

Oak Ridge and the Manhattan Project

Table of Contents

	Pages
1. Content Essay	2-4
2. 5 th Grade Activity	5-6
3. High School Activity	7-8
4. Primary Source: Images	9-10

Oak Ridge and the Manhattan Project

Standards: 5.59, U.S. 68

Essential Question: What role did Oak Ridge and the Manhattan Project in World War II? What was the impact of the Manhattan Project on the war?

“Where in Tennessee would you like me to hide it?” This was Tennessee Senator Kenneth McKellar’s response when asked in 1942 to hide 2 billion dollars in the appropriations budget for a secret project to end the war. The secret project was the Manhattan Project. The place a good portion of the money was hidden was a town called Oak Ridge.

When Roosevelt approached McKellar in 1942, he was acting in part on a warning sent to him by Albert Einstein and other scientists that Hitler’s scientists were capable of constructing a weapon that used nuclear fission to create immense destructive power. The race was on for the United States to create such a weapon first. It would require not only massive amounts of money and manpower, but also total secrecy by those involved in the project.

The site of Oak Ridge was chosen for part of the Manhattan project for a number of reasons. First, it was close to several TVA dams that could generate the massive amounts of electrical power that was needed to enrich uranium. Second, it was divided into a series of small valleys separated from each other by ridges. By building the plants in separate sections, the engineers ensured that if one plant blew up the others would be safe. Third, there was good access to railroads for transportation and the land itself was cheap.

In the fall of 1942 residents in parts of Roane and Anderson counties began to receive notices that the government was taking their land. Local residents had likely heard of eminent domain because of TVA projects in the area, but never dreamed that the government would want their land too. Many left willingly, other tried to fight in the courts but found that they could not win. By February of 1943, 59,000 acres of land had been acquired for the Clinton Engineering Works (CEW) as the project was titled.

Because of the secrecy of the project as well as the need for urgency, it was necessary to build not just housing for workers, but an entire community complete with stores, churches and recreational facilities. Like everything else at CEW, the buildings were built in record time, though housing remained a problem throughout the war years as the number of workers climbed steadily. Workers for CEW came from all across the nation. Some were recruited for their specific skills in chemistry or mathematics. Others were chosen for their ability to perform routine tasks efficiently and trained on the job. Many of the workers in the plants were young women who sought wartime work out of a sense of patriotism and a desire to earn a good wage. Only a handful of people at the facility knew what the true purpose of the project was.

Security at CEW was tight. Checkpoints were established at all entry points and everyone had to wear a badge that identified the areas they could access. Workers were also encouraged to inform on each other if someone was asking too many questions about the project. People in the surrounding area openly speculated on the purpose of the project as well and tried to gain information from project workers if they ventured into nearby Knoxville.

Like many New Deal projects, racial discrimination was common at the site. Edward Teller, a leading scientist on the project, could not bring one of his mathematicians to Oak Ridge because the man was African- American. The only jobs available for African Americans at Oak Ridge were as construction workers or janitors. Restroom, dining halls and other facilities were all segregated. African American married couples were not allowed to live together, though housing was provided for white married couples.

The process for enriching uranium required massive facilities. The K-25 plant contained more than 44 acres of floor space and was the largest building in the world. Y-12 was not as large, but still massive. Each plant carried out a different process for enriching uranium. As Robert Oppenheimer's original estimate for the amount of fissionable material increased, so did the size of the plants and the number of workers at Oak Ridge. While the original plan called for a town of about 30,000 residents, nearly 75,000 would be living there by 1945.

On August 6th, 1945 the people of Oak Ridge learned what all the work and secrecy had created: a bomb more powerful than any seen before. President Roosevelt's announcement of the bombing of Hiroshima and Oak Ridge's role in its development brought the people of Oak Ridge shock which was soon replaced with great pride. A second bomb dropped on Nagasaki, convinced Japan to surrender. Many residents began to wonder about the future of Oak Ridge. Some were glad to return to their prewar homes, but others had made Oak Ridge their home and wanted to stay. The rise of the Cold War and the need for continued scientific research on nuclear power and a variety of other fields ensured the continued existence of Oak Ridge. Though much of its work has shifted away from nuclear research, Oak Ridge continues to be center for advanced scientific research in a number of fields.

