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## Sunshine State 9-12 Math-science

### Reading

**Standard 1. The student uses the reading process effectively Standard 2. Student constructs meaning from a wide range of text**

L2 M73.10 V03	Identifies support material from a written list.
L2 M73.10 V03	Demonstrates the correct usage of the rules regarding sentence construction.
L2 M73.00 V04	Interprets data from text relating to energy sources.
L2 M73.00 V04	Interprets data from a graph relating to energy costs.
L2 M73.10 V03	Extracts temperature information from a graph of weather data.
L2 M73.00 V04	Interprets data from a graph relating to energy costs.
L2 M73.00 V04	Interprets data from text relating to energy sources.
L2 M73.00 V04	Makes informed decisions based on both given and researched information.
L2 M73.00 V04	Extracts data from tables of the origin of pollutant gases.
L2 M73.00 V04	Recalls information from a model rocket instruction sheet.
L2 M73.00 V04	Plots a graph of Sun angle against time of day.
L2 M73.00 V04	Follows instructions and correctly sets up the wind powered generator.
L2 M73.00 V04	Extracts data from power generation tables and makes value comparisons.
L2 M73.00 V04	Selects heat resistivity (R) values of materials from a table.
L2 M73.00 V04	Interprets information on heat insulating materials presented graphically.
L2 M73.00 V04	Selects the most effective insulating material from a table of data.
L2 M73.10 V03	Extracts information from the Beaufort Scale.
L2 M73.10 V03	Extracts wind speed and direction information from a weather map.
L2 M73.10 V03	Extracts temperature information from a graph of weather data.
L2 M73.10 V03	Extracts forecast information from a weather map.
L2 M73.20 V02	Interprets a graph showing the strength to carbon ratio of steel.
L2 M73.20 V02	Uses an architect's scale to investigate construction drawings.
L2 M73.20 V02	Explores the wide range of drawing required to build a structure.
L2 M73.20 V02	Follows a design brief to design a new technology lab.
L2 M73.30 V02	Accurately interprets information given for a drawing.
L2 M73.30 V02	Interprets information from an orthographic projection.
L2 M73.30 V02	Extracts information from a CAD drawing.
L2 M73.30 V02	Interprets technical information from a design brief.
L2 M73.30 V02	Follows a design brief to draw the front view of a mechanical component.
L2 M73.30 V02	Accurately interprets information given for a drawing.
L2 M73.30 V02	Interprets instructions found in a CAD manual.
L2 M73.30 V02	Interprets information from a table in a CAD manual.
L2 M73.40 V03	Interprets text and instructions.
L2 M73.40 V03	Identifies circuit components from schematic symbols.
L2 M73.50 V02	Follows instructions to connect a computer and peripherals.

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L2 M73.50 V02	Selects information from text relating to technological systems.
L2 M73.50 V02	Follows instructions to connect and test timing gates.
L2 M73.50 V02	Uses a glossary and index to define unfamiliar technical terms.
L2 M73.50 V02	Identifies from text examples of 'specification statements'.
L2 M73.50 V02	Identifies from text the output and processes of transportation systems.
L2 M73.50 V02	Follows instructions to connect the systems control panel to the interface panel.
L2 M73.50 V02	Interprets information given in a flowchart relating to a transportation control system.
L2 M73.60 V02	Uses a Pulse rate monitor to record pulse rate and blood pressure.
L2 M73.60 V02	Extracts information from a graph showing pulse rate over a period of time.
L2 M73.60 V02	Researches information from text relating to exercise.
L2 M73.60 V02	Uses a glossary and index to discover the meaning of unfamiliar terms.
L2 M73.60 V02	Follows instructions to produce a document using a word processor.
L2 M73.60 V02	Follows instructions to operate a database to retrieve data.
L2 M73.60 V02	Researches information from text relating to nutrients.
L2 M73.60 V02	Extracts information from text relating to the calorific value of food.
L2 M73.60 V02	Interprets nutritional information from a diagram.
L2 M73.60 V02	Follows instructions to manipulate text in a document.
L2 M73.60 V02	Follows instructions to create a letter head using a template.
L2 M73.70 V04	Interprets written instructions from a sachet of Oral Rehydration Salts.
L2 M73.70 V04	Extracts data from a graph of Polio statistics drawn by the student.
L2 M73.70 V04	Follows written instructions to enable completion of a surgical procedure.
L2 M73.80 V02	Interprets data produced by an instrument panel.
L2 M73.80 V02	Interprets drag readings from a wind tunnel monitoring application.
L2 M73.80 V02	Extracts a vehicle user's requirements from a section of text.
L2 M73.80 V02	Derives design criteria from a design brief.
L2 M73.90 V02	Follows instructions to adjust the position of center of gravity.
L2 M73.90 V02	Retrieves data about model rocket programs from a database.
L2 M73.90 V02	Reads values from a graph of payload mass against rocket apogee.
L2 M73.00 V02	Extracts information from line of sight elevation diagrams.
L2 M73.00 V02	Extracts and transmits Morse Code signals from information in a tables and charts.
L2 M73.10 V03	Uses a play list to create a compilation of tracks from a CD.
L2 M73.20 V02	Follows instructions to connect hardware to a computer.
L2 M73.20 V02	Follows written instructions on a map.
L2 M73.20 V02	Follows instructions to save a text editor file onto a computer's hard-drive.
L2 M73.30 V03	Interprets written information relating to desktop printers.
L2 M73.30 V03	Interprets words and terminology used in page layout.
L2 M73.30 V03	Interprets information about Computer Aided Publishing.
L2 M73.40 V02	Identifies the impact of automation from text.
L2 M73.40 V02	Recognizes appropriate symbols and conventions by identifying a flowchart operation box.
L2 M73.40 V02	Interprets basic commands used in a high level control language.
L2 M73.50 V01	Converts a diagram of a component into coordinates for writing a CNC lathe program.

