

**TEXAS ASSESSMENT OF KNOWLEDGE AND SKILLS  
OBJECTIVES  
AND  
TEXAS ESSENTIAL KNOWLEDGE AND SKILLS**

**Correlation for the Stock Market Game**

**Mathematics Grade 4-8**

**Mathematics Grade 4**

***TAKS Objective 1- Number , Operation, and Quantitative Reasoning***

**4.1 Number, operation, and quantitative reasoning. The student uses place value to represent whole numbers and decimals. The student is expected to:**

(A) use place value to read, write, compare, and order whole numbers through the millions place; and

(B) use place value to read, write, compare, and order decimals involving tenths and hundredths, including money, using concrete models.

**SMG WORLDWIDE Connections:**

**Students will:**

- 1. read numbers correctly as they decide which stocks to purchase.**
- 2. compare and order volumes of stock sold of various companies as they consider which stock to purchase.**
- 3. increase their understanding of**
  - a) the base ten number system**
  - b) decimal placements,**
  - c) fractions**
  - d) Percent equivalents**
  - e) Magnitude of numbers, as they invest their \$100,000, Calculate broker fees of two percent, calculate number of shares To purchase/sell and calculate total transactions.**
- 4. Strengthen their understanding of multiplication and division Operations as students determine number of shares they may Purchase at a given price or anticipate gain if x number of shares Is sold at x price, calculate total costs/gains of buys and sells and Calculate gain per share.**
- 5. Work with whole number computations study and calculate decimal Placement, convert percents to decimals as they learn stock price listings, Convert whole numbers to dollars and cents, compute broker fees and Calculate total buys/sells.**

**Curriculum Resources: TAKS Objective 1**

***Learning from the Market: Lessons 1, 6, 7, 8***

***The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18***

**4.2 Number, operation, and quantitative reasoning. The student describes and compares fractional parts of whole objects or sets of objects. The student is expected to:**

- (A) Generate equivalent fractions using concrete and pictorial models;
- (B) Model fraction quantities greater than one using concrete materials and pictures;
- (C) Compare and order fractions using concrete and pictorial models; and
- (D) Relate decimals to fractions that name tenths and hundredths using models.

**SMG WORLDWIDE Connections:**

**Students will:**

- 1. Research the history of stock market pricing (the fractional method) To generate equivalent fractions of the current decimal method and Compare with the current decimal method for ease of use.**
- 2. Convert the stock prices in the fraction format into equivalent fractions In order to add and subtract them effectively.**

**Curriculum Resources: TAKS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

**4.3 Number, operation, and quantitative reasoning. The student adds and subtracts to solve meaningful problems involving whole numbers and decimals. The student is expected to:**

- (A) Use addition and subtraction to solve problems involving whole numbers; and
- (B) Add and subtract decimals to the hundredths place using concrete and pictorial models.

**SMG WORLDWIDE Connections:**

**Students will:**

- 1. add, subtract, multiply and divide numbers as they determine how much of their team's \$100,000 to invest in specific companies.**
- 2. select and use the appropriate operation to determine how many shares they can buy at a given price, to calculate the total cost of a transaction, and to calculate the total value of their team portfolio.**
- 3. evaluate each transaction or trade for reasonableness.**
- 4. identify companies in which they wish to invest.**
- 5. collect and analyze information about the identified companies.**

**Curriculum Resources: TAKS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

*Take Stock in Texas Lessons*

**4.4 Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers. The student is expected to:**

- (A) model factors and products using arrays and area models;
- (B) represent multiplication and division situations in picture, word, and number form;
- (C) recall and apply multiplication facts through  $12 \times 12$ ;
- (D) use multiplication to solve problems involving two-digit numbers; and
- (E) use division to solve problems involving one-digit divisors.

**SMG WORLDWIDE Connections:**

**Students will:**

1. add, subtract, multiply and divide numbers as they determine how much of their team's \$100,000 to invest in specific companies.
2. select and use the appropriate operation to determine how many shares they can buy at a given price, to calculate the total cost of a transaction, and to calculate the total value of their team portfolio.
3. evaluate each transaction or trade for reasonableness.
4. identify companies in which they wish to invest.
5. collect and analyze information about the identified companies.

**Curriculum Resources: TAKS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

**4.5 Number, operation, and quantitative reasoning. The student estimates to determine reasonable results. The student is expected to:**

- (A) round whole numbers to the nearest ten, hundred, or thousand to approximate reasonable results in problem situations; and
- (B) estimate a product or quotient beyond basic facts.

**SMG WORLDWIDE Connections:**

**Students will:**

1. evaluate each transaction or trade for reasonableness by estimating cost of transaction using rounding methods.
2. estimate the broker's fee of 2% in order to estimate the total amount spent during a transaction.

**Curriculum Resources: TAKS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

## ***TAKS Objective 5- Probability and Statistics***

**4.13 Probability and statistics. The student solves problems by collecting, organizing, displaying, and interpreting sets of data. The student is expected to:**

- (A) list all possible outcomes of a probability experiment such as tossing a coin;
- (B) use a pair of numbers to compare favorable outcomes to all possible outcomes such as four heads out of six tosses of a coin; and
- (C) interpret bar graphs.

