# Curriculum Unit Introduction:

**Title of unit:** Life in The Secret City

**Vital theme of the unit:** Life in Oak Ridge, Tennessee in 1944

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**Grade level:** Fifth

**Number of lessons in the unit:** Three

**Time needed to complete unit:** One and one half to two weeks

**Curriculum standards addressed:**
5.5 spi 7. interpret a primary reading sample
5.5 spi 5. interpret a visual contrasting life before and after World War II (i.e. education, family size, transportation, urbanization, and the role of women)

**Technology used:**
Digital Camera – to take pictures throughout the unit
Document Camera – to use for the vocabulary word of the day, which will incorporate "Oak Ridge" words provided by the reading teacher
Television – to view whatever is being shown on the document camera
Laptop Computer - to record grades, type material
Internet - research

**Unit introduction and overview of instructional plan:**

This unit contains primary sources of information that will be used in the classroom beginning with the Surrender of Japan marking the end of World War II. Since the 60th anniversary of the dropping of the two atomic bombs and the end of the war occurs during the first half of August in 2005, which is the beginning of the 2005-2006 school year, I plan to begin the year with a study of World War II to coincide with these events.

Some of the sources I will be using include a letter from Albert Einstein to FDR, the story of Oak Ridge, "City With a Secret" from *Tennessee Tales the Textbooks Don't Tell,* photographs made by Ed Wescott, and actual newspaper headlines from the era. A brief pretest will be given to determine the students' knowledge of World War II, followed by a discussion to provide background knowledge. The culminating activity will be a field trip to Oak Ridge. Half of the day will be spent at the American Museum of Science and

Energy (865-576-3200 – contact person is Glenda Bingham,) and the other half of the day will be spent on The Secret City Scenic Excursion Train (854-241-2140 or 865-974-4426 – contact person is John Teague.)

A second unit will follow with a study of the attack on Pearl Harbor and American involvement in World War II.

This unit will integrate american history across other disciplines in two ways. First, one of our language arts teacher also attended this Summer Institute and also chose Oak Ridge for his unit. We will be teaching our units simultaneously. Secondly, the entire team of 5th grade teachers plans on incorporating Oak Ridge into their curriculums to give students cross-curriculum exposure. For example, the science teachers will teach the science behind the research and development of methods to extract fissionable material at Oak Ridge.

Guiding Questions:

Why was Oak Ridge called "The Secret City?"
Why was this location chosen?
What were the living conditions in Oak Ridge?
How did people react when they found out the city's purpose?

**Timeline:**
**Day 1 – Pretest**
**Day 2 – Lesson One**
**Days 3 & 4 - Lesson Two**
**Days 4 & 5 - Lesson Three**
**Day 6 - Field Trip**
**Day 7 - Post -Test**

# Document Reader:

# Life in a Secret City

By

Helen Den Uyl

The creation of the "secret city" of Oak Ridge, Tennessee was something that had never been done before. The city and three manufacturing plants of enormous size were constructed to develop a new technology that would end World War II. This "Manhattan Project" was a massive wartime effort to produce the world's first atomic weapons.

It all started in 1939 when scientists learned that uranium atoms could be split with the release of large amounts of energy, a process called fission. Its use for military purposes was examined. In August of 1939, Albert Einstein wrote a letter to Franklin D. Roosevelt in 1939, expressing the views of several leading scientist and explaining the potential of such a weapon. Early in 1942, it was determined that two methods - and later three - could be used to produce fissionable material - either plutonium 239 or the highly purified isotope uranium 235. In December of 1942, President Roosevelt approved the Manhattan Project, and the construction of three sites - Oak Ridge, Tennessee; Hanford, Washington; and Las Alamos, New Mexico, began.

The Oak Ridge site was a desirable location for many reasons. First, because of its proximity to rail lines and highways. Secondly, it was a safe distance from the coast as well as fairly isolated. Thirdly, it had high ridges which would muffle the sound of an accidental explosion. Fourthly, it was sparsely populated since people would have to be moved off of the land. Fifthly, it was near a water source (the Clinch River). And finally, the Tennessee Valley Authority provided an abundant source of electricity.

Three facilities were built within the Oak Ridge complex, initially called the Clinton Engineering Works. The Y-12 Plant was built to separate the uranium 235 isotope from the natural uranium using an electromagnetic process, that used $300 million worth of silver borrowed from the U.S. Treasury. The enormous K-25 Plant

was built to separate uranium 235 by a using process systems of vacuum tightness and cleanliness. The third facility was the X-10 plant where a graphite-moderated nuclear reactor was built as a pilot facility for a larger plutonium production complex in Hanford. The work was performed under the Manhattan District of the Corps of Engineers.