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L2 M73.50 V01	Reads depth from component diagram.
L2 M73.60 V03	Interprets text instructions and diagrams.
L2 M73.70 V04	Uses graphs to analyze a simple pneumatic circuit.
L2 M73.70 V04	Extracts information on fluid power from a portion of text.
L2 M73.80 V03	Identifies hydraulic valve symbols.
L2 M73.80 V03	Interprets text, instructions, tables and diagrams.
L2 M73.90 V03	Identifies the role of a construction worker from written text.
L2 M73.90 V03	Follows instructions to manually operate actuators of a work-cell.
L2 M73.90 V03	Follows instructions to move a bobbin between two infrared sensors on a conveyor belt.
L2 M73.90 V03	Follows instructions to load a run a ladder logic program.
L2 M73.90 V03	Interprets a logic gate diagram to include AND, NOT and OR logic statements.
L2 M73.10 V02	Closely examine the script and storyboard created for the Scantek Development Video.
L2 M73.10 V02	Investigates video pre-production practices, specifically Script and Storyboarding.
L2 M73.10 V02	Interprets video system diagrams, showing signal flow.
L2 M73.20 V05	Interprets text to identify different forms of media.
L2 M73.20 V05	Identifies design principles from on-screen text and diagrams.
L2 M73.20 V05	Follows instructions to add a title to a slide.
L2 M73.30 V02	Follows instructions for using software to explain the function of electronic components.
L2 M73.50 V01	Follows instructions to obtain an extrusion of molten plastic from an injection molder.
L2 M73.50 V01	Follows instructions to make a plastic doorknob using a mold and an injection molder.
L2 M73.50 V01	Extracts functional requirements for a plastic product from a paragraph of text.
L2 M73.70 V01	Follows instructions to identify a part of an orienteering compass.
L2 M73.70 V01	Obtains a bearing from a diagram of a set orienteering compass.
L2 M73.70 V01	Uses a book to see how early explorers surveyed the North American interior.
L2 M73.80 V01	Follows instructions to open specified sample graphic files.
L2 M73.80 V01	Summarizes the comparison between conventional and digital cameras.
L2 M73.90 V01	Uses a trip computer system to calculate speed and fuel economy for a journey.

### **Writing**

**Standard 1. Students uses writing processes effectively . Standard 2. Student writes to communicate ideas and information effectively**

L2 M73.00 V04	Plots a graph of temperature against time to compare single and double glazing.
L2 M73.00 V04	Outlines the reasons for global warming.
L2 M73.00 V04	Completes an Environmental Impact Assessment table.
L2 M73.00 V04	Writes a report on Alternative Energy.
L2 M73.00 V04	Maintains and organizes a record of work.
L2 M73.00 V04	Demonstrates the correct usage of the rules regarding sentence construction.
L2 M73.10 V03	Plots graphs of weather data.
L2 M73.10 V03	Adds weather symbols to satellite image.
L2 M73.10 V03	Uses the correct weather symbols and values on a forecast.
L2 M73.10 V03	Places weather symbols in the correct geographic location.

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L2 M73.10 V03	Writes a report on Weather Monitoring.
L2 M73.10 V03	Maintains and organizes a record of work.
L2 M73.10 V03	Demonstrates the correct usage of the rules regarding sentence construction.
L2 M73.20 V02	Labels the main features of a foundation.
L2 M73.20 V02	Plots a graph to chart the progress of a construction project.
L2 M73.20 V02	Writes a report on Construction Technology.
L2 M73.20 V02	Designs a product.
L2 M73.30 V02	Demonstrates the correct way to lay out orthographic views.
L2 M73.30 V02	Writes a report on Computer Aided Design.
L2 M73.40 V03	Writes a report on Basic Electricity.
L2 M73.50 V02	Writes a control program from a flowchart.
L2 M73.50 V02	Writes a report on the tests carried out, and an evaluation of, design work.
L2 M73.50 V02	Writes an interactive program to test an RTS.
L2 M73.50 V02	Writes a password protection program to restrict access to a control system.
L2 M73.50 V02	Writes a report on Research & Design.
L2 M73.60 V02	Uses the basic functions of a word processor to edit text.
L2 M73.60 V02	Uses the basic layout functions of a word processor to format text.
L2 M73.60 V02	Follows instructions to produce a document using a word processor.
L2 M73.60 V02	Uses a word processor to produce information tables.
L2 M73.60 V02	Adds text to a word processed document.
L2 M73.60 V02	Uses the basic functions of a wordprocessor to manipulate text.
L2 M73.60 V02	Uses wordprocessor templates to create a letter head.
L2 M73.60 V02	Identifies the format of a letter.
L2 M73.60 V02	Follows instructions to create a letter head using a template.
L2 M73.60 V02	Uses a wordprocessor to format a checklist.
L2 M73.60 V02	Uses a wordprocessor to produce a fact sheet stating the effects of smoking tobacco.
L2 M73.60 V02	Enters data onto a spreadsheet.
L2 M73.60 V02	Uses a wordprocessor to create a CV or Resume.
L2 M73.60 V02	Writes a report on Health Management.
L2 M73.70 V04	Plots and interprets growth charts of children.
L2 M73.70 V04	Plots and interprets renogram data graphically.
L2 M73.70 V04	Maintains and organizes a record of work.
L2 M73.70 V04	Demonstrates the correct usage of the rules regarding sentence construction.
L2 M73.70 V04	Writes a report on Biomedical Technology.
L2 M73.80 V02	Writes a report on Aerodynamics Technology.
L2 M73.90 V02	Retrieves data about model rocket programs from a database.
L2 M73.90 V02	Plots a graph showing how payload mass affects rocket apogee.
L2 M73.90 V02	Draws a timeline showing the development of satellite technology.

