unit six: day one

Victory through Vegetables?

The United States called upon its residents to grow their own fruits and vegetables in Victory Gardens, which were a way to show patriotism as well as supply your family with essential foods needed to be healthy. Gardens were planted in yards, on rooftops, in window boxes and anywhere else families could find the space. Planting Victory Gardens helped make sure that there was enough food for our soldiers fighting around the world. Because canned vegetables were rationed, Victory Gardens also helped people stretch their ration coupons.

Across the country 8000 rationing boards were created to administer these restrictions. The 1943 Sears, Roebuck and Co. catalog contains a list of all rationed farm equipment and tells the reasons and benefits of rationing as well as who is eligible. Even chicken wire fencing was rationed. Consumers were urged to save and, to encourage them, a vision of a post-war world of plenty was spread through advertising campaigns which spread the government's propaganda messages while maintaining a brand presence in the eyes of potential consumers. The relentless advertising created an absurd sense that the only thing Americans were fighting for was for the right to buy! A Royal typewriter advertisement captured the tone of the great majority of wartime American advertisements: 'WHAT THIS WAR IS ALL ABOUT . . . [is the right to] once more walk into any store in the land and buy anything you want.' A public service advertisement for Macy's in the New York Daily News in September 1943 listed 'defending Democracy' and 'a better world' as things Americans were fighting for, but it also included 'a steak for every frying pan'.

 The first nonfood item rationed was rubber. The Japanese had seized plantations in the Dutch East Indies that produced 90% of America's raw rubber. President Roosevelt called on citizens

to help by contributing scrap rubber to be recycled, *old tires, old rubber raincoats, garden hose, rubber shoes, bathing caps.*

The OPA established the *Idle Tire Purchase Plan*, and could deny mileage rations to anyone owning passenger tires not in use.   Voluntary gas rationing proved ineffective and by the spring of 1942 mandatory rationing was needed. To get your classification and ration stamps, you had to certify to a local board that you needed gas and owned no more than five tires.
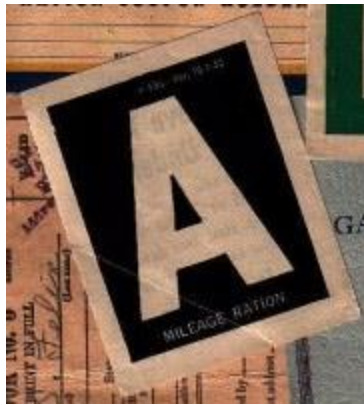
By the end of 1942, half of U.S automobiles were issued an 'A' sticker which allowed 4 gallons of fuel per week. That sticker was issued to owners whose use of their cars was nonessential. Hand the pump jockey your Mileage Ration Book coupons and cash, and she (yes, female service station attendants because the guys were over there) could sell you three or four gallons **a week**, no more. For nearly a year, A-stickered cars were not to be driven for pleasure at all.
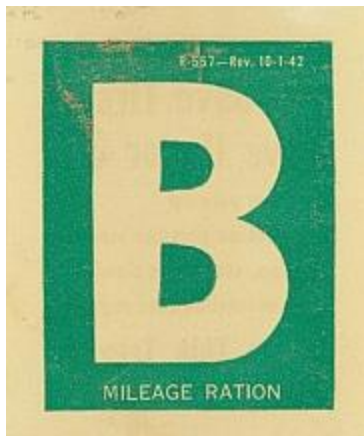
The green 'B' sticker was for driving deemed essential to the war effort; industrial war workers, for example, could purchase eight gallons a week. Red 'C' stickers indicated physicians, ministers, mail carriers and railroad workers. 'T' was for truckers, and the rare 'X' sticker went to members of Congress and other VIPs. Truckers supplying the population with supplies had a T sticker for unlimited amounts of fuel.

The national maximum Victory Speed was 35 miles an hour, and driving clubs or carpools were encouraged. The main idea was to conserve rubber, not gasoline. The interior side of the sticker issued for the car's windshield instructed the driver on this point. Every citizen, military or civilian, was to do their part. Even in the popular Warner Brothers cartoons, Daffy Duck tells the audience to Keep it under 40! Bugs Bunny's plunging airplane halts just before impact, out of gas as a consequence of the `A' sticker on its windshield.

Perception of Risk

Everything we do in life, each decision we make carries a certain amount of risk with it. However, if we decide on a course of action, then we have decided, either consciously or unconsciously, that the benefits of the action outweigh the risks. Different individuals often perceive risks of varying types differently. Many people's perception of the risk of nuclear energy and radiation exposure is vastly different than the actual risk. This lesson is a great way to introduce the real risks associated with nuclear energy and radiation exposure.

In this activity, students have the opportunity to identify their perception of the risk associated with an activity, the opportunity to compare their ideas with their classmates, and then with actual accident data on these activities.

This activity helps the students understand some of the factors (e.g., emotion, knowledge) that go into their perception of risk.

Procedure:

1. Each student will be asked to rate the activities and technologies in terms of perceived risk. A ranking of 1 indicates the highest risk while a ranking of 10 is the lowest risk.
2. Before comparing the students ratings with actual statistical causes of death,
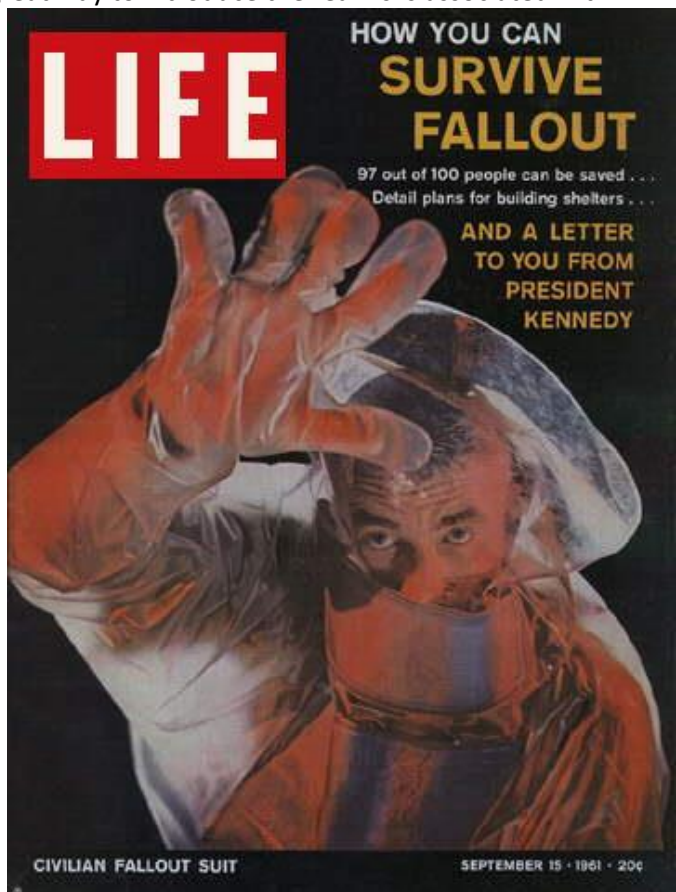
have the students provide their ratings and determine a class average.

Analysis and Results:

- How do individual rankings match with the class averages?
- Were the rankings for any activity widely scattered?
- Have the students discuss their rationale for ranking each activity.
- Were the rankings affected by the emotional reaction to the activity? In other words, if the person liked or really wanted to do the activity did it get a lower risk ranking?

Assessment: Have the students discuss (and write about) how easily they think it would be to change a person's perception of risk through education. That is, if a person believes an activity to have a high risk factor, how easily could that perception be reduced by educating the person about the actual risks and benefits of the activity? Or by appealing to their emotions?

Risk Ranking Table

| RISK	Your Ranking	Class Average Ranking	Actual Ranking
Aviation			
Motor Vehicle			
Motorcycle			
Firearm Discharge			
Firearm Assault			
Fireworks			
Hornets, Wasps, Bees			
Lightning			
Nuclear Power/Radiation			
Skiing			
Smoking			
Surgery			
Bicycle			
Swimming			
Asteroid Impact			

Risk Ranking Table

Risks shown below show your likelihood of death from activity listed in one year.

RISK	Actual Ranking	Source
Aviation	1 in 2,067,000	U.S. Department of Transportation
Motor Vehicle	1 in 7,700	U.S. Department of Transportation
Motorcycle	1 in 91,500	U.S. Department of Transportation
Firearm Discharge	1 in 514,147	The Economist
Firearm Assault	1 in 24,974	The Economist
Fireworks	1 in 50,729,141	The Economist
Hornets, Wasps, Bees	1 in 25,364,571	The Economist
Lightning	1 in 10,495,684	The Economist
Nuclear Power/Radiation (3 mrem exposure)	1 in 1,000,000	U.S. Nuclear Regulatory Commission
Skiing	1 in 1,556,757	Bandolier
Smoking	1 in 5	Center for Disease Control & Prevention
Post – Surgery Complications	1 in 117,519	The Economist
Bicycle	1 in 410,000	U.S. Department of Transportation
Swimming	1 in 56,587	Risk Communication Institute
Asteroid Impact	1 in 74,817,414	The Economist

*The risk of death from 3 mrem radiation exposure (1 in 1,000,000) has approximately the same risk as...