In addition, an enormous work force had to be generated. Thousands of people went to work at Oak Ridge, some from the immediate area, and some who relocated – either as a single person or with their families. Many of the workers at Oak Ridge were women, as a large portion of the men at the time was fighting overseas. Some workers were skilled, some were not. Some were white, some were black. Some were disabled veterans.

The city was ten miles long and two miles wide, in a valley known as Black Oak Ridge. At its peak, the population rose to 75,000 people. The housing included trailers, dormitories, hutments, and single-family dwellings called cemestos. Shopping centers, businesses, and schools were located throughout the city. It eventually had one of the largest swimming pools in the country.

What was life like for the people of Oak Ridge living and/or working in a "secret city?" Why would someone want to work or move there? What problems did people encounter? In an attempt to answer these questions, I have included five documents. The first one is the first letter that Albert Einstein wrote to President Roosevelt. It was at his urging that the President approved the Manhattan Project. The second document is a newspaper article about how a New York engineering company was hired to manage the town of Oak Ridge without themselves knowing in what they were engaging. The third document is a letter from a young girl to her mother who is presumed to be working

temporarily in Oak Ridge for the aforementioned New York company. In her letter she eludes to the hard working and dedicated people as well as being fascinated by the town. The fourth document is from an interview with a couple that relocated to Oak Ridge with their two children and one on the way. They discuss the decision, the move, the housing, the secrecy, and their reaction to the news of the bomb. And finally, the last document is an open letter from the Colonel of the Corps of Engineers congratulating the workers and people of Oak Ridge on doing the impossible.

The first document is a letter from Albert Einstein to President Franklin Delano Roosevelt dated August 2, 1939. I have included this letter because the events that transpired as a result of this letter led to the development of Oak Ridge, which led to events that impacted the world. Einstein conveys the fact that he has learned that uranium can be used as a source of energy and that powerful new bombs could be constructed which would destroy a large area. He also informs the president that the United States has a limited amount of uranium and indicates that Canada, the former Czechoslovakea, and the Belgian Congo are good sources. He recommends that the president assign someone to keep in close contact with the physicists working on this. He suggests that this person should address the problem of obtaining uranium, and also to see that the experimental work is expedited. He closes his letter by reminding the president that the son of the German Under-Secretary of Sate, von Weizsackerm, has ties to the Wilhelm-Institute in Berlin, where some of the American work on uranium is being repeated.

Albert Einstein
Old Grove Road
Nassau Point
Peconic, Long Island

August 2nd, 1939

F.D. Roosevelt
President of the United States
White House
Washington, D.C.

Sir:

Some recent work by E.Fermi and L. Szilard, which has been communicated to me in manuscript, leads me to expect that the element uranium may be turned into a new and important source of energy in the immediate future. Certain aspects of the situation which has arisen seem to call for watchfulness and, if necessary, quick action on the part of the Administration. I believe therefore that it is my duty to bring to your attention the following facts and recommendations:

In the course of the last four months it has been made probable - through the work of Joliot in France as well

as Fermi and Szilard in America - that it may become possible to set up a nuclear chain reaction in a large mass of uranium, by which vast amounts of power and large quantities of new radium-like elements would be generated. Now it appears almost certain that this could be achieved in the immediate future.

This new phenomenon would also lead to the construction of bombs, and it is conceivable - though much less certain - that extremely powerful bombs of a new type may thus be constructed. A single bomb of this type, carried by boat and exploded in a port, might very well destroy the whole port together with some of the surrounding territory. However, such bombs might very well prove to be too heavy for transportation by air.



The United States has only very poor ores of uranium in moderate quantities. There is some good ore in

Canada and the former Czechoslovakia. While the most important source of uranium is Belgian Congo.

In view of the situation you may think it desirable to have more permanent contact maintained between the Administration and the group of physicists working on chain reactions in America. One possible way of achieving this might be for you to entrust with this task a person who has your confidence and who could perhaps serve in an inofficial capacity. His task might comprise the following:

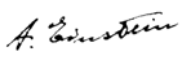
a) to approach Government Departments, keep them informed of the further development, and put forward recommendations for Government action, giving particular attention to the problem of securing a supply of uranium ore for the United States;

b) to speed up the experimental work, which is at present being carried on within the limits of the budgets of University laboratories, by providing funds, if such funds be required, through his contacts with private persons who are willing to make contributions for this cause, and

perhaps also by obtaining the co-operation of industrial laboratories which have the necessary equipment.

I understand that Germany has actually stopped the sale of uranium from the Czechoslovakian mines which she has taken over. That she should have taken such early action might perhaps be understood on the ground that the son of the German Under-Secretary of State, von Weizsäcker, is attached to the Kaiser-Wilhelm-Institute in Berlin where some of the
American work on uranium is now being repeated.