Sources: Kiernan, Denise. *The Girls of the Atomic City*. New York: Simon & Schuster, 2013. Print.

"Oak Ridge." *Tennessee Encyclopedia and History and Culture*. 1st edition. 1998. Print.

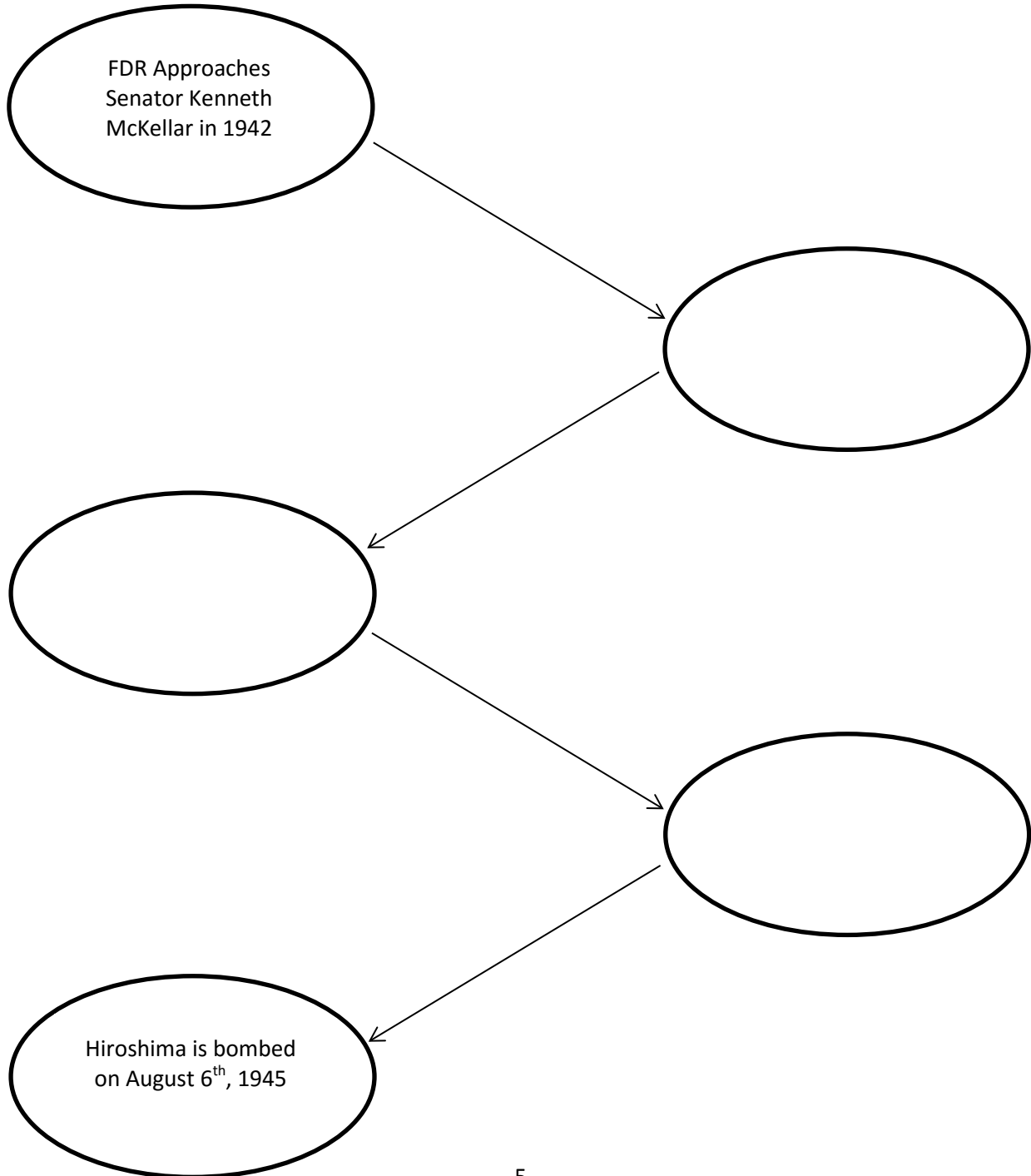
The Manhattan Project an Interactive History. U.S. Department of Energy, n.d. Web. 30 July, 2014. < http://www.osti.gov/manhattan-project-history/Events/1942-1944_ur/1942-1944_uranium.htm>