   -Spending two days in New York City (due to air quality)
   -Riding 1 mile on a motorcycle or 300 miles in a car (risk of collision)
   -Eating 40 tablespoons of peanut butter or 10 charbroiled steaks (due to aflotoxin)
   -Smoking 1 cigarette
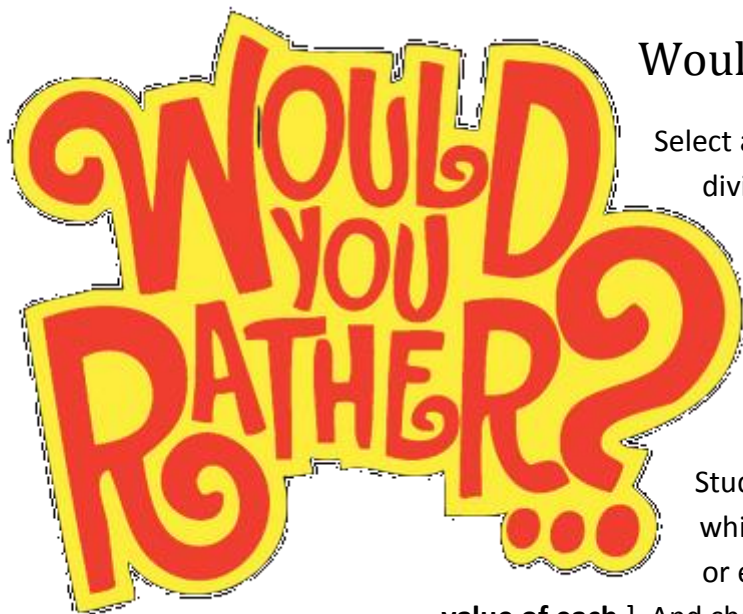
Would You Rather?

Select a game show host and have him or her divide student participants into three teams. Send the teams to the corners of the room, while the host remains in the center. At the start of the game, the host will introduce the challenges.

Students/teams will huddle up and rate which challenges they think will be hardest or easiest, [option: **not knowing the point value of each**.] And choose three that they want to complete in that round. (Sample challenges are given below, feel free to add to and expand the list)

Before class starts come up with a topic and a list of questions from the unit and/or math skills/facts that you want to review with your students. When the students enter the room split them up into three different groups. Each group will come up with a team name. The rules for the review are as follows. Each team will have a space on the board where they will write the answers to the questions. The teacher will pick a team to start. She/He will ask them a question. If they know the answer they get 50 points. If they do not know the answer they can dare the other team for double the points to answer the question. If the second team does not know the answer they can double dare the 3rd team for triple the points. Points are recorded.

Then all three teams must compete in a physical challenge. [*Option: If all students want the same challenge have them choose one of their other top three.]* Students compete to complete the challenges within the given time, time examples [generally 60 seconds] are given below but can be adjusted. Teams get points (according to the hidden pre-selected point values determined by the teacher) for the challenge they successfully complete in the given time.

Then the second round would start with the teacher asking the next question to team 2…and it continues.

Sample Activities: (option: Hold several rounds, does knowing the point values change anyone's interest in completing a challenge?)

Human Knot (ex. 750 points): This is a great challenge because it doesn't require any extra materials and it challenges kids to work together and communicate. The team stands in a circle and everyone joins hands with someone else. Players should join hands with someone positioned across the circle and not the person standing next to him or her. Each person must

hold hands with two different people. **Without letting go** of anyone's hand, everyone must work together to untangle the knot and form a circle in the chosen amount of time, ex. 60 seconds.

Photo Finish (ex. 380 points): The group has to try and cross the line at exactly the same time. If one person is out of sync, then they must start over again. Concentration, listening and communication are essential for this fun challenge.

Equipment: Straight line floor marking tape, or rope

Line the team up side by side behind a straight marking (can be done with a length of rope or a piece of tape) on the floor.

Explain to the group that every team member must cross the line (step across) and touch the ground with their feet at exactly the same time.

If one person steps across before the rest of the group does, then the leader must shout, 'click' and get them to start over again.

Keep an eye on everyone and remain vigilant at all times. The group will find it difficult start with, as normally they do not prepare for the challenge. The key is to nominate a leader for the task and plan in advance.

Reiterate to the group that if anyone's foot touches the ground before the rest of the group, the task will be restarted, and the challenge must be completed within [60 seconds].

Group Size

8 to 12 ideal, but can be done with up to 20.

Useful Tips:

- Leaders must be selected, otherwise you will have chaos and a lot of shouting within the group.
- Participants may blame each other for the failure of the task, so ensure that focus is taken away from individuals and placed on the team.
- Tallest group members should be located on the outside of the line, so they can look across and smaller members in the middle. The leader should be placed in the center of the group line, so everybody can hear instructions clearly.

Put Your Hands on Some Cash — Ball Throw (ex. 750 points): This physical challenge requires ample space. Collect three buckets or containers and label them as follows: $500, $1,000 and $5,000. Arrange the buckets in a line, placing the bucket with the largest dollar amount farthest

away. Then, instruct teams to line up and give each team member one chance to toss the ball at the buckets. After each team member has taken a turn, figure out the team totals. The challenge can be to earn a certain amount of money within the given time, ex. $10,000 (which can be earned by 2 successful $5,000 throws or 10 $1,000 throws, etc.) in 60 seconds (or other chosen amount of time) time limit.

The Obstacle Course (1,000 points): The obstacle course should consist of eight obstacles which have to be completed within 60 seconds. Each obstacle will have an orange flag either at the end of or hidden within it. One team member runs the first obstacle, then passes its flag to his/her partner (or the next team member in line), who then moves on to the next obstacle. The team continues to alternate in this manner until they completed the course or until time runs out. Option: Have the seventh obstacle offer a point bonus that is worth a different amount each time.

Magic Cane (ex. 700 points): Participants will be given a 'magic cane' which they must lower to the ground, using just their index fingers, making sure that they all remain in contact with it at all times.

Equipment: 1 thin, light-weight, 6-10ft bamboo cane (option: if not locally available, purchase from a garden store)

Line up in two rows which face each other. Introduce the Magic Cane- a long, thin, bamboo cane. Ask participants to point their index fingers and hold their arms out. Lay the cane down on their fingers. Get the group to adjust their finger heights until the cane is horizontal and everyone's index fingers are touching the stick. Explain that the challenge is to lower the cane to the ground.

The rule: Each person's fingers must be in contact with the cane at all times. Pinching or grabbing is not permitted - it must rest on top of fingers. Reiterate to the group that if anyone's finger is caught not touching the cane, the task will be restarted, but must still be completed within [60 seconds.]

Useful Tips

- The collective pressure created by everyone's fingers tends to be greater than the weight of the bamboo cane. As a result, the more a group tries, the more the cane 'floats' upwards.

- To make the exercise more difficult, introduce a no talking rule or blindfold a participant.

Blow Hard (ex. 150 points): (materials: 1 balloon per child, 15 cups per challenge)The players have to blow up 1 balloon each and use the air in the balloon to blow 15 cups off of a table. The balloon can be blown up as many times as necessary to accomplish this task, but it must be completed in under [60 seconds].

Come to Order! (ex. 125 points): Give the students flash cards with numbers on them (usually from 0 - 25). The kids have 1 minute to run out and lay the cards across the floor in the correct order.

Blindfold Sheepdog (ex. 1,150 points): A shepherd gets chosen from the group and must direct all the sheep into the pen as quickly as possible using only noises. They cannot talk to the sheep nor touch them. The sheep need to be blindfolded and placed at a start point. Between the start point and the pen (where the sheep need to be guided) will be a number of obstacles. Every time a sheep touches an obstacle they will be removed from the exercise and the achievement rate will be decreased. The challenge must be completed in under [60 seconds].

Unlock Your Mind: (ex. 625 points) Students unlock as many combination locks as they can in under a minute. (Option: Make the percentage they get open the percentage of the point value they can earn.)

400 Centimeter Dash Relay (ex. 175 points)

- Two (or more) 4-meter tracks for a mini 400 cm. dash
- doll sneakers and shorts (optional) for fingers

(Prior to starting) Mark off the floor with strips of masking tape that are 400 centimeters (4 meters) apart. To run this race, teams divide themselves in half. Students must put the doll shorts and shoes (if using) on their fingers and race against an opponent on one of the tracks. They must keep their fingertips on the floor, like a real runner would! Teams must relay race (with their fingers) until all team members have participated and must complete the challenge in under [60 seconds].

Day One K-8 Standard Alignment

K

- SL.K.2. Confirm understanding of information or the topic under discussion by asking and answering questions about key details.
- SL.K.3. Ask and answer questions in order provide information, clarify answers, and demonstrate understanding of the topic under discussion.

These standards will be met when students participate and are required to answer questions, solve problems, and participate in challenges in the Would You Rather? review, math skills practice, and physical challenge game.

1st

- SL.1.2. Ask and answer questions about key details and demonstrate understanding of the topic under discussion.
- SL.1.4 Present information, opinions, findings, and/or supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

These standards will be met when students participate and are required to answer questions, solve problems, and participate in challenges in the Would You Rather? review, math skills practice, and physical challenge game.

2nd

- W.2.8. Accurately recall relevant information from experiences and discussions to answer a question.
- SL.2.2. Recount or describe key ideas or details from information presented orally or through other media and demonstrate understanding of the topic under discussion and mastery of key skills.