Yours very truly,



(Albert Einstein)

The second document is an article from the *New York Times* dated August 20, 1945 entitled "New York Concern Directs Oak Ridge." The article reveals that the Turner Construction Company was called upon to manage the town of Oak Ridge, not knowing themselves that the town of 75,000 people was engaged in the production of the atomic bomb. It gives the reader a perspective of how vast the operation of the town was, citing the management of 12,000 homes, 10,000 apartments, and other services needed to run a town.

**New York concern Directs Oak Ridge**

**It Has 10,000 Employs Busy Providing Many Services of Atomic bomb Town**

After almost two years of the strictest secrecy in American military history, New York engineers told yesterday how they were called upon to manage the town of Oak Ridge, in Tennessee, without themselves even guessing that its 75,000 inhabitants were to be engaged in helping turn out the atomic bomb.

In September, 1943, the Turner Construction Company, 420 Lexington Avenue, was asked by the Army's Corps of Engineers to send men down to a rural area of Tennessee and relieve the armed forces of all burdens of operation and community relationships in the town that was to spring up in record time.

The job, according to George E. Horr, vice president of the concern, who was in charge of its Oak Ridge operations, was a vast one. It included the management of 12,000 homes, 10,000 apartments, police, fire, water supply and sewage systems, roads, streets, schools of elementary and secondary grades, stores and super-markets, a 250-bed hospital and movie theaters.

In addition, the Turner Company, with the Roane-Anderson Company, a wholly owned subsidiary, managed a farm with a herd of 3,000 cattle, a chicken ranch and an electric power station. It even took care of the town' laundry and furnished domestic help. And a million and a quarter meals a month were served in cafeterias seating 10,000 persons at a time.

Among other responsibilities placed on the concern was the operation of the ninth largest bus system in the country, covering 2,400,000 miles a month and carrying an average of 120,000 passengers a day.

The job of managing the town, which spreads over a Tennessee valley for nearly seven miles, was handled by 10,000 employes of the construction company. They kept all commodity services running twenty-four hours a day, seven days a week.

The third document is from the Frances Carroll Collection. It is part of a collection of twenty-four letters. This one is a letter Fran wrote to her mother on July 16, 1945. It is presumed she is working for the Turner Company described in the above document, and in Oak Ridge on a temporary basis. In her letter, Fran complains about the lack of butter, dark bread, and chocolate ice cream, but that one can get an excellent steak any night! She admits that she is amazed to find herself at that particular place in the middle of Tennessee, and that some of the southern speech is so accented that she is hardly able to understand people. She describes Oak Ridge as a "never-ending carnival" with all the activity, but feels it would be rather depressing to live there permanently.

## Fran to her Mother, Lena Carroll, July 16, 1945 Oak Ridge, TN

(On a working trip to Oakridge from NYC)
(from Dunmore Hall 118, Oakridge, Tennessee)

Dear Mother,

Are either of these "13" the ones to which you refer? I meant to write to Phyl immediately to see what she has but haven't written to anyone since arriving here. We're going through a dazing experience. Bobbie & I & three fellows were all the Co. could get to volunteer to come down here at first. They eventually rounded up several more To Meet A Great Emergency which we haven't located yet. But Bobbie and I from the beginning have yearned to see this place. We are impressed.

It's not been hotter than New York & the nights are extra cool. But all in all I do not think I would care to stay here longer than the scheduled month. There's a haze of dust over the valley. The drinking water is heavily chlorinated. No butter, no dark bread, no chocolate ice cream. But you can get an excellent steak any night in the evening. All kinds of meat. On night shift, there's practically nothing to eat. Bobbie and I held out for day shift, but the rest of the kids went patriotic & so we are all on rotating shifts—7 days on days, a day off, seven days graveyard, day off, & 7 swing shift & then 80 hours off. At that point we intend to take off for the Smokey Mountains.

Wish I could find the one man who declared a state of emergency & ask him if he feels a relaxation of the tension now that we're here. You have to keep reminding yourself that they have accomplished all that's been accomplished here so far—And that's plenty. The GI's want to know how we can complain since we're going back to NY—we got round trip tickets, by the way. They stay. But its hard work—this hanging around. Every once

in a while whilst contemplating a valve I am amazed that I am in the middle of this Area in this building in the middle of Tennessee.

The trees and bushes that grow from the red dirt are green! There are people from every state in the union. The masses are southern. We are hardly able to understand some of them, their speech is so southern accented. A week ago Sat. we went on a moonlight ride on the Tennessee River; we've been swimming at Big Ridge, the Jones Beach of Oakridge. Haven't been to Norris Dam proper yet.

The main reason I didn't use the other half of my ticket immediately on discovering shift work is that Bill Allman's down here. He was shipped to this spot in the beginning of January. This is known as the sure cure—I'm considering applying for a job in the Philippines in the fall—You get your way paid to & from if you promise to stay a year. Only thing is it's civil service. And after the Navy Yard, I stated I would never again be a part of civil service.

