

Newport-Mesa Unified School District

Basic Math 1AB

The student will have knowledge of place value of whole numbers and decimals. The student will read and write decimals and whole numbers.

- Calculates the number of worktops to fit in a wet area.
- Converts fractions into decimals.
- Calculates the multimeter range setting required to measure the voltage for a multiple number of batteries connected in series.
- Converts decimal numbers to hexadecimal numbers.
- Calculates the total number of cards in a database.
- Uses a table of values to convert from decimal to binary coded decimal.
- Converts numbers from decimal to binary.
- Converts decimal and binary numbers to ASCII.
- Converts ASCII to decimal numbers.
- Uses the 'Divide by Two' method to convert decimal numbers into binary.
- Converts binary code into decimal and vice versa.
- Interprets a flowchart to identify even numbers.
- Identifies different number systems used in computing.
- Converts from one computer number system into another.
- Recognizes and manipulates numbering and coding systems used in computing.
- Calculates a number of print impressions using arithmetic.
- Calculates the number of dots per square inch of an image scanner
- Calculates the maximum number of different shades of gray that can occur in an image.
- Uses software to write a control program to loop a specified number of times.
- Uses a flowchart to design a program to move the robot and run the conveyor a specified number
- Uses software to write a control program to wait for 3 numbers to be input by the user and perform a simple calculation.
- Uses software to write a control program to input two or three numbers and output them in descending order using a swap routine.
- Uses software to write a control program to count the number of times a program has run and to stop at a set number.
- Explains the process involved in creating a fully automatic control program to use the conveyor and record the number of times the program has run.
- Uses software to write a control program to input three numbers and output them biggest first.
- Uses software to write a control program to add subtract or multiply two numbers.
- Uses a flowchart to design a control program to add subtract or multiply two numbers.
- Explains the process involved in creating a fully automatic control program to add subtract or multiply two numbers.
- Calculates the number of machine operations in a year.
- Calculates the number of vehicles to be manufactured using available capital.

Consumer/Business Math 1AB

The student will use the four basic arithmetic operations on whole numbers, fractions and decimals.

- Converts hp into Watts using multiplication.
- Describes the action of adding a formula to a spreadsheet and calculating calorific values.
- Calculates cardiac stroke volume using subtraction.
- Uses software to write a control program to add subtract or multiply two numbers.

Uses a flowchart to design a control program to add subtract or multiply two numbers.

Explains the process involved in creating a fully automatic control program to add subtract or multiply two numbers.

The student will use a calculator to solve problems.

Uses the Windows calculator to solve communication system problems.

Uses software to write a control program to simulate a simple interactive calculator.

Math Topics and Systems 1AB

The student will use operations on positive and negative rational numbers, including fractions and decimals, to determine sums, differences, products, and quotients.

Converts hp into Watts using multiplication.

Converts fractions into decimals.

Converts decimal numbers to hexadecimal numbers.

Describes the action of adding a formula to a spreadsheet and calculating calorific values.

Calculates cardiac stroke volume using subtraction.

Calculates differences in distance travelled and speed, for points on propeller blades.

Converts from positive to negative angles.

Uses a table of values to convert from decimal to binary coded decimal.

Converts numbers from decimal to binary.

Converts decimal and binary numbers to ASCII.

Converts ASCII to decimal numbers.

Uses the 'Divide by Two' method to convert decimal numbers into binary.

Uses software to write a control program to add subtract or multiply two numbers.

Uses a flowchart to design a control program to add subtract or multiply two numbers.

Explains the process involved in creating a fully automatic control program to add subtract or multiply two numbers.

Calculates the number of machine operations in a year.

Math: Solves math problems.

Solves math problems in Basic Electricity.

Uses simple math formulae to calculate area, wind speed and drag.

Applies mathematical formulae to the motion of rockets.

Solves math problems for space systems.

Interprets flowcharts to solve mathematical problems.

Solves math problems in Computer Aided Publishing.

Solves math problems.

Math: Solves math problems

Solves math problems for mechanical systems

Solves math problems for hydraulic systems.

Solves math problems for electronic systems.

Mathematics Concepts and Skills 1AB

The student will be able to use numbers to determine or define quantities and relationships, to make comparisons, to interpret information, make decisions, and solve problems.

Interprets data from a graph relating to energy costs.

Constructs a bar chart to compare data on pollutant gases.

Calculates work using the relationship $\text{work} = \text{force} \times \text{distance}$.

Plots a graph of Sun angle against time of day.

Extracts data from power generation tables and makes value comparisons.

Plots a graph of temperature against time to compare single and double glazing.
Calculates the number of worktops to fit in a wet area.
Math: Solves math problems.
Calculates the multimeter range setting required to measure the voltage for a multiple number of batteries connected in series.
Converts decimal numbers to hexadecimal numbers.
Measures quantities in an electrical circuit using a multimeter.
Calculates the total number of cards in a database.
Uses data from a spreadsheet to create a chart of results.
Uses a spreadsheet to create a chart.
Uses a spreadsheet to create a chart showing the stages in a the child development cycle.
Describes the action of adding labels to a chart.
Interprets information from a graph.
Plots data on the growth rates of children in the form of a graph.
Calculates percentage weight losses from growth charts.
Interprets growth charts, showing the weight loss effects of childhood diseases.
Uses ratios to scale quantities of mass
Extracts data from a graph of Polio statistics drawn by the student.
Plots and interprets renogram data graphically.
Reads information from graphs and tables.

The student will explore the approximate nature of measurement, use appropriate tools to measure objects, and use measurement concepts and skills to solve problems and investigate mathematical situations.

States the units used to measure work, heat and power.
Measures personal power output.
Measures angles of elevation using the 'Altiscan' Altitude Indicator.
Measures the velocity of a model rocket.
Measures current output of solar cell.
Describes the methods by which energy transformation can be measured.
Works with units of measure.
Identifies temperature estimate from graph.
Measures localized weather conditions.
Measures national weather conditions.
Measures actual dimensions on a component and converts this information into a 2D working
Measures voltage and current in a circuit.
Calculates the multimeter range setting required to measure the voltage for a multiple number of batteries connected in series.
Determines the value of resistors by reading color coded bands and by measurement.
Measures voltage produced by an electrical generator.
Describes the units of measure relating to velocity.
Uses the maglev system to measure impact.
Measures temperature, pulse and respiration rates.
Identifies how drag is measured.
Identifies how to measure forces using the Aerostream Monitor.
Measures lift created by wings at various angle of attack
Measures turning forces produced by propellers.
Measures aerodynamic forces on a ballistic object.
Uses a clinometer to measure altitude.

Examines the impact of measurement errors on predictions about rocket flights.
Identifies an axis on a graph used for measuring gravitational acceleration.
Compares scalar and vector systems of measuring.
Uses photography to measure height.
Measures the length of an aerial photograph in millimeters.

Math Skills 1

The student will be able to use numbers to determine or define quantities and relationships, to make comparisons, to interpret information, make decisions, and compute by addition, subtraction, multiplication and division with whole numbers.

