



**5-E CLASSROOM STEM ACTIVITY:**  
**COMBATING THE OPIOID CRISIS**

By Dr. Alexandra Owens

# LEAVING WALL STREET TO INVEST IN PATIENTS

BY SUE HAMILTON

A job start in business and finance on Wall Street that evolved into a career helping others as a psychiatric nurse may seem a strange career twist, but Alexander Swana knows it was the right path for him.

The tragic events of 9/11 impacted Alex and caused him to leave Wall St. and move from New York to Tampa, Florida, where he found work in the mortgage industry. That career continued when he met his wife and moved to Pennsylvania, but when the industry started its downhill slide, he began to search for a career helping people in need. His wife, who worked at a local community hospital, encouraged him to apply for a position as a milieu therapist on the hospital psychiatric floor. He took that position, which involved working with a group of patients who are encouraged to take responsibility for themselves and the others within the unit, and began a nursing career. “I decided to take advantage of the hospital’s tuition reimbursement program and expand my education—that’s when I became a nurse.”

Alex had already earned a bachelor’s degree in both science and psychology, but took classes at the community college while working to get his nursing license. He is currently studying to obtain a bachelor’s degree in nursing, and works as a registered nurse at UPMC Mercy Hospital on the psychiatric floor.

“On a daily basis, my patients struggle with not only the disease of addiction, but also mental health disorders like depression, anxiety, schizophrenia, and more,” explains Alex. “My daily goal is to help them realize that their current condition does not make them who they are, their choices do. I spend a lot of time encouraging them to make simple changes in their lives to get them back on track.”



**MILIEU IS FRENCH FOR "MIDDLE SPACE." THIS TYPE OF THERAPIST CREATES A "MIDDLE" ENVIRONMENT FOR PATIENTS TO HELP THEM LEARN COPING MECHANISMS TO USE IN THE REAL WORLD. THEY ALSO ACT AS THE CONTACT PERSON BETWEEN PATIENTS, FAMILIES, AND MEDICAL STAFF.**

Alex has traveled extensively, and his travels brought him close to many people who have struggled with addiction and mental health issues. "Becoming a psych nurse has allowed me to help my patients overcome and live with their disease," reports Alex. The most challenging part of his job is that he sees some patients return again to the nursing unit. "I always remind them that Rome wasn't built in a day, and if they fail, they can always get up again!" The most rewarding part of his nursing career is seeing patients outside of the hospital. "There is not a trophy big enough to see the smile on their face knowing that they have fought and won!" explains Alex.

High school students interested in a nursing career should pursue a degree, Alex advises. "An education can never be taken away from you," he said, and there are many opportunities in the nursing field. "Once you become a nurse, don't be afraid to try everything until you find your niche." The health care industry is always changing, but Alexander's hope for the future is that the patient's best interest is never forgotten. "Patients should always receive the care and compassion they deserve." 📧

**ALEXANDER SWANA**  
REGISTERED NURSE  
DEGREES: BACHELOR'S IN  
SCIENCE AND PSYCHOLOGY  
YEARS IN THE INDUSTRY: 7  
STEM TYPE: ADVISOR



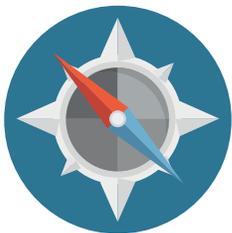
# 5-E CLASSROOM STEM ACTIVITY: COMBATING THE OPIOID CRISIS

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 Have students read the article “Leaving Wall Street to Invest in Patients” in *STEM Jobs* magazine. Discuss the following questions:
  - a. What various roles do nurses have in our daily lives?
  - b. What skills are needed to be a nurse?
  - c. Addiction in particular was a focus of this article—what additional skills may be needed to specialize in this field?
- ② Ask students what they have heard about the opioid crisis in our country. Show the video “The Facts on America’s Opioid Epidemic” found at [edu.STEMjobs.com/teacher-resources](http://edu.STEMjobs.com/teacher-resources) to introduce the topic. Optionally you may also show the documentary “Understanding the Opioid Epidemic” found at [edu.STEMjobs.com/teacher-resources](http://edu.STEMjobs.com/teacher-resources) if there is time. As always, we recommend educators preview suggested videos to ensure they are appropriate for their students, especially as this topic can be upsetting for students who have been affected by the opioid crisis.
  - a. What are the causes of this crisis?
  - b. Why is this now a public health emergency?
  - c. Why is opioid misuse so prevalent? Even among teens?
  - d. What role do nurses play in the treatment and prevention of opioid addiction?



## Part 2: Explore

- ① Break students into small groups of three or four students.
- ② Ask students to research the opioid crisis and current treatment or preventative measures. This may be done as a group or individually. If needed, a list of recommended resources can be found at [edu.STEMjobs.com/teacher-resources](http://edu.STEMjobs.com/teacher-resources).
- ③ Challenge students to consider how they think is the best way to address this national crisis. Students must design a proposal that outlines a preventative measure or treatment strategy. This proposal should include the role that nurses will play in its success. Allow students to conduct more research as necessary.
- ④ Provide time for students to design their proposal and create a presentation to share with the class in order to get feedback.