On the one hand, Oakridge is like a never-ending carnival—dances on tennis courts, juke boxes in all the cafeterias, bus terminals broadcasting to the countryside, recreation halls in every section.

On the other hand to live here permanently might be depressing—trailers, prefabricated houses, dormitories, barracks.

I don't have the stamps with me but will send them tomorrow—absolutely.

Love, Fran

The fourth document is an interview with Marshall Means and his wife Tamar, the grandfather and grandmother of my good friend Kathy Watson. Their son John interviewed Mr. and Mrs. Means in 1983 and 1984. Mr. Means worked at the Union Carbide plant in South Charleston, West Virginia for eighteen years. Early in 1944, he moved to Oak Ridge with his family to begin work at K-25 as a shift superintendent. This interview is a first-hand account of life and work in Oak Ridge. I am transcribing excerpts of the handwritten account of the taped interview. Mr. And Mrs. Means describe the events and thought leading up to their decision to move to Oak Ridge, their home there, their life and work there, and their reaction to the news of the bomb.

Mr. Means:

I left for Oak Ridge February 23, 1944 at 3:00 AM on the C & O railroad. Returned to Charleston on February 26, 1944 by railroad at 2:30 AM, sold house March 2. Left for Oak Ridge March 14, 1944; spent night on way down Morristown, Tennessee. Arrived Oak Ridge 9:15 AM March 15, 1944. Furniture came that same day. Sue and Anne went to school that afternoon and we ate in the cafeteria that night. Saturday, March 18 – I went to work on Saturday, March 18.

Early 1944. I had [been] working at South Charleston plant for eighteen years. In '44 was asst. shift super. with Shrader. In years gone by had worked in conjunction with Rucker and knew him well and he knew my work record. At this time R. had been moved up to NY office, and I didn't know why he was there but it turned out he was to be in the project at OR (R=asst plant super in charge of operations) R was in NY office

doing background for OR project (Manhattan Project.) About one hundred fifty people had been gathered from all parts of the country at some college in New York. He contacted me to see if I was interested in going to OR and of course wasn't permitted to tell me exactly what was going to be done there. He asked me if I was interested in going as a shift superintendent (working shift work under that term). I considered that and finally told him "yes."

…K-25 was my plant; X-10, Dupont, research; Y-12, Tennessee Eastman, electromagnetic, started before we did, but we soon outdistanced them. They had most of the U.S. Treasury melted down, made their tubes, etc.

Material - It left out of there in trucks, big trucks with flat body on the back, staves up on the side, put one little cylinder on each of four corners, head for the west, we didn't know where. They had to handle it that way cause the critical mass could be reached if you got too close together (even with containers). Lead used (and another metal) – where we took product off, into you'd have thought it was a quart thermos bottle. Three-inch pipe to California without critical mass. Diameter never to exceed three inches. Best minds in the country, in the world, informed us of that. Finished material they're talking a out: ninety-eight to ninety-eight point five U-235.

…Question: Thoughts on the train alone?
Curious, it was a strange town, meditated a lot about the town – no such name on the map. Didn't know much about the place to give much thought to that. Thinking whether

I might want to accept it. We'd heard, possibly thru R, that housing was extremely hard to come by. We were in a position that housing would be assigned to us. When we got there, people were living in every kind – lean-tos, shanties, not just in OR, but as far as fifty miles away.

Mrs. Means:

We were young, we didn't know what it was all about. We didn't know you were coming – found that out about the time we left and weren't sure about it then. Dad was offered the promotion and he wasn't sere if he'd get another chance. Could have hinged in dad's mind that he wouldn't have to go to war (some at 39 were taken). Our families criticized us – "born in the hill, lived in the hills, never get out of the hills" – back to the hill people, like my mother and Gaines. Dad was making $395/month and R said he would make $500/month.

Question: You didn't mind pulling up stakes?

No, not at all. They way I've lived – I'm at home anywhere.

Question: What appealed?

Excitement, something new, that nobody had any idea what we were going to do . Pioneering something big – we knew it was a gov't job that contributed to the war effort. We thought a contribution from us would be in order and was happy to do it.

Mr. Means:

Phone mom from OR – told her we'd been provided a house and they were just building the place, very muddy. They furnished coal, electricity, all furnished. She said, if it looked all right to me, it was all right with her.

