



# 9th Grade Student Profile

## ENGLISH

Throughout the year, each 9th grade student will learn and demonstrate:

### LISTENING/SPEAKING

- Listen critically to gain information and supporting devices.
- Monitor their understanding of a spoken message and interpret speaker's messages, purposes, and perspectives.
- Speaks clearly and appropriately to different audiences for different purposes and occasions.
- Communicates clearly by putting thoughts and feelings into spoken words.

### READING

- A basic understanding of culturally diverse written texts.
- An ability to analyze and critically evaluate the written texts and visual representations.
- Various strategies to aid in word identification, vocabulary development, and reading comprehension.
- Identification of the relation of word meanings in analogies, homonyms, synonyms/antonyms, and connotation/denotation.
- Identification of main ideas and their supporting details, and summarization of texts.
- Analysis of literary elements for their contribution to the work's meaning.
- Recognition and interpretation of poetic elements and the effect of sound on meaning in a literary work.
- An ability to draw inferences such as conclusions, generalizations and predictions and support them from the text.
- An interpretation of the possible influences of the historical context on literary work.
- Analysis of the characteristics of text, including its structure, word choices, and intended audience.
- Evaluation of the credibility of information sources and to determine the writer's motives.
- Analysis of the text to evaluate the logical argument employed.
- Analysis of nonfiction texts and visual representations to get the main idea of the message's content.
- An understanding and interpretation of visual representations through an analysis of relationships, ideas, and cultures shown in various media.
- An ability to distinguish the purposes of various media forms as well as identifying bias and other persuasive techniques.

### WRITING

- The ability to produce within a given context, an effective composition for a specific purpose, demonstrating a command of the conventions of spelling, capitalization, punctuation, grammar, usage, and sentence structure, as well as using the techniques of revision, editing, proofreading, to evaluate their work.

### VIEWING/REPRESENTING

- Understand and interpret visual messages and media.
- Analyze and critique the significance of media.
- Produce visual representation that communicates with others.

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# MATHEMATICS

In 9th grade your child will be given the opportunity to learn:

## FOUNDATIONS OF MATH FUNCTIONS

- Describe independent and dependent qualities
- Gather, record, and use data and data tables to determine relationships between quantities
- Write equations or inequalities to answer questions in problem solving situations
- Use models, tables, graphs, diagrams, verbal descriptions, and equations to represent situations
- Interpret and make inferences from functional relationships
- Identify and sketch general forms of linear and quadratic functions
- Identify domain and range of functions
- Interpret or determine situations in terms of given graph
- Find function values, simplify polynomial expressions
- Transform and solve equations, factoring as necessary

## LINEAR FUNCTIONS

- Determine which domain and range values make sense in given linear functions
- Translate among and use algebraic, tabular, graphical, or verbal description of linear function
- Develop concept of a slope as a rate of change (rise/run)
- Determine y intercepts of graphs
- Determine meaning of slope and intercepts in situations using data, symbolic representation, or graphs
- Investigate, describe, and predict changes in slope and y intercept of graphs
- Solve problems using linear equations or linear inequalities
- Solve linear equations with concrete models, graphs, and properties of equality
- Solve problems using a system of linear equations

## QUADRATIC FUNCTIONS

- Determine domain and range values reasonable to function
- Investigate, describe, and predict effects of changes on quadratic functions
- Analyze graphs of quadratic functions and make conclusions
- Solve quadratic equations using models tables, and graphs
- Use patterns to generate quadratic functions and use them in problem solving
- Analyze data and represent inverse variation using concrete models, tables, and graphs
- Analyze data and represent exponential growth and decay using models, tables and graphs

## PROBABILITY AND STATISTICS

- Use simple and compound probabilities to find likelihood of given events
  - Use mean, median, mode and range in problem solving situations
  - Determine combinations and arrangements in problem solving
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# SOCIAL STUDIES

In the ninth grade World Geography, your teenager will learn:

## HISTORY

- Identify major eras, significance of various dates, individuals, and events in U.S. History through 1877.
- Compare the political, economic, and social causes of exploration and colonization, the revolutionary era, and the Civil War.
- Understand the challenges confronted by the government and its leaders in the early years of the Republic.
- Explain the effects of westward expansion on the political, economic, and social development of the nation and sectionalism leading up to the Civil War.

## GEOGRAPHY

- Explain the effects of westward expansion on the political, economic, and social development of the nation and the world
- Use geographic tools to collect, analyze, and interpret data
- Locate and compare places and regions of the U.S. and the world
- Analyze the effects of physical and human geographic factors on historical and contemporary events and how humans adapted and modified the environment in the U.S. and the world

## ECONOMICS

- Understand why various sections of the U.S. and the World developed different patterns of economic activity
- Identify the economic forces, including industrialization and urbanization, resulting in the Industrial Revolution in the 19th Century.
- Origins and development of the free enterprise and other market systems.

## GOVERNMENT

- Understand the foundations of various governments around the world, specifically representative governments.
- Recognize the principles of the U.S. Constitution and other historic documents.
- Understand the impact of landmark Supreme Court cases

## CITIZENSHIP

- Understand the rights and responsibilities of citizens of the U.S.
- Recognize the importance of the expression of different points of view and effective leadership in government especially in a democratic society.

## CULTURE

- Understand the relationships between and among various people of various groups, including racial, ethnic, and religious groups of the 17th-19th centuries and contemporary societies.
- Identify the major reform movements of the 19th century

## SCIENCE, TECHNOLOGY, AND SOCIETY

- Describe the impact of science and technology on life in the U.S. and the World

## SOCIAL STUDIES SKILLS

- Apply age-appropriate critical-thinking skills, communicate effectively, and use problem-solving and decision-making processes.

# SCIENCE

In the ninth grade, an IPC student will learn:

## LAB INVESTIGATION AND SAFETY

- Laboratory investigation and safety training in the use of lab equipment
- Wise choices in the conservation of and disposal or recycling of materials.

## SCIENTIFIC INQUIRY

- The scientific method during field and laboratory investigation
- To collect and make measurements with precision
- To organize, analyze, evaluate, make inferences and communicate valid conclusions

## CRITICAL THINKING AND PROBLEM SOLVING

- Critical thinking and scientific problem solving to make informed decisions
- To analyze, review, and critique scientific explanations, including hypotheses and theories as to their strengths and weakness using scientific evidence and information

## CONCEPTS OF FORCE AND MOTION

- To calculate speed, momentum, acceleration, work, and power in systems such as in the human body, moving toys, and machines
- To investigate and demonstrate mechanical advantage and efficiency of machines such as levers, motors, wheels and axles, pulleys, and ramps

## EFFECTS OF WAVES

- To demonstrate wave types and their characteristics through a variety of activities such as modeling with ropes and coils, activating tuning forks, and interpreting data on seismic waves
- To identify uses of electromagnetic waves in various technological applications such as fiber optics, optical scanners, and microwaves

## IMPACTS OF ENERGY TRANSFORMATION

- To describe the law of conservation and be able to demonstrate the movement of heat through solids, liquids, and gases by convection, conduction, and radiation
- How to analyze the relationship between an electric current and the strength of its magnetic field using simple electromagnetics

## PROPERTIES OF MATTER AND ITS COMPONENTS

- Investigate and identify properties of fluids including density, viscosity, buoyancy, and research and describe the historical development of the atomic theory.

## CHANGES IN MATTER

- Distinguish between physical and chemical changes in matter such as oxidation, digestion, changes in states, and stages in the rock cycle.

## SOLUTION CHEMISTRY

- The structure of water to its function as the universal solvent, and demonstrate how factors such as particle size, influence the rate of dissolving