



5-E CLASSROOM STEM ACTIVITY: AS SEEN ON TV

By Dr. Alexandra Owens

ANALYZING THE INTELLIGENCE IN THE INTELLIGENCE INDUSTRY

BY ELLEN EGLEY

Operations within the FBI have been the focus of many television shows because people are captivated by their portrayal of “super cops” and “super robbers” trying to outwit each other. But if you enjoy shows like *Criminal Minds*, *Limitless*, *White Collar*, *Graceland*, *The Blacklist*, or *Blindspot*, you might have a skewed view of what working for the FBI actually looks and feels like.

James Cooper*, an intelligence analyst for the FBI, gave us an insider’s perspective of what it’s like to work in the agency, analyzing data to bring down cyber criminals.



“FOLLOW THE CAREER GUIDANCE POSTED BY THE AGENCY FOR WHICH YOU WANT TO WORK, AND TAKE THAT GUIDANCE SERIOUSLY.”



JAMES COOPER*
INTELLIGENCE ANALYST
DEGREES: BACHELOR'S
IN ECONOMICS, JURIS
DOCTORATE (LAW DEGREE)
YEARS IN THE INDUSTRY: 14
STEM TYPE: EXPLORER

STEM JOBS: What sparked your interest in pursuing a career with the FBI?

JAMES COOPER: After 9/11, I became interested in national security affairs and started exploring if there was a fit for my skills and interests in various U.S. government agencies.

SJ: What type of education is needed to be qualified for your position?

JC: The Federal Bureau of Investigation (FBI) requires at least a bachelor's degree in one of several disciplines listed on our agency's website. However, most of the skills needed to perform the job are learned on the job and developed through additional experiences.

SJ: What experiences did you have that were the most valuable on your path to your current career?

JC: The experiences that were valuable were growing up in a Pittsburgh neighborhood that encouraged involvement with other people and trying new things, pursuing a degree in economics which required studying diverse subjects, learning how to be self-reliant in my education during law school, and learning how to deal with people of various skill levels while working as an information technology (IT) generalist after law school.

SJ: What is your current role, and what all does that encompass?

JC: I am an intelligence analyst. The role is closely involved in FBI operations. I analyze data to develop assessments to drive FBI investigations. Typically, this analysis requires creative ways to evaluate various types of data, distilling that analysis into judgments, and conveying those judgments in formal and informal written or verbal communications.

SJ: What STEM skills are required in your job?

JC: My job requires broad capability to manipulate data (spreadsheets, databases, basic scripting, complex searches) along with interest and knowledge of current technologies in order to identify relevant data sources.

SJ: What professional accomplishments are you especially proud of?

JC: Successfully developing criminal indictments on significant foreign cyber actors. Also, assisting personnel new to cyber in developing skills which augmented their other capabilities and enabled them to become even higher performers.

SJ: What advice would you give to high school students who are interested in a career in intelligence/criminal justice?

JC: Follow the career guidance posted by the agency for which you want to work, and take that guidance seriously. They require certain degrees, years of experience, security clearance requirements, etc.—take that as gospel and follow the path. There are many, many applicants and you have to check all the boxes just to have a chance. Also, if it's required, get your foot in the door at some other position and work your way to the job you want. In our agency, many agents, analysts, computer scientists, etc. started off in administrative roles.

While the reality of life inside the FBI might not match the drama portrayed on the small screen, it does provide those with STEM skills opportunities to make the world a safer place. If you are looking for a career that can impact millions of lives, the FBI is hiring. 

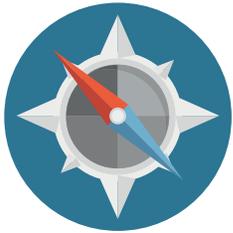
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Here are some ideas for how high school teachers could use this story as a launching point for integrated STEM learning. Our activities follow the 5-E Learning Cycle Model.



Part 1: Engage

- ① Hold a class discussion about the FBI.
 - a. What is the focus of the FBI?
 - b. What are various careers available with the FBI?
 - c. What are examples of the FBI that have you seen in the media?
- ② Have students read the article "Analyzing the Intelligence in the Intelligence Industry" in *STEM Jobs* magazine. Discuss the following questions:
 - a. How does a career in the FBI utilize data?
 - b. What skills are needed to be successful in the FBI?
 - c. What is a good way to start on the track to this career?
- ③ Ask students to consider how the FBI is portrayed in the media, specifically in movies and television. How does this compare to reality?