Mr. Means:

We talked it over and got busy to get ready to sell the house. (It was understood that I should stay before I left.)…No trouble selling house – good demand at war time, houses extremely scarce. First guy that came by, bought it. Trucking company hired by Carbide to move us down. Took ours and Meb's, since we were both going at the same time. …I had selected house before, on first trip - go to housing dept. This one was assigned, went up and looked at it, it was acceptable and we signed up for it. (Truck brought the house in and unloads it on the foundation. No houses across street at first sighting. On same side, housed established and people next door already working at Tennessee Eastman. Mom had said truck brought a house and stuck it on foundation while she was at grocery store.) Nothing but mud around the place. Road in front had crushed stone, no sidewalks, nothing paved; fine ground-up stone in the walk into the house. (104 was a "C" house; Outer Drive was a "D," duplex was "F" house.) Clay not red, but brownish. No grass – it was February anyway. Fresh dirt all around foundation where it had been dug. (Car parked in front yard, no gravel. One time mom parked car and it went in up to the axel. Had to get friends to get it out, no services then.

Inside house – They gave us key at housing department – they didn't know anything, just shuffled paper…..Took Meb and me up together; we selected house close together. I picked house away from corner, thought it might be noisy someday – thought I might be there fifty years.

Didn't mind selling house, didn't want to rent it cause I was told that when I got down there, I'd have to give full attention to that job, and it sure was true.

Grove Center – all those trailers, huts, almost tents, acres of them – made out of anything, Indian shacks. All inside the 58,000 acres that was OR

No fence between the city and any of the plant. Anywhere there was access, if there was road, there were guards; level ground fence. Only fenced in where accessible; some rugged parts where we wandered with girls not fenced.

Mrs. Means

…104 Powell Road when first moving there - gravel; mud in front yard, gravel up to house; wood prefab, painted, but if you touched it with a wet cloth, every bit came off. All refrigerators and electric stoves were Sears and Roebuck. Walls two inches thick with dead air in between. Built-in kitchens, I was very happy with electric stove, I'd never used one. Off the kitchen was furnace room with double tubs – coal furnace – where you could put washing machine. Over in corner, little coal bin, they delivered the coal; you didn't have to pay for it. Shovel. Living room – mantel with a coal-burning fireplace. Mar. bought a grate and we had a fire going all the time (was originally designed to burn wood) – we enjoyed the fire. Dad put up a clothesline outside. Living room and dining room together. Three bedrooms with closet in each bedroom and bath with built in tub, shower. Large closet in entry and large hall.

Mr. Means:

…No water and no way to turn it on, no utility company, so I borrowed a reach rod to reach in ground and turned water on myself. I kept reach rod and serviced other people who moved in, in that area. Iron pipe. Drinking water gave you diarrhea. Down a the plant with diarrhea, went to dispensary – many others had same problem – explained to

doctor – he said "I don't know what to do, but if you find out, tell me, cause I've got it, too.

Mrs. Means:

…At the beauty shop, grocery store, any place you went, there was a picture - the entrance, the gate, a big serpent, it said "Your tongue is more deadly than the serpent's tongue – what you see here, what you hear, keep it to yourself." If anybody asked you anything, you were afraid.

Mr. Means:

…Oppenheimer, shook hands w/him a couple of times, in my office. Looked thoroughly exhausted, face was red when it wasn't hot, looked like he had pushed himself too far. ….Groves – taken to be a dictator, which a guy had to be with that much responsibility, I think he was all right.

Mrs. Means:

…Somewhere I had read that someday they would take radiation up in an airplane and spread it over the people and kill them. About three weeks before bomb dropped, at some university in the south, the students asked the professor if that's what they were doing at OR; it was in the newspaper, they denied it, but that gave me more things to work on. One night we were sitting out on the porch – we had a nice porch to sit on, (Powell Rd), Dad was dead tired, and he said, "You know, I think the war will be over by Christmas. I almost know it will be over, but don't you say anything about it." It gave

me hopes because Haig was fighting the Germans, Glynne was in CA away from his family in the postal service, I had a nephew that was a flyer. I didn't say anything. You didn't talk, if you heard anything. This Wilma, up on the hill that seemed to know everything, told me that she knew what it was. She said, "I'll tell you." I said, "No, don't tell me, I said, but you'd better keep your mouth closed."

Mr. Means:

Work Area - Buildings wide open, many people visible. All people on operating floor in plain view – in a line. Operators – top level – no wall in between buildings. Panel boards w/instruments - @ 50 ft. or more to back of building; no, 100-150 ft. Some buildings shorter, especially near top of plant. Panels run across the depth of the building. Panel boards not to roof, just high enough to take care of instruments. Operators lined up along panels, as many as 8 or 10, sitting on stools, just talking, watching, keeping log sheet. Instruments didn't tell what was doing. Instruments writing on circular chart – keep this pointer on "4," e.g. – and they had some adjustments and maintain the number – they had controls on the board and would make adjustments to keep it on the right number. Most of the people were just talking. About 8 people in a building. (Cells they were operating were beneath.) About one operator per cell in the beginning. Customary to take log readings every hour.

