

## Logic Course Objectives

Logic aims to develop skills which are necessary for thorough and creative thinking and for effective and winsome communication. This course trains students in the skills and principles of formal and informal logic, which trains their minds in rigorous and careful argumentation. This course also provides them with the tools to implement these skills in written and oral analysis and communication. Students will learn the language of formal logic, analyze arguments for their validity, and recognize how logical argumentation is implemented in everything from advertisements and apologetics to poetry and literature. Logic is the most traditional of our courses, with lecture-based classes, quizzes and tests; however, Logic is classically-oriented in that it gives students the foundational skills and aptitudes which will allow them to be excellent discussion participants and writers. We recommend this class for high school students of all grade levels. We recommend that parents and independent study programs count this class as meeting the requirements for ten high school academic credits for Logic/Critical Thinking.

### **Students will develop skills in critical thinking and clear communication. They will**

- Recognize arguments in English and other natural languages
- Distinguish between premises and conclusion in an argument
- Recognize ambiguous language and be able to express statements without ambiguity
- Translate propositions from English into logic symbols, and translate propositions from symbols back to English
- Construct truth tables and use them to demonstrate validity or invalidity of propositional arguments
- Apply the rules of Natural Deduction to demonstrate the validity of propositional arguments
- Construct a counterexample to demonstrate the invalidity of an argument
- Analyze arguments expressed informally and prove these arguments as valid or invalid
- Recognize informal fallacies in their own arguments and in arguments from books, movies, speeches, and other sources

Course objectives will be realized through dynamic lectures, regular quizzes, assignments, logic games, and quarterly exams. They will practice formal and informal analysis of argumentation in literature and poetry by authors such as Plato and Shakespeare. The assignments will serve as the evaluative tools that assess the student's progress toward the set objectives and will serve as a catalog of the student's progress through the course of the academic year.