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L2 M73.90 V02	Creates a flow diagram to show the stages involved in launching model rockets.
L2 M73.90 V02	Writes a report on Space Technology.
L2 M73.00 V02	Uses an Electronic Mail simulation to send messages.
L2 M73.00 V02	Writes a report on Electronic Communications.
L2 M73.20 V02	Designs and tests a flowchart for a prototype security system.
L2 M73.20 V02	Writes a report on Computer Applications.
L2 M73.20 V02	Writes a computer program.
L2 M73.30 V03	Identifies a margin.
L2 M73.30 V03	Identifies the common terms used in 'Page Layout' menus.
L2 M73.30 V03	Interprets words and terminology used in page layout.
L2 M73.30 V03	Demonstrates accuracy in changing a graphic sign through written words.
L2 M73.30 V03	Combines text with graphics in a computer document.
L2 M73.30 V03	Writes and presents a personal profile.
L2 M73.30 V03	Writes a report on Computer Aided Publishing.
L2 M73.40 V02	Uses software to write a control program to create a loop to control an articulated joint.
L2 M73.40 V02	Uses software to write a control program incorporating loops.
L2 M73.40 V02	Uses software to write a control program to use the conveyor and count the events.
L2 M73.40 V02	Uses software to write a control program to fully automate a workcell.
L2 M73.40 V02	Writes a report on Robotics and Automation.
L2 M73.60 V03	Writes a report on Mechanisms.
L2 M73.70 V04	Writes a report on Pneumatics.
L2 M73.80 V03	Writes a report on Hydraulics.
L2 M73.90 V03	Writes a report on Industrial Control Technology.

### **Listening, Viewing, and Speaking**

**Standard 1. Student uses listening strategies effectively . Standard 2. Student uses viewing strategies effectively .Standard 3. Student uses speaking effectively**

L2 M73.00 V04	Recalls information from a model rocket instruction sheet.
L2 M73.00 V04	Predicts shadow length at a particular time of day, using a table of values.
L2 M73.00 V04	States the best angle of pitch for the blades on a wind powered generator.
L2 M73.00 V04	Describes the environmental impact of a hydroelectric power scheme.
L2 M73.00 V04	States some of the options available to relieve the energy problems facing society today.
L2 M73.00 V04	Describes the processes involved in nuclear fission.
L2 M73.00 V04	Describes the processes involved in nuclear fission.
L2 M73.00 V04	Relates the radioactive half-life of an isotope to the name of the element.
L2 M73.00 V04	Interprets information on heat insulating materials presented graphically.
L2 M73.00 V04	Makes a presentation to a group on Alternative Energy.
L2 M73.10 V03	Describes conventions for quantifying weather phenomena.

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L2 M73.10 V03	Describes factors that drive weather systems.
L2 M73.10 V03	Receives and views satellite images.
L2 M73.10 V03	Makes a weather presentation in a professional manner.
L2 M73.10 V03	Completes a weather presentation.
L2 M73.10 V03	Makes a presentation to a group on Weather Monitoring.
L2 M73.20 V02	Recognizes aesthetic values in construction.
L2 M73.20 V02	Makes a presentation to a group on Construction Technology.
L2 M73.30 V02	Uses tiled viewports to arrange a different view of a drawing.
L2 M73.30 V02	States how to add blocks to a drawing.
L2 M73.30 V02	Makes a presentation to a group on Computer Aided Design.
L2 M73.40 V03	Comprehends historic information on the discovery of magnetism.
L2 M73.40 V03	Makes a presentation to a group on Basic Electricity.
L2 M73.50 V02	States how energy is used and transferred in the maglev vehicular system.
L2 M73.50 V02	States the impacts of existing solutions to technological problems.
L2 M73.50 V02	States the relationship between science and technology.
L2 M73.50 V02	States the social impacts of the automobile in the early part of the 20th Century.
L2 M73.50 V02	Makes a presentation to a group on Research & Design.
L2 M73.60 V02	States the importance of nutrients in a healthy diet.
L2 M73.60 V02	States the importance of a varied diet.
L2 M73.60 V02	Interprets nutritional information from a diagram.
L2 M73.60 V02	States the importance of diet for a healthy life.
L2 M73.60 V02	States the importance of using protection against the sun's rays.
L2 M73.60 V02	Makes a presentation to a group on Health Management.
L2 M73.70 V04	States how to use a thermometer.
L2 M73.70 V04	Makes a presentation to a group on Biomedical Technology.
L2 M73.80 V02	Observes how increased drag impedes the progress of an airborne object.
L2 M73.80 V02	States how vehicle choice is governed by practical requirements.
L2 M73.80 V02	States terminology used to describe wing characteristics.
L2 M73.80 V02	Uses problem solving skills to design a glider to given specifications.
L2 M73.80 V02	Explains the process of designing and constructing a powered model aircraft.
L2 M73.80 V02	Explains the technical content of a report on an industry that uses aerodynamics.
L2 M73.80 V02	Makes a presentation to a group on Aerodynamics Technology.
L2 M73.90 V02	Makes a presentation to a group on Space Technology.
L2 M73.10 V03	States some uses of digital sound applications.
L2 M73.10 V03	States how human anatomy is used in sound recognition.
L2 M73.10 V03	States the processes involved in analog to digital conversion.
L2 M73.10 V03	Identifies a strategy for creating an audio presentation.
L2 M73.10 V03	Makes a presentation to a group on Digital Sound Technology.