Interprets data from a graph relating to energy costs.
Constructs a bar chart to compare data on pollutant gases.
Calculates work using the relationship $\text{work} = \text{force} \times \text{distance}$.
Plots a graph of Sun angle against time of day.
Extracts data from power generation tables and makes value comparisons.
Plots a graph of temperature against time to compare single and double glazing.
Calculates the number of worktops to fit in a wet area.
Math: Solves math problems.
Calculates the multimeter range setting required to measure the voltage for a multiple number of batteries connected in series.
Converts decimal numbers to hexadecimal numbers.
Measures quantities in an electrical circuit using a multimeter.
Calculates the total number of cards in a database.
Uses data from a spreadsheet to create a chart of results.
Uses a spreadsheet to create a chart.
Uses a spreadsheet to create a chart showing the stages in a the child development cycle.
Describes the action of adding labels to a chart.
Interprets information from a graph.
Plots data on the growth rates of children in the form of a graph.
Calculates percentage weight losses from growth charts.
Interprets growth charts, showing the weight loss effects of childhood diseases.
Uses ratios to scale quantities of mass
Extracts data from a graph of Polio statistics drawn by the student.
Plots and interprets renogram data graphically.
Reads information from graphs and tables.

Math 1

The student will solve problems by interpreting information, choosing the correct operation(s) and computing by addition, subtraction, multiplication and division with whole numbers and decimals with and without a calculator.

Converts hp into Watts using multiplication.
Uses a weather database to calculate total rainfall.
Uses the formula for speed to calculate distance and time.
Uses a spreadsheet to calculate unit prices of cosmetics.
Enters data into a spreadsheet and calculates calorific total values.
Describes the action of adding a formula to a spreadsheet and calculating calorific values.
Records cardiac activity in order to calculate stroke volume using a software model
Calculates cardiac stroke volume using subtraction.

Uses simple math formulae to calculate area, wind speed and drag.
Uses formulae to calculate height and velocity of model rockets.
Uses a formula to calculate the speed of orbiting satellites.
Uses a formula to calculate the orbital period of satellites.
Performs calculations using orbital mechanics formula.
Uses the Windows calculator to solve communication system problems.
Identifies different number systems used in computing.
Recognizes and manipulates numbering and coding systems used in computing.
Uses software to write a control program to calculate and output to the screen user friendly
Uses software to write a control program to wait for 3 numbers to be input by the user and perform a simple calculation.
Interprets formula and symbols used by a high level control language to perform calculations.
Uses software to write a control program to simulate a simple interactive calculator.
Uses software to write a control program to add subtract or multiply two numbers.
Uses a flowchart to design a control program to add subtract or multiply two numbers.
Explains the process involved in creating a fully automatic control program to add subtract or multiply two numbers.
Interprets the formula for calculating Mechanical Advantage.
Uses results to calculate the work done pulling loads up inclined planes.
Converts tons into pounds to calculate the work done when lifting a vehicle with a screw jack.
Uses formula to calculate rotational speed of a pulley wheel.
Uses the International System of units to calculate volume.
Applies formulae to calculate the resistance of resistors in series and in parallel.
Applies formulae to calculate the capacitance of capacitors in series and in parallel.
Explores the formula for calculating the time constant of a capacitor and resistor combination.

The student will understand the meaning of fraction and solve problems by interpreting information, choosing the correct operation(s) and computing by addition, subtraction, multiplication and division of fractions.

Converts fractions into decimals.

Math 1 Advanced

The student will use operations on positive and negative rational numbers, including fractions and decimals, to determine sums, difference, to determine sums, differences, products and quotients.

Converts fractions into decimals.
Converts decimal numbers to hexadecimal numbers.
Calculates differences in distance travelled and speed, for points on propeller blades.
Uses a table of values to convert from decimal to binary coded decimal.
Converts numbers from decimal to binary.
Converts decimal and binary numbers to ASCII.
Converts ASCII to decimal numbers.
Uses the 'Divide by Two' method to convert decimal numbers into binary.
Converts binary code into decimal and vice versa.

The student will evaluate formulas and numerical expressions involving powers and roots, grouping symbols and the rules for the order of operations.

Calculates the power output of a wind generator using the formula $W = A \times V$.
Uses the formula for speed to calculate distance and time.
Uses formula to evaluate realistic unit prices.
Describes the action of adding a formula to a spreadsheet and calculating calorific values.

Uses simple math formulae to calculate area, wind speed and drag.
Uses formula to calculate the height of model rockets.
Uses velocity formula with data on moving rockets.
Applies mathematical formulae to the motion of rockets.
Calculates distances of images and objects using lens formula.
Uses formulae to calculate height and velocity of model rockets.
Uses a formula to calculate the speed of orbiting satellites.
Uses a formula to calculate the orbital period of satellites.
Performs calculations using orbital mechanics formula.
Interprets formula and symbols used by a high level control language to perform calculations.
Applies gear ratio formula to observed results.
Applies the gear ratio formula to a timing pulley system.
Interprets the formula for calculating Mechanical Advantage.
Uses formula to calculate rotational speed of a pulley wheel.
Uses the formula $F = P \times A$.
Applies formulae to calculate the resistance of resistors in series and in parallel.
Applies formulae to calculate the capacitance of capacitors in series and in parallel.
Explores the formula for calculating the time constant of a capacitor and resistor combination.
Applies the formula for calculating the gain of inverting operational amplifier.
Uses formula to calculate electrical power.

The student will formulate and solve problems involving ratio, proportion and percent.

Calculates the efficiency percentage of a wind powered generator.
Interprets a graph showing the strength to carbon ratio of steel.
Calculates the scaling factor as a percentage.
Calculates the ratio that an object has been scaled to.
Calculates the percentage of resistors that fail in a given batch.
Calculates a stress level as a percentage.
Calculates percentage weight losses from growth charts.
Calculates the percentage composition of the contents of a sachet of Oral Rehydration Salts.
Uses ratios to scale quantities of mass
Calculates percentage composition by weight.
Calculates wing aspect ratios.
Calculates percentages of color.
Uses gear ratios to predict changes in gear speed.
Calculates gear ratios.
Calculates ratios of compound gear trains.
Applies gear ratio formula to observed results.
Multiplies ratios together to find compound gear train ratios.
Calculates ratios in a belt drive system.
Applies the gear ratio formula to a timing pulley system.
Calculates density ratio of air to water.

Math Skills 2

The student will be able to use numbers to determine or define quantities and relationships, to make comparisons, to interpret information, make decisions and compute by addition, subtraction, multiplication and division with whole numbers and decimals.

Interprets data from a graph relating to energy costs.
Constructs a bar chart to compare data on pollutant gases.

Calculates work using the relationship $\text{work} = \text{force} \times \text{distance}$.

Converts hp into Watts using multiplication.

Plots a graph of Sun angle against time of day.

Extracts data from power generation tables and makes value comparisons.

Determines radiation emission levels from a half-life decay graph.

Plots a graph of temperature against time to compare single and double glazing.

Plots graphs of weather data.

Plots a graph comparing internal and external temperature.

Extracts temperature information from a graph of weather data.

Interprets a graph showing the strength to carbon ratio of steel.

Plots a graph to chart the progress of a construction project.

Math: Solves math problems.

Measures quantities in an electrical circuit using a multimeter.

Solves math problems in Basic Electricity.

Extracts information from a graph showing pulse rate over a period of time.

Uses a spreadsheet to create a chart.

Interprets information from charts on Alcohol Consumption.