Part 2: Explore

- ① Break students into small groups of three or four students. Assign or allow groups to select one movie or television show that depicts the FBI. Groups should get teacher approval for their selection as some of the possible movies and shows contain adult themes, language, and material.
- ② Ask students to research the way FBI agents and other professionals are portrayed in their selected movie or television show, along with their counterparts in the actual FBI. Each individual can take a specific section or scene to research, or comparison can be completed as a group.
- ③ Challenge groups to create a presentation that illustrates aspects of the movie or television show that are fact and fiction. This may include things such as job duties, skills, technology, and timelines. Visuals such as Venn diagrams can be useful in comparing reality at the FBI to the way it is portrayed in entertainment.
- ④ Provide time for students to design their presentations.



Part 3: Explain

- ① Groups will share their presentations with the class. Each member should present the information for which they were responsible. Students should use presentation software such as PowerPoint or Google Slides. Students must be able to explain fact and fiction related to their selected movie or television show's portrayal of the FBI, and other information they deem important. This includes a mathematical representation illustrating a comparison of their choice, using graphics such as a data table or graph.
- ② After each presentation, allow audience members to ask questions and draw comparisons to their own findings.



Part 4: Elaborate

- ① Once presentations are complete, ask students to reflect upon what they learned to create a revised trailer for their movie or television show. This trailer should illustrate the true role of the FBI as related to their storyline.
- ② Provide students time to design their trailer using technology. Encourage students to create a short and suspenseful trailer that is like those you see on television.
- ③ Arrange for the trailers to be showcased in your classroom, on your school's morning news program, or other forms of school media.
- ④ Discuss with students: Would it still be a movie or show you'd want to watch? Why do the producers of these shows misrepresent aspects of the intelligence industry?



Part 5: Evaluate

Students will be evaluated using the following rubric. Provide the rubric at the beginning of the lesson to clarify expectations and objectives. Each group will be graded, therefore all students in the group will receive the same score.

Scoring Rubric

___ /20 **Presentation**

Was research on the FBI completed?

Did they consider both fact and fiction in their presentation?

Was a mathematical representation included to illustrate a comparison of their media to the FBI?

___ /20 **Participation**

Did each student contribute to the overall project?

Did each student assist in creating the presentation and trailer?

___ /10 **Trailer**

Did the trailer include an accurate portrayal of the FBI as related to the selected movie or television show?

Was the trailer short and suspenseful?

___ /50 **Total**

Standards Addressed:

Common Core State Standards - Math

CCSS.MATH.PRACTICE.MP1 Make sense of problems and persevere in solving them.
CCSS.MATH.PRACTICE.MP2 Reason abstractly and quantitatively.
CCSS.MATH.PRACTICE.MP4 Model with mathematics.

Common Core State Standards - ELA

CCSS.ELA-LITERACY.RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
CCSS.ELA-LITERACY.RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.
CCSS.ELA-LITERACY.RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
CCSS.ELA-LITERACY.RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g. quantitative data, video, multimedia) in order to address a question or solve a problem.
CCSS.ELA-LITERACY.RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
CCSS.ELA-LITERACY.SL.9-10/11-12.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10/11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
CCSS.ELA-LITERACY.SL.11-12.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
CCSS.ELA-LITERACY.WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
CCSS.ELA-LITERACY.WHST.9-12.9 Draw evidence from informational texts to support analysis, reflection, and research.

ISTE Standards for Students

3b Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.
6a Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
6c Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

Texas Essential Knowledge and Skills- Math

A.1.A apply mathematics to problems arising in everyday life, society, and the workplace.
A.1.B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.
A.1.D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.
A.1.E create and use representations to organize, record, and communicate mathematical ideas.

Texas Essential Knowledge and Skills- Science

B.3, C.3, P.3 The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom.

Texas Essential Knowledge and Skills- Technology

1.A investigate and explore various career opportunities within the computer science field and report findings through various media.
2.C Publish information in a variety of ways such as print, monitor display, web pages, and video.