**Unit 2 Overview**

**Modeling a Business**

**Content Related Vocabulary:**

Bivariate data, scatterplot, trend, correlation, positive correlation, negative correlation, causal relationship, explanatory variable, response variable, line of best fit, linear regression line, least squares regression line, domain, range, interpolation, extrapolation, correlation coefficient, strong correlation, weak correlation, moderate correlation, widget, function, demand function, demand, supply, wholesale price, markup, retail price, equilibrium, shift, variable expenses, fixed expenses, expense equation, revenue, revenue equation, profit, loss, breakeven point, nonlinear function, second-degree equation, quadratic equation, parabola, leading coefficient, maximum value, vertex of a parabola, axis of symmetry, zero net difference, quadratic formula, profit, maximum profit, dependence, transitive property

**Enduring Understandings:**

Students will understand that:

* Graphs can be used to represent data and are helpful in making descriptions and decisions
* Mathematical modeling is a good, though imperfect, way to understand data and make predictions

**Essential Questions:**

* How can the past predict the future?
* How do manufacturers decide the quantity of a product they will produce?
* How can I model a business?

**Performance Task:**

**Lemonade Stand –** Students will mathematically model a lemonade stand business (or another business of their choosing).

**Learning Targets:**

* Scatterplots
* Least-squares linear regression
* Supply curve
* Demand curve
* Points of equilibrium
* Fixed & variable expenses
* Expense & revenue functions
* Breakeven analysis
* Profit equation
* Mathematically modeling a business

**Unit 2 Assessment Calendar**

**Modeling a Business**

|  |  |  |  |
| --- | --- | --- | --- |
| **Assessment Type** | **Learning Targets** | **Description** | **Date** |
| Homework | ScatterplotsLeast-squares linear regression | Textbook Ch.2.1 applications p. 68 #3-5Read textbook Ch.2.2 p. 70-72, guided notes | DUE: 10/9 |
| Homework | ScatterplotsLeast-squares linear regression | Textbook Ch.2.2 applications p. 73-74 #2-6 | DUE: 10/11 |
| Homework | ScatterplotsLeast-squares linear regression | Quiz study guide | DUE: 10/16 |
| **Columbus Day – NO SCHOOL** | ON:10/14 |
| **Quiz** | **Scatterplots****Least-squares linear regression** | **Ch.2.1 & 2.2 Quiz** | **ON: 10/16** |
| Homework | Supply & demand curvesPoint of equilibrium | Read textbook Ch.2.3 p. 75-77, guided notes | DUE: 10/18 |
| Homework | Supply & demand curvesPoint of equilibrium | Textbook Ch.2.3 applications p. 78-79 #2,3,5,7  | DUE: 10/21 |
| Homework | Supply & demand curvesPoint of equilibrium | Quiz study guide | DUE: 10/23 |
| **Quiz** | **Supply & demand curves****Point of equilibrium** | **Ch. 2.3 Quiz** | **ON: 10/23** |
| Homework | Revenue & expense functions | Read textbook Ch.2.5 p. 86-89, guided notes | DUE: 10/25 |
| Homework | Breakeven analysis | Read textbook Ch.2.6 p. 91-93, guided notes | DUE: 10/28 |
| Homework | Profit equation | Read textbook Ch.2.7 p. 97-100, guided notes | DUE: 11/1 |
| Homework | Profit equation | Textbook Ch.2.7 applications p. 101-102 #2-7 | DUE: 11/4 |
| Homework | Profit equation | Textbook Ch.2.7 applications p. 102 #10,12,13 | DUE: 11/6 |
| Homework | Mathematically modeling a business | Textbook Ch.2.8 applications p.106-107 #2-3 | DUE: 11/8 |
| **GRASPS** | **Mathematically modeling a business** | **Lemonade stand GRASPS** | **DUE: 11/18** |

*\*Odd Schedule*

**Unit 2 Assessment Calendar**

**Modeling a Business**

|  |  |  |  |
| --- | --- | --- | --- |
| **Assessment Type** | **Learning Targets** | **Description** | **Date** |
| Homework | ScatterplotsLeast-squares linear regression | Textbook Ch.2.1 applications p. 68 #3-5Read textbook Ch.2.2 p. 70-72, guided notes | DUE: 10/8 |
| Homework | ScatterplotsLeast-squares linear regression | Textbook Ch.2.2 applications p. 73-74 #2-6 | DUE: 10/10 |
| Homework | ScatterplotsLeast-squares linear regression | Quiz study guide | DUE: 10/15 |
| **Columbus Day – NO SCHOOL** | ON:10/14 |
| **Quiz** | **Scatterplots****Least-squares linear regression** | **Ch.2.1 & 2.2 Quiz** | **ON: 10/15** |
| Homework | Supply & demand curvesPoint of equilibrium | Read textbook Ch.2.3 p. 75-77, guided notes | DUE: 10/17 |
| Homework | Supply & demand curvesPoint of equilibrium | Textbook Ch.2.3 applications p. 78-79 #2,3,5,7  | DUE: 10/21 |
| Homework | Supply & demand curvesPoint of equilibrium | Quiz study guide | DUE: 10/22 |
| **Quiz** | **Supply & demand curves****Point of equilibrium** | **Ch. 2.3 Quiz** | **ON: 10/22** |
| Homework | Revenue & expense functions | Read textbook Ch.2.5 p. 86-89, guided notes | DUE: 10/24 |
| Homework | Breakeven analysis | Read textbook Ch.2.6 p. 91-93, guided notes | DUE: 10/28 |
| Homework | Profit equation | Read textbook Ch.2.7 p. 97-100, guided notes | DUE: 10/31 |
| Homework | Profit equation | Textbook Ch.2.7 applications p. 101-102 #2-7 | DUE: 11/4 |
| Homework | Profit equation | Textbook Ch.2.7 applications p. 102 #10,12,13 | DUE: 11/5 |
| Homework | Mathematically modeling a business | Textbook Ch.2.8 applications p.106-107 #2-3 | DUE: 11/7 |
| **GRASPS** | **Mathematically modeling a business** | **Lemonade stand GRASPS** | **DUE:** **11/18** |

*\*Even Schedule*