Evaluates the results of a chart

Uses a spreadsheet to create a chart showing the stages in a the child development cycle.

Uses a spreadsheet to create a chart of pulse and blood pressure readings.

Plots data on the growth rates of children in the form of a graph.

Interprets growth charts, showing the weight loss effects of childhood diseases.

Calculates cardiac stroke volume using subtraction.

Identifies the relationship between blood flow, exercise and eating.

Reads information from graphs and tables.

Math 2

The student will use operations on positive and negative rational numbers, including fractions and decimals to determine sums, The student will use operations on positive and negative rational numbers, including fractions and decimals to determine sums, differences, products and quotients.

Converts fractions into decimals.

Converts decimal numbers to hexadecimal numbers.

Converts from positive to negative angles.

Uses a table of values to convert from decimal to binary coded decimal.

Converts numbers from decimal to binary.

Converts decimal and binary numbers to ASCII.

Converts ASCII to decimal numbers.

Uses the 'Divide by Two' method to convert decimal numbers into binary.

Converts binary code into decimal and vice versa.

Converts binary numbers to decimal.

The student will evaluate formulas and numerical expressions involving powers, roots and divisibility.

Solves problems about power.

Calculates the power output of a wind generator using the formula $W = A \times V$.

Uses the formula for speed to calculate distance and time.

Uses formula to evaluate realistic unit prices.

Describes the action of adding a formula to a spreadsheet and calculating calorific values.

Uses simple math formulae to calculate area, wind speed and drag.

Uses formula to calculate the height of model rockets.
Uses velocity formula with data on moving rockets.
Applies mathematical formulae to the motion of rockets.
Calculates distances of images and objects using lens formula.
Uses formulae to calculate height and velocity of model rockets.
Uses a formula to calculate the speed of orbiting satellites.
Uses a formula to calculate the orbital period of satellites.
Performs calculations using orbital mechanics formula.
Interprets formula and symbols used by a high level control language to perform calculations.
Interprets formula and symbols used by a high level control language to perform sort operations.
Interprets formula and symbols used by a high level control language to perform swap routines.
Applies gear ratio formula to observed results.
Applies the gear ratio formula to a timing pulley system.
Interprets the formula for calculating Mechanical Advantage.
Uses formula to calculate rotational speed of a pulley wheel.
Uses the formula $F = P \times A$.
Applies formulae to calculate the resistance of resistors in series and in parallel.
Applies formulae to calculate the capacitance of capacitors in series and in parallel.
Explores the formula for calculating the time constant of a capacitor and resistor combination.
Applies the formula for calculating the gain of inverting operational amplifier.
Uses formula to calculate electrical power.

The student will formulate and solve problems involving ratio, proportion and percent.

Calculates % efficiency of a wind powered generator.
Extracts data from power generation tables and makes value comparisons.
Calculates the efficiency percentage of a wind powered generator.
Interprets a graph showing the strength to carbon ratio of steel.
Calculates the scaling factor as a percentage.
Calculates the ratio that an object has been scaled to.
Calculates the percentage of resistors that fail in a given batch.
Calculates a stress level as a percentage.
Calculates percentage weight losses from growth charts.
Calculates the percentage composition of the contents of a sachet of Oral Rehydration Salts.
Uses ratios to scale quantities of mass
Calculates percentage composition by weight.
Calculates wing aspect ratios.
Calculates percentages of color.
Creates a proportional graph image.
Uses gear ratios to predict changes in gear speed.
Calculates gear ratios.
Calculates ratios of compound gear trains.
Applies gear ratio formula to observed results.
Multiplies ratios together to find compound gear train ratios.
Calculates ratios in a belt drive system.
Applies the gear ratio formula to a timing pulley system.
Solves problems involving gear ratios.
Calculates density ratio of air to water.

Math 2 Advanced

The student will use operations on positive and negative rational numbers, including fractions and decimals to determine sums, differences, products and quotients.

- Converts fractions into decimals.
- Converts decimal numbers to hexadecimal numbers.
- Converts from positive to negative angles.
- Uses a table of values to convert from decimal to binary coded decimal.
- Converts numbers from decimal to binary.
- Converts decimal and binary numbers to ASCII.
- Converts ASCII to decimal numbers.
- Uses the 'Divide by Two' method to convert decimal numbers into binary.
- Converts binary code into decimal and vice versa.
- Converts binary numbers to decimal.

The student will develop computational rules of rational numbers through proofs.

- Calculates the number of worktops to fit in a wet area.
- Calculates the multimeter range setting required to measure the voltage for a multiple number of batteries connected in series.
- Constructs a random number generator using an integrated circuit.
- Converts decimal numbers to hexadecimal numbers.
- Calculates the total number of cards in a database.
- Converts decimal and binary numbers to ASCII.
- Converts ASCII to decimal numbers.
- Uses the 'Divide by Two' method to convert decimal numbers into binary.
- Converts binary numbers to decimal.
- Calculates number of samples at a given frequency.
- Interprets a flowchart to identify even numbers.
- Identifies different number systems used in computing.
- Converts from one computer number system into another.
- Recognizes and manipulates numbering and coding systems used in computing.
- Calculates a number of print impressions using arithmetic.
- Calculates the number of dots per square inch of an image scanner
- Calculates the maximum number of different shades of gray that can occur in an image.
- Uses software to write a control program to loop a specified number of times.
- Uses a flowchart to design a program to move the robot and run the conveyor a specified number
- Uses software to write a control program to wait for 3 numbers to be input by the user and perform a simple calculation.
- Uses software to write a control program to input two or three numbers and output them in descending order using a swap routine.
- Uses software to write a control program to count the number of times a program has run and to stop at a set number.
- Uses software to write a control program to use the conveyor and record the number of times the program has run.
- Uses a flowchart to design a control program to use the conveyor and record the number of times the program has run.
- Explains the process involved in creating a fully automatic control program to use the conveyor and record the number of times the program has run.
- Uses software to write a control program to input three numbers and output them biggest first.
- Uses a flowchart to design a control program to input three numbers and output them biggest first.

Explains the process involved in creating a fully automatic control program to input three numbers and output them biggest first.

Uses software to write a control program to add subtract or multiply two numbers.

Uses a flowchart to design a control program to add subtract or multiply two numbers.

Explains the process involved in creating a fully automatic control program to add subtract or multiply two numbers.

Calculates the number of cutting passes needed to remove a specified depth of material.

Calculates the number of machine operations in a year.

Calculates the number of vehicles to be manufactured using available capital.

Calculates the number of frames in an animation.

Calculates the number of frames suitable for an animation text transition path.

Calculates the number of frames in a loop.

Determines the number of frames colored within an animation task.

Calculates the number of frames removed by the animation delete frame function.

Calculate the number of nodes in an animation path.

Identifies the number of frames in the Shuttle actor file.

The student will formulate and solve problems involving ratio, proportion and percent.

Calculates % efficiency of a wind powered generator.

Calculates the efficiency percentage of a wind powered generator.

Interprets a graph showing the strength to carbon ratio of steel.

Calculates the scaling factor as a percentage.

Calculates the ratio that an object has been scaled to.

Calculates the percentage of resistors that fail in a given batch.

Calculates a stress level as a percentage.

Calculates percentage weight losses from growth charts.

Calculates the percentage composition of the contents of a sachet of Oral Rehydration Salts.