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### Mathematics

**Standard 1. Student understands the different ways numbers are represented and used in the real world . Standard 2. Students understand number systems. Standard 3. Students understand the effect of operations on numbers and the relationships among these operations, select appropriate operations, and computes for problem solving. Standard 4. Students use estimations in problem solving and computations Standard 5. Students understand and apply theories related to numbers**

L2 M73.40 V03	Solves math problems in Basic Electricity.
L2 M73.00 V04	Interprets data from a graph relating to energy costs.
L2 M73.00 V04	Constructs a bar chart to compare data relating to pollutant gases.
L2 M73.00 V04	Calculates totals for columns of figures on pollutant gases.
L2 M73.00 V04	States the units used to measure work, heat and power.
L2 M73.00 V04	Converts Btus into Joules by selecting data from a table.
L2 M73.00 V04	Converts between different units of energy.
L2 M73.00 V04	Calculates work done using the formula work = force x distance.
L2 M73.00 V04	Uses the formula Power = Work/Time to solve problems.
L2 M73.00 V04	Converts hp into Watts using a units conversion table
L2 M73.00 V04	Converts hp into Watts using multiplication.
L2 M73.00 V04	Measures angles of elevation using the 'Altiscan' Altitude Indicator.
L2 M73.00 V04	Calculates the height of objects using tangents.
L2 M73.00 V04	Calculates average velocity and fuel consumed for a model rocket from given data.
L2 M73.00 V04	Converts tangent values into angles to find the angle of the sun.
L2 M73.00 V04	Calculates % efficiency of a wind-powered generator.
L2 M73.00 V04	Calculates how long it takes light to travel the circumference of the Earth.
L2 M73.00 V04	Calculates the savings made by a solar collector.
L2 M73.10 V03	Approximates average annual snowfall.
L2 M73.10 V03	Approximates annual snowfall.
L2 M73.20 V02	Calculates the volume of soil to be excavated to level a construction site.
L2 M73.20 V02	Calculates the costs involved in excavation.
L2 M73.20 V02	Calculates volume and surface area of a geodesic dome.
L2 M73.20 V02	Calculates scale.
L2 M73.20 V02	Calculates the area of a construction plot.
L2 M73.30 V02	Uses the radius of a circle to calculate a diameter.
L2 M73.30 V02	Distinguishes between first and third angle projection.
L2 M73.30 V02	Calculates the angles used on an isometric grid in CAD.
L2 M73.30 V02	Calculates the angles used for polar coordinates in CAD.
L2 M73.30 V02	Uses basic geometrical shapes to create a drawing.
L2 M73.30 V02	Converts fractions into decimals.

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L2 M73.30 V02	Calculates the area of a door panel in an architectural drawing.
L2 M73.40 V03	Calculates the area of a door panel in an architectural drawing.
L2 M73.40 V03	Calculates the percentage of resistors that fail in a given batch.
L2 M73.40 V03	Converts decimal numbers to hexadecimal numbers.
L2 M73.50 V02	Converts between standard and non standard units of length.
L2 M73.50 V02	Calculates speeds and velocities.
L2 M73.50 V02	Determines the difference between average and actual velocity.
L2 M73.50 V02	Calculates the average time of five timed runs.
L2 M73.60 V02	Extracts information from a graph showing pulse rate over a period of time.
L2 M73.60 V02	Calculates the calorific values of food.
L2 M73.70 V04	Uses ratios to scale quantities of mass.
L2 M73.70 V04	Calculates the cost of kidney treatment.
L2 M73.80 V02	Calculates the facing area of drag panels.
L2 M73.80 V02	Calculates the mileage range on one tank of fuel.
L2 M73.80 V02	Calculates the value of wing parameters, using the information contained in NACA2412.
L2 M73.80 V02	Calculates wing aspect ratios.
L2 M73.80 V02	Calculates differences in distance traveled and speed, for points on propeller blades.
L2 M73.80 V02	Calculates the speed of sound at different altitudes.
L2 M73.80 V02	Calculates the mean average of a set of wind speeds.
L2 M73.80 V02	Calculates the area of a face on a cube.
L2 M73.90 V02	Uses a conversion table to convert between units in the SI system.
L2 M73.90 V02	Approximates the predicted altitude of a model rocket.
L2 M73.90 V02	Calculates height using angles and trigonometry.
L2 M73.90 V02	Uses formula to calculate the height of model rockets.
L2 M73.90 V02	Rearranges the equation for calculating the height of a model rocket.
L2 M73.90 V02	Calculates average velocity of model rockets from given data.
L2 M73.90 V02	Plots a graph showing how payload mass affects rocket apogee.
L2 M73.90 V02	Calculates the average height reached by a launched item after several launches.
L2 M73.90 V02	Applies mathematical formulae to the motion of rockets.
L2 M73.90 V02	Calculates acceleration caused by gravity from experimental results.
L2 M73.90 V02	Approximates how many times further a rocket would travel with the absence of drag.
L2 M73.00 V02	Calculates and compares journey times using speed and distance variables.
L2 M73.00 V02	Estimates the angle of a slope of a communication system from an elevation diagram.
L2 M73.00 V02	Rounds the values of communication distances.
L2 M73.00 V02	Converts numbers from decimal to binary.
L2 M73.00 V02	Uses a table of values to convert from decimal to binary coded decimal.
L2 M73.00 V02	Uses the 'Divide by Two' method to convert decimal numbers into binary.
L2 M73.10 V03	Calculates the cost of broadcasting a radio presentation.
L2 M73.10 V03	Converts binary code into decimal and decimal to binary.