Johnny called me down one night, thought they had radiation. We were walking down and these gals didn't know me, and one of them was smoking. I said, "Johnny, is that the way you operate the shift?" He said, "I don't see anything wrong." I said, "hell, don't

you see that gal smoking?" He didn't seem to want to tackle it. I went over, I told her who I was. Once I mentioned my name, she knew who I was. I said, "Don't you know the rule on smoking?" She said, "Yeah, but I got notice, I'm going to be laid off." I said, "Look, this smoking will stop now or you'll go now. We can't tolerate smoking in here. There's good reasons for it and you'll have to trust us." She smiled and put her cigarette out. I told Johnny, "now you keep an eye on her. If there's another cigarette lit, you purge her right now, even if you have to get a car and take her home."

…Pool - In the early days, a contracting company ran the town and it wasn't very desirable, so some of us decided we ought to get city councilmen and private individuals running the town. So, being an organizer and rabble-rouser, I was responsible for a great deal of it. We first got the approval of the army with some apprehension on their part. They did agree because I think they felt that we couldn't organize it. T. Rath and I borrowed a public address truck from the army, we drove all over Oak Ridge. Tom was a good speaker. I did the driving, every street we covered. "There's going to be a meeting down at the town hall. Tuesday night, 7:30. Be there and attend – we're going to organize and have a town council." That night – building wouldn't hold ten per cent of who was there – everybody was there , they wanted to come – and when meeting started it almost got out of hand. The army sent a fellow to represent the army. That meeting was to select men for council. Almost before they were ready, we had fellows presenting candidates for council – of course, we had certain fellows – my name was shot in there before we were ready, Sam, another Carbide man. We decided before nominating to have some from each plant. Fast deal, vote by hand, no- they did vote by paper vote.

They went in a back room, Bert Davis was one of the ones that counted the votes. I told him later, "you outta been more careful – you counted more votes than there was people." I had enough votes. Carbide had three men on the council – me, Sam, and another.

We started having city council meetings, doing things that the army hadn't been doing. Swimming pool, I felt was essential cause they didn't have anything to do in Oak Ridge. Big swamp hole, looked like a turtle lake, frog pond, just about the right size. I brought that up every council meeting, had my buddies backing me up and army always attended, they was guiding them, they still could veto anything. Council was advisory, but I pushed this swimming pool so much, they just gave up and agreed to put it in. This all was shortly after the war – no maybe close to before the war over. I feel real proud about that swimming pool.

**Oak Ridge Pool – 1945**

**Photograph by Ed Westcott**

**Oak Ridge Pool - 2005**

….Had radios. News about the war constantly. They paid more attention to the President during the war. People that had relatives in the war wanted to know what was going on. Nearly everybody had some kinfolks going in there. More faith in President, in government (as compared to now.) Around 2 o'clock in the morning, something woke us up – it was the paperboy going down around the circle. I got up and turned the radio on – it was D-Day. We bought a paper.

When they dropped bomb on Japan – the headlines said "The material come form OR, 'Tennessee, twenty—five miles from Knoxville. Newspapers and else gives K-25 plant credit.

Question: Reaction after bomb dropped?

It was a "good deal" since Pearl Harbor had been given what they did, they sneaked up on us, and said we owed it to them. (I had somewhat of a guilty conscience until I really saw that over there (PH), that Arizona sunk, still 1,200 men never recovered in that thing, I felt they did just exactly what they should because those Japanese, they're radical; theyd've fought to the last man. Everybody was of the same opinion – I don't know of anybody that objected to it. Everybody knew about PH.)

...Like street parading.

Mrs. Means:

Women were all happy that could leave the damn place.

And finally, the fifth document is an open letter in the Oak Ridge Journal by K. D. Nichols, Colonel, Corps of Engineers. In his letter he expresses his appreciation to all the workers for their hard work, dedication, and secrecy.

To Contractors, Workers, And Residents of Oak Ridge:

Congratulations to all workers at the Clinton Engineer Works and to the people of Oak Ridge! You have done the impossible.

I am sure that you shared with me the thrill which came with President Truman's announcement that the results of our hard work and American "stick-to-it-iveness" have been delivered to the Japs with a world-shaking crash – the thrill that comes with the knowledge of a tough job well done.

This project has been, from the start, a cooperative enterprise, based on mutual faith – faith of the scientists that engineers could translate his discoveries – yes, and his world stirring dreams – into practical process designs; faith of the engineer that material and construction men could turn those designs into bricks and mortar and process equipment; faith of the Army that all contractors would have the vision, courage, and drive to do the seemingly impossible; faith of the operating contractors that local non-technical workers could be trained to perform new and strange tasks so exacting that they would normally be entrusted only to skilled scientific experimenters; faith of the construction workers and operators that their supervisors knew their business; and faith of all groups – management and employees – scientific and service – that somehow ways and means would be found to house, feed, and transport them. This faith has now been justified by the successful use of you product against the Japs.