Teller, Edward. "Letter Concerning Black Mathematician." *We'll Back Our Boys: the Southern Homefront During World War II*. National Archives, Atlanta, n.d. Web 30 July 30, 2014. < http://www.archives.gov/atlanta/exhibits/item147_exh.html>

Alexander, Lamar. "Clean Energy Independence." Congressional Record. Vol 159, No 76. June 3, 2013. Web. 30 July 2014. < <https://beta.congress.gov/congressional-record/2013/6/3/senate-section/article/S3889-1>>

Oak Ridge and the Manhattan Project

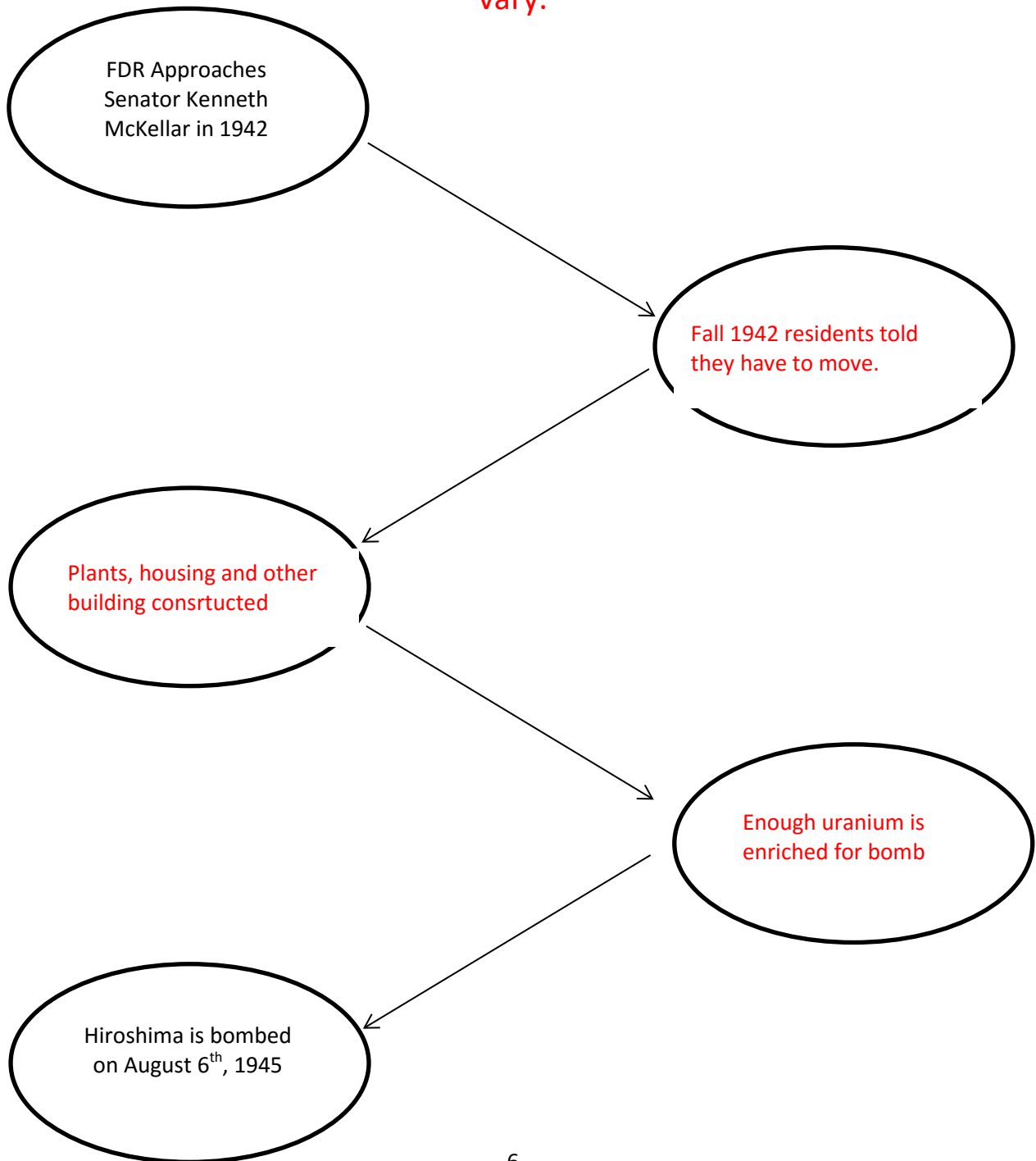
Use the text to create a 'bubble map' that demonstrates how the formation of Oak Ridge led to the dropping of the atomic bombs in Japan in 1945. Use no less than five bubbles for your map.



