

Fairfax Collegiate
2026 Summer Program
Spy Science Course Syllabus
Rising Grades 4-6



Course Description

Learn the science behind espionage.

Dive into codebreaking, disguises, fingerprinting, forensic tests, periscopes, and alarms. Investigate clues, test gadgets, and complete missions.

Create ciphers, analyze handwriting, test mystery powders, make invisible ink, build simple surveillance tools, and practice using Morse code.

Students in Spy Science get to solve puzzles and mysteries while discovering how real spies use science and clever thinking to solve problems. They experiment with hands-on activities, secret messages, and imaginative missions. With friendly guidance and plenty of practice, students build confidence as they explore the science and skills behind spycraft.

Each day brings new challenges and stories that help students think like real agents while building teamwork and observation skills.

Families receive photos and videos that capture students in action as they investigate clues, test gadgets, and complete missions. Students finish the course proud of earning their “spy status” and excited to keep exploring science, problem-solving, and creativity.

Learning Objectives

Course Goals	<p>Investigation: Students learn the basics of investigating a subject and forensics in the lab.</p> <p>Coding: Students learn about different methods used to keep information secret.</p> <p>Surveillance: Students learn simple methods to surveil and apply these methods.</p> <p>Subterfuge: Students learn about going undercover and the role of double agents.</p>
Course Topics	<p>Eyewitnesses: Students learn the importance of eyewitnesses in spying, and how inaccurate they</p>

	<p>can sometimes be.</p> <p>Espionage: Students learn about and discuss government spy agencies, their roles, and where they operate.</p> <p>Ciphers: Students learn about the use of ciphers and make their own ciphers to code information.</p> <p>Morse Code: Students learn about Morse Code and how it can be used in spying to conceal information and get an important message across. Even though it is commonly known amongst spies, unless it is known that a person is sending a message in Morse Code it is hard to translate.</p> <p>Fingerprint Patterns: Students learn about the different types of fingerprint patterns among humans: whorls, arches and loops.</p> <p>Forgery: Students learn about the use of forged documents among spies, and how they can be used to gain access to privileged information.</p> <p>Handwriting: Students learn the basics of handwriting analysis and ways to determine who wrote a document.</p> <p>Bugging: Students learn about bugging and the use of technology in spycraft.</p> <p>Mystery Powder Identification: Students learn how powders can be identified through a series of chemical tests.</p> <p>Tool Impressions: Students discuss different methods of analyzing what tool was used to commit a crime.</p> <p>Ink Chromatography: Students learn about identification of the components of ink and analyze ink from different types of pens.</p> <p>Periscopes: Students learn about covert methods of surveillance including the use of the periscope to see around corners.</p> <p>Covers and Disguises: Students learn about disguising themselves as a different person in order to create and maintain a cover.</p>
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Course Schedule

<p>Class Meeting 1</p>	<p>Introduction and Icebreakers: Students get to know their instructor and one another.</p> <p>Vocabulary: Students learn important spy vocabulary for use during the course.</p> <p>Vocabulary Games: Students reinforce their vocabulary daily using games to help them master the material.</p> <p>Vocabulary: Students learn important spy vocabulary for use during the course.</p> <p>Spies in Real Life: Students discuss what types of jobs spies have as a cover and learn about how it's not always glamorous.</p>
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	<p>Disguises: Students learn about potential methods of disguising themselves from others.</p> <p>Make Your Own Disguise: Students make their own disguises using cutouts.</p> <p>Stories: Students are read various spy stories at the end of each day.</p>
Class Meeting 2	<p>Ciphers and Codebreaking: Students learn about the significance of ciphers and encryption in relation to spy craft. Real life examples are applied.</p> <p>Bugging: Students practice bugging and de-bugging a room.</p> <p>Ciphers: Students learn about the significance of ciphers and encryption in relation to spy craft. Real life examples are applied.</p> <p>Vocabulary Games: Students reinforce their vocabulary daily using games to help them master the material.</p> <p>Stories: Students are read various spy stories at the end of each day.</p>
Class Meeting 3	<p>Forgery: Students discuss the use of forged documents in spycraft and making covers.</p> <p>Handwriting Analysis: Students analyze their handwriting and the handwriting of classmates while trying to determine who forged the secret note!</p> <p>Forged Grades: Students analyze a teacher's gradebook where some of the grades were altered. They figure out which students changed their grade, what the original grade was, and what they changed it to.</p> <p>Cyber Security: Students learn about the significance of and then practice making strong, secure passwords.</p> <p>Forgery: Students discuss the use of forged documents in spycraft and making covers.</p> <p>Vocabulary Games: Students reinforce their vocabulary daily using games to help them master the material.</p> <p>Stories: Students are read various spy stories at the end of each day.</p>
Class Meeting 4	<p>Periscopes: Students learn about periscopes, make their own, and practice using them.</p> <p>Spying: Students practice spying and seeing around corners using their periscopes.</p> <p>Invisible Ink: Students write their own messages using invisible ink.</p> <p>Vocabulary Games: Students reinforce their vocabulary daily using games to help them master the material.</p> <p>Stories: Students are read various spy stories at the end of each day.</p>
Class Meeting 5	<p>Alarms: Students practice building their own alarms to catch someone who is trying to steal information.</p> <p>Recording: Students use digital recorders to capture information. They also learn how sound can be amplified using tools around the house.</p> <p>Vocabulary Games: Students reinforce their vocabulary daily using games to help them master the material.</p>

