the remaining amount AFTER deductions from the gross salary (net means ultimate). Salary is another word for wages and earnings.

Gross pay is what you make BEFORE any deductions.

Expenses

Following a lesson about salaries, it is important for students to learn about other expenses and understand that companies need to spend money to make money. The following expense definitions should be explained to students:

Salaries/wages – amount paid to employees

Rent – amount paid for rental facilities

Heat/utilities – amount paid for electricity

Raw materials – amount paid for materials used to make goods

Taxes – amount paid to government

Advertising – amount used for marketing

Given an understanding of the different definitions of expense types, students should also understand the different kind of expenses that different companies would have. For example, a computer company would have computers as expenses, whereas Burger King would have food as raw materials as expenses.

Profit

Now having prior knowledge about salaries and expenses, I chose profit as the fourth lesson for students to learn that the amount a company makes is the difference between the amount they produce/sell and all their costs of production (expenses). Based on my teaching experience, some students already have prior knowledge about profit. For example, a student may buy some candy at the store and then sell the candy to a friend. The profit would be the difference between the amount the student sold the candy for and the amount the student bought the candy for. This example can be used as an introduction to bring in prior knowledge before the lesson.

In this unit, I also wanted to provide a literary connection that would engage the students and provide a basic introduction to the importance of profit. “Arthur’s Pet Business” is about Arthur who really wants to have his own puppy. So Arthur starts his own pet business to prove his responsibility to his parents. In the story, Arthur does make a profit, but it is important to note to the students that not all businesses make profit. If you spend more than you make, you will end up losing money. Most companies that do not make a profit will have to close their business.

Teachers should discuss with students how a company is able to make decisions to make more profit in their business. For example, students should be able to respond that the company needs to have fewer expenses or sell their products for more money. To expand the lesson, an algebraic equation can be used to mathematically see how profit is computed. Advanced students should be able to calculate any of the three variables given two of the variables. The term revenue can be introduced if the students grasp the term profit and expenses.

$$\text{PROFIT} = \text{Amount the company makes (REVENUE)} - \text{EXPENSES}$$

Currency Conversion

The last lesson is focused on currency conversion and introduces situations where the companies might have to move to other countries. This lesson is included to give the students some international exposure. Since 99% of my students are Hispanic and over 50% of them have families back in Mexico, the international topic will motivate them. Students will be familiar with the Mexican Pesos. Given the demographics and prior knowledge of the students, the teacher should ask the students what the conversion rate is for the US Dollar to the Mexican Peso. The teacher should ask the students the conversion for different items so that the students can understand and be comfortable with the concept of currency conversion. After students are comfortable with the Mexican Peso, the teacher will introduce other international currencies to the students. It is helpful to use the Internet as an online resource to display to the students.

Given the current state of the economy where the dollar has dropped in value (weak dollar), the teacher should present to the students an example of how a company which resides in Mexico is affected if the US Dollar drops in value. The teacher should guide the students through this problem using the problem solving plan. Students should understand the difference between a “strong dollar” and a “weak dollar.”

This lesson allows the students to practice proportions and operations with fractions and decimals. As the students complete the assessment activity of converting the salaries to different currencies, students should be able to evaluate whether the US Dollar is strong or weak given a historical trend. A strong dollar would be where the US dollar can be exchanged for a large amount of goods in another currency. A weak dollar would not purchase a lot in another currency.

INCENTIVE PROGRAM

An incentive program is included in this curriculum to provide a method of motivation and a sense of the importance of responsibility in the real world through rewards and consequences. Students will be given a daily salary based on their participation in class and performance in class. The students will be given a student evaluation card where they will earn dollars based on their behavior and academic performance in class. Each student’s total salary will be recorded on a classroom display to motivate the students. Students that get off-task or have poor behavior in class will have a deduction from their daily salary. This will mock real life scenarios of having your salary deducted for poor evaluations. Also, students with above and beyond performances will receive bonuses. Students with A’s on their class work will also receive bonuses. Students will receive a daily evaluation to reflect their progress.

Academic	A – \$5000 B- \$4000 C- \$3000 D- \$2000 F – 0
Behavior	Excellent - \$5000 Satisfactory - \$4000 Poor - \$3000 Unsatisfactory - \$2000

See Appendix A.