Oak Ridge and the Manhattan Project

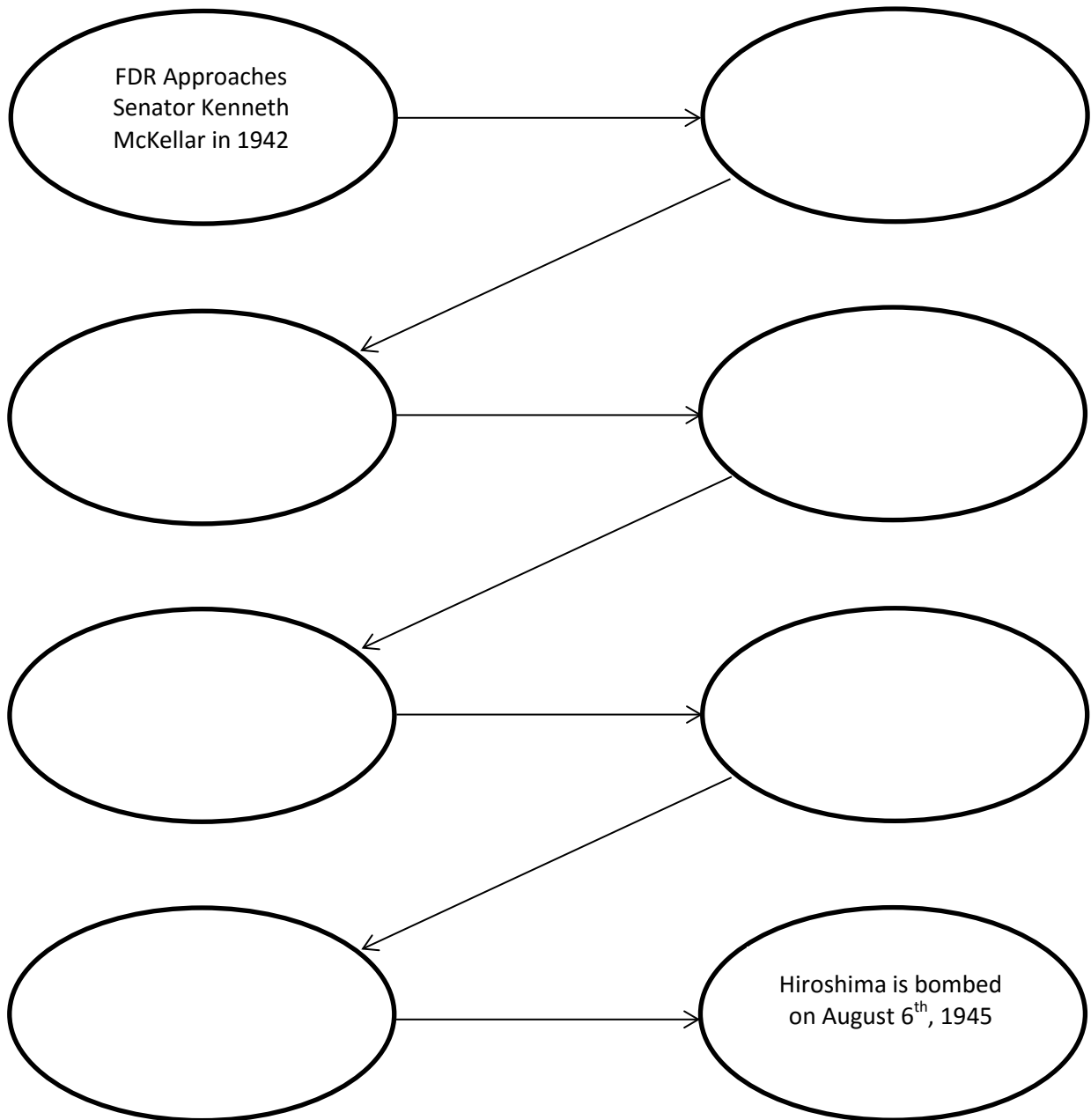
Use the text to create a 'bubble map' that demonstrates how the formation of Oak Ridge led to the dropping of the atomic bombs in Japan in 1945. Use no less than five bubbles for your map. **Answers will**