These standards will be met when students participate and are required to answer questions, solve problems, and participate in challenges in the Would You Rather? review, math skills practice, and physical challenge game.

3rd

- W.3.8. Accurately recall relevant information from experiences and discussions to answer a question.
- SL.3.3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

These standards will be met when students participate and are required to answer questions, solve problems, and participate in challenges in the Would You Rather? review, math skills practice, and physical challenge game.

4th

- W.4.8. Accurately recall relevant information from experiences and discussions to answer a question.

- SL.4.4 4. Present information, findings, opinions, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and situation.

These standards will be met when students participate and are required to answer questions, solve problems, and participate in challenges in the Would You Rather? review, math skills practice, and physical challenge game.

5th

- W.5.8. a) Recall relevant information from experiences and accurately summarize or paraphrase information.
- SL.5.1 d) Review key ideas and key elements of the topic or problem under discussion and draw and express conclusions and demonstrate understanding of information and knowledge gained from the discussions.

These standards will be met when students participate and are required to answer questions, solve problems, and participate in challenges in the Would You Rather? review, math skills practice, and physical challenge game.

6th

- RI.6.7. Recall information presented in different media or formats (e.g., visually, quantitatively, as well orally) to demonstrate a coherent understanding of a topic, problem, or issue.
- SL.6.4 4. Present information, findings, opinions, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and situation.

These standards will be met when students participate and are required to answer questions, solve problems, and participate in challenges in the Would You Rather? review, math skills practice, and physical challenge game.

7th

- W.7.1 b) Support claim(s) and opinions with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic, problem, or information under discussion.
- SL.6.4 4. Present information, findings, opinions, and supporting evidence such that the line of reasoning can be followed and the organization, development, and style are appropriate to task, purpose, and situation.

These standards will be met when students participate and are required to answer questions, solve problems, and participate in challenges in the Would You Rather? review, math skills practice, and physical challenge game.

8th

- W.8.1.a Support claim(s) and opinions with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic, text, problem, or information under discussion.
- SL.8.4. Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning.

These standards will be met when students participate and are required to answer questions, solve problems, and participate in challenges in the Would You Rather? review, math skills practice, and physical challenge game.

unit six: day two

It's a paper bird, no it's a paper plane!

Do you like paper planes as much as we do? One the following pages is one for students to make courtesy of the great design team at **fishinabottle** - what an amazing job they have - making games and interactives every day. Thanks guys!

Students can also use the following as templates to create US planes from WW2.

Tip: For more amazing planes for students to build (including a model Flying Tiger), check out the free Paper models, templates, instructions, printables, construction guides and tips, & historical restorations by Phil Koopman Sr at http://users.ece.cmu.edu/~koopman/airplanes/

For an advanced origami model check out the video instructions on how to fold a WW2 fighter jet from a single piece of paper at: *http://www.theairplaneguy.org/gallery.php*

The Night Witches

Like American women in the age of Amelia Earhart, many Soviet women had become enchanted with aviation in the 1930s. They were initially rejected for combat service during World War II, but Soviet leader Joseph Stalin thought better of the decision in 1941, when Germany broke the Soviet-German nonaggression pact and invaded.

Led by Marina Raskova, a renowned aviator who would later die in a plane crash, three women's regiments were born of necessity. While other nations employed female pilots largely in support roles, the Soviets dispatched their female aviators on delivery and reconnaissance missions, as well as daring raids to take out enemy targets. Treated in many respects like

The New York Times — July 15, 2013

RIA-Novosti, via The Image Works

Ms. Popova, standing, with other Soviet pilots in World War II. "We bombed, we killed; it was all a part of war," she said in 2010.
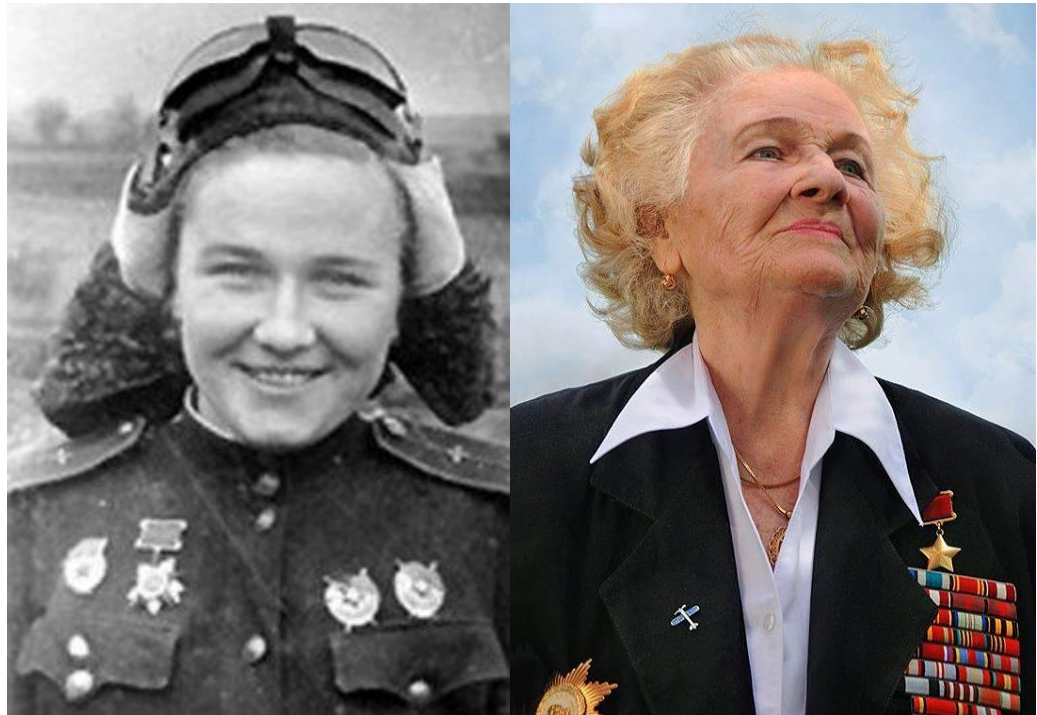
their male colleagues, the women did, however, receive larger soap rations.

The night bombers, perhaps the most feared of the three women's regiments. Their planes, rickety two-seaters made of plywood and canvas, were jerry-rigged as bombers.

The pilots achieved a degree of surprise by shutting down their engines in the last stages of their bomb runs; the Germans heard only the hiss of the air flowing across their wings and, likening the sound to that of a broomstick in flight, referred to the women as Night Witches. The Russian women who piloted those planes, onetime crop dusters, took it as a compliment. In 30,000 missions over four years, they dumped 23,000 tons of bombs on the German invaders, ultimately helping to chase them back to Berlin. Any German pilot who downed a 'witch' was awarded an Iron Cross.

One of the most famous "Night Witches," Nadezhda Popova, pictured with her medals. Popova, flew 852 missions during the war, including one memorable night where she flew 18 separate missions, passed away in 2013 at the age of 91.

Ms. Popova, who died at 91 on July 8 in Moscow, was inspired both by patriotism and a desire for revenge. Her brother was killed shortly after the Germans swept into the Soviet Union in June 1941, and the Nazis had commandeered their home to use as a Gestapo police station.

As the war began, Moscow barred women from combat, and Ms. Popova was turned down when she first tried to enlist as a pilot. "No one in the armed services wanted to give women the freedom to die," she said.

These young heroines, all volunteers and most in their teens and early 20s, became legends of World War II but are now largely forgotten. Flying only in the dark, they had no parachutes, guns, radios or radar, only maps and compasses. If hit by tracer bullets, their planes would burn like sheets of paper."

They women generally ranged in age from 17 to 26. Ms. Popova was 19 when she joined the pilots and became "one of the best, and one of the luckiest," according to the Moscow Times.

Their uniforms were hand-me-downs from male pilots. Their faces froze in the open cockpits. "Almost every time we had to sail through a wall of enemy fire." Each night, the 40 or so two-woman crews flew 8 or more missions — sometimes as many as 18. "When the wind was strong it would toss the plane. In winter when you'd look out to see your target better, you got frostbite, our feet froze in our boots, but we carried on flying," she said. "If you give up nothing is done and you are not a hero. Those who gave in were gunned down and they were burned alive in their craft as they had no parachutes."

Her delight at being accepted into the 588th Night Bomber Regiment gave way to steely seriousness after her first mission, in which a Soviet plane was destroyed, killing two friends. She dropped her bombs on the dots of light below. "I was ordered to fly another mission immediately," she told Russian Life magazine in 2003. "It was the best thing to keep me from thinking about it."

Once, she watched four planes crash, carrying eight women to their deaths. "What a nightmare," she said decades later, "poor girls, my friends, only yesterday we had slept in the bunks together."

Ms. Popova remarked that perhaps she was born lucky. One time, she counted 42 bullet holes in her plane. "Katya, my dear," she said to her navigator, "we will live long."

Ms. Popova became adept at her unit's tactics. Planes flew in formations of three. Two would go in as decoys to attract searchlights, then separate in opposite directions and twist wildly to avoid the antiaircraft guns. The third would sneak to the target through the darkness. They would then switch places until each of the three had dropped the single bomb carried beneath each wing.

The pilots' skill prompted the Germans to spread rumors that the Russian women were given special injections and pills to "give us a feline's perfect vision at night," Ms. Popova told Mr. Axell. "This was nonsense, of course," she continued. "What we did have were clever, educated, very talented girls."

