# Fairfax Collegiate
# 2026 Summer Program
# Academies of Loudoun Prep Course Syllabus
# Rising Grades 7-8

## Course Description

*Prepare for the Academies of Loudoun (AOS and AET) admissions exam.*

Review content for each of the sections of the STEM Thinking Skills Assessment.

Learn effective test-taking strategies and prepare for the Writing Assessment.

Take two full-length practice tests and obtain a written evaluation.

Students strengthen their STEM thinking, writing skills, and test-taking strategies. With structured practice and reflection, students build confidence across all parts of the exam.

Students practice algebraic reasoning, spatial thinking, scientific analysis, and technical logic through targeted exercises. They also work on timed writing prompts, revision strategies, and clear self-expression. Diagnostic tests and progress checks help students track growth and refine study plans.

Students leave better prepared for the admissions process with clearer strategies, stronger skills, and confidence in their abilities.

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## Learning Objectives

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| **Course Goals** | **Understanding the Admissions Process:** Students learn about the application process for the Academies of Loudoun (ACL), including the STEM Thinking Skills Test and Writing Assessment.<br>**STEM Thinking Skills Test:** Students practice with sample items based on the STEM Thinking Skills Test, an assessment they will take as part of the admissions process, and practice solving problems in the areas of algebra, spatial relations, science, and tech logic.<br>**Writing Assessment:** Students spend significant time practicing personal statements and writing about their experience and background in math, science, and technology.<br>**Reflection:** Students identify and evaluate their strengths and areas of growth as test-takers over the course of the class. |

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| **Course Topics** | **Out-of-the-Box Algebra:** Students prepare for this section of the STEM Thinking Skills Test by learning to come up with elegant solutions to algebraic and arithmetic problems that might otherwise seem difficult and time-consuming.<br><br>**Spatial-Relational Thinking:** Students prepare for this section of the STEM Thinking Skills Test by learning to recognize and predict spatial relationships, geometric progressions, and effective organization of objects for engineering and design related purposes.<br><br>**Scientific Thinking:** Students prepare for this section of the STEM Thinking Skills Test by learning to determine relationships between provided facts and to determine which observations would count as reasonable evidence for or against competing hypotheses.<br><br>**Tech Logic:** Students prepare for this section of the STEM Thinking Skills Test by learning to identify the logical structures and organizational plans in written text, diagrams, and mathematical functions.<br><br>**Essay Writing:** Students learn how to respond to writing prompts commonly encountered on magnet school admissions exams, and they give and receive peer feedback to hone their critical evaluation skills.<br><br>**Timed Writing:** Students learn how to efficiently work under time constraints and write organized, grammatical, informative essays.<br><br>**Prompt Analysis:** Students learn how to narrow down the topic of a prompt to an idea that can be explained in the time they are given.<br><br>**Sentence Variety:** Students work on varying their sentences to improve the quality of their essays. Students also work on improving diction, or effective word choice.<br><br>**Revision:** Students learn how to look back over their writing to find mistakes and correct them efficiently. |

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## Course Schedule

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| **Class Meeting 1** | **Loudoun ACL Overview:** Students learn about the application process for the Loudoun ACL, including the STEM Thinking Skills Test and Writing Assessment.<br><br>**Icebreakers:** Students get to know one another by answer questions to introduce themselves.<br><br>**Writing Assessment Pre-Test:** Students spend 45 minutes answering one written multi-question prompt to a scenario based question on the topic of STEM.<br><br>**Course Introduction:** Students meet the instructor, then review the syllabus and introduce the course.<br><br>**STEM Thinking Skills Test Overview:** Students learn about the STEM Thinking Skills Test, an assessment they will take as part of the admissions process.<br><br>**STEM Thinking Skills Pretest:** Students take a practice test with sample items based on the STEM |

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| | Thinking Skills Test.<br>**Test Taking Strategies:** Students learn how to study and prepare for the ACL application process, including strategies to combat test anxiety and how to develop a personal study plan. |
| **Class Meeting 2** | **Peer Review:** Students spend 30 minutes reviewing each other's writing and providing helpful feedback.<br>**Written Exam Test Review:** Students learn what is expected of them when answering the writing section of the ACL writing test and go over the written exam.<br>**Test Review 1:** Students review their STEM Thinking Skills Tests and note areas of strength and areas of growth.<br>**Out of the Box Algebra Instruction:** Students prepare for this section of the STEM Thinking Skills Test by practicing coming up with elegant solutions to problems that might otherwise seem difficult and time-consuming. |
| **Class Meeting 3** | **Reflective Journal Prompts:** Students warm up by responding to daily journal prompts about the ACL and their experiences in STEM fields.<br>**Reflection:** Students reflect on their learning from the day's lessons and note them down.<br>**Spatial Relational Thinking Instruction:** Students prepare for this section of the STEM Thinking Skills Test by learning to recognize and predict spatial relationships through the use of manipulables and creative thinking.<br>**Writing Instruction:** Students learn how to analyze scenario-based questions and identify key elements and requirements in order to respond to an Academies of Loudoun writing prompt.<br>**Practice Writing Prompt:** Students practice answering sample questions to encourage learning and get in the habit of answering questions in this format. |
| **Class Meeting 4** | **Reflective Journal Prompts:** Students warm up by responding to daily journal prompts about the ACL and their experiences in STEM fields.<br>**Scientific Thinking Instruction:** Students prepare for this section of the STEM Thinking Skills Test by responding to evaluative and inferential questions based on narrative scientific scenarios.<br>**Practice Writing Prompt:** Students practice answering sample questions to encourage learning and get in the habit of answering questions in this format.<br>**Problem Analysis Activity:** Students learn how to gather evidence and plan how to present the information gathered to simulate the written assessment possible question spectrum. |
| **Class Meeting 5** | **Reflective Journal Prompts:** Students warm up by responding to daily journal prompts about the ACL and their experiences in STEM fields.<br>**Tech Logic Instruction 1:** Students prepare for this section of the STEM Thinking Skills Test by learning to identify the logical structures and organizational plans in written text, diagrams, and mathematical functions.<br>**Practice Writing Prompt:** Students practice answering sample questions to encourage learning |