LESSON PLANS

Lesson 1: Problem Solving Strategies

Objectives

Students will be able to

- use a problem solving model and
- identify and use problem solving strategies.

Materials

- 1) Internet
- 2) Construction paper

- 3) Markers
- 4) Worksheet

Focus Lesson

- 1) Teacher will engage students through futures channel video “10,000 Computers a Day” on problem solving.
- 2) Students will write examples of where they would need to use a problem solving plan/strategies and list some strategies they have used in their life.
- 3) Students will choose from a list of companies to act as CEO – Mars Inc., McDonald’s Inc., Burger King Inc., PepsiCo, Dell Computers. The teacher will explain the meaning and duties of a CEO.
- 4) Teacher will present problem solving model (4 box). See Appendix B.
- 5) Students will draw problem solving model onto construction paper with steps listed.
- 6) Teacher will introduce problem solving strategies and explain how each strategy is used.
- 7) Students will list out problem solving strategies on the back of their problem solving model.
- 8) Teacher will elaborate on 3 problem solving strategies – guess and check, make a table, and make a simpler problem.
- 9) Practice – students will answer real life problems of when to use each problem solving strategy.

Assessment: Students will complete a worksheet using specific examples of problem solving strategies so students will recognize when to use each problem. The students will act as the CEO of their company being presented with the following problem for their company.

http://www.thefutureschannel.com/pdf/math/computer_problems.pdf

Lesson 2: Salaries

Objective

Students will be able to define salary, calculate percent problems involving salary, determine ratios, and determine percent change based on salary increases and decreases. Students will also be able to understand “gross salary” vs. “net pay.” Students will be able to calculate net salary after taking out taxes.

Materials

- 1) worksheet
- 2) Internet

Focus Lesson

- 1) Teacher will explain the definition of salary. Teacher will explain how to calculate percent problems, determine ratios, and determine percent change.
- 2) Teacher will guide students through an example of salary and percent change problems using a teacher’s salary.
- 3) Teacher will present to students the different levels of management from the CEO down.
- 4) Students will search the Internet for the salary for their respective CEO. Students will also investigate the different levels of education required for the different position levels in the company. Teacher will provide websites for the students to begin their research:
<http://www.salary.com>
<http://www.payscale.com>
- 5) Students will calculate new salary based on 5% increase, 10% increase, 5% decrease, and 10% decrease.

- 6) Teacher will explain the difference between “salary” (gross salary) and “take home salary” (net salary). Students will calculate take home salary based on the appropriate tax rate.

Assessment: Students will solve word problems involving percent change using problem solving model on their own company.

Lesson 3: Expenses

Objective

Students will be able to complete a problem solving exercise accomplishing the following objectives (FuturesChannel)

- Can distinguish between relevant and irrelevant information
- Can create a problem
- Can choose the correct operations in solving a problem
- Can solve multi-step problems
- Can break a problem up into simpler parts
- Can apply the problem-solving strategy "solve a simpler problem"
- Can explain the reasoning used to solve a problem
- Can convert measurement units
- Can determine surface area of a rectangular prism
- Can determine volume of a rectangular prism
- Can find the average and range of a set of numbers
- Can solve problems involving percents
- Can solve money and time problems
- Can use the counting principle to determine the number of possible outcomes when choices are involved

Materials

- 1) Internet
- 2) Worksheet

Focus Lesson

- 1) Teacher will present scenario of buying computers for a company. Teacher will explain the definition of the word expense.
- 2) Teacher will play the futures channel video:
http://www.thefutureschannel.com/dockets/hands-on_math/dell/
- 3) Teacher will guide the students through a lesson on solving problems involving percents using a proportion or by multiplying.
- 4) Teacher will model how different decisions can be made based on different expense requirements.

Assessment: Students will complete the buying computer supplies exercise for each of their companies. http://www.thefutureschannel.com/pdf/math/computer_problems.pdf
Students will need to make decisions for their companies to keep their expenses as low as possible.

Lesson 4 – Profit or perish!

Objective

Students will define profit and calculate profit based on given income and expenses.

Materials

- 1) Internet
- 2) Worksheet

Vocabulary

Profit, Return on Investment, Total revenue, Fixed Cost, Variable Costs, Total cost
(See Appendix D)

Focus Lesson

- 1) Teacher will discuss profit and cost vocabulary. Have students generate a definition on chart paper.
- 2) Read “Arthur’s Pet Business” by Marc Brown. (kidseconbooks.com)

Questions: (Arthur)

Why did Arthur need a job?