Uses ratios to scale quantities of mass

Calculates percentage composition by weight.

Calculates wing aspect ratios.

Calculates percentages of color.

Creates a proportional graph image.

Uses gear ratios to predict changes in gear speed.

Calculates gear ratios.

Calculates ratios of compound gear trains.

Applies gear ratio formula to observed results.

Multiplies ratios together to find compound gear train ratios.

Calculates ratios in a belt drive system.

Applies the gear ratio formula to a timing pulley system.

Solves problems involving gear ratios.

Solves problems involving gear ratios.

Solves problems involving gear ratios.

Calculates density ratio of air to water.

Algebra

The student will be fluent in the language and notation of algebra.

Solves an algebraic equation.

Calculates the answers to algebraic equations.

Discovers how boolean algebra can be used to solve control problems using combinations of logic

The student will create and solve linear equations in one variable.

- Adds linear dimensions to a drawing.
- Rearranges the equation for calculating the height of a model rocket.
- Calculates and compares journey times using dictated speed and distance variables.
- Identifies meanings of variable declarations.
- Solves an algebraic equation.
- Calculates the answers to algebraic equations.
- Uses software to write a control program to sort 2 variables.

Algebra 1AB and Basic Algebra 1ABC

The student will be fluent in the language and notation of algebra.

- Solves an algebraic equation.
- Calculates the answers to algebraic equations.
- Discovers how boolean algebra can be used to solve control problems using combinations of logic

Algebra 2AB and Algebra 2AB (Honors)

The student will demonstrate ability to work with linear equations and inequalities.

- Calculates power output of a solar cell using the equation $W = A \times V$.
- Adds linear dimensions to a drawing.
- Rearranges the equation for calculating the height of a model rocket.
- Solves an algebraic equation.
- Calculates the answers to algebraic equations.

The student will apply direct variations to solve problems.

- Calculates and compares journey times using dictated speed and distance variables.
- Identifies meanings of variable declarations.
- Uses software to write a control program to sort 2 variables.

Geometry AB and Basic Geometry ABC

Students will understand and use statements, the negation of statements, conditional statements, converse statements, inverse statements, and contrapositive statements.

- Identifies statements from a passage about work and power.
- Describes a design brief and the purpose of specification statements.
- Identifies from text examples of 'specification statements'.
- Identifies the output of a system, from a dry run of a control program which includes REM
- Identifies the importance of REM statements.
- Recognises appropriate symbols and conventions by identifying the type of flowchart box an If statement is represented by.
- Applies logic statements to a program.
- Programs basic ladder logic statements.

Students will use a computer for graphing, geometric designs, transformations, and as an instructional tool.

- Interprets data from a graph relating to energy costs.
- Plots a graph of Sun angle against time of day.
- Determines radiation emission levels from a half-life decay graph.
- Plots a graph of temperature against time to compare single and double glazing.
- Describes the methods by which energy transformation can be measured.
- Interprets graph of radiation decay.

Plots graphs of weather data.
Plots a graph comparing internal and external temperature.
Extracts temperature information from a graph of weather data.
Identifies temperature estimate from graph.
Interprets a graph showing the strength to carbon ratio of steel.
Plots a graph to chart the progress of a construction project.
Uses basic geometrical shapes to create a drawing.
Solves problems using geometry.
Extracts information from a graph showing pulse rate over a period of time.
Interprets information from a graph.
Plots data on the growth rates of children in the form of a graph.
Extracts data from a graph of Polio statistics drawn by the student.
Reads information from graphs and tables.
Interprets graph of turning force produced by various propellers.
Reads length of time taken by a model rocket to complete a phase of its launch from a graph.
Plots a graph showing how payload mass affects rocket apogee.
Reads values from a graph of payload mass against rocket apogee.
Identifies an axis on a graph used for measuring gravitational acceleration.
Interprets readings on a Radar pulse graph.
Describes readings on a Radar pulse graph.
Obtains information from a graph of a sound wave.
Locates amplitude and time readings from a sound wave graph.

Life Science 1AB

Students will list the basic life processes of living organisms.

States the importance of diet for a healthy life.
Investigates the impact of orthotics and prosthetics on quality of life.

Students will explain the relationships of organisms to each other and to their habitats.

States the relationship between science and technology.
Defines unfamiliar terms relating to heart rate and exercise.
Extracts information from text relating to nutrients.
Extracts information from text relating to the calorific value of food.
Extracts information from text relating to the dangers of overexposure to the sun's rays.
Identifies the relationship between blood flow, exercise and eating.

Summer Life Science

Given a problem to solve, the student will explain how it would be approached using the Scientific Method.

States the relationship between science and technology.
States scientific principles of importance to space technology.

The student will explain the basic life processes of specific living organisms.

States the importance of diet for a healthy life.
Investigates the impact of orthotics and prosthetics on quality of life.

The student will explain the relationships of specific organisms to each other and to their habitats.

States the relationship between science and technology.
Defines unfamiliar terms relating to heart rate and exercise.
States the importance of nutrients in a healthy diet.

Extracts information from text relating to nutrients.
States the importance of calorie intake in a healthy diet.
Extracts information from text relating to the calorific value of food.
Extracts information from text relating to the dangers of overexposure to the sun's rays.
Identifies the relationship between blood flow, exercise and eating.

The student will explain the human relationship to the living world, our dependence upon it, and the effects of our activities upon it.

Describes the environmental impact of a hydro-electric power scheme.
Evaluates the environmental impact of three potential dam sites.
Identifies the effect of population size on the cost effectiveness of forms of energy.
Completes an Environmental Impact Assessment table.
Determines the effects of extreme temperature on the human body.
States the impacts of existing solutions to technological problems.
States the social impacts of the automobile in the early part of the 20th Century.
Identifies the impacts of transportation.
Recognizes the benefits of recreational activities.
Recognizes the impact of new technologies on teenage publications.
States the meaning and the effects of stress.
Uses a wordprocessor to produce a complete fact sheet outlining the effects of smoking.
Investigates health and recreational activities.
Interprets growth charts, showing the weight loss effects of childhood diseases.
Investigates the impact of orthotics and prosthetics on quality of life.
Evaluates the impact of space technology on society.
Identifies the impact of computer viruses on a society of information technology users.
Investigates the impact of communication links on society.
Identifies short term and long term social and environmental impacts of communication systems.
States the names and purpose of parts of the human hearing system.
States where software is assisting or replacing humans.
Recognises typical end effectors used by robot arms.
Evaluates the social impact of manufacturing.

The student will name the major systems that compose the human body, list the principal organs of each system, and briefly describe the function of each system.

Investigates personal health and fitness levels.
States how exercise affects the body.
Defines unfamiliar terms relating to heart rate and exercise.
States the importance of nutrients in a healthy diet.
Describes the immune response system.
Explains the need for immunization.
Identifies the symptoms of asthma using computer software.
Demonstrates the principle of accommodation in the eye using a model.
Distinguishes between long and short sighted vision using a model.
Follows written instructions to enable completion of a surgical procedure.
Investigates the impact of orthotics and prosthetics on quality of life.
Uses urinalysis test strips to recognize disease.
Analyzes test results to diagnose diabetes.
Distinguishes between samples of artificial blood and urine from diabetics and non-diabetics.
Uses computer software to examine the physiology of the urinary system.