The Po-2 biplanes flown by the Night Witches had an advantage over the faster, deadlier German Messerschmitts: their maximum speed was lower than the German planes' stall speed, making them hard to shoot down. The Po-2s were also exceptionally maneuverable. Still, Ms. Popova was shot down several times, although she was never hurt badly.

Once, after being downed, she found herself in a horde of retreating troops and civilians. In the crowd was a wounded fighter pilot, Semyon Kharlamov, reading "And Quiet Flows the Don," Mikhail A. Sholokhov's epic Soviet novel. They struck up a conversation, and she read him some poetry. They eventually separated but saw each other again several times during the war. At war's end, they met at the Reichstag in Berlin and scribbled their names on its wall. They soon married.

Mr. Kharlamov died in 1990. Ms. Popova, who lived in Moscow and worked as a flight instructor after World War II, is survived by her son, Aleksandr, a general in the Belarussian Air Force.

Ms. Popova was named Hero of the Soviet Union, the nation's highest honor. She was also awarded the Gold Star, the Order of Lenin and the Order of the Red Star.

"I sometimes stare into the blackness and close my eyes," Ms. Popova said in 2010. "I can still imagine myself as a young girl, up there in my little bomber. And I ask myself, 'Nadia, how did you do it?' "

To read more about her incredible story, visit http://nyti.ms/JbnOMC

Historic Heroines

There were many other courageous women (and men) throughout the war, many of whom were not soldiers. Such as Irena Sendler. She got permission to work in the Warsaw Ghetto as a plumber. She courageously smuggled Jewish babies in her tool box and carried larger children in her sack. Others were taught to cling tightly to her leg, and she walked out with them hidden under her skirts. She helped save more than 2,500 children.

She also trained her dog to bark when the Nazi soldiers were near, which muffled the sounds of the crying children. She provided them with false documents and found hiding places in individual and group children houses out of the Ghetto. In German-occupied Poland, all household members were punished by death if a hidden Jew was found in their house.

She kept lists of the names, hidden in jars buried in her garden, in order to keep track of original and new identities.

Arrested in 1943 by the Gestapo, she was severely tortured and sentenced to death. Zegota saved her by bribing the German guards on the way to her execution. Officially, she was listed on public bulletin boards as among those executed. Even in hiding, she continued her work for the Jewish children. Sendler was nominated for the Nobel Peace Prize but was not selected. Al Gore won that year for his presentation on global warming.

World War Games: Plane Play

Once students have made reproduction planes, why not have students play the beautifully constructed **Battle of Britain: 303 Squadron** game at http://www.channel4.com/programmes/battle-of-britain-303-squadron. The Battle of Britain was when the German Luftwaffe (planes) attacked Britain and the Royal Airforce (RAF) fought back and won! The 303 Squadron was made up of Polish pilots and they helped Britain win the Battle of Britain against the Germans. In this game, students take control of the heroic Polish airmen of the RAF during World War II and play with or against other students in multiplayer mode.

And/Or Strafe!

Fly for five participating air forces and climb behind the controls of over 30 different aircraft. Work together with your wing men and fight the Battle of Britain, participate in the invasion at Normandy and move deep into the heart of the Reich.

Strafe is the aerial combat game packed with non-stop action. Use all your cunning, tactics and skills to overcome wave after wave of incoming enemy aircraft including famous aircraft like the Supermarine Spitfire, Messerschmitt BF109, North-American Mustang, Douglas DC3 Dacota and the very first jet fighters to ever see action.

Supported by original historical footage Strafe explains all the actual areal events of the western front during the Second World War. Watch your six and learn what is meant by "Always outnumbered but NEVER outgunned!"

http://freecoolmathgames.com/action/strafe-ww2-western-front/

BATTLE of BRITAIN
= 303 SQUADRON =
WWW.303SQUADRONGAME.COM

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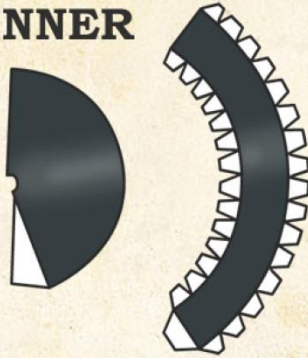
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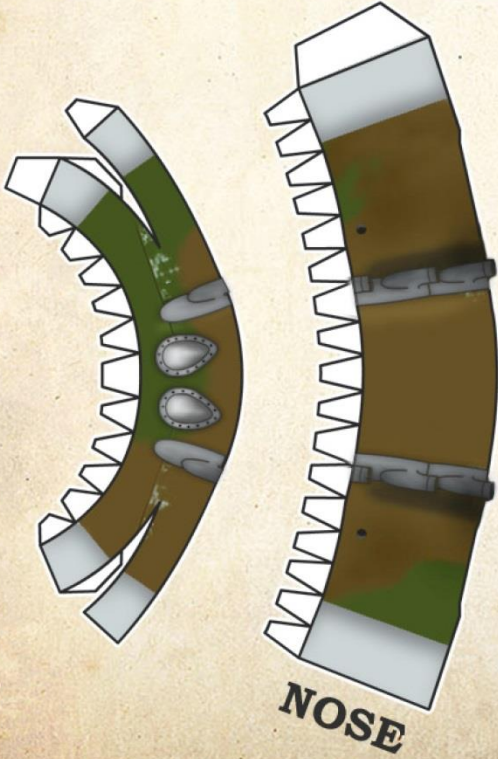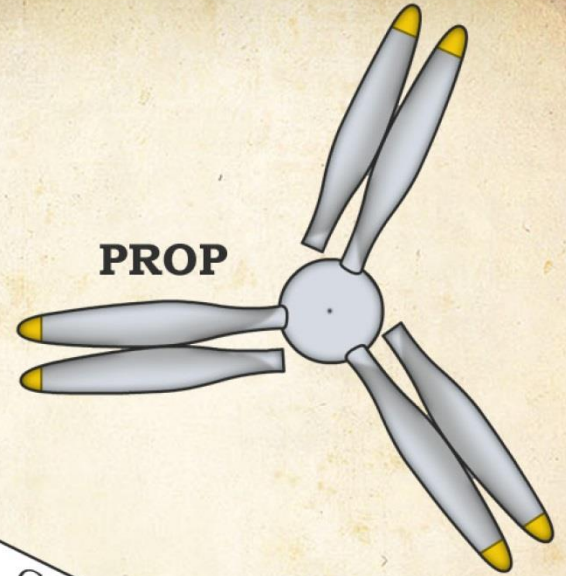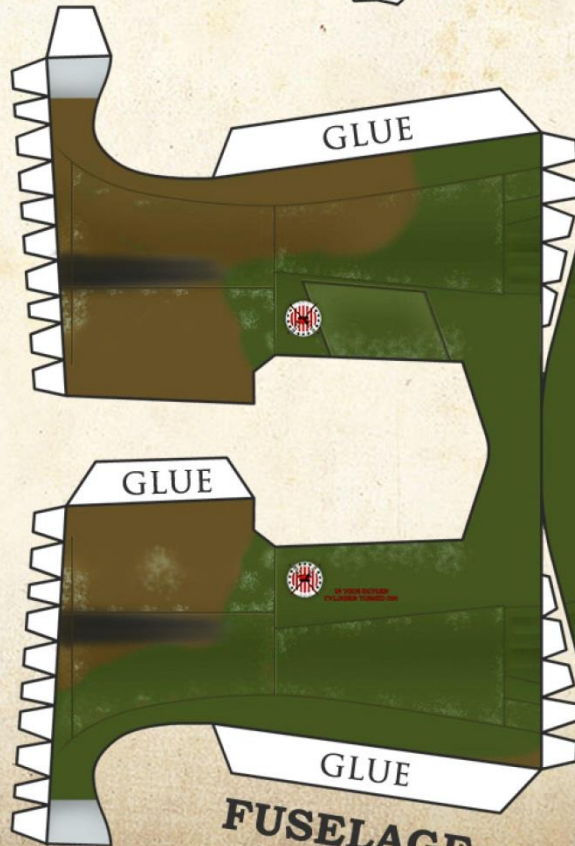
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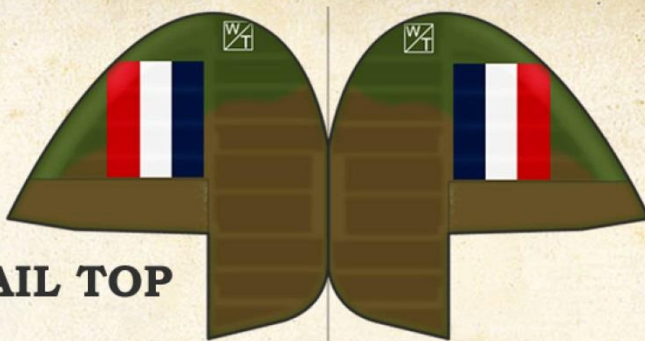
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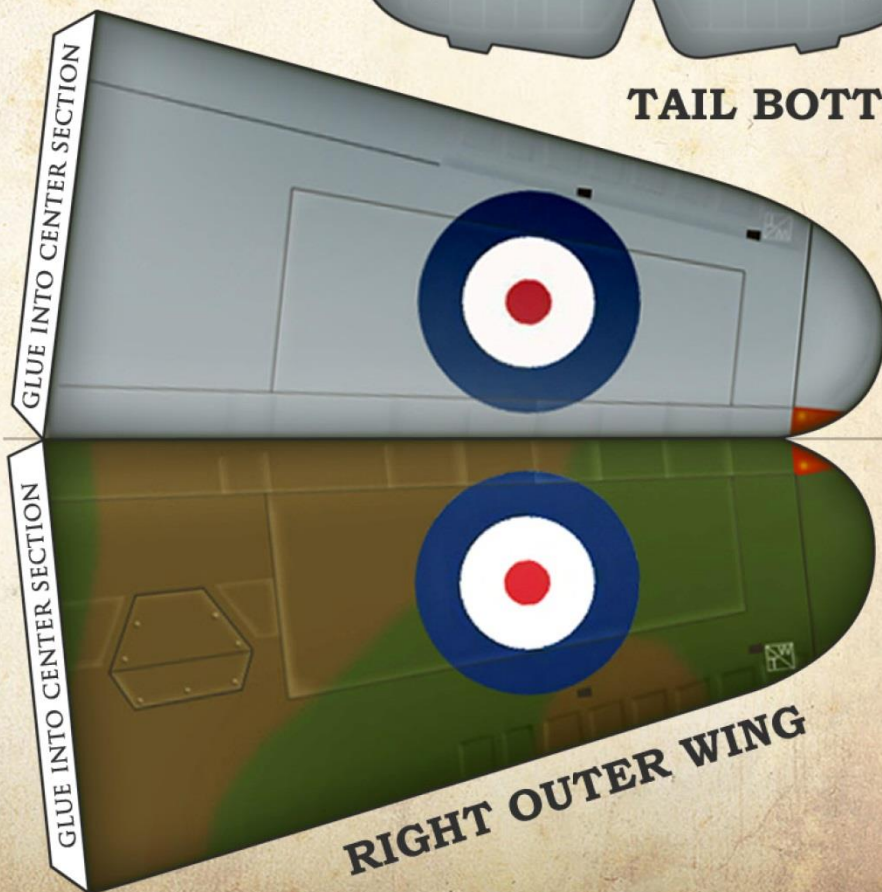
RIGHT OUTER WING