### **SMG WORLDWIDE Connections:**

**Students will:**

- 1. evaluate daily statistics of stock performance and demonstrate how they contribute to weekly, monthly, and yearly stats (e.g. as students monitor daily the highs and lows of the stocks in their portfolio they will understand how the weekly, monthly, and yearly stats have been derived).**
- 2. predict future performance based upon evaluation of past performance.**

### **Curriculum Resources: TAKS Objective 5**

*Learning from the Market: Lessons 3, 6, 7, 8, 10*

*The Stock Market Game Guide: Lessons 7, 8, 9, 11, 12, 13, 14, 15, 17*

## ***TAKS Objective 6 Underlying Processes and Mathematical Tools***

**4.14 Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:**

- (A) identify the mathematics in everyday situations;
- (B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;
- (C) select or develop an appropriate problem-solving strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and
- (D) use tools such as real objects, manipulatives, and technology to solve problems.

### **Curriculum Resources: TAKS Objective 6**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

# ***SMG WORLDWIDE CORRELATION TO THE TEXAS ASSESSMENT OF KNOWLEDGE AND SKILLS OBJECTIVES***

***AND***

## **TEXAS ESSENTIAL KNOWLEDGE AND SKILLS Mathematics Grade 5**

**The Stock Market Game™** (SMG WORLDWIDE), is an educational program of the Securities Industry for Economic Education. It is distributed regionally by the Texas Council on Economic Education and the Newspaper in Education program of *The Dallas Morning News*.

The SMG is an internet-based investment simulation offered each fall and spring. Teams of 3-5 students begin their trading session with a hypothetical \$100,000. They research companies and make decisions about the purchase and sale of stock while learning about markets and the American economic system. The Stock Market Game provides classroom teachers an interesting and real life example that broadens and develops mathematical skills and understanding. It also offers teachers an opportunity to infuse language arts and social studies into the math curriculum, while using computer and Internet skills in a practical and meaningful way.

SMG Worldwide supports student development of the mathematical proficiency desired at the middle grades. It can be utilized in the self-contained classroom or easily adapted to a teaching theme or special learning experience for schools structured around team teaching of the four core disciplines (mathematics, social science, language arts and science). Students work with large number concepts, ratios, fractions, decimals, proportions, and probability while engaged in problem solving and decision making.

The following document correlates the Stock Market Game to TAKS Objectives and TEKS student expectations for sixth grade math. It illustrates how the SMG program can be used to teach and reinforce state required skills for middle school students. Suggested curriculum resources are included.

Special thanks to Marcie Brown, a mathematics teacher at Van Junior High School, Van ISD, for her work in preparing this document. Her original contributions, as well as adaptations from the *SMG WORLDWIDE Correlation to National Council of Teachers of Mathematics Principles and Standards for School Mathematics*, provide a valuable tool for math teachers across the state of Texas.

This project was made possible through a grant from *The Dallas Morning News*. Debbie Mackey served as project manager and editor.

### ***TAKS Objective 1***

***Numbers, Operations and Quantitative Reasoning.***

**TEK 5.1 Number, operation and quantitative reasoning. The student uses place value to represent whole numbers and decimals. The student is expected to:**

- A. use place value to read, write, compare and order whole numbers through the billions place; and
- B. use place value to read, write, compare and order decimals through the thousandths place.

**SMG WORLDWIDE Connections:**

Students will:

1. read numbers correctly as they decide which stocks to purchase.
2. compare and order volumes of stock sold of various companies as they consider which stock to purchase.
3. increase their understanding of a) the base ten number system b) decimal placements, c) fractions, d) percent equivalents and e) magnitude of numbers, as they invest their \$100,000, calculate broker fees of two percent, calculate number of shares to purchase/sell and calculate total transactions.
4. strengthen their understanding of multiplication and division operations as students determine number of shares they may purchase at a given price or anticipate gain if x number of shares is sold at x price, calculate total costs/gains of buys and sells and calculate gain per share.
5. work with whole number computations, study and calculate decimal placement, convert percents to decimals as they learn stock price listings, convert whole numbers to dollars and cents, compute broker fees and calculate total buys/sells.

**TEK 5.2 Number, operation and quantitative reasoning. The student uses fractions in problem-solving situations. The student is expected to:**

- A. generate equivalent fractions;
- B. compare two fractional quantities in problem-solving situations using a variety of methods, including common denominators; and
- C. use models to relate decimals to fractions that name tenths, hundredths and thousandths.

**SMG WORLDWIDE Connections:**

Students will:

1. research the history of stock market pricing (the fractional method) to generate equivalent fractions of the current decimal method and compare with the current decimal method for ease of use.
2. convert the stock prices in the fraction format into equivalent fractions in order to add and subtract them effectively.

**Curriculum Resources: TAKS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

*Take Stock in Texas Lessons*

**TEK 5.3 Number, operation and quantitative reasoning. The student adds, subtracts, multiplies and divides to solve meaningful problems. The student is expected to:**

- A. use addition and subtraction to solve problems involving whole numbers and decimals;
- B. use multiplication to solve problems involving whole numbers (no more than three digits times two digits without technology);
- C. use division to solve problems involving whole numbers (no more than two-digit divisors and three-digit dividends without technology);
- D. identify prime factors of a whole number and common factors of a set of whole numbers; and
- E. model and record addition and subtraction of fractions with like denominators in problem-solving situations.

**SMG WORLDWIDE Connections:**

Students will:

1. add, subtract, multiply and divide numbers as they determine how much of their team's \$100,000 to invest in specific companies.
2. select and use the appropriate operation to determine how many shares they can buy at a given price, to calculate the total cost of a transaction, and to calculate the total value of their team portfolio.
3. evaluate each transaction or trade for reasonableness.
4. identify companies in which they wish to invest.
5. collect and analyze information about the identified companies.

