

Dear Educator,

Bring a project and a period shrouded in secrecy to life in your classroom with **Manhattan**, the WGN America original series beginning a new season on Tuesday, October 13, 2015, at 9pm/8c.

Set against the backdrop of the greatest race against time in the history of science — the mission to build the world's first atomic bomb in Los Alamos, New Mexico — **Manhattan** follows the project's brilliant but flawed scientists and their families as they attempt to co-exist in a world where secrets and lies infiltrate every aspect of their lives.

This educational program, developed by the curriculum specialists at Young Minds Inspired (YMI), in cooperation with WGN America, invites students to research this turning-point in history, which saw not only the dawn of the atomic age but also the development of national security agencies and assumptions that raise issues we continue to debate today.

The study materials, which meet curricular standards for social studies and history, feature background information and Internet research links, including links to primary sources, for students to access and learn from. In addition, students can visit the **Manhattan** website at wgnamerica.com/Manhattan to learn more about the dilemmas and decisions faced by the characters and see video clips from the series.

We encourage you to share this teaching kit with other teachers at your school. Although the materials are copyrighted, you may make as many copies as you need for educational purposes.

Please let us know your opinion of this program by returning the enclosed reply card or by responding through the feedback form at ymiclassroom.com/manhattan. We depend on your comments and ideas to continue providing free educational programs that make a real difference in students' lives.

Sincerely,



Dr. Dominic Kinsley
Editor in Chief
Young Minds Inspired

MANH(A)TTAN

HOW MUCH EVIL DOES IT TAKE TO DO GOOD?

TARGET AUDIENCE

History and social studies students in high school and college

PROGRAM COMPONENTS

- This teacher's guide
- Three reproducible student activity sheets
- A colorful wall poster for display in your classroom
- Common Core standards alignment for Grades 8-12, available at ymiclassroom.com/manhattan
- A reply card for your feedback, or reply online at ymiclassroom.com/manhattan

HOW TO USE THIS PROGRAM

Photocopy this teacher's guide and the three student activity sheets before displaying the poster in your classroom. Make additional copies of these resources to share with your colleagues. Use the wall poster to introduce **Manhattan**, and provide students with copies of the activity sheets. Incorporate the activities into your lesson plans as appropriate. These activities will enhance students' viewing of Season 2 of **Manhattan**.

ACTIVITY ONE TOP SECRET

The Discovery section of this activity begins with a quick quiz to see how much students already know about The Manhattan Project and provide context for viewing Season 2 of **Manhattan**, which covers the period when the scientists of The Manhattan Project prepared to test the first atomic bomb. After reviewing the quiz answers, have students use the research links provided on the activity sheet to develop their own quiz questions about The Manhattan Project.

Answers: 1-True, 2-False, 3-False, 4-True, 5-True, 6-True, 7-False, 8-True, 9-False, 10-False.

The Discussion section of the activity raises questions about the historical, political, and ethical justification for the development of the atomic bomb, and encourages discussion about national security policy and the need to cloak national security actions in secrecy today. Have students draw on their research into the era of The Manhattan Project as they debate these topics.

Extension: Have students research other top secret government projects in history. Have them assess the impact on the American public when they learned about these activities and how they influenced the nation's future.

ACTIVITY TWO REIMAGINING THE PAST

When creating **Manhattan**, the writers had to look closely at the time period — the culture, the events, the mood — to understand how The Manhattan Project could have happened and why people acted as they did. This activity invites students to explore this social dimension of the series and re-examine the social dynamics of those times from our perspective today.

The Discovery section of the activity profiles the main characters in Season 2 of **Manhattan**, challenging students to research the historical Robert J. Oppenheimer and historical counterparts for some of the fictional characters. Students then consider the extent to which the writers of **Manhattan**, by reimagining history as drama, succeed in bringing the feel and feelings of the past back to life.

The Discussion section of the activity builds on this research by having students analyze broader social issues such as the status of women at The Manhattan Project, the impact of secret-keeping on personal relationships, and how government supervision may influence the practice of science.

Extension: Have students reach out to survivors of the World War II generation to create an oral history of their recollections of the atomic bomb and the secrecy surrounding its development. If possible, gather opinions from these firsthand witnesses about the portrayal of those times in **Manhattan**. If students wish, they can submit their findings (photos, videos, write-ups) to WGN America for possible inclusion on the WGN America website and social channels. Tell students to go to wgnamerica.com/series/manhattan/studentrelease to download and submit the release form.