fishinabottle

BATTLE of BRITAIN

= 303 SQUADRON =

WWW.303SQUADRONGAME.COM

CENTER SECTION

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= 303 SQUADRON =

AIRCRAFT STAND

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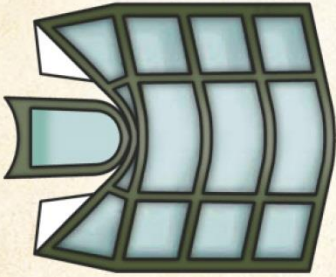GLUE

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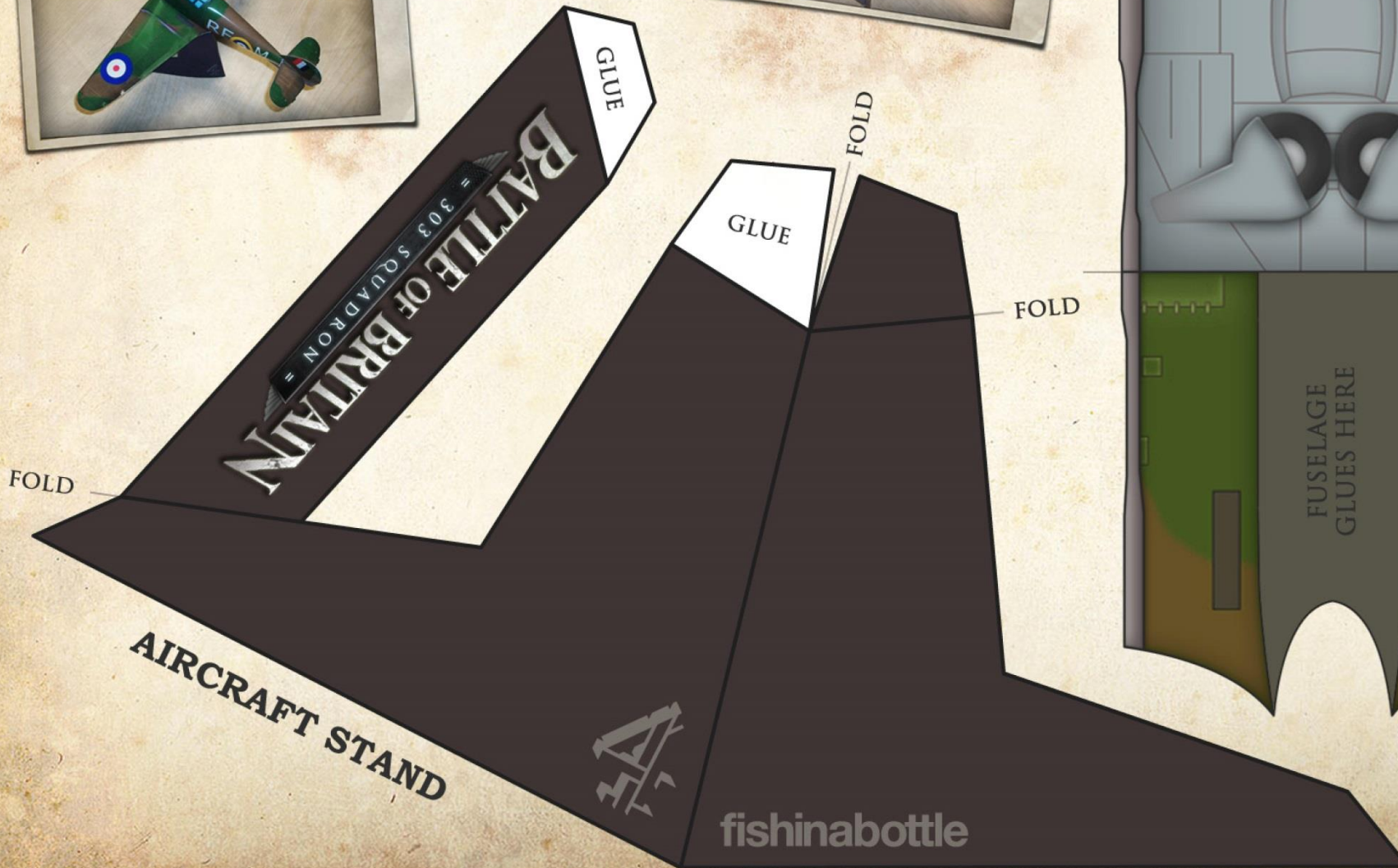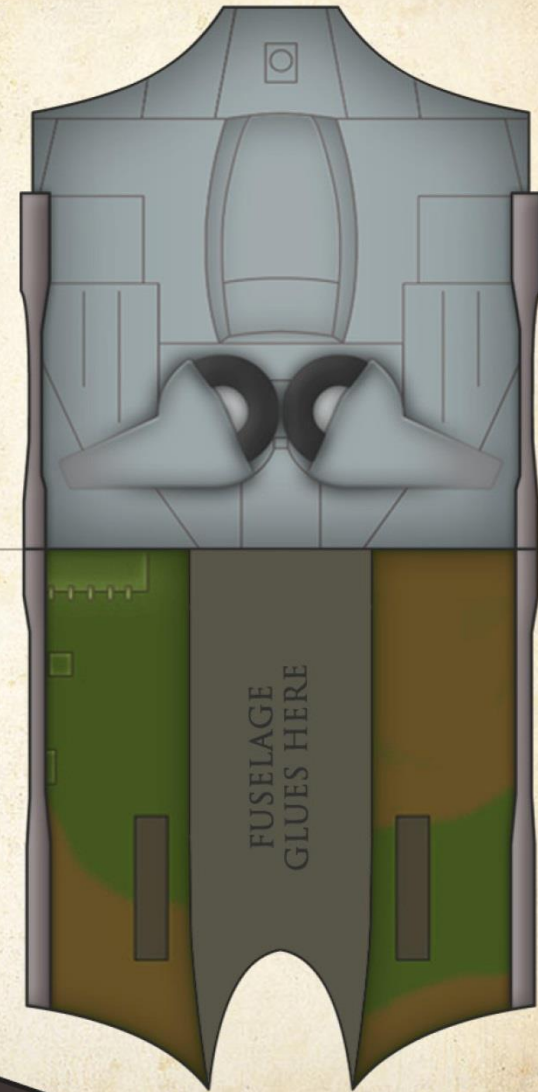
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fishinabottle

BATTLE OF BRITAIN
= 303 SQUADRON =
WWW.303SQUADRONGAME.COM

ASSEMBLE TAIL
AS SHOWN

BEND OUT
AND GLUE
TAIL WHEEL

FORM AND
GLUE CANAOPY

CAREFULLY ROLL
AND FORM FUSELAGE

TYPICAL
CROSS
SECTION

ATTACH OUTER WINGS TO
CENTER SECTION

NOSE, PROP AND
SPINNER ASSEMBLY

fishinabottle

Day Two K-8 Standard Alignment

K

K.6.01 e. Explain the consequences of an individual's decisions and actions.

K.6.01 b. Know that individuals choose jobs that impact their lives, families and communities.