**5.4 Number, operation and quantitative reasoning. The student estimates to determine reasonable results. The student is expected to:**

- A. round whole numbers and decimals through tenths to approximate reasonable results in problem situations; and
- B. estimate to solve problems where exact answers are not required.

**SMG WORLDWIDE Connections:**

Students will:

1. evaluate each transaction or trade for reasonableness by estimating cost of transaction using rounding methods.
2. estimate the broker's fee of 2% in order to estimate the total amount spent during a transaction.

**Curriculum Resources: TAKS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

***TAKS Objective 2***

*The student will demonstrate an understanding of patterns, relationships and algebraic reasoning.*

**5.5 Patterns, relationships and algebraic thinking. The student makes generalizations based on observed patterns and relationships. The student is expected to:**

- A. use [concrete objects or] pictures to make generalizations about determining all possible combinations;
- B. use lists, tables, charts and diagrams to find patterns and make generalizations such as a procedure for determining equivalent fractions; and
- C. identify prime and composite numbers using [concrete] models and patterns in factor pairs.

**SMG WORLDWIDE Connections:**

Students will:

1. research the history of a particular stock interpreting charts, tables and diagrams in their prediction of a particular stock's success.
2. evaluate the success of the stock market by creating charts and graphs of market performance from its inception to current times.
3. use the trend (pattern) of increasing performance in the market to predict what a portfolio will be worth given similar circumstances in the future.

**5.5 Patterns, relationships and algebraic thinking. The student describes relationships mathematically. The student is expected to:**

A. select from and use diagrams and number sentences to represent real-life situations.

**SMG WORLDWIDE Connections:**

Students will:

1. use multiplication number sentence to find the 2% broker's fee (total cost = 1.02 X cost of stock).
2. create a pie chart illustrating the proportion a particular stock in their portfolio occupies in relation to their whole portfolio
3. determine, given a quantity of money, how a change in one variable (an expenditure or receipt) relates to a change in the given quantity.
4. examine relationships such as the price of a stock and the amount paid in broker fees and the price of a stock and value it must increase in order to sell at a profit.

**Curriculum Resources: TAKS Objective 2**

*Learning from the Market: Lessons 2, 6, 7, 8, 9, 13*

***TEKS Objective 5 Probability and Statistics***

**5.12 Probability and statistics. The student describes and predicts the results of a probability experiment. The student is expected to:**

- A. use fractions to describe the results of an experiment; and  
B. use experimental results to make predictions.

**SMG WORLDWIDE Connections:**

Students will:

1. evaluate daily statistics of stock performance and demonstrate how they contribute to weekly, monthly, and yearly stats (e.g. as students monitor daily the highs and lows of the stocks in their portfolio they will understand how the weekly, monthly, and yearly stats have been derived).
2. predict future performance based upon evaluation of past performance.

**5.13 Probability and statistics. The student solves problems by collecting, organizing, displaying and interpreting sets of data. The student is expected to:**

- A. use tables of related number pairs to make line graphs;  
B. describe characteristics of data presented in tables and graphs including the shape and spread of the data and the middle number; and  
C. graph a given set of data using an appropriate graphical representation such as a picture or line.

**SMG WORLDWIDE Connections:**

Students will:

1. create line graphs and tables of the performance of their portfolios.
2. calculate mean, median and mode from particular sets of stocks in order to categorize them by fiscal characteristics.
3. compare the daily performance of selected stocks in their portfolios using bar graphs.

**Curriculum Resources: TAKS Objective 5**

*Learning from the Market: Lessons 3, 6, 7, 8, 10*

The Stock Market Game Guide: Lessons 7, 8, 9, 11, 12, 13, 14, 15, 17

**5.14 Underlying processes and mathematical tools. The student applies Grade 5 mathematics to solve problems connected to everyday** experiences and activities in and outside of school. The student is expected to:

- (A) identify the mathematics in everyday situations;
- (B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;
- (C) select or develop an appropriate problem-solving strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and
- (D) use tools such as real objects, manipulatives, and technology to solve problems.

**SMG WORLDWIDE Connections:**

Students will:

1. participate in the SMG program by applying math skills to this “real world” investment simulation.
2. experience the interdisciplinary benefits of the SMG in the areas of social studies, language arts and technology.
3. apply math and research skills to solve the problem of how to best invest \$100,000, implement their plan and evaluate the results in terms of profit/loss.
4. research selected companies and develop decision making strategies about investments.

**Curriculum Resources: TAKS Objective 6**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

# ***SMG WORLDWIDE CORRELATION TO THE TEXAS ASSESSMENT OF KNOWLEDGE AND SKILLS OBJECTIVES AND TEXAS ESSENTIAL KNOWLEDGE AND SKILLS***

## ***Grade 6***

**The Stock Market Game™** (SMG WORLDWIDE), is an educational program of the Securities Industry for Economic Education. It is distributed regionally by the Texas Council on Economic Education and the Newspaper in Education program of *The Dallas Morning News*.

The SMG is an internet-based investment simulation offered each fall and spring. Teams of 3-5 students begin their trading session with a hypothetical \$100,000. They research companies and make decisions about the purchase and sale of stock while learning about markets and the American economic system. The Stock Market Game provides classroom teachers an interesting and real life example that broadens and develops mathematical skills and understanding. It also offers teachers an opportunity to infuse language arts and social studies into the math curriculum, while using computer and Internet skills in a practical and meaningful way.