The success of the project was made possible only because everyone did his or her part and "stayed on the job" from the Nobel Prize winners whose scientific theories and experiments mushroomed into huge production plants to the sweating construction worker and the cafeteria girl with her tray of dishes. The same spirit is necessary to continue an uninterrupted supply to the fighting man at the front. More and more production is needed and can be realized only by even greater efforts to get maximum

output from our plants. Let's not give the Jap a chance to catch his breath between blows.

You now surely realize the wisdom of our security program which was effective only because of your faithful cooperation. No known case sabotage has been committed to slow our work or to endanger your lives. This is a real tribute to all of you.

The complete surprise to the enemy with all the military advantage that attended such unheard-of destruction has made our weapon much more effective. This tremendous weapon must be kept "our weapon" alone, so that the peace of the world can be reestablished and preserved. This can be done only be even greater security precautions with respect to vital information. Do not reveal to anyone information now contained in the official releases. The security policy for information hat has not been officially released has not been changed.

A grateful nation's thanks are due all for you for a magnificent performance and history will record the full significance of you fabulous achievement in unlocking the stupendous energy of the atom. May it be used not only as an effective war weapon but in the future may it play a major part in humanity's service.

**K. D. Nichols,**

**Colonel, Corps of Engineers,**

**District Engineer.**

# Annotated Bibliography

Albert Einstein's Letters to President Franklin Delano Roosevelt: E-World
1992-2003 by Glenn Elert.
http://hypertextbook.com/eworld/einstein.shtml#first

This site contains Einstein's four letters to President Roosevelt, along with an annotated bibliography.

The Manhattan Project Heritage Preservation Association, Inc. The Frances Carroll Collection. Personal Letters – 8 of 24.
http://www.childrenofthemanhattanproject.org/COLLECTIONS/OR-FCAR/ORP-FCAR-008.htm

Most of the letters of the Frances Carroll Collection were written by Fran Carroll to Sgt. William Allman while he was at Oak Ridge and she was at the SAM Lab at Columbia University. Also included are letters she wrote to her mother and father both before and after she and William Allman were married. They have been provided by their daughter, Toney Allman.

The Oak Ridge Public Library, Oak Ridge Room. Department of Energy collection of Ed Westcott Photographs.

Ed Westcott was one of Oak Ridge's first 50 residents. From 1924 to 1946, he served as the official photographer for the Oak Ride site of the Manhattan Project.

Nichols, K.D., *"To Contractors, Workers, And Residents Of Oak Ridge" The Oak Ridge Journal,* 9 Aug. 1945, 1.

This open letter from K.D. Nichols to the people of Oak Ridge appeared three days after the first bomb was dropped on Japan. This particular issue was also the first edition of the Oak Ridge Journal that did not appear with the words "Not to be mailed or taken from the area" for the first time in its history.

*The Oak Ridge Story*, published by the Oak Ridge Convention & Visitors Bureau.

This brief but educational overview gives a brief history of Oak Ridge and the work that was done there, as well as a description of the three plants. It describes what the city looked like in the 1940s, as well as a current description of the city.

Olwell, Russell B. *At Work in the Atomic City – A Labor and Social History of Oak Ridge,* Tennessee. Knoxville, Tennessee: The University of Tennessee Press, 2004.

*At Work in the Atomic Cit*y explores the world of the workers and their efforts to form unions, create a community, and gain political rights over their city. It follows the workers from their arrival in the city, to where they lived, and to their dangerous and secretive jobs. It is the first detailed account of the workers who built and labored in the facilities that helped ensure the success of the Manhattan Project.

Watlz, Jay. "Three Bombs Made In 3 Hidden 'Cities' – Secrecy on Weapon So Great That Not Even Workers New of Their Product." New York Times, 7 Aug. 1945, 1.

This article describes the three cities created to build the atomic bomb that ended World War II.

Yates, Sam. *Through the Lens of Ed Westcott – A Photographic History of World War II's Secret City*. The University of Tennessee, 2005.

This book is a was published as a catalog to accompany an exhibition of Ed Westcott photographs at the Downtown Gallery, The University of Tennessee, and the American Museum of Science and Energy, Oak Ridge, as a component of the 2005 Tennessee Valley Homecoming. Ed Westcott was one of Oak Ridge's first 50 residents. From 1924 to 1946, he served as the official photographer for the Oak Ride site of the Manhattan Project.