	<p>Stories: Students are read various spy stories at the end of each day.</p>
<p>Class Meeting 6</p>	<p>Lasers: Students learn about the use of lasers for alarms and burglary prevention.</p> <p>Mad Libs: Students practice their spy vocabulary using mad libs.</p> <p>Mystery Powders: Students are introduced to chemical methods of identifying powders left behind at crime scenes.</p> <p>Vocabulary Games: Students reinforce their vocabulary daily using games to help them master the material.</p> <p>Stories: Students are read various spy stories at the end of each day.</p>
<p>Class Meeting 7</p>	<p>Fingerprints Notes: Students learn about the importance of fingerprint identification in finding a suspect or a source. Databases of fingerprints are discussed as well as hacking into databases to steal information.</p> <p>Fingerprint Identification: Students practice analyzing fingerprints and determine what types of fingerprints they have.</p> <p>Fingerprints: Who-Dunnit?: Students try to determine who committed a crime using their fingerprints.</p> <p>Blown Up Fingerprints: Students study their own fingerprints in larger than life size using balloons.</p> <p>Vocabulary Games: Students reinforce their vocabulary daily using games to help them master the material.</p> <p>Stories: Students are read various spy stories at the end of each day.</p>
<p>Class Meeting 8</p>	<p>Tool Impression Analysis: Students learn how to distinguish marks from different tools that were used to break into spy headquarters.</p> <p>Ink Chromatography: Students learn how to identify various inks and learn about their components using chromatography.</p> <p>Vocabulary Games: Students reinforce their vocabulary daily using games to help them master the material.</p> <p>Stories: Students are read various spy stories at the end of each day.</p> <p>Mad Libs: Students practice their spy vocabulary using mad libs.</p>
<p>Class Meeting 9</p>	<p>Other Codes: Students learn about other forms of ciphers not previously discussed including the pigpen cipher, and numerical substitution.</p> <p>Mad Libs: Students practice their spy vocabulary using mad libs.</p> <p>Review: Students review the material they've learned in the course for use in the final activity.</p> <p>Vocabulary Games: Students reinforce their vocabulary daily using games to help them master the material.</p> <p>Stories: Students are read various spy stories at the end of each day.</p>

<p>Class Meeting 10</p>	<p>Final Activity: Students use the information they've learned in the class to complete their spy mission and become licensed spies.</p> <p>De-Bugging the Room: Students debug the classroom as part of their final activity.</p> <p>Find Agent #: Students find their agent number and the clue associated with it.</p> <p>Balloons: Students find hints hidden inside balloons.</p> <p>Morse Code: Students practice their skills to decode a Morse code clue during their mission.</p> <p>Numerical Substitution Cipher: Students solve math problems to solve the next clue.</p> <p>Lasers/Periscopes: Students navigate through "laser beams" to reach their next clue.</p> <p>Unscrambling: Students unscramble words to find their next clue</p> <p>Cipher Decoding: Students practice decoding a shift cipher using their cipher wheels.</p> <p>Licensing: Students become licensed spies!</p> <p>Spy Licensing: Students become licensed spies!</p>
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