SMG Worldwide supports student development of the mathematical proficiency desired at the middle grades. It can be utilized in the self-contained classroom or easily adapted to a teaching theme or special learning experience for schools structured around team teaching of the four core disciplines (mathematics, social science, language arts and science). Students work with large number concepts, ratios, fractions, decimals, proportions, and probability while engaged in problem solving and decision making.

The following document correlates the Stock Market Game to TAKS Objectives and TEKS student expectations for sixth grade math. It illustrates how the SMG program can be used to teach and reinforce state required skills for middle school students. Suggested curriculum resources are included.

Special thanks to Marcie Brown, a mathematics teacher at Van Junior High School, Van ISD, for her work in preparing this document. Her original contributions, as well as adaptations from the *SMG WORLDWIDE Correlation to National Council of Teachers of Mathematics Principles and Standards for School Mathematics*, provide a valuable tool for math teachers across the state of Texas.

This project was made possible through a grant from *The Dallas Morning News*. Debbie Mackey served as project manager and editor.

## ***TAKS Objective 1- Numbers ,Operation, and Quantitative Reasoning***

**6.1 Number, operation, and quantitative reasoning. The student represents and uses rational numbers in a variety of equivalent forms. The student is expected to:**

- (A) compare and order non-negative rational numbers;
- (B) generate equivalent forms of rational numbers including whole numbers, fractions, and decimals;
- (C) use integers to represent real-life situations;
- (D) write prime factorizations using exponents; and
- (E) identify factors and multiples including common factors and common multiples.

### **SMG WORLDWIDE Connections:**

Students will:

1. read numbers correctly as they decide which stocks to purchase.
2. compare and order volumes of stock sold of various companies as they consider which stock to purchase.
3. increase their understanding of a) the base ten number system b) decimal placements, c) fractions, d) percent equivalents and e) magnitude of numbers, as they invest their \$100,000, calculate broker fees of two percent, calculate number of shares to purchase/sell and calculate total transactions.
4. strengthen their understanding of multiplication and division operations as students determine number of shares they may purchase at a given price or anticipate gain if x number of shares is sold at x price, calculate total costs/gains of buys and sells and calculate gain per share.
5. work with whole number computations, study and calculate decimal placement, convert percents to decimals as they learn stock price listings, convert whole numbers to dollars and cents, compute broker fees and calculate total buys/sells.

### **Curriculum Resources: TAKS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

**6.2 Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, and divides to solve problems and justify solutions. The student is expected to:**

- (A) model addition and subtraction situations involving fractions with objects, pictures, words, and numbers;
- (B) use addition and subtraction to solve problems involving fractions and decimals;
- (C) use multiplication and division of whole numbers to solve problems including situations involving equivalent ratios and rates; and

(D) estimate and round to approximate reasonable results and to solve problems where exact answers are not required.

**SMG WORLDWIDE Connections:**

**Students will:**

1. research the history of stock market pricing (the fractional method) to generate equivalent fractions of the current decimal method and compare with the current decimal method for ease of use.
2. convert the stock prices in the fraction format into equivalent fractions in order to add and subtract them effectively.

**Curriculum Resources: TAKS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

*Take Stock in Texas Lessons*

***TAKS Objective 2- Patterns. Relationships and Algebraic Thinking***

**6.3 Patterns, relationships, and algebraic thinking. The student solves problems involving proportional relationships. The student is expected to:**

- (A) use ratios to describe proportional situations;
- (B) represent ratios and percents with concrete models, fractions, and decimals; and
- (C) use ratios to make predictions in proportional situations.

**SMG WORLDWIDE Connections:**

**Students will:**

1. add, subtract, multiply and divide numbers as they determine how much of their team's \$100,000 to invest in specific companies.
2. select and use the appropriate operation to determine how many shares they can buy at a given price, to calculate the total cost of a transaction, and to calculate the total value of their team portfolio.
3. evaluate each transaction or trade for reasonableness.
4. identify companies in which they wish to invest.
5. collect and analyze information about the identified companies.

**Curriculum Resources: TAKS Objective 2**

*Learning from the Market: Lessons 2, 6, 7, 8, 9, 13*

## ***TAKS Objective 5- Probability and Statistics***

**6.10 Probability and statistics. The student uses statistical representations to analyze data. The student is expected to:**

- (A) draw and compare different graphical representations of the same data;
- (B) use median, mode, and range to describe data;
- (C) sketch circle graphs to display data; and
- (D) solve problems by collecting, organizing, displaying, and interpreting data.

### **SMG WORLDWIDE Connections:**

Students will:

1. evaluate daily statistics of stock performance and demonstrate how they contribute to weekly, monthly, and yearly stats (e.g. as students monitor daily the highs and lows of the stocks in their portfolio they will understand how the weekly, monthly, and yearly stats have been derived).
2. predict future performance based upon evaluation of past performance from graphical representations.

### **Curriculum Resources: TAKS Objective 5**

*Learning from the Market: Lessons 3, 6, 7, 8, 10*

The Stock Market Game Guide: Lessons 7, 8, 9, 11, 12, 13, 14, 15, 17

## ***TAKS Objective 6 – Underlying Processes and Mathematical Tools***

**6.11 Underlying processes and mathematical tools. The student applies Grade 6 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:**

- (A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;
- (B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;
- (C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and
- (D) select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.