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L2 M73.10 V03	Calculates magnitude of amplification of a sound wave.
L2 M73.10 V03	Converts milliseconds to seconds.
L2 M73.20 V02	Identifies the properties of a good algorithm.
L2 M73.30 V03	Calculates a number of print impressions using simple arithmetic.
L2 M73.30 V03	Calculates the number of dots per square inch of an image scanner.
L2 M73.30 V03	Calculates the maximum number of different shades of gray that can occur in an image.
L2 M73.30 V03	Works with area and volume of a given page layout.
L2 M73.40 V02	Calculates how many ms in 5 seconds.
L2 M73.40 V02	Solves an algebraic equation.
L2 M73.40 V02	Calculates the answers to algebraic equations.
L2 M73.60 V03	Calculates gear ratios.
L2 M73.60 V03	Uses gear ratios to predict changes in gear speed.
L2 M73.60 V03	Calculates compound gear train ratios.
L2 M73.60 V03	Applies gear ratio formula to observed results.
L2 M73.60 V03	Calculates ratios of compound gear trains.
L2 M73.60 V03	Calculates the circumference of a wheel.
L2 M73.60 V03	Converts rpm into distance and speed achieved by a vehicle.
L2 M73.60 V03	Calculates ratios in a belt drive system.
L2 M73.60 V03	Calculates speed changes for timing pulley systems.
L2 M73.60 V03	Applies the gear ratio formula to a timing pulley system.
L2 M73.60 V03	Uses formula to calculate rotational speed of a pulley wheel.
L2 M73.80 V03	Calculates areas of simple shapes.
L2 M73.80 V03	Calculates density ratio of air to water.
L2 M73.80 V03	Calculates the area of hydraulic pistons.
L2 M73.80 V03	Calculates fluid velocity.
L2 M73.80 V03	Calculates the volume and capacity of hydraulic cylinders.
L2 M73.90 V03	Multiplies a number by ten to find the initial value for a timer.
L2 M73.90 V03	Calculates the time in tenths of a second that an infrared beam is interrupted.
L2 M73.00 V02	Calculates the number of frames in an animation.
L2 M73.00 V02	Calculates the number of frames suitable for an animation text transition path.
L2 M73.00 V02	Calculates the run-time for animation using loops.
L2 M73.00 V02	Calculates how long, in seconds, an animation will play.
L2 M73.00 V02	Calculates the number of frames removed by the animation delete frame function.
L2 M73.00 V02	Calculates the total number of frames an actor appears in an animation.
L2 M73.50 V01	Calculates the weight of quantities of sample materials.
L2 M73.50 V01	Calculates the strength to weight ratios for sample materials.
L2 M73.50 V01	Identifies costs from a budget plan, and income and profit statement.
L2 M73.50 V01	Calculates the weight of a specified volume of copper given its density.
L2 M73.70 V01	Converts a given distance on a 1:62,500 scale map into a real distance.
L2 M73.70 V01	Obtains the real distance between two places by using the scale of a map.

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L2 M73.70 V01	Uses Pythagoras' Theorem to find the length of the hypotenuse on a right-angle triangle.
L2 M73.70 V01	Uses tangents to find an unknown angle in a right-angle triangle.
L2 M73.70 V01	Locates the angle that corresponds to a tangent value in a tangent table.
L2 M73.70 V01	Applies Pythagoras' Theorem to find distances of routes.
L2 M73.70 V01	Applies trigonometry to find bearings of routes.
L2 M73.70 V01	Calculates the size of a demographic group from a given percentage.
L2 M73.90 V01	Uses a trip computer system to calculate speed and fuel economy for a journey.
L2 M73.90 V01	Calculate the valve areas available for airflow for different valve configurations.

### **Measurement**

**Standard 1. Student measures quantities in the real world and uses the measures to solve problems.**

**Standard 2. Student compares, contrast, and converts within systems of measurement.**

**Standard 3. Student estimates measurements in real-world problem situations**

**Standard 4. Student selects and uses appropriate units and instruments**

**for measurement to achieve the degree of precision and accuracy required in real-world situations.**

L2 M73.00 V04	Measures personal power output.
L2 M73.00 V04	States the units used to measure work, heat and power.
L2 M73.00 V04	Measures angles of elevation using the 'Altiscan' Altitude Indicator.
L2 M73.00 V04	Measures the velocity of a model rocket.
L2 M73.00 V04	Measures current output of solar cell.
L2 M73.00 V04	Works with units of measure.
L2 M73.10 V03	Converts a temperature reading from Fahrenheit to Celsius.
L2 M73.10 V03	Uses software to convert infrared information into color coded temperature maps.
L2 M73.10 V03	Measures localized weather conditions.
L2 M73.40 V03	Measures voltage and current in a circuit.
L2 M73.40 V03	Converts milliamps into amps.
L2 M73.40 V03	Detects faulty resistors by comparing measured value with the color coded band.
L2 M73.40 V03	Measures the voltage produced by an electrical generator.
L2 M73.40 V03	Measures quantities in an electrical circuit using a multimeter.
L2 M73.60 V02	Uses a Pulse rate monitor to record pulse rate and blood pressure.
L2 M73.70 V04	Measures temperature, pulse and respiration rates.
L2 M73.80 V02	Identifies how drag is measured.
L2 M73.80 V02	Measures lift created by wings at various angles of attack.
L2 M73.80 V02	Measures turning forces produced by propellers.
L2 M73.80 V02	Measures aerodynamic forces on a ballistic object.
L2 M73.90 V02	Uses a conversion table to convert between units in the SI system.
L2 M73.90 V02	Examines the impact of measurement errors on predictions about rocket flights.
L2 M73.90 V02	Compares scalar and vector systems of measuring.