These standards will be met and reinforced as we study and discuss the lives and impact of those like Nadezhda Vasilyevna Popova and Irena Sendler.

1

1.5.01. c. Identify contributions of diverse historical figures that have influenced their community, state, nation, and/or the world.

1.5.02 Understand the place of historical events in the context of past, present, and future.\

These standards will be met and reinforced as we study and discuss the lives and impact of those like Nadezhda Vasilyevna Popova and Irena Sendler.

2

2.5.02 Understand the place of historical events in the context of past, present, and future.

2.6.01 Recognize the impact of individual and group decisions on citizens and communities.

These standards will be met and reinforced as we study and discuss the lives and impact of those like Nadezhda Vasilyevna Popova and Irena Sendler.

3

3.6.01 Recognize the impact of individual and group decisions on citizens and communities.

3.5.01 Identify major people, events, and issues in United States and world history.

These standards will be met and reinforced as we study and discuss the lives and impact of those like Nadezhda Vasilyevna Popova and Irena Sendler.

4

4.6.01 Recognize the impact of individual and group decisions on citizens and communities.

4.6.01a. Identify leadership qualities of leaders of the past.

These standards will be met and reinforced as we study and discuss the lives and impact of those like Nadezhda Vasilyevna Popova and Irena Sendler.

5

5.6.01a Recognize the impact of individual and group decisions on citizens and communities.

5.6.01c. Identify and describe factors that either contribute to cooperation or cause disputes within and among groups and actions.

These standards will be met and reinforced as we study and discuss the lives and impact of those like Nadezhda Vasilyevna Popova and Irena Sendler.

6

6.6.01 Understand the impact of individual and group decisions on citizens and communities.

6.6.02 a. Identify and describe ways family, groups, and community influence the individual's daily life and personal choices

These standards will be met and reinforced as we study and discuss the lives and impact of those like Nadezhda Vasilyevna Popova and Irena Sendler.

7

7.6.02 Understand how individuals and groups can effect change and have an impact at local, regional, and global levels.

7.6.01 Understand the impact of individual and group decisions on citizens and communities.

These standards will be met and reinforced as we study and discuss the lives and impact of those like Nadezhda Vasilyevna Popova and Irena Sendler.

8

8.6.02 Understand how individuals and groups can effect change and have an impact at local, regional, and global levels.

8.6.01 Recognize the impact of individual and group decisions on citizens and communities.

These standards will be met and reinforced as we study and discuss the lives and impact of those like Nadezhda Vasilyevna Popova and Irena Sendler.

unit six: day three:

Why Weren't We Ready?

With war so widely expected, why was America so woefully ill-prepared? How did American intelligence fail to give warning of the devastating Japanese attack on Pearl Harbor, nearly three years into World War Two? In 1941 America was not ready for war. With US forces queuing (lining up) for arms alongside Britain and Russia, Roosevelt knew he needed more time to build America's military capacity. If war was to come, he wanted Japan to be seen to be the aggressor, but Roosevelt was in no hurry.

Furthermore, he saw Germany as America's main enemy. This 'Europe first' strategy was affirmed with Churchill at the Arcadia conference in late December 1941. Roosevelt had already pushed neutrality to the limit and had assigned warships to accompany convoys in the Atlantic. War with Germany was only a matter of time: why choose to fight another with Japan?

The real crime was one of incompetence (lack of skill) on a huge scale. After all, the US had broken Japan's diplomatic codes and could sometimes decode messages faster than the Japanese themselves, the security of the nation depends on successful code breaking. The problem was not raw data, but its interpretation, evaluation and communication: it had to be used properly. This did not happen. Using the knowledge always presented problems as well, because any too blatant response to it would cause the Germans or Japanese to suspect their messages were being read, the code would change, and an opportunity to learn would be lost as the next code had to be broken.

Historians credit the "breaking" of the German Enigma code by British agents during World War II for having shortened the war by nearly two years. While the Enigma Machine was initially created in 1923

by Arthur Scherbius, a German entrepreneur and engineer seeking to provide business owners with a secure form of communication, the machine quickly became the tool of choice for military operations. Before its invention, military operatives had little choice but to rely on paper and pencil encryption techniques that often led to security breaches. During World War I and II, alliances spread across continents required a more uniform and stable form of secret communication. By 1924, German military units were using the Enigma code breaking machine in an effort to protect messages from enemies.

CODE BREAKING FOR YOUNG SECRET AGENTS

To prepare students for understanding the contribution codes and of the Navajo code talkers during World War II:

• Invite partners to make up a simple, secret code using a combination of letters, numbers, symbols, or pictures. Some students may want to use their native language to create a code. Then have them create a message using their code for their partner to guess. Afterward, ask students how difficult was it to "crack the code." Why?

Then explain: You just used secret codes to play a game. During World War II, however, understanding codes was as important as life or death.

The world of secret codes holds a fascinating air of mystery with secret agents trying to discover the enemy's plans before the enemy uncovers theirs. The Spartans are credited with creating the first system of military secret codes, or secret ciphers, as they are sometimes called. This is why the study of secret codes and methods of breaking these codes is called Cryptology, from the Greek kryptos meaning hidden or secret.

Codes have been used throughout history whenever people wanted to keep messages private. In American history, George Washington sent coded messages to his agents, and the Culper Spy ring used codes to communicate with each other. Members of the Continental Congress also encoded their documents and we've talked a bit about the Enigma decoding machine and the role it played in World War II.

One example of a secret code method is called a **Keyword Cipher**

With this secret code keyword is placed at the beginning and this shifts the remaining letters of the alphabet, not used in the keyword, to the right. The letters that are not used in the keyword are placed in line in alphabetical order.

For example if the keyword was JAMESBOND the code would read as follows:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
J	A	M	E	S	B	O	N	D	C	F	G	H	I	K	L	P	Q	R	T	U	V	W	X	Y	Z

To code the message: SEND HELP QUICKLY

The code for this is: RSIE NSGL PUDMFGY

Have students try to create their own codes using keywords they make up. Can other students break it?

Navajo Code Talkers

Literature Link: It may be helpful to choose a book such as *Warriors: Navajo Code Talkers* by Kenji Kawano to help bring the stories and people behind them to life for students. *["When I was going to boarding school, the U.S. government told us not to speak Navajo," recalls Teddy Draper Sr. of Chinle, Arizona, "but during the war, they wanted us to speak it!" Speaking their native language--which the Japanese could not decode--*

WARRIORS
NAVAJO CODE TALKERS

PHOTOGRAPHS BY KENJI KAWANO
FOREWORD BY CARL GORMAN, CODE TALKER · INTRODUCTION BY BENIS M. FRANK, USMC
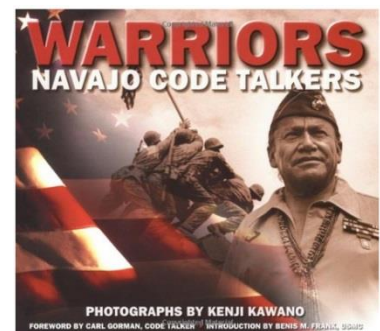
Navajo soldiers were instrumental in U.S. marine victories in the Pacific during World War II, relaying vital information between the front lines and headquarters. Kenji Kawano, a native Japanese photographer whose black and white images of surviving "code talkers" are unusual for their sensitivity, notes with some irony that these soldiers were his father's enemies at one time.]

As hard as the United States was working hard to break codes created by the enemy, they were also trying to create their own unbreakable code. The American offensive in the Pacific during World War II [was] hampered by the Japanese ability to crack the most secret U.S. Codes. In United States history, the story of Native Americans is predominantly tragic. But, during World War II, the U.S. government needed the Navajos' help. And the Navajos proudly answered the call to duty.

Communication is essential during any war and World War II was no different. From battalion to battalion or ship to ship - everyone must stay in contact to know when and where to attack or when to fall back. If the enemy were to hear these tactical conversations, not only would the element of surprise be lost, but the enemy could also reposition and get the upper hand. Codes (encryptions) were essential to protect these conversations.

Navajo code talkers (and cousins), Preston and Frank Toledo at Ballarat, Australia. (July 7, 1943). Picture from the Smithsonian, courtesy of the National Archives.

Unfortunately, though codes were often used, they were also frequently broken. For example, what if an out of the way station would report in, 'Nothing to report' every morning using the new code. That would give the enemy a key to the cipher.

In 1942, a man named Philip Johnston thought of a code he thought unbreakable by the enemy. A code based on the Navajo language. The son of a Protestant missionary, Philip Johnston spent much of his childhood on the Navajo reservation. He grew up with Navajo children, learning their language and their customs. As an adult, Johnston became an engineer for the city of Los Angeles but also spent a considerable amount of his time lecturing about the Navajos.

Then one day, Johnston was reading the newspaper when he noticed a story about an armored division in Louisiana that was attempting to come up with a way to code military communications using Native American personnel. This story sparked an idea. In February 1942, Philip Johnston approached Major James E. Jones, Force Communications Officer at Camp Elliot in San Diego, with a plan to use the **Navajo language for battlefield** radio transmissions. The son of a Protestant missionary, Johnston had lived among the Navajos for more than twenty years, and, during that time, gained fluency in the native language. He explained to Major Jones that the Navajos spoke a language unlike any other Indians and added that less than a dozen anthropologists had ever studied that part of Navajo culture. Even German scholars who visited Indian communities in the 1930s, including the Nazi propagandist Dr. Colin Ross, ignored the Navajo language. In essence, this peculiar language seemed safe from enemy understanding if incorporated into the Marine Corps' communication structure.