## Part 3: Explain

- ① Groups will present their proposal for a preventative measure or treatment strategy to the class. Each member should share the information that they were responsible for. Students should share their research and proposal using presentation software such as PowerPoint or Google Slides. Students must be able to explain how their proposal will help prevent or treat opioid addiction, the role of nurses, and other information they deem important. This includes a mathematical representation illustrating the projected impact of their proposed treatment, such as a data table or graph. Students may choose to focus on their community, state, or the entire country.
- ② After each presentation, allow audience members to ask questions and provide constructive feedback.
- ③ When all presentations are complete, ask groups to reflect on their feedback in order to improve their proposal.



## Part 4: Elaborate

- ① Encourage students to inform the community using what they have learned about the national opioid crisis. Students should create an educational Public Service Announcement of their choice to spread awareness. This may include, but is not limited to:
  - a. Brochure
  - b. Flyer
  - c. Radio infomercial
  - d. Public Service Announcement video
  - e. Appearance on the local news channel
  - f. Editorial for the local newspaper
- ② Optionally, students may choose to create a video PSA to enter into a competition headed by Operation Prevention. A link to details about the competition can be found at [edu.STEMjobs.com/teacher-resources](https://edu.stemjobs.com/teacher-resources).
- ③ Have students share their piece with the class for feedback and critique.
- ④ When complete, invite community members to visit your classroom to view student work through formal presentations or a gallery walk.



## Part 5: Evaluate

Students will be evaluated for their proposal and PSA 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	<b>Proposal and Presentation</b>
	Was research on opioid addiction, prevention, and treatment completed?
	Did they consider this research in their proposal?
	Was a proposal of a treatment or preventative measure designed that is realistic and impactful?
___ /20	<b>Participation</b>
	Did each student contribute to the overall project?
	Did each student assist in creating the presentation and proposal?
___ /10	<b>Public Service Announcement</b>
	Did the PSA include a description of the opioid crisis and preventative measures?
	Was the PSA clean and easy to understand?
___ /50	<b>Total</b>

## 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.

### Next Generation Science Standards

HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

*Science and Engineering Practices*

Asking Questions and Defining Problems. Analyze complex real-world problems by specifying criteria and constraints for successful solutions.

*Disciplinary Core Ideas*

ETS1.A: Defining and Delimiting Engineering Problems

Criteria and constraints also include satisfying any requirements set by society, such as taking issues of risk mitigation into account,

and they should be quantified to the extent possible and stated in such a way that one can tell if a given design meets them.

Humanity faces major global challenges today, such as the need for supplies of clean water and food or for energy sources that minimize pollution,

which can be addressed through engineering. These global challenges also may have manifestations in local communities.

ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints,

including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

*Science and Engineering Practices*

Constructing Explanations and Designing Solutions. Evaluate a solution to a complex real-world problem, based on scientific knowledge,

student-generated sources of evidence, prioritized criteria, and tradeoff considerations.

*Disciplinary Core Ideas*

ETS1.B: Developing Possible Solutions

When evaluating solutions, it is important to take into account a range of constraints, including cost,

safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts.

### ISTE Standards for Students

3d Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

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.

### National Health Education Standards

1.12.1 Predict how healthy behaviors can affect health status.

1.12.9 Analyze the potential severity of injury or illness if engaging in unhealthy behaviors.

3.12.1 Evaluate the validity of health information, products, and services.

4.12.1 Use skills for communicating effectively with family, peers, and others to enhance health.

8.12.1 Utilize accurate peer and societal norms to formulate a health-enhancing message.

8.12.2 Demonstrate how to influence and support others to make positive health choices.

8.12.3 Work cooperatively as an advocate for improving personal, family, and community health.

8.12.4 Adapt health messages and communication techniques to a specific target audience.

## Standards Addressed (Cont.):

### 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

*Possible Standards Include:*

- 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.
- B.10.A Describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury of illness in animals.
- B.11.A Describe the role of internal feedback mechanisms in the maintenance of homeostasis.

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### Texas Essential Knowledge and Skills - Technology

- 2.C Publish information in a variety of ways such as print, monitor display, web pages, and video.

### Texas Essential Knowledge and Skills - Health 1

- 1.A Relate the nation's health goals and objectives to individual, family, and community health.
- 2.B Analyze the influence of laws, policies, and practices on health-related issues including those related to disease prevention.
- 2.C Identify, describe, and assess available health-related services in the community that relate to disease prevention and health promotion.
- 2.F Explain the connection between the proper and safe use of prescription drugs and overall health.
- 2.H Analyze the consequences of substance misuse of prescription and over-the-counter drugs.
- 7.A Identify and describe forms of prescription drug misuse such as combining drugs for another effect and administering a drug improperly and substance use disorders.
- 7.E Develop strategies for preventing the misuse of prescription and over-the-counter drugs.
- 13.A Identify support systems aimed at substance use disorders and substance misuse, including prescription drug misuse.