Plots and interprets renogram data graphically.
Diagnoses kidney problems using a range of information.
Analyses data from a renogram.
Identifies a pulse point.
Interprets basic information about vital signs.
Sets up a datalogging system to monitor cardiac activity.
Interprets heart rate data during exercise.
Assesses the condition of a patient based on cardiac data.
Identifies the blood vessels of the cardiovascular system.
Recognizes events in the Cardiac Cycle.
Investigate the exchange of blood gases in the circulatory system.
Recognizes the function and mechanism of the heart cycle.
Evaluates cardiac fitness levels using a software model.
Records cardiac activity in order to calculate stroke volume using a software model
Calculates cardiac stroke volume using subtraction.
Calculates cardiac output.
Describes malfunctions of the heart
Locates information about heart structure from printed text.
Identifies the causes of a heart attack.
Performs open heart surgery on a computer model.
Identifies the properties and function of elements of the human foot.
Recognizes that the various material properties of a running shoe serve a particular purpose.
Interprets data from a table of sports injury statistics.
Identifies teeth from models and charts.
Identifies the basic finger print types.
Examines finger prints for similarities.
Explains the process of genetic finger printing.
Interprets the results of genetic finger prints.

Physical Science

The student will demonstrate the ability to identify the steps of the scientific method.

States the relationship between science and technology.
States scientific principles of importance to space technology.

The student will demonstrate laboratory techniques and safety skills.

Uses techniques to reduce the effect of errors.
States the importance of safety in the home.
Extracts information from text to highlight safety hazards in the home.
Uses IT to communicate instructions and safety precautions in the form of a leaflet.
Describes and uses Diagnostic Techniques.
Investigates techniques in forensic medicine.
Explains the common safety features employed in automatic systems.
Applies line production techniques to the assembly of a model vehicle.
Uses pre-production planning techniques.
Describes rules governing safety when using and building electrical systems.

Physical Science 1AB

Students will list simple machines and explain the forces involved in their applications.

- Calculates work using the relationship $\text{work} = \text{force} \times \text{distance}$.
- Recognizes different types of force.
- Investigates how force, mass and acceleration are related.
- Describes the link between forces and motion and their relationship to energy.
- Calculates moments of forces for lever systems.
- Recognizes pressure as a measurement of force in fluids.
- Solves force, pressure, area problems.
- Improves the operation of a pneumatic sorting machine.
- Defines pressure as force per unit of area.
- Calculates the number of machine operations in a year.
- Tests a simple pneumatic circuit.
- Uses graphs to analyze a simple pneumatic circuit.

Students will list major factors that influence weather.

- Describes conventions for quantifying weather phenomena.
- Describes factors that drive weather systems.
- Extracts wind speed and direction information from a weather map.
- Describes conventions used for representing areas of air pressure on a weather map.
- Plots graphs of weather data.
- Extracts temperature information from a graph of weather data.
- Describes the use of satellites to monitor the weather.
- Identifies key characteristics of weather satellites.
- Identifies weather front symbols.
- Applies weather front symbols to a weather map.
- Extracts forecast information from a weather map.
- Adds weather symbols to satellite image.
- Uses a weather database to calculate total rainfall.
- Describes the technology used to make a TV weather forecast.
- Describes contributory factors towards weather trends.
- Identifies trends from recorded weather data.
- Uses satellite software to record animated weather images.
- Predicts weather conditions for cities in the path of a hurricane.
- Uses the correct weather symbols and values on a forecast.
- Places weather symbols in the correct geographic location.
- Completes several graphics for a simulated TV weather forecast.
- Use information technology to support a weather presentation.
- Completes a weather presentation.
- Makes a weather presentation in a professional manner.

Students will identify the various forms of energy, their properties, and applications.

- Identifies the energy sources in use today.
- Interprets data from a graph relating to energy costs.
- Interprets data from text relating to energy sources.
- States why the world needs alternative energy.
- Solves problems with units of energy.
- Calculates the potential energy and kinetic energy of a model rocket.

States the alternative energy options available to solve the energy problems facing society today.
Identifies locations where it would be suitable to use renewable energy sources.
Identifies the effect of population size on the cost effectiveness of forms of energy.
States how heat can be conserved in energy production.
Assesses the properties of insulating materials for effectiveness and value for money.
Tests the insulating properties of double glazing.
Compares the insulating properties of single and double glazing.
Identifies the problem of cost in trying to conserve energy.
States the difference in energy consumption by the industrialized and developing countries.
Determines the total cost of installing energy efficient devices.
Calculates value of power saved by an energy efficient house.
Evaluates energy saving appliances.
Plans an energy efficient house.
Determines the total cost of installing energy efficient devices.
Calculates value of power saved by an energy efficient house.
Compares energy, work and power.
Writes a report on Alternative Energy
Makes a presentation to a group on Alternative Energy

Summer Physical Science

Given a problem to solve, the student will explain how it would be approached using the Scientific Method.

States the relationship between science and technology.
States scientific principles of importance to space technology.
States scientific principles of importance to space technology.

The student will identify the various forms of energy, their properties and applications.

Identifies the energy sources in use today.
Interprets data from a graph relating to energy costs.
Interprets data from text relating to energy sources.
States why the world needs alternative energy.
Solves problems with units of energy.
Calculates the potential energy and kinetic energy of a model rocket.
States the alternative energy options available to solve the energy problems facing society today.
Identifies locations where it would be suitable to use renewable energy sources.
Identifies the effect of population size on the cost effectiveness of forms of energy.
States how heat can be conserved in energy production.
Identifies the problem of cost in trying to conserve energy.
States the difference in energy consumption by the industrialized and developing countries.
Determines the total cost of installing energy efficient devices.
Calculates value of power saved by an energy efficient house.
Evaluates energy saving appliances.
Plans an energy efficient house.
Determines the total cost of installing energy efficient devices.
Calculates value of power saved by an energy efficient house.
Compares energy, work and power.
Describes the methods by which energy transformation can be measured.
Explains why energy conservation is important.
Explains the how alternative energy can be used in building designs.

Writes a report on Alternative Energy
Makes a presentation to a group on Alternative Energy
Describes the process of converting mechanical energy into electrical energy.
States how energy is used and transferred in the maglev vehicular system.
States the definition of energy and the type of energy sources used in transportation systems.
Recognizes different forms of energy.
Performs an energy analysis on a transportation system.
Investigates how engines convert energy and transform motion.
Extracts information about the energy crisis.
Calculates the energy production of a solar cell.
States the forms and types of energy.
Describes the link between forces and motion and their relationship to energy.
Describes energy changes that occur in a rocket during flight.
Calculates kinetic energy of rockets.
Calculates potential energy of space vehicles.
Uses potential energy to determine the velocity of rockets on landing.
Calculates energy efficiency of pulley systems.
Observes the energy transfer in a crank and slider system.
Observes the energy transfer in cam systems.
Describes methods of transferring energy using mechanical systems.

The student will list simple machines and explain the forces involved in their application.

Deduces how many boring machines were used to construct the Channel Tunnel.
Identifies the uses of construction machinery.
Writes a program to make a component using a CNC milling machine.
Improves the operation of a pneumatic sorting machine.
Calculates the number of machine operations in a year.

The student will list major factors that influence weather.