ACTIVITY THREE THAT WAS THEN, THIS IS NOW

Beyond capturing a critical moment in our nation's history, **Manhattan** reveals the situations, relationships, motivations, and issues behind the story, while holding a mirror up to who we are as a society today — spotlighting similarities and differences between the conflicts, politics, and moral dilemmas of the 1940s and the present day.

In the Discovery section, students will work with statements about that time period in key categories such as government, international relations, national security, science/technology, and women's rights and be challenged to find sources of their own. In the Discussion section, students write corresponding statements in the same categories that reflect present day attitudes, and will cite examples.

Extension: Choose one of these categories and research its evolution to the modern day. Investigate what legislation and social movements precipitated these changes and speculate on what changes might lie ahead.

RESOURCES

<http://wgnamerica.com/series/Manhattan>
ymiclassroom.com



ACTIVITY 1 TOP SECRET

Inspired by The Manhattan Project, a secret program that produced the world's first atomic bomb, **Manhattan** is an original series on WGN America that reimagines history to look behind the scenes at the brilliant but flawed scientists who achieved this breakthrough while caught up in a world where deception and danger permeated every aspect of their lives. **Manhattan** begins its second season on WGN America Tuesday, October 13, at 9pm/8c.

DISCOVERY

Even after 70 years, secrecy still shrouds The Manhattan Project. Find out how much you already know about this turning-point in history by answering *True* or *False* to the following questions.

1. Robert Oppenheimer was the director of The Manhattan Project. _____
2. The Manhattan Project ultimately produced seven bombs. _____
3. Those involved with The Manhattan Project received mail at "Box 1776, Los Alamos, NM". _____
4. The Manhattan Project cost nearly \$2 billion. _____
5. The first test of an atomic bomb was in New Mexico. _____
6. The first atomic bomb was dropped by the U.S. on Hiroshima. _____
7. *Little Man* was the name for the first uranium bomb. _____
8. America began developing atomic bombs out of a fear that Germany would develop the same technology first. _____
9. The bomber *Enola Gay* crashed after dropping an atomic bomb on Nagasaki. _____
10. A test bomb named *Gadget* was detonated in Washington. _____

Now learn more about The Manhattan Project by coming up with your own questions, using these resources.

- Learn how The Manhattan Project ushered in the atomic age at *The Manhattan Project: An Interactive History*: www.osti.gov/opennet/manhattan-project-history/index.htm.
- Visit the sites, track the milestones, and explore a database of those who worked on The Manhattan Project at the *Atomic Heritage Foundation* website, www.atomicheritage.org.
- Listen to interviews with those involved in The Manhattan Project at *Voices of The Manhattan Project*, <http://manhattanprojectvoices.org>.
- Meet some of the women who worked on The Manhattan Project at *Women Scientists of The Manhattan Project*, http://apcentral.collegeboard.com/apc/members/courses/teachers_corner/31784.html.
- Learn more about nuclear weaponry, view footage of nuclear blasts, and learn where nuclear weapons have been tested at *Race for the Superbomb*, www.pbs.org/wgbh/amex/bomb/peopleevents/index.html.
- Compare characters and scenes from **Manhattan** with their historical models at www.historyvshollywood.com/reelfaces/manhattan.



DISCUSSION

The Manhattan Project raised many political and ethical issues that remain controversial even today. Draw on your research into the history of The Manhattan Project and its portrayal in **Manhattan** to discuss these issues in class.

- Do you believe that the United States was justified in developing the atomic bomb in light of world events and the threat to national security during World War II? Why or why not?
- To what extent is the development of weapons of mass destruction justified, if at all?
- Analyze the ethics of national security today. Which group or nation do you believe poses the greatest threat to America's national security and why? How far should the U.S. go in order to protect itself?
- To what extent does the U.S. government owe its citizens an explanation in terms of its decisions regarding national security? In other words, how much secrecy is acceptable when it comes to defending the nation?