**SMG WORLDWIDE Connections:**

Students will:

1. participate in the SMG program by applying math skills to this “real world” investment simulation.
2. experience the interdisciplinary benefits of the SMG in the areas of social studies, language arts and technology.
3. apply math and research skills to solve the problem of how to best invest \$100,000, implement their plan and evaluate the results in terms of profit/loss.
4. research selected companies and develop decision making strategies about investments.

**Curriculum Resources: TAKS Objective 6**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

**6.12 Underlying processes and mathematical tools. The student communicates about Grade 6 mathematics through informal and mathematical language, representations, and models. The student is expected to:**

(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and

(B) evaluate the effectiveness of different representations to communicate ideas.

**SMG WORLDWIDE Connections:**

Students will:

1. communicate ideas and research results verbally, with printed articles, with graphs, or with any other form with teammates throughout the SMG.
2. develop a final SMG presentation that can include graphs, research and weekly portfolios that summarize their team decisions and performance. Presentations can be turned in as a folder, an oral report with strong visual aids, shared with the class as a multimedia presentation (PowerPoint), or published on a web page.
3. conduct peer evaluations to measure the effectiveness of methods of communicating ideas.

**Curriculum Resources: TAKS Objective 6**

*Learning from the Market: Lessons 1, 6, 7, 8*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 9, 11, 15, 18*

***SMG WORLDWIDE CORRELATION TO THE  
TEXAS ASSESSMENT OF KNOWLEDGE AND  
SKILLS OBJECTIVES  
AND  
TEXAS ESSENTIAL KNOWLEDGE AND SKILLS***

**MATHEMATICS – GRADE 7**

**The Stock Market Game™** (SMG WORLDWIDE), is an educational program of the Securities Industry for Economic Education. It is distributed regionally by the Texas Council on Economic Education and the Newspaper in Education program of *The Dallas Morning News*.

The SMG is an internet-based investment simulation offered each fall and spring. Teams of 3-5 students begin their trading session with a hypothetical \$100,000. They research companies and make decisions about the purchase and sale of stock while learning about markets and the American economic system. The Stock Market Game provides classroom teachers an interesting and real life example that broadens and develops mathematical skills and understanding. It also offers teachers an opportunity to infuse language arts and social studies into the math curriculum, while using computer and Internet skills in a practical and meaningful way.

SMG Worldwide supports student development of the mathematical proficiency desired at the middle grades. It can be utilized in the self-contained classroom or easily adapted to a teaching theme or special learning experience for schools structured around team teaching of the four core disciplines (mathematics, social science, language arts and science). Students work with large number concepts, ratios, fractions, decimals, proportions, and probability while engaged in problem solving and decision making.

The following document correlates the Stock Market Game to TAKS Objectives and TEKS student expectations for seventh grade math. It illustrates how the SMG program can be used to teach and reinforce state required skills for middle school students. Suggested curriculum resources are included.

Special thanks to Marcie Brown, a mathematics teacher at Van Junior High School, Van ISD, for her work in preparing this document. Her original contributions, as well as adaptations from the *SMG WORLDWIDE Correlation to National Council of Teachers of Mathematics Principles and Standards for School Mathematics*, provide a valuable tool for math teachers across the state of Texas.

This project was made possible through a grant from *The Dallas Morning News*. Debbie Mackey served as project manager and editor.

## ***TAKS Objective 1- Numbers ,Operation, and Quantitative Reasoning***

**7.1 Number, operation, and quantitative reasoning. The student represents and uses numbers in a variety of equivalent forms. The student is expected to:**

- (A) compare and order integers and positive rational numbers;
- (B) convert between fractions, decimals, whole numbers, and percents mentally, on paper, or with a calculator; and
- (C) represent squares and square roots using geometric models.

### **SMG WORLDWIDE Connections:**

Students will:

1. compare and order rational numbers as they research price per share of common stock, analyze gains and losses on team portfolios, work with weekly highs and lows of a stock price, and compare yields.
2. use integers and decimals as they compare daily and weekly changes in stock prices.
3. convert the 2% broker's fee charged for each transaction into a decimal number.
4. determine that it is appropriate to use positive decimals for gains and negative decimals for losses.

### **Curriculum Resources: TAAS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8, 11, 15, 16, 18*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 8, 9, 11, 15, 18*

**7.2 Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, or divides to solve problems and justify solutions. The student is expected to:**

- (A) represent multiplication and division situations involving fractions and decimals with concrete models, pictures, words, and numbers;
- (B) use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals;
- (C) use models to add, subtract, multiply, and divide integers and connect the actions to algorithms;
- (D) use division to find unit rates and ratios in proportional relationships such as speed, density, price, recipes, and student-teacher ratio;
- (E) simplify numerical expressions involving order of operations and exponents;
- (F) select and use appropriate operations to solve problems and justify the selections; and

(G) determine the reasonableness of a solution to a problem.

**SMG WORLDWIDE Connections:**

Students will:

1. research the history of stock market pricing (the fractional method) to generate equivalent fractions of the current decimal method and compare with the current decimal method for ease of use.
2. convert the stock prices in the fraction format into equivalent fractions in order to add and subtract them effectively.