Describes conventions for quantifying weather phenomena.
Describes factors that drive weather systems.
Extracts wind speed and direction information from a weather map.
Describes conventions used for representing areas of air pressure on a weather map.
Plots graphs of weather data.
Extracts temperature information from a graph of weather data.
Describes the use of satellites to monitor the weather.
Applies weather front symbols to a weather map.
Extracts forecast information from a weather map.
Adds weather symbols to satellite image.
Uses a weather database to calculate total rainfall.
Describes the technology used to make a TV weather forecast.
Describes contributory factors towards weather trends.
Identifies trends from recorded weather data.
Uses satellite software to record animated weather images.
Predicts weather conditions for cities in the path of a hurricane.
Uses the correct weather symbols and values on a forecast.
Places weather symbols in the correct geographic location.
Completes several graphics for a simulated TV weather forecast.
Use information technology to support a weather presentation.

- Completes a weather presentation.
- Makes a weather presentation in a professional manner.
- Measures localized weather conditions.
- Defines methods for monitoring weather.

Environmental Science

The student will define what is meant by an ecological system or ecosystem.

- Describes the environmental impact of a hydro-electric power scheme.
- Evaluates the environmental impact of three potential dam sites.
- Predicts environmental problems caused by a hydro electric power station.
- Completes an Environmental Impact Assessment table.
- Identifies short term and long term social and environmental impacts of communication systems.
- Recognizes social, economic and environmental advantage and disadvantages of electronic communication systems.

The student will describe how the influence of light and water may be limiting factors for life in a given ecosystem.

- Describes the properties of water.

The student will list a specified number of pollutants and describe how each may affect the environment.

- Extracts data from tables of the origin of pollutant gases.
- Constructs a bar chart to compare data on pollutant gases.
- Calculates totals for columns of figures on pollutant gases.
- Describes the environmental impact of a hydro-electric power scheme.
- Evaluates the environmental impact of three potential dam sites.
- Predicts environmental problems caused by a hydro electric power station.
- Completes an Environmental Impact Assessment table.
- Describes the problems pollution causes.
- Identifies short term and long term social and environmental impacts of communication systems.
- Recognizes social, economic and environmental advantage and disadvantages of electronic communication systems.

The student will have a working knowledge of basic meteorology and oceanography.

- Describes conventions for quantifying weather phenomena.
- Describes factors that drive weather systems.
- Extracts wind speed and direction information from a weather map.
- Describes conventions used for representing areas of air pressure on a weather map.
- Plots graphs of weather data.
- Extracts temperature information from a graph of weather data.
- Describes the use of satellites to monitor the weather.
- Identifies key characteristics of weather satellites.
- Identifies weather front symbols.
- Applies weather front symbols to a weather map.
- Extracts forecast information from a weather map.
- Adds weather symbols to satellite image.
- Uses a weather database to calculate total rainfall.
- Describes characteristics of the Earth's climate.
- Classifies areas of the Earth into climate types.
- Describes main issues affecting the Earth's climate.

- Defines climate characteristics for a vacation resort.
- Describes the technology used to make a TV weather forecast.
- Describes contributory factors towards weather trends.
- Identifies trends from recorded weather data.
- Uses satellite software to record animated weather images.
- Predicts weather conditions for cities in the path of a hurricane.
- Uses the correct weather symbols and values on a forecast.
- Places weather symbols in the correct geographic location.
- Completes several graphics for a simulated TV weather forecast.
- Use information technology to support a weather presentation.
- Completes a weather presentation.
- Makes a weather presentation in a professional manner.
- Measures localized weather conditions.
- Defines methods for monitoring weather.
- Shows basic technical ability in the field of weather monitoring.
- Measures national weather conditions.
- Investigates the climate.
- Identifies likely trends in the weather.
- Writes a report on Weather Monitoring
- Makes a presentation to a group on Weather Monitoring
- Determines the basic components of a climate control system.

The student will plot the development of man throughout history, his effect on the environment, and how the environment has controlled man's population.

- Describes the environmental impact of a hydro-electric power scheme.
- Evaluates the environmental impact of three potential dam sites.
- Predicts environmental problems caused by a hydro electric power station.
- Identifies the effect of population size on the cost effectiveness of forms of energy.
- Completes an Environmental Impact Assessment table.

Basic Earth Science 1A

The student will define climate and weather and describe their differences.

- Describes conventions for quantifying weather phenomena.
- Describes factors that drive weather systems.
- Converts a temperature in Fahrenheit to Celsius.
- Extracts wind speed and direction information from a weather map.
- Describes conventions used for representing areas of air pressure on a weather map.
- Plots graphs of weather data.
- Plots a graph comparing internal and external temperature.
- Extracts temperature information from a graph of weather data.
- Describes seasonal changes in global temperature
- Describes the use of satellites to monitor the weather.
- Describes the components of a cold front in a storm system.
- Uses a weather database to calculate total rainfall.
- Describes the characteristics of snow.
- Defines characteristics of a hurricane.
- Determines the affects of extreme temperature on the human body.
- Describes characteristics of the Earth's climate.
- Classifies areas of the Earth into climate types.

Describes main issues affecting the Earth's climate.
Defines climate characteristics for a vacation resort.
Identifies temperature estimate from graph.
Describes contributory factors towards weather trends.
Identifies trends from recorded weather data.
Defines characteristics of a hurricane.
Predicts weather conditions for cities in the path of a hurricane.
Uses the correct weather symbols and values on a forecast.
Places weather symbols in the correct geographic location.
Completes several graphics for a simulated TV weather forecast.
Use information technology to support a weather presentation.
Completes a weather presentation.
Makes a weather presentation in a professional manner.

The student will describe the major factors in the dynamics of the earth, identify their causes, and explain their effects.

Describes characteristics of the Earth's climate.
Classifies areas of the Earth into climate types.
Describes main issues affecting the Earth's climate.
Compares images of the earth taken from different distances.

The student will describe the hydrologic cycle.

Makes a computer model of clouds in three dimensions.
Distinguishes between cloud types.
Identifies weather front symbols.
Applies weather front symbols to a weather map.
Identifies the trigger to a phase change in water.
Defines the terms mist and fog.
Extracts forecast information from a weather map.
Describes the components of a cold front in a storm system.
Adds weather symbols to satellite image.
Describes the characteristics of lightning.
Identifies lightning distribution for a sample region.
Describes the characteristics of liquid precipitation.
Uses a weather database to calculate total rainfall.
Describes the characteristics of snow.
Approximates average annual snowfall.
Approximates annual snowfall.
Describes the potential for disaster created by floods.
Interprets a contour map and issues a warning to sites at risk from flood.

Earth Science

The student will demonstrate the ability to identify the steps of the scientific method.

States the relationship between science and technology.
States scientific principles of importance to space technology.

The student will demonstrate an understanding of the metric system. (meter, liter, gram)

Recognizes how to set up an isometric grid.
Calculates the angles used on an isometric grid in CAD.
Uses basic geometrical shapes to create a drawing.

- Draws an isometric view from an orthographic projection.
- Interprets information from an orthographic projection to draw an isometric view.
- Converts a length from feet into meters.
- Converts centimeters into meters.
- Converts a length from feet into meters.
- Converts mass from grams to kilograms.
- Evaluates pump performance and volumetric efficiency.