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SEASON 2 PREMIERES ON WGN AMERICA TUESDAY, OCTOBER 13, 9PM/8C



ACTIVITY 2

Reproducible Master

REIMAGINING THE PAST

To create a series about the greatest race against time in the history of science, the writers of *Manhattan* had to look closely at the time period – the culture, the events, the mood of early 1940's America – to understand how The Manhattan Project evolved and how it changed the lives of those who made it a success. In the process, they discovered that many of the social pressures that shaped those times can still be felt in American society today.

DISCOVERY

Here is some background on the main characters of *Manhattan*. You can learn more about their personalities by watching the series. Then use the resources provided in Activity 1 to research the history behind these fictional creations.



Robert Oppenheimer

The scientific director of The Manhattan Project, Oppenheimer is a brilliant theoretical physicist whose reputation and reserve allow him to manipulate the ambitions of the

scientists under him and deflect the demands of his military superiors.



Colonel Emmett Darrow

Darrow joins *Manhattan* for Season 2 as the commanding officer at Los Alamos. He is a man with strong religious convictions who feels compelled by God to

bring about the atomic age.



Frank Winter

Leader of the team tasked with developing an implosion technique for detonating the atomic bomb, Frank is a scientific genius driven by conviction whose personal code of

duty can place him in conflict with authority.



Liza Winter

Frank's wife, Liza holds a Ph.D in botany. She is concerned about whether living in Los Alamos is healthy and if the residents are in physical danger.



Charlie Isaacs

The youngest scientist at Los Alamos, Charlie leads development of a rival method for detonating the bomb until he is suddenly assigned to lead

Frank's team and placed in charge of the program.



Abby Isaacs

Charlie's wife, Abby is accustomed to suburban Boston and regrets their move to Los Alamos with its invasive security measures and petty professional jealousies. But

she takes a different view when Charlie takes charge of the program.

How does *Manhattan*'s Robert Oppenheimer compare to the real historical figure? How does Colonel Darrow compare to the real military commander of Los Alamos, General Leslie Groves? Compare Frank Winter and Charlie Isaacs to the real leader of the implosion team, Seth Neddermeyer, and the scientist who was appointed to replace him, George Kistiakowsky. Use your research to explore how reimagining history as drama can bring the feel and feelings of the past back to life.

DISCUSSION

Based on the information you have gathered, analyze and debate the following topics:

- Los Alamos was a secret community. Discuss the toll secret-keeping had on the married couples in Los Alamos. What was its toll on friendships between the scientists working on the project? On relationships between the scientists and their military colleagues? Can secrecy ever strengthen the bonds between members of a social group?
- Hundreds of women played a part in The Manhattan Project, including several who worked on development of the bomb at Los Alamos. Consider how women were treated at Los Alamos. Was this on par with how they were treated by American society as a whole during World War II?
- Some historians regard The Manhattan Project as the first example of what has come to be called "big science" — that is, large-scale scientific research funded and directed by government. How involved should the government be in terms of overseeing scientific research? What pressures does government place on scientists? Is there room for intellectual freedom in government-funded research?
- How were individuals who had been involved in The Manhattan Project received by their fellow Americans when they returned to mainstream society? How would you have treated people involved in the creation of the atomic bomb?

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ACTIVITY 3

Reproducible Master

THAT WAS THEN, THIS IS NOW

Beyond capturing a critical moment in our nation's history, the riveting series **Manhattan** reveals the situations, relationships, motivations, and issues behind the creation of The Manhattan Project, while holding a mirror up to who we are as a society today. It shines a fascinating spotlight on the similarities and differences between the conflicts, politics, and moral dilemmas of the 1940s and the present day.

DISCOVERY

Read the following extracts from World War II era documents on key topics reflected in **Manhattan**. Then use the resources provided in Activity 1 to find more information and primary sources on these topics.

GOVERNMENT SECRECY

In June 1942, prior to the formation of The Manhattan District, the director of the Office of Scientific Research and Development and the Chairman of the National Defense Research Committee submitted a report covering the status of the atomic bomb program to the President of the United States, through a Top Policy Group consisting of the Vice President, Secretary of War, and the Army Chief of Staff. In addition to an account of what had been accomplished under the program the report contained a number of recommendations for future procedure... "Extreme secrecy should be exercised in connection with the project particularly with respect to its purpose, the raw materials used to develop the final product and the manufacturing process involved."