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L2 M73.90 V02	Uses photographic data to measure height.
L2 M73.90 V02	Measures the length of an aerial photograph in millimeters.
L2 M73.90 V02	Uses a clinometer to measure altitude.
L2 M73.50 V01	Identifies different tools and measuring instruments used with CNC machine tools.
L2 M73.50 V01	Uses measuring instruments to inspect a component.
L2 M73.70 V01	Converts a given distance on a 1:62,500 scale map into a real distance.

### **Geometry And spatial Sense**

**Standard 1: Student describes, draws, identifies, and analyzes two and three Dimensional shapes.**

**Standard 2: Student visualizes and illustrates ways in which shapes can be combined, Subdivided, and changed.**

**Standard 3: Students uses coordinate geometry to locate objects in both two and three Dimensions and to describe objects algebraically.**

L2 M71.20 V02	Calculates angles in structural shapes.
L2 M71.20 V02	Identifies structural shapes.
L2 M71.20 V02	Relates structural shape and strength.
L2 M71.20 V02	Plots and reads a graph of load against beam deflection.
L2 M71.20 V02	Recognizes geometric shapes in structures.
L2 M71.20 V02	Calculates angles in structures.

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L2 M71.20 V02	Quotes the algebraic formula for calculating stress.
L2 M71.30 V03	Draws the top view of a component part.
L2 M71.30 V03	Determines the center point of an object.
L2 M71.30 V03	Draws the front view of a component part.
L2 M71.30 V03	Explores the principles of orthographic projection.
L2 M71.30 V03	Investigates three-dimensional coordinate systems.
L2 M71.30 V03	Identifies how to draw a three-dimensional object by adding elevation.
L2 M71.30 V03	Identifies the properties of a polygon.
L2 M71.30 V03	Draws a three-dimensional mechanical component.
L2 M71.30 V03	Calculates the difference between the radii of two circles.
L2 M71.30 V03	Draws an orthographic projection of a 3D model.
L2 M71.30 V03	Examines the use of CAD in architectural drafting.
L2 M71.30 V03	Constructs CAD images using coordinate systems.
L2 M71.30 V03	Uses CAD to create 3D models.
L2 M71.30 V03	Translates 'real world' information into working drawings.
L2 M71.30 V03	Identifies some applications, which require a grid layout.
L2 M71.30 V03	Uses resizing tools and design tools to alter a graphic.
L2 M71.00 V03	Creates animations to change the shape of objects using shape tweening.
L2 M71.00 V03	Creates an animation of a bouncing ball using deformation techniques.
L2 M71.00 V03	Identifies the name of a graphic symbol contained in an animation library.
L2 M71.00 V03	Calculates the total number of frames contained in 4 animations.
L2 M71.20 V05	Copies and positions graphic objects.
L2 M71.20 V05	Creates a transition to move from one slide to another.
L2 M71.20 V05	Describes types of object animation effects.
L2 M71.70 V01	Uses a simple alphanumeric grid reference system to identify location.
L2 M71.70 V01	Identifies direction of travel relative to the cardinal points of a compass.
L2 M71.70 V01	Uses a four-figure grid reference system to identify location.

## **Sunshine State 9-12 Math-science**

### **Algebraic Thinking**

**Standard 1: Student describes, analyzes, and generalizes a wide variety of patterns, Relationships and functions.**

**Standard 2: Student uses expressions, equations, inequalities, graphs, and formulas to Represent and interpret situations.**

L2 M71.00 V02	Works with algebra to convert watts into kilowatts.
L2 M71.20 V02	Quotes the algebraic formula for calculating stress.
L2 M71.20 V02	Reads characteristics from load deflection graphs.

### **Data Analysis and Probability**

**Standard 1: Student understands and uses the tools of data analysis for managing Information.**

**Standard 2: Student identifies patterns and makes predictions from an orderly Display of data using concepts of probability and statistics.**

**Standard 3: Student uses statistical methods to make inferences and valid Arguments about real world situations.**

L2 M71.00 V02	Interprets data from a color reading chart.
L2 M71.00 V02	States that energy can be transformed.
L2 M71.00 V02	Compares results in a table and identifies the highest wind speeds.
L2 M71.00 V02	Analyzes data to select the most appropriate technology for a given problem.
L2 M71.00 V02	Investigates the greenhouse effect using experimental models.
L2 M71.10 V03	Records readings from weather sensors.
L2 M71.10 V03	Identifies methods for gathering weather data.
L2 M71.10 V03	Extracts a temperature reading from a table of weather data.
L2 M71.10 V03	Uses information from a graph to calculate temperature readings.
L2 M71.10 V03	Extracts data from an air to ground lightning strike map.
L2 M71.10 V03	Uses information from a graph to calculate instantaneous and average rainfall.
L2 M71.10 V03	Translates weather data into a fraction.
L2 M71.10 V03	Identifies temperature estimate from a graph.
L2 M71.10 V03	Predicts weather conditions for cities in the path of a hurricane.
L2 M71.20 V02	Plots and reads a graph of load against beam deflection.