Earth Science 1AB

The student will identify and correlate specified fossils with the appropriate geological time period.

- Identifies the operating parameters of a fossil fuel powered generating station.

The student will describe the major factors in the dynamics of the earth, identify their causes, and explain their effects.

- Calculates how long it takes light to travel the circumference of the Earth.
- Describes characteristics of the Earth's climate.
- Classifies areas of the Earth into climate types.
- Describes main issues affecting the Earth's climate.
- Compares images of the earth taken from different distances.
- Investigates the maximum range of a line of sight communication system due to the curvature of

The student will identify the major celestial objects and describe their properties and relationships.

- Calculates potential energy of space vehicles.
- Recognizes different needs when returning space vehicles to earth.
- Describes support processes of importance to space technology.
- Compares images of the earth taken from different distances.
- Explores the roles played by satellites.
- Identifies different types of satellites.
- Shows basic technical ability in the field of Space Technology.
- Writes a report on Space Technology
- Makes a presentation to a group on Space Technology

The student will define climate and weather and describe their differences.

- Describes conventions for quantifying weather phenomena.
- Describes factors that drive weather systems.
- Plots graphs of weather data.
- Uses a weather database to calculate total rainfall.
- Describes characteristics of the Earth's climate.
- Classifies areas of the Earth into climate types.
- Describes main issues affecting the Earth's climate.
- Defines climate characteristics for a vacation resort.
- Describes contributory factors towards weather trends.
- Identifies trends from recorded weather data.
- Predicts weather conditions for cities in the path of a hurricane.
- Places weather symbols in the correct geographic location.
- Use information technology to support a weather presentation.
- Completes a weather presentation.
- Makes a weather presentation in a professional manner.
- Measures localized weather conditions.
- Defines methods for monitoring weather.

Outlines how satellite technology is used to gather weather data.

Shows basic technical ability in the field of weather monitoring.

Measures national weather conditions.

Investigates the climate.

Identifies likely trends in the weather.

The student will describe how directions and locations can be determined on earth.

Identifies locations where it would be suitable to use renewable energy sources.

Selects a large city in the developing world from a list of locations.

Accounts for location of the sun in designing a house.

Selects a dam location that partner agrees with.

Places weather symbols in the correct geographic location.

Identifies the connection routes required to connect cellular phones at various locations.

The student will interpret and apply information found on topographic maps.

Measures angles of elevation using the 'Altiscan' Altitude Indicator.

Interprets a contour map and issues a warning to sites at risk from flood.

Extracts information from a precipitation distribution map of the map U.S..

Interprets a contour map to produce a cross-section of a construction site.

Uses a clinometer to measure altitude.

Extracts information from line of sight elevation diagrams.

Constructs line of sight elevation diagrams from contour maps.

Constructs elevation diagrams of landscapes from contour maps.

Estimates the angle of a slope of a communication system from an elevation diagram.

Extracts information about communication links from maps and tables.

Follows written instructions on a map.

Biological Science

The student will be able to use biological laboratory tools and equipment.

Identifies materials in Biomedical Technology using a branching key.

Classifies biomedical materials.

Identifies the major types of materials used in Biomedical Technology.

Recognizes the importance of simple Biomedical Technology.

Biology 1AB

Students will, given a plant/animal, identify its structure and importance to humans.

Determines the affects of extreme temperature on the human body.

Students will demonstrate first-hand observation of materials and accurate methodical techniques of recording observation, experimentation.

Uses a Pulse rate monitor to record pulse rate and blood pressure.

Extracts information from records held in a database.

Observes how increased drag impedes the progress of an airborne object.

Observes the behavior of a model bridge at varying wind speed.

Devises an experiment that tests an aerodynamic principle

Performs an experiment to investigate the reflection of microwaves on different materials.

Applies gear ratio formula to observed results.

Observes the energy transfer in a crank and slider system.

Observes the energy transfer in cam systems.

Students will describe or diagram basic energy transformations.

- Solves problems with units of energy.
- Calculates the potential energy and kinetic energy of a model rocket.
- States the alternative energy options available to solve the energy problems facing society today.
- Identifies locations where it would be suitable to use renewable energy sources.
- Identifies the effect of population size on the cost effectiveness of forms of energy.
- States the difference in energy consumption by the industrialized and developing countries.
- Compares energy, work and power.
- Describes the methods by which energy transformation can be measured.
- Explains why energy conservation is important.
- Describes how some alternative energy sources are more suitable than others.
- Explains why energy conservation is important.
- Describes the process of converting mechanical energy into electrical energy.
- States how energy is used and transferred in the maglev vehicular system.
- States the definition of energy and the type of energy sources used in transportation systems.
- Recognizes different forms of energy.
- Performs an energy analysis on a transportation system.
- Investigates how engines convert energy and transform motion.
- States the forms and types of energy.
- Describes the link between forces and motion and their relationship to energy.
- Describes energy changes that occur in a rocket during flight.
- Calculates kinetic energy of rockets.
- Calculates potential energy of space vehicles.
- Uses potential energy to determine the velocity of rockets on landing.
- Calculates energy efficiency of pulley systems.
- Observes the energy transfer in a crank and slider system.
- Observes the energy transfer in cam systems.
- Describes methods of transferring energy using mechanical systems.
- Evaluates compressed air as a medium for transferring energy in fluid power systems.
- Compares energy forms.
- Identifies energy flow in a hydraulic system.
- Investigates energy flow in a hydraulic system.
- Performs an energy analysis on a hydraulic cylinder.

Students will explain the principles of Mendel's genetics.

- Explains the process of genetic finger printing.
- Interprets the results of genetic finger prints.

Students will describe how specific plants and animals perform life processes.

- States the importance of diet for a healthy life.
- Investigates personal health and fitness levels.
- States how exercise affects the body.
- States the importance of nutrients in a healthy diet.
- States the importance of a varied diet.
- Defines the importance of a varied diet.
- Defines nutritional values of food.
- Defines the advantages of good health and fitness.
- Investigates personal care.

Students will demonstrate the inter-relationships of organisms in relation to their environment and conservation.

- Completes an Environmental Impact Assessment table.
- Identifies the relationship between blood flow, exercise and eating.
- Investigates personal health and fitness levels.
- Investigates the personal development of a child under the age of 4.
- Investigates the personal development of an adolescent.
- Recognizes the development of an adolescent and how they manage change.

Marine Science 1AB

Students will be able to measure the physical characteristics of the oceans such as: salinity, temperature, PH, dissolved gasses, wave periods, wave size, turbidity.

- Converts a temperature in Fahrenheit to Celsius.
- Plots a graph comparing internal and external temperature.
- Describes seasonal changes in global temperature
- Identifies temperature estimate from graph.
- Converts temperatures from Fahrenheit to Kelvin's.
- Identifies applications of reflected waves.
- Defines the terms amplitude, frequency, range, wavelength and bandwidth.
- Describes relationships between the values amplitude, frequency, range, wavelength and bandwidth.
- Identifies the amplitude of a sound wave at given locations.
- Calculates magnitude of amplification of a sound wave.

Chemistry 1AB

Students will demonstrate proper/safe laboratory techniques while engaged in problem solving.