— **Manhattan District History**, (www.osti.gov/opennet/manhattan_district.jsp)

NUCLEAR POLICY

Discoveries of which the people of the United States are not aware may affect the welfare of this nation in the near future. The liberation of atomic power which has been achieved places atomic bombs in the hands of the Army. It places in your hands, as Commander-in-Chief, the fateful decision whether or not to sanction

the use of such bombs in the present phase of the war against Japan. We, the undersigned scientists, have been working in the field of atomic power for a number of years. Until recently we have had to reckon with the possibility that the United States might be attacked by atomic bombs during this war and that her only defense might lie in a counterattack by the same means. Today with this danger averted, we feel impelled to say what follows.

— Leo Szilard, **Petition to the President of the United States**

(www.atomicarchive.com/Docs/ManhattanProject/SzilardPetition.shtml)

INTERNATIONAL RELATIONS

In the past, science has often been able to provide adequate protection against new weapons it has given into the hands of an aggressor, but it cannot promise such efficient protection against the destructive use of nuclear power. This protection can only come from the political organization of the world. Among all arguments calling for an efficient international organization for peace, the existence of nuclear weapons is the most compelling one. In the absence of



an international authority which would make all resort to force in international conflicts impossible, nations could still be diverted from a path which must lead to total mutual destruction, by a specific international peace, the existence of nuclear weapons is the most compelling one.

— **The Franck Report**

(www.atomicarchive.com/Docs/ManhattanProject/FranckReport.shtml)

WOMEN'S RIGHTS

All the day long,
Whether rain or shine,
She's a part of the assembly line.
She's making history,
Working for victory,
Rosie the Riveter.
Keeps a sharp lookout for sabotage,
Sitting up there on the fuselage.
That little girl will do more than a male will do.

— **Rosie the Riveter**

(www.loc.gov/rr/program/journey/rosie-transcript.html)

DISCUSSION

Now, find current primary source documents that reflect present day attitudes on each of these topics. Be sure to provide citations for your documents. Summarize the current climate of opinion on each topic, then generate statements which you think reflect where society will be in fifty years with regard to each topic.

- Government Secrecy
- Nuclear Policy
- International Relations
- Women's Rights

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Entrance to Los Alamos.



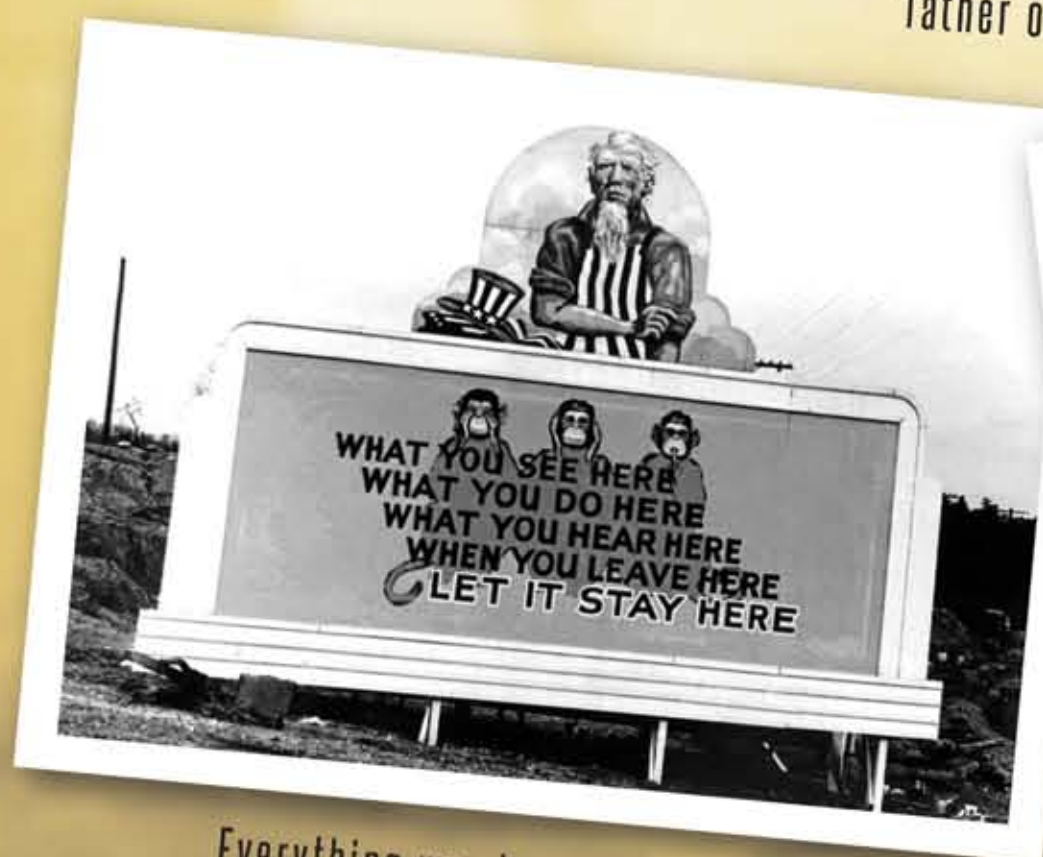
J. Robert Oppenheimer, called the "father of the atomic bomb."