Johnston convinced Major Jones of the possible worth of his idea, and before the week's end, the Marine Corps extended Johnston the opportunity for a demonstration. On the morning of February 28, the former missionary's son and four Navajos arrived at Camp Elliot.

Major Jones gave them six messages normally communicated in military operations and instructed the group to assemble forty-five minutes later at division headquarters. With such a short time to devise a basic code, the Navajos worked feverishly. At 9:00 A.M. Johnston and the four Indians appeared before Jones, General Clayton B. Vogel, and others to conduct their demonstration. Within seconds, the six messages were transmitted in Navajo, received, decoded, and correctly relayed to Major Jones.

"It goes in, in Navajo? And it comes out in English?" questioned one rather surprised officer. In later tests, three code experts attached to the United States Navy failed to decipher "intercepted"

382nd PLATOON U.S.M.C. SAN DIEGO 1942
U.S. MARINES — FIRST TO FIGHT

transmissions; the system "seemed foolproof." Both Jones and Vogel were immensely impressed.

Over the following days, the merits of an Indian code-talking program gathered interest with General Vogel's staff. The demonstration was a success and Major General Vogel sent a letter to the Commandant of the United States Marine Corps recommending that they enlist 200 Navajos for this assignment. In response to the request, they were only given permission to begin a "pilot project" with 30 Navajos and formed the 382nd Platoon for the Indian specialists and the original complement of code talkers was formed.

The Indian recruits received basic training and advanced infantry training in San Diego before they were informed of their particular task. Many of these young Navajos had never been off the reservation, making their transition to military life even more difficult. Yet they persevered. To a man, the Indians responded enthusiastically and began the construction of a code. They worked night and day helping to create the code and to learn it. The initial problem centered on the transfer of military terms and phrases to the Navajo language.

This proved especially difficult since most of the terms to be encoded had no counterpart among Indians. It was recognized that coded expressions demanded simplicity. Under combat conditions, rapid transmission and translation was critical. Instead of adding the direct term "machine gun" to the Navajo language, they would designate a word or two already in the Navajo language for the military term. Lengthy phrases, or those difficult to remember, might prove too time consuming and, therefore, counterproductive. To avert perplexity, the Navajos selected words that held direct association with nature or with their common reservation life. For example, the term for "machine gun" became "rapid-

fire gun," the term for "battleship" became "whale," and the term for "fighter plane" became "hummingbird."
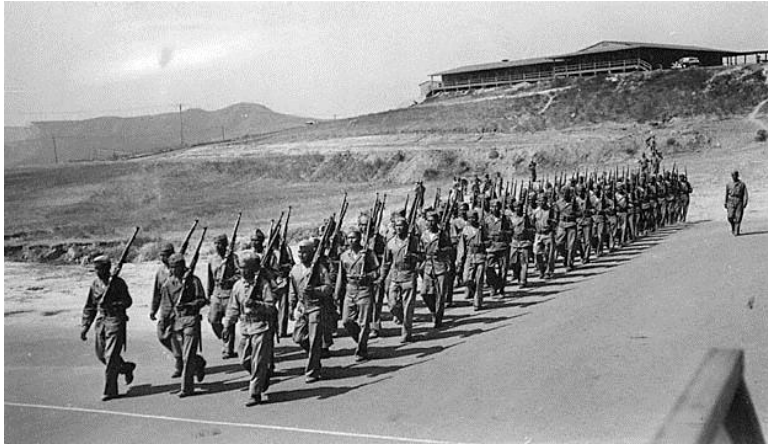
Once the code was created, the Navajo recruits were tested and re-tested. There could be no mistakes in any of the translations. One mistranslated word could lead to the death of thousands. The initial code consisted of translations for 211 English words most frequently used in military conversations. Included in the list were terms for officers, terms for airplanes, terms for months, and an extensive general vocabulary. Also included were Navajo equivalents for the English alphabet so that the code talkers could spell out names or specific places.

Two methods of communication emerged. The first rested squarely on a "words for alphabet" system. Certain terms, particularly names, could not easily be given a specific code word. Simply trying to affix an Indian word to each of the Pacific islands on which Marines would land proved futile.

Under the alphabet method, each of the twenty-six letters of the English alphabet would be represented by an Indian term. For example, the island Tarawa would be transmitted as "turkey-ant-rabbit-ant-weasel-ant." In Navajo, the words would be pronounced "Than-zie, wol-la-chee, gah, wol-lo-chee, gloe-ih, wol-la-chee." To avoid repetition, which would make the code penetrable, letters carried multiple terms.

The letter "a" also stood for apple (be-la-sana) and axe (tse-nihl). A "t" was represented by tea (dah) and tooth (awoh). In this fashion, the code talkers created forty-four words for letters in the alphabet, the most numerous variations given to those vowels and consonants most frequently repeated. Tarawa, then, might be coded as "dah, be-la-sana, dah-nas-tsa, tse-nihl, glowih, wol-la-chee."

Due to concerns about repetition leading to code breaking, an additional 200 words and additional Navajo equivalents for the 12 most often used letters (A, D, E, I, H, L, N, O, R, S, T, U) were added. The code, now complete, consisted of 411 terms.

On the battlefield, the code was never written down, it was always spoken. In training, they had been repeatedly drilled with all 411 terms. The Navajo code talkers had to be able to send and receive the code as fast as possible. There was no time for hesitation. Trained and now fluent in the code, the Navajo code talkers were ready for battle.

Once the first 29 were trained, two remained behind to become instructors for future Navajo code talkers and the other 27 were sent to Guadalcanal to be the first to use the new code in combat.

In addition, Philip Johnston petitioned the Marine Corps for his own enlistment as training specialist at a noncommissioned rank. Having not gotten to participate in the creation of the code because he was a civilian, Johnston volunteered to enlist if he could participate in the program. His offer was accepted and Johnston took over the training aspect of the program. Though already in his forties, the Marine Corps accepted his offer.

The program proved successful and soon the U.S. Marine Corps authorized unlimited recruiting for the Navajo code talkers program. The entire Navajo nation consisted of 50,000 people and by the end of the war 420 Navajo men worked as code talkers.

On the Battlefield

Unfortunately, when the Navajo code was first introduced, military leaders in the field were skeptical. Many of the first recruits had to prove the codes' worth. However, with just a few examples, most commanders were grateful for the speed and accuracy in which messages could be communicated.

From 1942 until 1945, Navajo code talkers participated in numerous battles in the Pacific, including Guadalcanal, Iwo Jima, Peleliu, and Tarawa. They not only worked in communications but also as regular soldiers, facing the same horrors of war as other soldiers.

However, Navajo code talkers met additional problems in the field. Too often, their own soldiers

mistook them for Japanese soldiers. Many were nearly shot because of this. The danger and frequency of misidentification caused some commanders to order a bodyguard for each Navajo code talker.

"For three years, wherever the Marines landed, the Japanese got an earful of strange gurgling noises interspersed with other sounds resembling the call of a Tibetan monk and the sound of a hot water bottle being emptied.

Huddled over their radio sets in bobbing assault barges, in foxholes on the beach, in slit trenches, deep in the jungle, the Navajo Marines transmitted and received messages, orders, vital information. The Japanese ground their teeth and committed hari-kari.[*]"

The Navajo code talkers played a large role in the Allied success in the Pacific. The Navajos had created a code the enemy was unable to decipher. It proved to be the only unbreakable spoken code in military history. Though it wouldn't be until the 1980s when these brave men began to receive the recognition they deserved.

Note: In June of 2014, Chester Nez, the last surviving original Navajo Code Talker passed away.

* Excerpt from the September 18, 1945 issues of the San Diego Union as quoted in Doris A. Paul, The Navajo Code Talkers (Pittsburgh: Dorrance Publishing Co., 1973) 99.

Code Talking

Provide each student with a list of Navajo code talker words, along with the pronunciation, to write a message using the code talking. Talk about the reason why it was important for the code talkers to use more than one Navajo word for each English letter, which was to make it harder to see patterns in the code. When all the students have finished their messages, have each student say his or her message one or more times, slowly and clearly. See if anyone can tell what everyone's message is by having them write down the message and decode it.

Example:

Wol-la-chee	Gah	Na-as-tso-si	Tsah-as-zih
A	R	M	Y

In cooperative groups, students have students create messages using the dictionary then exchange papers to decode other groups messages.

Original Navajo Code

The following is a list of 263 terms created by the first 32 Navajos enrolled in the Marine Corps Communication School located at Camp Elliott.