# Lesson Plan Outline – Einstein's Advice

**Unit:** Life in A Secret City

**Lesson Title:** Lesson One**:** Einstein's Advice

**Grade Level:** Fifth

**Essential Question related to Vital Theme:** What did Albert Einstein have to do with Oak Ridge?

**Lesson Time:** One Class Period

**Curriculum Standards—list:**
5.5 spi 7. interpret a primary reading sample

**Materials:**
A copy of the letter that Albert Einstein wrote to FDR and the accompanying photograph of him. (Will mail.) See also:

http://hypertextbook.com/eworld/einstein.shtml#first

**Activity description(s) and overview of instructional strategies:**
Activating Strategy/Pre-assessment:
Show the class a picture of Albert Einstein. Brainstorm on what they know about him using a graphic organizer on the board.

Each student will be given a copy of Albert Einstein's letter to FDR. The students will follow along as the teacher reads the entire letter out loud. Certain parts of the letter will be underlined to make the assignment age-appropriate. The students will pair up and answer the following questions:

1. Who wrote this letter?
2. To whom is it written?
3. On what date was the letter written?
4. What element did he say may be turned into a new and important source of energy?
5. What does he say may become possible?
6. What would this lead to?
7. What could this destroy?
8. Where is the most important source of this element?
9. He recommends that FDR entrust in a person to do what two things?
10. What closing did he use?

(See handout below.)

Supporting Assignments/Homework:
This assignment will need to be completed for homework if not completed in class.

**Assessment:**

The question will be graded, each question being worth ten points.

First & Last Name_____ Code_____

**Einstein's Advice**

Who wrote this letter?

1. To whom is it written?

2. On what date was the letter written?

3. What element did he say might be turned into a new and important source of energy?

4. What does he say may become possible?

5. What would this lead to?

6. What could this destroy?

7. Where is the most important source of this element?

8. He recommends that F.D. Roosevelt entrust in a person to do what two things?
   a.

   b.

10. What closing did he use?

# Lesson Plan Outline – "City With a Secret"

**Unit:** Life in a Secret City

**Lesson Title:** Lesson Two: "City With a Secret"

**Grade Level:** Fifth

**Essential Question related to Vital Theme:** What was life like for the people in Oak Ridge? What major events occurred in 1945?

**Lesson Time:** Two Periods

**Curriculum Standards—list:**
5.5 spi 5. interpret a visual contrasting life before and after World War II (i.e. education, family size, transportation, urbanization, and the role of women)

**Technology used and how:**

**Materials:** Ivey, Jennie, Calvin W. Dickenson, and Lisa W Rand. *Tennessee Tales the Textbook Don't Tell.* Johnson City, Tennessee: The Overmountain Press, 2002.

**Activity description(s) and overview of instructional strategies:**
The teacher will read the short story "City with a Secret" to the class. As the teacher reads the story, the students will complete a timeline of 1945 of the events mentioned in the story. A class discussion will follow.

**Supporting Assignments/Homework:**
This assignment should be completed in class.

**Assessment:**
An "open note" quiz, (questions given orally) will follow the next day, which will mostly include questions that can be answered using their timeline. Each question is worth ten points.

1. In what state was Oak Ridge located?
2. How many plants were built in Oak Ridge?
3. Why did people carry their "good shoes" in sack?
4. What happened in March of 1945?
5. When did President Roosevelt die?
6. How many people lived in Oak Ridge in the summer of 1945?
7. When and where was the atomic bomb successfully tested?
8. Which bomb was dropped first?
9. Which bomb was dropped three days later?
10. On what day did Japan surrender? What did this mean?

# Lesson Plan Outline – Every Picture Tells a Story

**Unit:** Life in a Secret City

**Lesson Title:** Lesson 3: Every Picture Tells a Story

**Grade Level:** Fifth

**Essential Question related to Vital Theme:** How does a picture convey information?

**Lesson Time:** One class period

**Curriculum Standards—list:**
5.5 spi 7. interpret a primary reading sample
5.5 spi 5. interpret a visual contrasting life before and after World War II (i.e education, family size, transportation, urbanization, and the role of women)

**Technology used and how:**

**Materials:**

- Ferguson, Penny, Mark White and Chris Dunkel. *Learning to Look*. Maryville High School.
- Yates, Sam. *Through the Lens of Ed Westcott – A Photographic History of World War II's Secret Cit*y. The University of Tennessee, 2005.

Students will use the photograph analysis from the *Learning to Look* packet, p.18. Students will pair up and analyze an Ed Wescott photograph for the first half of the period. In the second half of the period, students will share their findings with the class. The teacher will model this activity first. (P. 18 to be mailed.)

Assessment: Students will receive a 100% for fully completing the chart and sharing their observations with the class.

1. About how far is Oak Ridge from Lenoir City?

2. Why was Oak Ridge built?

3. How many plants were there?

4. What was the name of the project?

5. What war was being fought?

6. How many bombs were dropped?

7. On what country were they dropped?

8. What happened on Aug. 15, 1945?

9. What day is this referred to?

10. What did this mean? (in regard to the war)