

Mathematics and Science Directing Words

Discuss The word “discuss” **will not** be used as a directing word on math and science diploma examinations because it is not used consistently to mean a single activity.

The following words are specific in meaning.

Algebraically	Using mathematical procedures that involve letters or symbols to represent numbers
Analyze	To make a mathematical, chemical, or methodical examination of parts to determine the nature, proportion, function, interrelationship, etc. of the whole
Compare	Examine the character or qualities of two things by providing characteristics of both that point out their <i>similarities</i> and <i>differences</i>
Conclude	State a logical end based on reasoning and/or evidence
Contrast/Distinguish	Point out the <i>differences</i> between two things that have similar or comparable natures
Criticize	Point out the <i>demerits</i> of an item or issue
Define	Provide the essential qualities or meaning of a word or concept; make distinct and clear by marking out the limits
Describe	Give a written account or represent the characteristics of something by a figure, model, or picture
Design/Plan	Construct a plan; i.e, a detailed sequence of actions for a specific purpose
Determine	Find a solution, to a specified degree of accuracy, to a problem by showing appropriate formulas, procedures, and calculations
Enumerate	Specify one by one or list in concise form and according to some order
Evaluate	Give the significance or worth of something by identifying the good and bad points or the advantages and disadvantages
Explain	Make clear what is not immediately obvious or entirely known; give the cause of or reason for; make known in detail
Graphically	Using a drawing that is produced electronically or by hand and that shows a relation between certain sets of numbers
How	Show in what manner or way, with what meaning
Hypothesize	Form a tentative proposition intended as a possible explanation for an observed phenomenon; i.e., a possible cause for a specific effect. The proposition should be testable logically and/or empirically
Identify	Recognize and select as having the characteristics of something
Illustrate	Make clear by giving an example. The form of the example must be specified in the question; i.e., word description, sketch, or diagram
Infer	Form a generalization from sample data; arrive at a conclusion by reasoning from evidence
Interpret	Tell the meaning of something; present information in a new form that adds meaning to the original data
Justify/Show How	Show reasons for or give facts that support a position
Model	Find a model (in mathematics, a model of a situation is a pattern that is supposed to represent or set a standard for a real situation) that does a good job of representing a situation
Outline	Give, in an organized fashion, the essential parts of something. The form of the outline must be specified in the question; i.e., list, flow chart, concept map
Predict	Tell in advance on the basis of empirical evidence and/or logic
Prove	Establish the truth or validity of a statement for the general case by giving factual evidence or logical argument
Relate	Show logical or causal connection between things
Sketch	Provide a drawing that represents the key features of an object or graph
Solve	Give a solution for a problem; i.e., explanation in words and/or numbers
Summarize	Give a brief account of the main points
Trace	Give a step-by-step description of the development
Verify	Establish, by substitution for a particular case or by geometric comparison, the truth of a statement
Why	Show the cause, reason, or purpose