- States the importance of safety in the home.
- Uses IT to communicate instructions and safety precautions in the form of a leaflet.
- Describes safety guidelines when using model rockets.
- Identifies safety critical computer systems.
- Examines the importance of safety in manufacturing.

Students will describe the fundamental gas laws.

- Extracts data from tables of the origin of pollutant gases.
- Constructs a bar chart to compare data on pollutant gases.
- Calculates totals for columns of figures on pollutant gases.
- Investigate the exchange of blood gases in the circulatory system.
- Demonstrates the force produced by pressurized gases that powers rockets.
- Identifies the relationship between the pressure and volume in a gas.
- Investigates the compressibility of gases and liquids.
- Explains the compression of gases, liquids and solids using the molecular structure model.
- Investigates the compression of gases.

Students will solve logical problems using correct problem solving techniques and recognizing margin for error.

- States the impacts of existing solutions to technological problems.
- Uses techniques to reduce the effect of errors.
- Recognizes syntax and runtime errors in control programs.
- Calculates the error of rocket flight predictions from given data.
- Examines the impact of measurement errors on predictions about rocket flights.

- Investigates the cause and effect of signal errors on an electronic communication link.
- Explains the process involved in creating a fully automatic control program to cycle control rods with minimal errors and maximum accuracy.
- Defines errors in the logic for a sample control program.
- Documents the technological advances in industrial control.

Physics 1AB

Students will be able to convert units within the metric system and use the metric system in the solution of problems.

- Converts a length from feet into meters.
- Converts centimeters into meters.
- Converts a length from feet into meters.
- Converts mass from grams to kilograms.
- Evaluates pump performance and volumetric efficiency.

Students will be able to measure an energy change associated with either a phase or temperature change.

- Solves problems with units of energy.
- Calculates the potential energy and kinetic energy of a model rocket.
- States how heat can be conserved in energy production.
- Plots a graph of temperature against time to compare single and double glazing.
- Identifies the problem of cost in trying to conserve energy.
- States the difference in energy consumption by the industrialized and developing countries.
- Evaluates energy saving appliances.
- Plans an energy efficient house.
- Calculates value of power saved by an energy efficient house.
- Compares energy, work and power.
- Describes the methods by which energy transformation can be measured.
- Converts a temperature in Fahrenheit to Celsius.
- Plots a graph comparing internal and external temperature.
- Extracts temperature information from a graph of weather data.
- Describes seasonal changes in global temperature
- Determines the affects of extreme temperature on the human body.
- Identifies temperature estimate from graph.

Students will be able to distinguish between wave and particle characteristics and differentiate between reflection, refraction, interference, and diffraction.

- Recognizes the properties of X-Rays as electromagnetic waves.
- Constructs and describes a system to transmit and receive voices along a microwave link.
- Identifies the components used to create a transverse wave.
- Identifies wavelength, frequency, and amplitude properties of electromagnetic waves.
- Quantifies wavelength, frequency, and amplitude properties of electromagnetic waves.
- Investigates the wavelength of a microwave.
- Works with kilo, Mega and Giga prefixes when describing properties of electromagnetic waves.
- Identifies the relationship between the frequency and bandwidth properties of electromagnetic
- Identifies and describes ground waves, sky waves and space waves.
- Investigates the concept of microwave penetration on various materials.
- Investigates the concept of microwave polarization, used in satellite television systems.
- Performs an experiment to investigate the reflection of microwaves on different materials.
- Identifies applications of reflected waves.

Investigates the microwave penetration and reflection with various composite materials.
Defines the terms amplitude, frequency, range, wavelength and bandwidth.
Describes relationships between the values amplitude, frequency, range, wavelength and bandwidth.
Identifies characteristics of analog waves.
Identifies the amplitude of a sound wave at given locations.
Identifies the location within a sound wave when a particular amplitude occurs.
Calculates magnitude of amplification of a sound wave.
Obtains information from a graph of a sound wave.
Identifies which input halts an industrial process from a wave form table.
Uses an oscilloscope to examine wave forms in an electronic circuit.

Students will, given a simple direct current circuit, be able to determine the circuit's overall resistance and the current through each branch of the circuit.

Investigates the operation of series connected switch circuits.
Uses the solderless circuit board to construct a simple circuit.
Investigates the operation of parallel connected switch circuits.
States voltage, current and resistance properties.
Applies formulae to calculate the resistance of resistors in series and in parallel.
Calculates the total resistance of resistors in parallel.
Recognizes the units of current, voltage, resistance and frequency.
Recognizes the relationship between current and resistance and current and voltage.
Measures voltage and current in a circuit.
Demonstrates the differences between a series circuit and a parallel circuit using lamps.
Explains that current flow is controlled by circuit components.

Advanced Placement Physics

Students will demonstrate a conceptual understanding of the general relationships among position, velocity and acceleration for the motion of a particle along a straight line.

Measures the velocity of a model rocket.
Calculates average velocity and fuel consumed for a model rocket from given data.
Describes the units of measure relating to velocity.
Determines the difference between average and actual velocity.
Recognizes the factors influencing acceleration of a vehicle.
Investigates how force, mass and acceleration are related.
Uses velocity formula with data on moving rockets.
Calculates average velocity of model rockets from given data.
Uses potential energy to determine the velocity of rockets on landing.
Examines acceleration caused by gravity.
Examines the concept of escape velocity.
Calculates acceleration caused by gravity from experimental results.
Explains the difference between speed and velocity.
Uses formulae to calculate height and velocity of model rockets.
Defines acceleration caused by gravity.
Calculates fluid velocity.

Health Science

The student will be able to list the elements of good personal hygiene: exercise, rest, posture, and health maintenance.

Uses a Pulse rate monitor to record pulse rate and blood pressure.

Identifies a reason for an increase in pulse rate.
Extracts information from a graph showing pulse rate over a period of time.
Investigates personal health and fitness levels.
States how exercise affects the body.
Extracts information from a table showing the ranges of pulse recovery rates.
Extracts information from text relating to exercise.
Defines unfamiliar terms relating to heart rate and exercise.
States the importance of nutrients in a healthy diet.
States the importance of calorie intake in a healthy diet.
States the importance of diet for a healthy life.
Defines the advantages of good health and fitness.
Investigates personal care.
Investigates the risks to health from drinking alcohol.
Investigates the risks to health from smoking tobacco.
Investigates the risks to health from misusing drugs.
Uses a spreadsheet to store data from pulse and blood pressure readings.
Uses a spreadsheet to create a chart of pulse and blood pressure readings.
States the importance of a healthy diet.
Investigates health and recreational activities.
Shows basic technical ability in the field of Health Management.
States the importance of health and well being.
Investigates the risks to health and well being.
Researches and presents advice on health and well-being to others.
Investigates personal development.

Natural Science

The student will trace ocean currents on a map and relate the effects of current on climate.

Describes characteristics of the Earth's climate.
Classifies areas of the Earth into climate types.
Describes main issues affecting the Earth's climate.
Defines climate characteristics for a vacation resort.
Investigates the climate.

The student will relate ocean currents to the physical properties that cause them such as temperature and salinity.

Converts a temperature in Fahrenheit to Celsius.
Plots a graph comparing internal and external temperature.
Extracts temperature information from a graph of weather data.
Describes seasonal changes in global temperature
Determines the affects of extreme temperature on the human body.
Identifies temperature estimate from graph.