**Curriculum Resources: TAAS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8, 11, 15, 16, 18*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 8, 9, 11, 15, 18*

***TAKS Objective 2- Patterns, Relationships, and Algebraic Thinking***

**7.3 Patterns, relationships, and algebraic thinking. The student solves problems involving proportional relationships. The student is expected to:**

(A) estimate and find solutions to application problems involving percent; and

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

**SMG WORLDWIDE Connections:**

Students will:

1. compare interest rates to the percent of increase in a stock price.
2. use proportion properties to determine the change in their team's total investment when the price of a stock changes.
3. determine how a changing stock price affects the 2% broker's fee.
4. examine their team portfolio and determine which stocks have brought the highest profit, and which stocks have brought the greatest percent increase.
5. practice proportional reasoning skills to determine which stocks are better investments and if a high or low price earnings ratio is better for the SMG.
6. compare stock of different industries, stock of companies in the same industry, stock of new vs. established companies, etc.

**Curriculum Resource: TAAS Objective 2**

*Learning from the Market: Lessons 2, 6, 7, 8, 11, 13, 16, 18*

**7.4 Patterns, relationships, and algebraic thinking. The student represents a relationship in numerical, geometric, verbal, and symbolic form. The student is expected to:**

(A) generate formulas involving conversions, perimeter, area, circumference, volume, and scaling;

(B) graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling; and

(C) describe the relationship between the terms in a sequence and their positions in the sequence.

**SMG WORLDWIDE Connections:**

Students will:

1. use various forms of graphs, tables and charts in their predictions of which stocks will make money for their team.
2. use many forms of graphs, tables and charts to determine when to buy or sell stocks in order to turn the biggest profit.
3. use an algebraic expression to find the broker's fee for any trade.

**Curriculum Resource: TAAS Objective 2**

*Learning from the Market: Lessons 2, 6, 7, 8, 11, 13, 16, 18*

***TAKS Objective 5- Probability and Statistics***

**7.11 Probability and statistics. The student understands that the way a set of data is displayed influences its interpretation. The student is expected to:**

(A) select and use an appropriate representation for presenting collected data and justify the selection; and

(B) make inferences and convincing arguments based on an analysis of given or collected data.

**SMG WORLDWIDE Connections:**

Students will:

1. evaluate methods their team used to choose investments to determine which data proved to be most effective in making investments.
2. look for biased information and misleading graphs and data as they research stock information.

**Curriculum Resources: TAAS II Objective 5**

*Learning from the Market: Lessons 3, 6, 7, 8, 10, 11, 15, 16, 18, 21, 22, 23, 24*

*The Stock Market Game Guide: Lessons 7, 8, 9, 11, 12, 13, 14, 15, 17*

***TAKS Objective 6- Underlying Processes and Mathematical Tools***

**7.13 Underlying processes and mathematical tools. The student applies Grade 7 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:**

(A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;

(B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;

(C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and

(D) select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.

**SMG WORLDWIDE Connections:**

Students will:

1. communicate ideas and research results verbally, with printed articles, with graphs, or with any other form with teammates throughout the SMG.
2. develop a final SMG presentation that can include graphs, research and weekly portfolios that summarize their team decisions and performance. Presentations can be turned in as a folder, an oral report with strong visual aids, shared with the class as a multimedia presentation (PowerPoint), or published on a web page.
3. conduct peer evaluations to measure the effectiveness of methods of communicating ideas.
4. evaluate their team's investment decisions to determine how and why money was gained or lost.
5. identify how they might change their investment strategy in the future to improve results.

**Curriculum Resources: TAKS Objective 6**

*Learning from the Market: Lessons 1, 3, 7, 8, 9, 11, 13, 15, 23, 24*  
*The Stock Market Game Guide: Lessons 16, 17*

# ***SMG WORLDWIDE CORRELATION TO THE TEXAS ASSESSMENT OF KNOWLEDGE AND SKILLS OBJECTIVES AND TEXAS ESSENTIAL KNOWLEDGE AND SKILLS MATHEMATICS – GRADE 8***

**The Stock Market Game™** (SMG WORLDWIDE), is an educational program of the Securities Industry for Economic Education. It is distributed regionally by the Texas Council on Economic Education and the Newspaper in Education program of *The Dallas Morning News*.

The SMG is an internet-based investment simulation offered each fall and spring. Teams of 3-5 students begin their trading session with a hypothetical \$100,000. They research companies and make decisions about the purchase and sale of stock while learning about markets and the American economic system. The Stock Market Game provides classroom teachers an interesting and real life example that broadens and develops mathematical skills and understanding. It also offers teachers an opportunity to infuse language arts and social studies into the math curriculum, while using computer and Internet skills in a practical and meaningful way.

SMG Worldwide supports student development of the mathematical proficiency desired at the middle grades. It can be utilized in the self-contained classroom or easily adapted to a teaching theme or special learning experience for schools structured around team teaching of the four core disciplines (mathematics, social science, language arts and science). Students work with large number concepts, ratios, fractions, decimals, proportions, and probability while engaged in problem solving and decision making.

The following document correlates the Stock Market Game to TAKS Objectives and TEKS student expectations for eighth grade math. It illustrates how the SMG program can be used to teach and reinforce state required skills for middle school students. Suggested curriculum resources are included.

Special thanks to Marcie Brown, a mathematics teacher at Van Junior High School, Van ISD, for her work in preparing this document. Her original contributions, as well as adaptations from the *SMG WORLDWIDE Correlation to National Council of Teachers of Mathematics Principles and Standards for School Mathematics*, provide a valuable tool for math teachers across the state of Texas.

This project was made possible through a grant from *The Dallas Morning News*.

Debbie Mackey served as project manager and editor.