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| | and get in the habit of answering questions in this format.<br>**STEM Thinking Enrichment Activity:** Students refresh their knowledge learned throughout the week through online engaging enrichment activities.<br>**Analyzing Question Structure and Key Words:** Students learn the skill of reading and analyzing questions effectively by focusing on the structure and key words used in writing prompt questions. |
| **Class Meeting 6** | **Reflection:** Students reflect on their learning from the day's lessons and note them down.<br>**STEM Thinking Skills Progress-Test:** Students take a practice test with sample items based on the STEM Thinking Skills Test.<br>**Test Review 2:** Students review responses to STEM Thinking Skills Progress Test<br>**Practice Writing Prompt:** Students practice answering sample questions to encourage learning and get in the habit of answering questions in this format.<br>**STEM Thinking Enrichment Activity:** Students refresh their knowledge learned throughout the week through online engaging enrichment activities.<br>**Examining Sample Answers:** Students review sample answers from previous versions of the class and discuss |
| **Class Meeting 7** | **Reflective Journal Prompts:** Students warm up by responding to daily journal prompts about the ACL and their experiences in STEM fields.<br>**Peer Review:** Students spend 30 minutes reviewing each other's writing and providing helpful feedback.<br>**STEM Thinking Enrichment Activity:** Students refresh their knowledge learned throughout the week through online engaging enrichment activities.<br>**Writing Prompt Reflection:** Students reflect on Writing Test Prompt responses and note areas of strength and areas of growth.<br>**Prompt Response Editing:** Students develop their editing skills and improve the clarity, coherence, and effectiveness of their prompt responses.<br>**Out of the Box Algebra Instruction:** Students prepare for this section of the STEM Thinking Skills Test by practicing coming up with elegant solutions to problems that might otherwise seem difficult and time-consuming. |
| **Class Meeting 8** | **Reflective Journal Prompts:** Students warm up by responding to daily journal prompts about the ACL and their experiences in STEM fields.<br>**Scientific Thinking Instruction:** Students prepare for this section of the STEM Thinking Skills Test by responding to evaluative and inferential questions based on narrative scientific scenarios.<br>**Practice Writing Prompt:** Students practice answering sample questions to encourage learning and get in the habit of answering questions in this format.<br>**STEM Thinking Enrichment Activity:** Students refresh their knowledge learned throughout the |

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| | week through online engaging enrichment activities.<br>**Stylistic Writing Instruction:** Students learn how to writing in a stylistic manor when answering writing prompts and the importance of proper sentence style and structure. |
| **Class Meeting 9** | **Reflective Journal Prompts:** Students warm up by responding to daily journal prompts about the ACL and their experiences in STEM fields.<br>**STEM Thinking Skills Post-Test:** Students take a practice test with sample items based on the STEM Thinking Skills Test.<br>**Writing Assessment Post Test:** Students spend 45 minutes answering three written prompts to on the topic of STEM and why they want to attend ACL.<br>**Tech Logic Instruction 2:** Students prepare for this section of the STEM Thinking Skills Test by learning to identify the logical structures and organizational plans in written text, diagrams, and mathematical functions.<br>**STEM Thinking Enrichment Activity:** Students refresh their knowledge learned throughout the week through online engaging enrichment activities. |
| **Class Meeting 10** | **Reflection:** Students reflect on their learning from the day's lessons and note them down.<br>**End of Course Reflection:** Students reflect on their learning throughout the course and set goals for future preparation for the ACL admissions process.<br>**Test Review 3:** Students review their STEM Thinking Skills Tests and note areas of strength and areas of growth.<br>**Writing Assessment Post Test Review:** Students review their final responses to the Post Test and note weaknesses they can improve on.<br>**Picture-It See Yourself at ACL:** Students conduct individual research into the courses and opportunities offered by the ACL, highlighting subjects, opportunities, extracurriculars, and other subjects that could interest them. |