To show responsibility to his parents, to get to get a puppy, to earn money to repay his sister, D.W.

List his choices of possible jobs.

Bank teller, car crusher

What did Arthur think of doing that he knew he would enjoy?

Starting a pet business to care for other people’s pets

What other advantage did running a Pet Business have for Arthur?

It gave him the opportunity to practice taking care of pets, increasing the likelihood that his parents would let him have a pet.

How did Arthur let people know about (i.e. increase the demand for) his business?

He advertised by putting up signs.

Identify Arthur's personal costs in running a business.

His costs were mainly the costs of his time – his own human resources. He had to work long hours and had a lot of responsibility. This created a lot of stress and exhaustion in his life.

What risks were involved in Arthur's business?

Dangerous pets, losing the pets, destroying his mother’s house.

Was Arthur's business profitable?

Yes

What did Arthur earn?

He earned ten dollars and the privilege to have his own puppy.

How did he spend the money he earned from his business?

He paid back the seven dollars that he owed his sister.

Are businesses always successful?

No! Many businesses do not make profits at all. They actually lose money and eventually have to close down. There is always risk when you start a business – you never know for sure if you will make a profit.

- 3) Teacher will guide the students through a lesson calculating profit.
- 4) Teacher will also model how different decisions are made in a company based on the calculated profit.
- 5) Teacher will provide data for each student’s company and determine whether the company should maintain or change their operations.

Assessment: Students will need to calculate the profit based on different teacher-provided information on each company. Students will need to answer questions based on the calculated profit for each company.

Lesson 5 – Currency Conversion

Objective

Students will be able to use proportions to convert currency.

Materials

- 1) Internet
- 2) Worksheet

Focus Lesson

- 1) Teacher will introduce a scenario where the economy has shown weak performance and the companies need to consider moving their company abroad.
- 2) Teacher will guide the students through a lesson on converting currency.
- 3) Students will complete activity to match different countries with different currencies.
<http://mathandecon.ncee.net/912/visuals.php>

Assessment: Students will calculate how much their salary and expenses would be in three different country's currency.

Appendix A

Students Evaluation Card

CEO Name <u>Jesus Palacios</u>		Company <u>Nike Company</u>			
Period <u>1</u>					
	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Academic	5000	3000			
Behavior	2000	3000			
Total	7000	6000			

Classroom Evaluation Board

Class Period 1					
	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Rosa Cortez					
Jesus Palacios NIKE CEO	7000	6000			
Ariana Flores					
Tyia Hutchins					

Appendix B

Problem Solving Strategies!!

GUESS and CHECK

Look for a Pattern

Make a list/table

Draw a picture

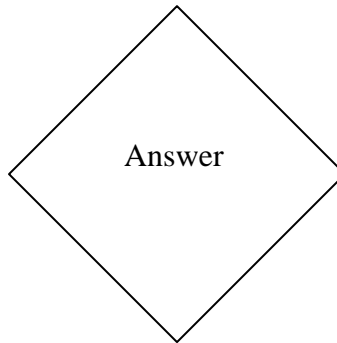
Solve a simpler problem

Work backward

Use logical reasoning

Estimate reasonable answers

Use a graph



EXPLORE

- Read the problem carefully
- What information is given?
- In your own words, what do you need to find out?
- Is enough information given?
- Is there extra information?

PLAN

- Select a **strategy** for solving the problem.
- Estimate the answer

SOLVE

- Use your plan to solve the problem
- If your plan does not work, make a new plan
- What is the solution?

CHECK

- Reread the question.
- Write the answer in a complete sentence.
- Does your answer fit the facts given in the problem?
- Is your answer reasonable compared to your estimate?

Appendix C

Appendix D

VOCABULARY (From: These Kids Mean Business)

- Profit** the difference between a firm's total revenue and total cost of production
- Return on Investment** profit as a percentage of the amount invested in a firm
- Total Revenue** selling price multiplied by the quantity sold
- Fixed Costs** costs of production that remain the same as the quantity of goods or services produced changes
- Variable Costs** costs of production that change as the quantity of goods or services produced changes
- Total Cost** the sum of all costs of production, both fixed and variable

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