1

## ***TAKS Objective 1***

***The student will demonstrate an understanding of numbers, operations and quantitative reasoning.***

**8.1 Number, operation and quantitative reasoning. The student understands that different forms of numbers are appropriate for different situations.**

**The student is expected to:**

- A. compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals;
- B. select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships;
- C. approximate the value of irrational numbers as they arise from

problem situations; and

D. express numbers in scientific notation in appropriate problem situations using a calculator.

**SMG WORLDWIDE Connections:**

Students will:

1. compare and order rational numbers as they research price per share of common stock, analyze gains and losses on team portfolios, work with weekly highs and lows of a stock price, and compare yields.
2. use integers and decimals as they compare daily and weekly changes in stock prices.
3. convert the 2% broker's fee charged for each transaction into a decimal number.
4. determine that it is appropriate to use positive decimals for gains and negative decimals for losses.

**8.2 Number, operation and quantitative reasoning. The student selects and uses appropriate operations to solve problems and justify solutions. The student is expected to:**

- A. select and use appropriate operations to solve problems and justify the selections;
- B. add, subtract, multiply and divide rational numbers in problem situations;
- C. evaluate a solution for reasonableness; and
- D. use multiplication by a constant factor to represent proportional relationships.

**SMG WORLDWIDE Connections:**

Students will:

1. add, subtract, multiply and divide rational numbers as they determine how much of their team's \$100,000 to invest in specific companies.
2. select and use the appropriate operation to determine how many shares they can buy at a given price, to calculate the total cost of a transaction, and to calculate the total value of their team portfolio.
3. evaluate each transaction or trade for reasonableness.
4. use multiplication to find the 2% broker's fee (total cost = 1.02 X cost of stock).

**Curriculum Resources: TAAS Objective 1**

*Learning from the Market: Lessons 1, 6, 7, 8, 11, 15, 16, 18*

*The Stock Market Game Guide: Lessons 1, 3, 5, 6, 8, 9, 11, 15, 18*

**TAKS Objective 2**

*The student will demonstrate an understanding of patterns, relationships and algebraic reasoning.*

**8.3 Patterns, relationships and algebraic thinking. The student identifies proportional relationships in problem situations and solves problems.**

**The student is expected to:**

- A. compare and contrast proportional and non-proportional relationships; and
- B. estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates.

**SMG WORLDWIDE Connections:**

Students will:

1. compare interest rates to the percent of increase in a stock price.
2. use proportion properties to determine the change in their team's total investment when the price of a stock changes.
3. determine how a changing stock price affects the 2% broker's fee.
4. examine their team portfolio and determine which stocks have brought the highest profit, and which stocks have brought the greatest percent increase.

5. practice proportional reasoning skills to determine which stocks are better investments and if a high or low price earnings ratio is better for the SMG.
6. compare stock of different industries, stock of companies in the same industry, stock of new vs. established companies, etc.

**8.4 Patterns, relationships and algebraic thinking. The student makes connections among various representations of a numerical relationship. The student is expected to:**

A. generate a different representation given one representation of data such as a table, graph, equation or verbal description.

**SMG WORLDWIDE Connections:**

Students will:

1. use tables to graph the closing prices of stocks they have purchased.
2. use data from team portfolios to graph their total equity throughout the SMG session.
3. determine what percent of their team's \$100,000 is invested in each company and create a pie chart that shows where their money is invested.

**8.5 Patterns, relationships and algebraic thinking. The student uses graphs, tables, and algebraic representations to make predictions and solve problems. The student is expected to:**

- A. estimate, find and justify solutions to application problems using appropriate tables, graphs and algebraic equations; and
- B. use an algebraic expression to find any term in a sequence.

**SMG WORLDWIDE Connections:**

Students will:

1. use various forms of graphs, tables and charts in their predictions of which stocks will make money for their team.
2. use many forms of graphs, tables and charts to determine when to buy or sell stocks in order to turn the biggest profit.
3. use an algebraic expression to find the broker's fee for any trade.

**Curriculum Resource: TAAS Objective 2**

*Learning from the Market: Lessons 2, 6, 7, 8, 11, 13, 16, 18*

***TAKS Objective 5***

***The student will demonstrate an understanding of probability and statistics.***

**8.11 Probability and statistics. The student applies concepts of theoretical and experimental probability to make predictions. The student is expected to:**

- A. find the probabilities of compound events (dependent and independent);
- B. use theoretical probabilities and experimental results to make predictions and decisions; and
- C. select and use different models to simulate an event.

**SMG WORLDWIDE Connections:**

Students will:

1. collect and analyze data from various sources on stock performance.
2. use collected data to make predictions and decisions about the probability of those stocks making a profit.
3. use information about interest rates and investment trends to predict changes in stock prices.

**Curriculum Resources: TAAS II Objective 5**

*Learning from the Market: Lessons 3, 6, 7, 8, 10, 11, 15, 16, 18, 21, 22, 23, 24*  
*The Stock Market Game Guide: Lessons 7, 8, 9, 11, 12, 13, 14, 15, 17*

**8.12 Probability and statistics. The student uses statistical procedures to describe data. The student is expected to:**

- A. select the appropriate measure of central tendency to describe a set of data for a particular purpose;
- B. draw conclusions and make predictions by analyzing trends in scatterplots; and
- C. construct circle graphs, bar graphs and histograms (with and without technology).

**SMG WORLDWIDE Connections:**

Students will:

- 1. construct charts and graphs of data used in the SMG WORLDWIDE by hand and/or using graphing software on the computer.
- 2. analyze and draw conclusions from these charts.
- 3. calculate mean, median and mode for stocks or team portfolios.

