Grade 8 Mathematics

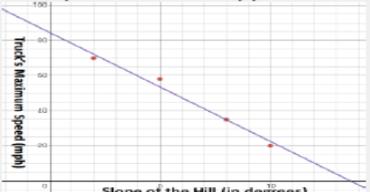| Unit title	Unit 3: Investigating Data and Statistical Reasoning	MYP year	3	Unit duration (hrs)	*MMS- (4.5 hours per week)* *18 hours*

Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GA DoE Standards

Standards

8.FGR.6: Solve practical, linear problems involving situations using bivariate quantitative data.

Expectations		Evidence of Student Learning (not all inclusive; see Grade Level Overview for more details)		
8.FGR.6.1	Show that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, visually fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line of best fit.	**Strategies and Methods** • Students should discover the line of best fit as the one that comes closest to most of the data points.	**Terminology** • The line of best fit shows the linear relationship between two variables in a data set.	**Example** • Given a set of data points, a student creates a scatter plot (see below), approximates a line of best fit, and writes the equation for the approximated line.

8.FGR.6.2	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercepts.	**Strategies and Methods** • Students should solve practical, linear problems involving situations using bivariate quantitative data.	**Terminology** • A linear model shows the relationship between two variables in a data set, such as lines of best fit.
8.FGR.6.3	Explain the meaning of the predicted slope (rate of change) and the predicted intercept (constant term) of a linear model in the context of the data.	**Terminology** • It is important to indicate 'predicted' to indicate this is a *probabilistic* interpretation in context, and not *deterministic*.	**Example** • In a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.
8.FGR.6.4	Use appropriate graphical displays from data distributions involving lines of best fit to draw informal inferences and answer the statistical investigative question posed in an unbiased statistical study.	**Fundamentals** • Students should be given opportunities to analyze the data distribution displayed graphically to answer the statistical investigative question generated from a realistic situation.	

8.MP: Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals.

Vocabulary

K12 Mathematics Glossary

Line of Best Fit	Bivariate Data	Linear Model	Slope Intercept	Y-Intercept/Constant Term	Scatter Plot
Data Points	Slope/Rate of Change	Measure of Center & Variability	Inference	Random Sampling	Sample Population
Patterns	Predicted Population				

Key concept	Related concept(s)	Global context
Logic	Generalization and Model	Identities and Relationships

Statement of inquiry
The choices we make affect our health and well-being.

Inquiry questions

- **Factual—** What is the line of best fit? What is a scatter-plot?
- **Conceptual—** How can you identify the best line of fit for a graph? How can you apply the line of best fit in the real world?
- **Debatable-** Can there only be one line of best fit?

MYP Objectives	Assessment Tasks	
*What specific MYP **objectives** will be addressed during this unit?*	***Relationship** between summative assessment task(s) and statement of inquiry:*	*List of common formative and summative assessments.*
Criteria A (Knowing and Understanding) Criterion D: Applying Mathematics In real life contexts.	Students will demonstrate how modeling relationships can help us make logical decisions.	**Formative Assessment(s):** Unit 3 CFA **Summative Assessment(s):** Unit 3 Summative Assessment: Investigating Data and Statistical Reasoning Unit 3 Retest Unit 3 MYP Assessment: Savvas Topic 4 Performance Assessment Form A page 1 only.
Approaches to learning (ATL)		

Need: Give and receive meaningful feedback.
Category: Research Skills
Cluster: Information literacy
Skill Indicator: Finding, interpreting, judging and creating information

	Learning Experiences	
	Add additional rows below as needed.	
Objective or Content	**Learning Experiences**	**Personalized Learning and Differentiation**
8.FGR.6.1- Construct a Scatter Plot	**Scatter Plots (Desmos)** Brief Description: In this activity, students will explore various types of scatter plots and will build their understanding of positive and negative associations, linear and nonlinear associations, and outliers. (8.SP.1) This activity serves as a great precursor to an investigation of lines of best fit. Learning Goals: ● I can explore various types of Scatter plots and their associations ● I can describe the type of association in a Scatter plot	Students will explore various types of scatter plots and build their understanding of positive and negative association, linear and nonlinear associations and outliers. Precursor to Line of Best Fit
8.FGR.6.4- Use the Line of Best Fit to draw inferences	**Line of Best Fit (Illuminations)** Brief Description: This activity allows the user to enter a set of data, plot the data on a coordinate grid, and determine the equation for a line of best fit. Learning Goals: ● I can state the correlation coefficient (r) for a set of data. ● I can explain why changing the regression equation affects r value. ● I can explain what has the greatest impact on the regression equation and r value. ● Can you explain the changes that occurred when data is removed?	This activity allows the user to enter a set of data, plot the data on a coordinate grid, and determine the equation for a line of best fit.

Content Resources
  📄 SAVVAS Math 8 Correlation Document.pdf (see page 8-12) SAVVAS Lessons - Lesson 4-1 (Construct and Interpret Scatterplots) - Lesson 4-2 (Analyze Linear Relationships) - Lesson 4-3 (Use Linear Models to Make Predictions)