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L2 M71.70 V02	Plots weight and age data for infants on a growth chart.
L2 M71.70 V02	Interprets data from growth charts.
L2 M71.70 V02	Uses data to create a growth chart.
L2 M71.70 V02	Interprets data from a Temperature, Pulse and Respiration chart.
L2 M71.80 V02	Interprets meter readings using a graph.
L2 M71.80 V02	Plots a graph to convert drag meter readings into grams.
L2 M71.90 V03	Selects information about the stages of model rocket flight from a table.
L2 M71.90 V03	Applies height formula to data from a model rocket launch.
L2 M71.90 V03	Applies velocity formula to data from a model rocket launch.
L2 M71.90 V03	Applies formula for calculating velocity to a simulated space mission.
L2 M71.90 V03	Selects values from a tangent table to determine height of rockets in flight.
L2 M71.90 V03	Selects values from a tangent table.
L2 M71.00 V02	Maintains and organizes a record of work.
L2 M71.50 V02	Creates tables, graphs and flowcharts when conducting research.

### **Science The Nature of Matter**

**Standard 1: Student understand that all matter has observable measurable Properties. Standard 2: Student understands the basic principles of atomic theory.**

L2 M71.00 V02	Identifies the correct energy flow in a nuclear power plant.
L2 M71.00 V02	States how a greenhouse creates a temperature difference.
L2 M71.00 V02	States that energy can be transformed.
L2 M71.00 V02	States that wind energy can be used to generate electricity.
L2 M71.00 V02	States that water can be used to generate electricity.
L2 M71.00 V02	Identifies the processes involved when using nuclear energy to generate electricity.
L2 M71.00 V02	Identifies the possible dangers of using nuclear energy.
L2 M71.00 V02	Identifies a source of Kinetic energy.
L2 M71.10 V03	Identifies the transitional states of water.
L2 M71.10 V03	Examines the basic properties of electrical charges.
L2 M71.10 V03	Identifies characteristics of the environment.
L2 M71.20 V02	Identifies the types of forces operating in structures.
L2 M71.20 V02	Examines material properties.
L2 M71.20 V02	Relates structural shape and strength.
L2 M71.20 V02	Identifies forces applied to bridge construction.
L2 M71.40 V03	States the features of static electricity.
L2 M71.40 V03	Identifies that charges can be positive and negative.
L2 M71.70 V04	Compares the sizes of dust particles able to pass through a filter element.
L2 M71.00 V02	Defines alternative energy.
L2 M71.50 V01	Uses computer simulation to compare the density of metals and plastics.
L2 M71.80 V03	Compares the compression of gases and liquids.

L2 M71.80 V03	Identifies compression of gases, liquids and solids using the molecular structure model.
L2 M71.90 V03	Investigates the relationship between force and motion.

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# Sunshine State 9-12 Math-science

## Energy

**Standard 1: Student recognizes that energy may be changed in form with varying Efficiency. Standard 2: Student understands the interaction of matter and energy.**

L2 M71.00 V02	Indicates that the use of fossil fuels harms the environment.
L2 M71.00 V02	Defines alternative energy.
L2 M71.00 V02	States the function of components in a model rocket.
L2 M71.00 V02	States that energy can be transformed.
L2 M71.00 V02	Builds and tests a model car powered by solar energy.
L2 M71.00 V02	Identifies two transducers used in the solar powered car.
L2 M71.00 V02	Identifies the device used to convert wind energy to electrical energy.
L2 M71.00 V02	States that wind energy can be used to generate electricity.
L2 M71.00 V02	State the purpose of the sub-systems within a hydroelectric power plant.
L2 M71.00 V02	States that water can be used to generate electricity.
L2 M71.00 V02	Identifies the possible dangers of using nuclear energy.
L2 M71.00 V02	Investigates the greenhouse effect using experimental models.
L2 M71.00 V02	Identifies substances, which will allow light to pass through.
L2 M71.00 V02	Identifies factors affecting the price of electricity.
L2 M71.00 V02	Identifies jobs provided by the alternative energy industries.
L2 M71.00 V03	Recognizes the frequency, wavelength and amplitude of waves.
L2 M71.10 V03	Defines characteristics of the atmosphere.
L2 M71.10 V03	Identifies the transitional states of water.
L2 M71.10 V03	Describes how thunder and lightning are formed.
L2 M71.10 V03	Examines the basic properties of electrical charges.
L2 M71.60 V03	Investigates the requirements for a balanced diet.
L2 M71.60 V03	Defines the elements of a balanced diet.
L2 M71.90 V03	Examines propulsion systems used with space technology.

## Force and Motion

**Standard 1: Students understand that types of motion may be described, measured, And predicted. Standard 2: Students understand that the types of forces that act on an object and the effect of that force can be described, measured, and predicted.**

L2 M71.20 V02	Identifies the types of forces operating in structures.
L2 M71.20 V02	Calculates a load on a bridge.
L2 M71.20 V02	Identifies the importance of shape in structures.

L2 M71.20 V02 Examines material properties.  
L2 M71.20 V02 Uses test equipment to analyze deflection.

