

# Program Approach for Middle & High Math (Direct from BJU Press)

## **Comprehension. Solution. Application.**

The Objectives of BJU Press Middle & High Math are:

- To develop knowledge of mathematical concepts
- To foster analytical thinking and reasoning skills
- To emphasize how mathematics helps us serve others and glorify God
- To expose students to service opportunities in a variety of math-related occupations

## **Biblical Worldview**

### Using Math to Glorify God

Today, math educators are emphasizing integration of Science, Technology, and Engineering (STEM) into the math classroom. When students understand how the math skills they are mastering are used by scientists, programmers, and engineers, they will realize the value of mathematics.

STEM also provides excellent opportunities for Christian math educators. After creating man in His own image, God called image bearers to exercise good and wise dominion over the world (Gen. 1:28). This command calls us to maximize the usefulness of the world for the glory of God and the benefit of our fellow humans. STEM illustrates how math enables effective utilization of our world's resources. Christians using mathematics as a tool to build bridges, cure diseases, and create communication networks carry out God's mandate.

BJU Press presents math within a biblical worldview. It provides students with a powerful tool for fulfilling God's commands and serving others. STEM provides an opportunity to present math as a tool for service instead of the hope of human progress without God.

Students will learn the relevance and purpose of math when it is presented from a biblical worldview. God is a God of order. Math helps us to describe the order in the world God created. Although creation has been tarnished by the Fall of man into sin, God's original design and consistency can often be found in mathematical details, such as the perfect hexagons in a honeycomb, the symmetry of a snowflake, and the mathematical precision of a pendulum's oscillation.

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## Using Math to Exercise Dominion

God's creation can be measured with numbers; and if students know how to use numbers effectively, they can become skilled at obeying the Creation Mandate of Genesis 1:28. Historical features reveal how great mathematicians used their God-given abilities to develop and apply math in practical ways.

Dominion Modeling features that are in many of our math textbooks integrate real-world data and mathematical concepts with biblical principles through performing data analysis and applying Scriptural truth. This provides biblical-worldview shaping in the context of real-world challenges, such as climate change, accident scene investigation, and risk management.

## Comprehension

### The Key to Understanding Math

A firm grasp of mathematical concepts is fundamental to success in math. Students must have a thorough understanding of the mathematical processes and know how to use the processes to produce accurate solutions. While memorization is an essential component in math, students need to pair comprehension with the math concepts that they have memorized in order to succeed in higher-level mathematics.

Students connect each new lesson to previously learned concepts to get a unified view of mathematics. The lessons, exercises, and reviews are designed to promote maximum comprehension and retention of concepts. Extended problem sets—graded by A, B, and C levels of difficulty—allow the teacher to differentiate instruction for diverse learners. Cumulative Review sections help students recall prior concepts while preparing them for what is ahead.

## Relevant Application

Teachers are inspired to make math relevant and fun. Students become more engaged through developing new math skills with practical, everyday connections. Real-life applications present math as a tool of commerce, the language of science, and a means for solving everyday problems. Story problems related to science, music, finances, sports, and the arts increase student appeal. Features on math history, biographies, math in other cultures, and careers help students develop an appreciation for math. The increasing importance of STEM education is reflected in the variety of application exercises that link mathematics to science, technology, and engineering.

## Critical Thinking

### Math is More than Computation

A major goal of the middle and high school Math program is to help students become critical thinkers and life-long problem solvers. Education is more than just getting good grades. It is learning to think for oneself. Students are encouraged not only to perform calculations but also to be able to explain and justify answers by applying critical-thinking skills. Our academically rigorous materials prepare students to excel in standardized assessments as well as college-level mathematics.

Our Middle & High Math program helps students develop reasoning and problem-solving skills in a number of ways. Technology Corners provide tutorials that guide students in detailed use of the TI-84+ family of graphing calculators, spreadsheets, and dynamic geometry software. Programming Projects and Mind Over Math activities provide practical and motivating options for advanced students. Internet keyword searches assist students and teachers in accessing online tools and enrichment resources.