**Curriculum Resources: TAAS II Objective 5**

*Learning from the Market: Lessons 3, 6, 7, 8, 10, 11, 15, 16, 18, 21, 22, 23, 24*

*The Stock Market Game Guide: Lessons 7, 8, 9, 11, 12, 13, 14, 15, 17*

**8.13 Probability and statistics. The student evaluates predictions and conclusions based on statistical data. The student is expected to:**

- A. evaluate methods of sampling to determine validity of an inference made from a set of data; and
- B. recognize misuses of graphical or numerical information and evaluate predictions and conclusions based on data analysis.

**SMG WORLDWIDE Connections:**

Students will:

- 1. evaluate methods their team used to choose investments to determine which data proved to be most effective in making investments.
- 2. look for biased information and misleading graphs and data as they research stock information.

**Curriculum Resources: TAAS II Objective 5**

*Learning from the Market: Lessons 3, 6, 7, 8, 10, 11, 15, 16, 18, 21, 22, 23, 24*

*The Stock Market Game Guide: Lessons 7, 8, 9, 11, 12, 13, 14, 15, 17*

## ***TAKS Objective 6***

***The student will demonstrate an understanding of the mathematical processes and tools used in problem solving.***

**8.14 Underlying processes and mathematical tools. The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school.**

**The student is expected to:**

- A. identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;
- B. use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan and evaluating the solution for reasonableness;
- C. select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and
- D. select tools such as real objects, manipulatives, paper/pencil and technology, or techniques such as mental math, estimation and number sense to solve problems.

**SMG WORLDWIDE Connections:**

Students will:

- 1. participate in the SMG program by applying math skills to this “real world” investment simulation.
- 2. experience the interdisciplinary benefits of the SMG in the areas of social studies, language arts and technology.
- 3. apply math and research skills to solve the problem of how to best invest \$100,000, implement their plan and evaluate the results in terms of profit/loss.
- 4. research selected companies and develop decision making strategies about investments.

**Curriculum Resources: TAKS Objective 6**

*Learning from the Market: Lessons 1, 3, 7, 8, 9, 11, 13, 15, 23, 24*

*The Stock Market Game Guide: Lessons 16, 17*

**8.15 Underlying processes and mathematical tools. The student communicates about Grade 8 mathematics through informal and mathematical language, representations and models. The student is expected to:**

- A. communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical or algebraic mathematical models; and
- B. evaluate the effectiveness of different representations to communicate ideas.

**SMG WORLDWIDE Connections:**

Students will:

- 1. communicate ideas and research results verbally, with printed articles, with graphs, or with any other form with teammates throughout the SMG.
- 2. develop a final SMG presentation that can include graphs, research and weekly portfolios that summarize their team decisions and performance. Presentations can be turned in as a folder, an oral report with strong visual aids, shared with the class as a multimedia presentation (PowerPoint), or published on a web page.
- 3. conduct peer evaluations to measure the effectiveness of methods of communicating ideas.

### **Curriculum Resources: TAKS Objective 6**

*Learning from the Market: Lessons 1, 3, 7, 8, 9, 11, 13, 15, 23, 24*

*The Stock Market Game Guide: Lessons 16, 17*

**8.16 Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to:**

- A. make conjectures from patterns or sets of examples and nonexamples; and
- B. validate his/her conclusions using mathematical properties and relationships.

### **SMG WORLDWIDE Connections:**

Students will:

- 1. evaluate their team's investment decisions to determine how and why money was gained or lost.
- 2. identify how they might change their investment strategy in the future to improve results.

### **Curriculum Resources: TAKS Objective 6**

*Learning from the Market: Lessons 1, 3, 7, 8, 9, 11, 13, 15, 23, 24*

*The Stock Market Game Guide: Lessons 16, 17*

## **SMG WORLDWIDE Curriculum Resources**

*Learning from the Market: Integrating The Stock Market Game across the Curriculum*

This curriculum is designed to help teachers connect The Stock Market Game to their school's curriculum through 24 classroom-tested lessons. Offering activities for beginning, intermediate and advanced levels, students in grades 4-12 learn the fundamentals of how the market economy works. TO ORDER CONTACT: NATIONAL COUNCIL ON ECONOMIC EDUCATION, 1140 Avenue of the Americas, New York, NY, 10036, 1-800-338-1192 EXT. 763.

*The Stock Market Game Guide: Classroom Activities*

This guide offers nearly 150 user-friendly pages of games, readings and other interesting classroom activities. These pages show in a clear, concise way what the stock market is, how it works, and why it is important. The stock market is used in the guide to identify and demonstrate basic economic concepts. TO ORDER CONTACT: SECURITIES INDUSTRY FOUNDATION FOR ECONOMIC EDUCATION, 120 Broadway, 35th Floor, New York, NY, 10271, (212) 618-0519.

*SMG Teacher's Guide to the Internet*

This guide contains an array of activities, tips, and recommendations on how to integrate the Internet into the classroom through the SMG program. For beginners and more advanced users, the guide explains everything teachers need to know about the Internet and demonstrates how they can incorporate this knowledge to enrich and enliven daily classroom lessons. TO ORDER CONTACT: SECURITIES INDUSTRY FOUNDATION FOR ECONOMIC EDUCATION, 120 Broadway, 35th Floor, New York, NY, 10271, (212) 618-0519.