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L2 M71.20 V02 Relates structural shape and strength.  
L2 M71.20 V02 Identifies the effect of earthquakes on skyscrapers.  
L2 M71.20 V02 Defines torsion.  
L2 M71.20 V02 Identifies forces applied to bridge construction.  
L2 M71.20 V02 Identifies compression.  
L2 M71.20 V02 Identifies tension.  
L2 M71.40 V03 Identifies the magnitude and direction of the current flow.  
L2 M71.40 V03 States the principle of the electro-magnetic relay.  
L2 M71.50 V02 States the basic principles of magnetic levitation.  
L2 M71.80 V02 Measures lift force created by a flat wing section.  
L2 M71.80 V02 Describes the nature of drag.  
L2 M71.80 V02 Uses the wind tunnel to measure drag.  
L2 M71.80 V02 Describes the effect of down force.  
L2 M71.90 V03 Examines propulsion systems used with space technology.  
L2 M71.90 V03 Examines the forces produced by rocket motors.  
L2 M71.90 V03 Investigates the effect of gravity on mechanical devices.  
L2 M71.90 V03 Examines the influence of gravity on people.  
L2 M71.90 V03 Performs experiments to demonstrate the effects of gravity.  
L2 M71.00 V03 Identifies different types of waves.  
L2 M71.00 V03 Recognizes the frequency, wavelength and amplitude of waves.  
L2 M71.00 V03 Demonstrates the penetration properties of microwaves.  
L2 M71.10 V04 Identifies the characteristics of a high volume low pitch sound.  
L2 M71.60 V03 Identifies speed changes in moving gear trains.  
L2 M71.60 V03 Performs gear ratio calculations.  
L2 M71.60 V03 Assembles and uses a stepped pulley and belt system.  
L2 M71.60 V03 Interprets force diagrams.

L2 M71.60 V03	Measures force.
L2 M71.60 V03	Measures forces on an inclined plane.
L2 M71.60 V03	Examines force of friction when rolling and sliding loads.
L2 M71.70 V04	Performs force-pressure-area evaluation on cylinder applications.
L2 M71.90 V03	Investigates the relationship between force and motion.

### Processes that shape the earth

**Standard 1: student recognized that processes in the lithosphere, atmosphere, Hydrosphere, and biosphere interact to shape the earth.**

**Standard 2: Student understand the need for protection of the Natural systems on earth.**

L2 M71.10 V03	Defines characteristics of the atmosphere.
L2 M71.10 V03	Investigates the components and links in the water cycle.

### Earth and Space

**Standard 1: Student understands the interaction and organization in the solar system And the universe and how it affects life on earth.**

**Standard 2: Student recognizes the vastness of the universe And earths place in it.**

L2 M71.10 V03	Describes how satellites are used to monitor the weather.
L2 M71.10 V03	Tracks polar and geostationary satellites.
L2 M71.10 V03	Identifies a polar orbiting satellite.
L2 M71.10 V03	Outlines how satellite technology is used to gather weather data.
L2 M71.70 V01	Uses a multimedia Atlas to identify a global position.
L2 M71.70 V01	Identifies from text an application and the meaning of GPS.

## Processes of life

**Standard 1: student describes patterns of structures and function in living things.**

**Standard 2: Student understands the process and importance of genetic diversity**

L2 M77.20 V01	Identifies the characteristics of living things.
L2 M77.20 V01	Identifies the factors, which control seed germination.
L2 M77.20 V01	Explores various methods used to promote plant growth.
L2 M71.70 V02	Plots weight and age data for infants on a growth chart.
L2 M71.70 V02	Interprets data from growth charts.
L2 M71.70 V02	Uses data to create a growth chart.
L2 M71.70 V02	Calculates the percentage loss in body weight of an infant.
L2 M71.70 V02	Compares healthy and diseased cells using microscopic examination.
L2 M71.70 V02	Describes the structure of a cell.
L2 M71.70 V02	Selects parts from a diagram of a cell.
L2 M71.70 V02	Describes the structure of a human cell.
L2 M77.20 V01	Identifies the parts of a plant and their function.
L2 M77.20 V01	Identifies stages in the life cycle of a plant.
L2 M77.20 V01	Explores the process of photosynthesis in plants.
L2 M77.20 V01	Classifies living things.

## How living thing interact with their environment

**Standard 1: Student understands the competitive, independent, cyclic nature of living Things in the environment.**

**Standard 2: Student understands the consequences of using limited natural resources.**

L2 M71.70 V02	Compares healthy and diseased cells using microscopic examination.
L2 M77.20 V01	Identifies the characteristics of living things.
L2 M77.20 V01	Identifies that objects can be classified into groups.
L2 M77.20 V01	Classifies living things.
L2 M77.20 V01	Identifies environments and habitats.
L2 M77.20 V01	Recognizes how living things can be classified into kingdoms.
L2 M71.00 V02	Indicates that the use of fossil fuels harms the environment.
L2 M71.00 V02	Defines alternative energy.
L2 M71.00 V02	Identifies a major cause of acid rain.
L2 M71.00 V02	Identifies the problems associated with non-renewable energy resources.

## **The Nature of science**

**Standard 1: Student uses the scientific process and habits of the mind to solve Problems.**

**Standard 2: Students understand that most natural events occur in comprehensible, Consistent patterns.**

**Standard 3: Student understand that science, technology, and society are interwoven And interdependent.**

L2 M71.00 V02	Maintains and organizes a record of work.
L2 M71.80 V02	Describes the theory behind wing design.
L2 M71.90 V03	States scientific principles of importance to space technology.
L2 M71.00 V02	Compares results in a table and identifies the highest wind speeds.
L2 M71.10 V03	Defines characteristics of the atmosphere.
L2 M71.10 V03	Identifies characteristics of the environment.
L2 M71.10 V03	Predicts weather conditions for cities in the path of a hurricane.
L2 M71.70 V02	Identifies the properties of the materials used for making denture casts.
L2 M71.70 V02	Evaluates the importance of different properties of alginate to dentists.
L2 M71.50 V01	Compares the hardness of materials to find appropriate solutions for product designs.
L2 M71.50 V01	Selects different woods in a set of sample materials from given descriptions.
L2 M71.50 V01	Selects different composite materials in a set of sample materials from given descriptions.