THE INTERNATIONAL SPY MUSEUM

STEM AT SPY
What do you think of when you think Spy?
WHAT ABOUT SPY SCIENCE?
WHAT IS A SPY GADGET?
LEARN WITH SPY

EDUCATOR & STUDENT PROGRAMS
STUDENT WORKSHOPS

Operation Code Cracker

Cuban Missile Crisis Sim.

Red, White & Spy

Could you be a spy?

The Spy’s Eye View

Operation STEM: Spy Science
YOUR MISSION: HELP YOUR AGENT

AGENT OLYMPUS

CAIRO, EGYPT

POSITION DESCRIPTION

Technical Operations Officer

Work Location:
Washington, DC metropolitan area

Salary:
$95,267 - $127,999

Responsibilities:
Candidates will provide high-quality, timely, and professional services and support, including
planning, developing, analyzing, and conducting tests; conducting and evaluating services; and
using computer software, computer software, and other equipment to support national security
objectives. They will develop and maintain equipment, networks, and systems; conduct
operations, prepare reports, and provide advice and recommendations; and develop
strategies, plans, and procedures.

Security Clearance:
Top Secret/Special Access Required

CIA Position Description

CATHERINE COLLINS KEMP
STEM CHALLENGES

MISSION #1
Can you build a signaling device using your knowledge of materials science, physics, and electrical circuitry?

MISSION #2
Can you crack a coded message using frequency analysis?

MISSION #3
Can you read a satellite image and do the necessary measurements/triangulations to craft an exfiltration plan?
Minute by Minute
The Role of Intelligence in the Cuban Missile Crisis
A Case-Based Simulation Publication & Workshop
The Threat of Cuban Missiles, 1962

Intermediate range ballistic missiles (IRBM): 1,000 miles

United States missile bases

The MIRV-80 is approximately 73.5 feet long
WHAT IS IN THE CRATES?

Kasimov Soviet Ship coming into port, Cuba.
"There is nothing more necessary than good Intelligence to frustrate a designing enemy. & nothing that requires greater pains to obtain."

G. Washington
EDUCATOR SPY GUIDES

Science + Technology

Of the 1000 artifacts on display at the International Spy Museum, several hundred relate directly to science and technology. The first half of the permanent exhibition is dedicated to tradecraft—the tools and methods spies use to communicate, gather intelligence, and secure their privacy. The second half of the exhibition features famous spy technology as it was used through history, ranging from code machines to spy satellites. The need for tradecraft in espionage has inspired creative breakthroughs in the realms of chemistry, physics, computer science, and engineering design. Spy tech innovations are an exciting way to bring the applications of science to life both at the Museum and back in the classroom.

IN THE MUSEUM
Exhibit areas in bold. See map for location.

Covert Communication – Radio Waves and Chemical Reactions

The Museum contains several spy radios used to covertly transmit and receive messages. Look for them in Clock, Shadow and D-Day. Radios are a challenge for engineers working in espionage—while they provide a method for communication, radio waves are inherently public and need to be protected. To discuss with students:

- How does radio communication work? What makes it a good way to communicate in the field?
- Is radio transmission a "secret" way to communicate? What kinds of innovations have made it more secure?

Check out the Secret Writing area in Ninja. Scientists use both chemistry and physics to create undetectable secret inks that develop when needed. Dating from ancient times, these secret formulas range from simple kitchen chemistry to high-tech composites.

To discuss with students:

- How can you create invisible ink using the physical light spectrum?
- Could you design invisible sounds as well?
- Which secret inks seem most and least effective to you?

Mathematics

Spies rely on good security to collect and distribute information covertly in a public world. Although this security often takes the form of physical concealment, codes and ciphers are also frequently used to encrypt and protect information. Examining codes and ciphers provides a fascinating link for the fields of algebra, probability, and statistics. The Museum’s permanent exhibition contains several historic examples of famed codes and ciphers in Earliest Espionage, and Code Breaking provides computer interactives with which students can try their hand at decoding a variety of ciphers. The Museum is a great place to jumpstart your students’ thinking about symbolic representation in espionage.

IN THE MUSEUM
Exhibit areas in bold. See map for location.

Symbolic Representation—Algebra

Spies use predetermined physical symbols to communicate with one another. A chalk mark on a mailbox or a newspaper on the ground may have great significance to the spies who intercept them. Explore the interactions in Tradecraft Skills and think about how symbols relate to the use of variables in the classroom. Just outside Earliest Espionage, the Rosetta Stone’s hieroglyphics, Demotic script, and Greek characters demonstrate three ways to represent a single message. In Earliest Espionage, examine Queen Elizabeth I’s "eyes and ears" dress, which symbolized her reliance on spy networks in order to govern successfully. In D-Day, listen to the recording of Paul Verlan’s poem used as a code to signal the opening of the Second Front. In Wilderness of Mirrors, listen to Sandy Grimes and Jean Vertefeuille describe how Aldrich Ames’s body language helped them identify him as a mole.

To discuss with students:

- Look through the museum for other examples of symbolic communication. Can you find examples of:
  - symbols in the environment?
  - symbols in ciphers?
  - symbols in dress or appearance?

Codes and Ciphers—Algebra, Probability, and Statistics
Civil WAR Curriculum

From Ballroom to Battlefield
The Role of Intelligence in the Civil War
Telegram
Jackson 16th Jun 1863

To Genl. Pragg

Genl. Pragg informs me that a telegram from Louisville of the 10th says that part of the 9th 5th Corps have been sent to reinforce Frank, will not this enable us to
UNOK CXN X REN D for this Genl. Pragg X should I PERH

over ISK X HEP

J Johnston

3/14

Telegram Rec'd

War Dept

1703

June 16th 1863

J Johnston

Jackson

Fitted
The Future of SPY: SPY2.0

- Gadget Lab
- The other INTS
- Innovation
- What is S&T
- Who is S&T