Housing for the workers at Los Alamos, New Mexico.



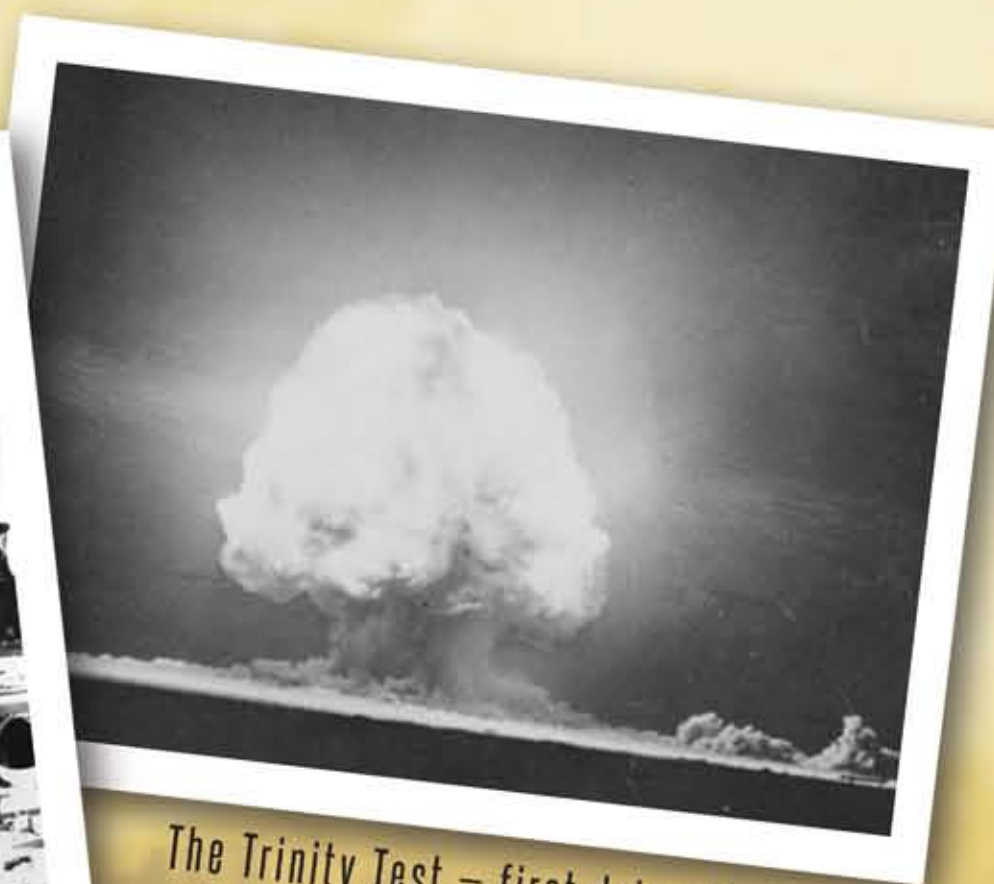
Everyone involved in The Manhattan Project was subjected to lie detector tests.



Everything was top secret – no one could talk about what they saw or did.



The Manhattan Project team assembling the first atomic bomb at the Trinity test site.



The Trinity Test – first detonation of an atomic bomb, July 16, 1945.