vary.



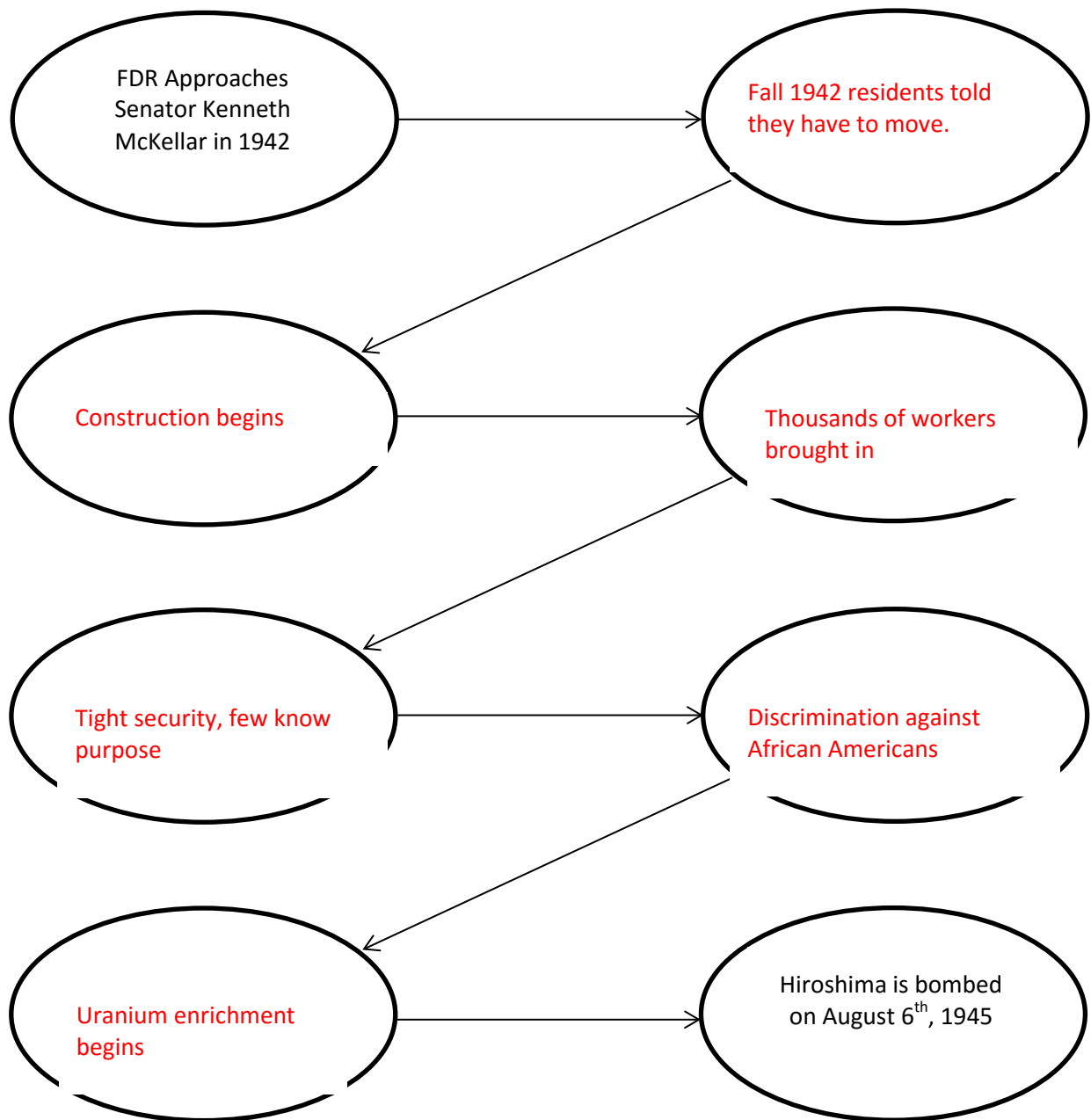
Oak Ridge and the Manhattan Project

Use the text to create a detailed 'bubble map' that demonstrates how the formation of Oak Ridge led to the dropping of the atomic bombs in Japan in 1945. Use no less than eight bubbles for your map, and explain your reasoning for each bubble beside it.



Oak Ridge and the Manhattan Project

Use the text to create a detailed 'bubble map' that demonstrates how the formation of Oak Ridge led to the dropping of the atomic bombs in Japan in 1945. Use no less than eight bubbles for your map, and explain your reasoning for each bubble beside it.



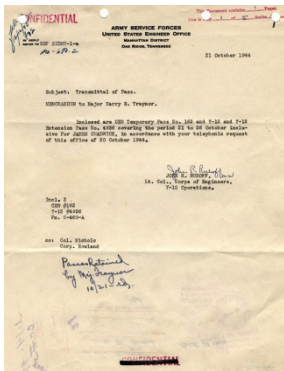
Oak Ridge and the Manhattan Project Source Set

Standards: 5.59, U.S. 68

The following sources are available from the National Archives Atlanta. Click on the title to access the photograph or document. These sources are part of a larger exhibit called [*We'll Back Our Boys: The Southern Home Front During World War II*](#)



[Photograph Of Early Construction Of Y-12](#)



[Transmittal Of Pass For James Chadwick](#)



[Cubicle Operator](#)



[Aerial View Of K-25](#)

CONFIDENTIAL

Columbia Serial No. 13032
 P. O. BOX 1443
 2000 P. O. BOX 1443
 September 25, 1946

Professor Harold Hey
 210 University
 Columbia University
 New York, New York

Dear Professor Hey:

We are last night I found that the work on crystals is going forward very satisfactorily. Mr. Mayer and Harrie Meyer have done a wonderful job in clearing up a number of uncertainties and it seems that the work on it is almost forward things extremely definite. Naturally with a question of that complexity, certain surprises will be only necessary and it is very fortunate that Mr. Meyer has provided for that even though we will have clear evidence in the near future.

It would be of great importance to our work here to have the results of the rapidly accumulating work as soon as possible. It is better to have the work done in a number of small steps than to wait for a large amount of work to be completed. It is necessary that this work should be very well done the calculation continues to require a great deal of judgment as to what things have to be done and when and what can be expected.

Noting that men of high qualifications are scarce these days, I thought that it might be useful that I suggest a special person for this job. Mr. Charles H. Roper, group 8, the Metallurgical Laboratory, has done very good work. He is a colored man and about the same age as you. He is a very good man and I think that it might be a good idea to have him work for our work.

Yours very sincerely,
 Edward Teller
 Edward Teller

CONFIDENTIAL

Edward Teller Letter Concerning Black Mathematician

This document consists of 1 page, in G. O. P. 2-1071a

CONFIDENTIAL

U. S. GOVERNMENT OFFICE
 CLYDE L. BRADSHAW

ALLOCATION OF PRODUCT

REFUSED BY: _____

Date Shipped	Quantity	Lot No.	Quantity Shipped	Remarks
8/26/46	100 pieces, 1/2"	100	100 P. 01	For use by G. O. P. Bradshaw.
TOTAL 100 P. 01				

CONFIDENTIAL

DATE 11/1/46
 FOR THE METALLURGICAL LABORATORY
 J. B. ROOPER
 Chief Metallurgist

126

Allocation Of Product