Alphabet

Alphabet	Navajo	Meaning
A	Wol-la-chee	Ant
B	Shush	Bear
C	Moasi	Cat
D	Be	Deer
E	Dzeh	Elk
F	Ma-e	Fox
G	Klizzie	Goat
H	Lin	Horse
I	Tkin	Ice
J	Tkele-cho-gi	Jackass
K	Klizzie-yazzie	Kid
L	Dibeh-yazzie	Lamb
M	Na-as-tso-si	Mouse
N	Nesh-chee	Nut
O	Ne-ahs-jah	Owl
P	Bi-sodih	Pig
Q	Ca-yeilth	Quiver
R	Gah	Rabbit
S	Dibeh	Sheep
T	Than-zie	Turkey
U	No-da-ih	Ute
V	A-keh-di-glini	Victor
W	Gloe-ih	Weasel
X	Al-an-as-dzoh	Cross
Y	Tsah-as-zih	Yucca
Z	Besh-do-gliz	Zinc

Military Designations

Word	Navajo	Literal Translation
Corps	Din-neh-ih	Clan
Division	Ashi-hi	Salt
Regiment	Tabaha	Edge-water
Battalion	Tacheene	Red Soil
Company	Nakia	Mexican
Platoon	Has-clish-nih	Mud
Section	Yo-ih	Beads
Squad	Dibeh-li-zini	Black Sheep

Communications

Word	Navajo	Literal Translation
Telephone	Besh-hal-ne-ih	Telephone
Switchboard	Ya-ih-e-tih-ih	Central
Wire	Besh-le-chee-ih	Copper
Telegraph	Besh-le-chee-ih Be-hane-ih	Communication By Copper Wire
Semaphore	Dah-ha-a-tah-ih Be-hane-ih	Flag Signals
Blinker	Coh-nil-kol-lih	Fire Blinder
Radio	Nil-chi-hal-ne-ih	Radio
Panels	Az-kad-be-ha-ne-ih	Carpet Signals

Officers

Word	Navajo	Literal Translation
Brigadier General	So-a-la-ih	One Star
Major General	So-na-kih	Two Stars
Colonel	Astah-besh-le-gai	Silver Eagle
Lt. Colonel	Che-chil-be-tah-besh-le-gai	Silver Oak Leaf
Major	Che-chil-be-tah-ola	Gold Oak Leaf
Captain	Besh-le-gai-nah-kih	Two Silver Bars
1st Lieutenant	Besh-le-gai-a-lah-ih	One Silver Bar

2nd Lieutenant	Ola-alah-ih-ni-ahi	One Gold Bar

Airplanes

Word	Navajo	Literal Translation
Airplanes	Wo-tah-de-ne-ih	Air Corps
Dive Bomber	Gini	Chicken Hawk
Torpedo Plane	Tas-chizzie	Swallow
Observation Plane	Ne-as-jah	Owl
Fighter Plane	Da-he-tih-hi	Hummingbird
Bomber	Jay-sho	Buzzard
Patrol Plane	Ga-gih	Crow
Transport Plane	Astah	Eagle

Ships

Word	Navajo	Literal Translation
Ships	Toh-dineh-ih	Water Clan Fleet
Battleship	Lo-tso	Whale
Aircraft Carrier	Tsidi-ney-ye-hi	Bird Carrier
Submarine	Besh-lo	Iron Fish
Mine Sweeper	Cha	Beaver
Destroyer	Ca-lo	Shark
Transport	Dineh-nay-ye-hi	Man Carrier
Cruiser	Lo-tso-yazzie	Small Whale
Mosquito Boat	Tse-e	Mosquito

Months

Word	Navajo	Literal Translation
January	Yas-nil-tes	Crusted Snow
February	Astah-be-yaz	Small Eagle
March	Woz-cheind	Squeaky Voice
April	Tsha-chill	Small Plant

May	Tah-tso	Big Plant
June	Be-ne-eh-eh-jah-tso	Big Planting
July	Be-ne-ta-tsosie	Small Harvest
August	Be-neen-ta-tso	Big Harvest
September	Ghan-jih	Half
October	Nil-chi-tsosie	Small Wind
November	Nil-chi-tso	Big Wind
December	Kesh-mesh	Christmas

Countries

Word	Navajo	Literal Translation
Alaska	Beh-hga	With Winter
America	Ne-he-mah	Our Mother
Australia	Cha-yes-desi	Rolled Hat
Britain	Toh-ta	Bounded By Water
China	Ceh-yehs-besi	Braided Hair
France	Da-gha-hi	Beard
Germany	Besh-be-cha-he	Iron Hat
Iceland	Tkin-ke-yah	Ice Land
India	Ah-le-gai	White Clothes
Italy	Doh-ha-chi-yali-tchi	Stutter
Japan	Beh-na-ali-tsoisi	Slant Eyed
Philippines	Keyah-da-na-ilhe	Floating Land
Russia	Sila-goche-ih	Red Army
South America	Sha-de-ah-ne-mah	South Our Mother
Spain	Debeh-de-nih	Sheep/Pain

General Vocabulary

Word	Navajo	Literal Translation
Action	Ah-ha-tinh	Action
Advance	Nas-say	Ahead

Airdrome	Nilchi-began	Air House
Alert	Ha-ih-des-ee	Watchful
Allies	Nih-hi-cho	Our Friends
Along	Wol-la-chee-snez	Long Ant
Also	Eh-do	Also
Alternate	Na-kee-go-ne-nan-dey-he	Second Position
Amphibious	Chal	Frog
And	Do	And
Annex	Ih-nay-tani	Addition
Approach	Bi-chi-ol-dah	Moving To
Are	Gah-tso	Large Rabbit
Armored	Besh-ye-ha-da-di-teh	Iron Protected
Arrive	Il-day	Came
Army	Lei-cha-ih-yil-knee-hi	Dog Faces
Artillery	Be-al-doh-tso-lani	Many Big Guns
As	Ache	Ace
Assault	Altseh-e-jah-he	First Strike
Attached	A-hid-day-tih	Attached
Available	Ta-shoz-teh-ih	Available
Battery	Bih-be-al-doh-tka-ih	Three Guns
Base	Bih-tsee-dih	Foundation
Be	Tses-nah	Bee
Been	Tse-nah-nesh-chee	Bee/Nut
Before	Bih-tse-dih	Prior
Begin	Ha-hol-ziz	Start
Belong	Tse-nah-snez	Long Bee
Block	Da-dey-than	Block
Bombs	A-ye-shi	Eggs
By	Be-gah	By
Camp	To-alsteh-hogan	Temporary House
Camouflage	Di-nesh-ih	Hide
Can	Yah-di-zini	Can
Cannoneer	Be-al-doh-tso-dey-dil-don-igi	Big Gun Operator
Capacity	Be-nel-ah	Capacity
Capitol	Tkah-chae	Sweat House

Captured	Yis-nah	Captured
Casualty	Bih-din-ne-day	Out Of Action
Class	Alth-a-a-teh	Class
Coast Guard	Ta-bas-dsissi	Shore Runner
Code	Yil-tas	Peck
Column	Alth-kay-ni-zih	Column
Combat	Da-ah-jih-gahn	Fighting
Combination	Al-tkas-ei	Mixed
Commander	Bih-keh-he	Senior
Commanding Officer	Hash-kay-gi-na-tah	War Chief
Concentrate	Ta-la-hi-jih	One Place
Confidential	Na-nil-in	Keep Secret
Conquered	A-keh-des-dlin	Won
Convoy	Tkal-kah-o-nei	Move On Water
Counter-attack	Woltah-al-ki-gi-jeh	Counter-act
Creek	Toh-nil-tsanh	Little Water
Debouchment	Dzilth-gahn-ih	Apache
Defense	Ah-kin-gil-toh	Defend
Department	Hogan	Central House
Dispositions	A-ho-tay	Disposition
Displace	Hih-do-nal	Move
Do	Tse-le	Small Pup
Echelon	Who-dzoh	Line
Engineer	Day-dil-jah-hi	Fire Builder
Enlist	Bih-zih-a-da-yi-lah	Signature
Escape	A-zeh-ha-ge-yah	Escape
Establish	Has-tay-dzah	Set Up
Estimate	Bih-ke-tse-shod-des-kez	Guess
Execute	A-do-nil	Will Happen
Fail	Cha-al-cind	Fail
Field	Clo-dih	Outside
Fire	Coh	Fire
Flank	Dah-di-kad	Side
Flare	Wo-chi	Light Streak
Grenades	Ni-ma-si	Potatoes

Guard	Ni-dih-da-hi	Guard
Have	Jo	Have
Headquarters	Na-ha-tah-ba-hogan	Main House
Hospital	A-zey-al-hi	Place Of Medicine
Install	Ehd-thah	Put In
Invade	A-tah-gi-nah	Move Into
Is	Seis	Seven
Island	Seis-keyah	Seven Land
Left	Nish-cla-jih	Left
Location	A-kew-eh	Spot
Machine Gun	A-knah-as-dinih	Rapid Fire Gun
Magnetic	Na-e-lahi	Pick Up Iron
Maneuver	Na-na-o-nalth	Move Around
Manufacture	Besh-be-eh-el-ih-dih	Metal Factory
Mechanic	Chiti-a-nayl-inih	Car Repairman
Message	Hane-al-neh	Message
Military	Sila-go-keh-goh	Soldiers
Mine	Ha-gade	Mine
Mortar	Be-al-doh-cid-da-hi	Sitting Gun
Navy	Tal-kah-sila-go	Sea Soldiers
Not	Ni-dah-than-zie	No/Turkey
Objective	Bi-ne-yei	Goal
Observed	Hal-zid	Seen
Occurred	Yeel-tsod	Taken
Of	Toh-ni-tkal-lo	Ocean Fish
Or	Eh-dodah-goh	Either
Order	Be-eh-ho-zini	Direct
Ordinance	Lei-az-iah	Underground
Overlay	Be-ka-has-tsoz	Over Lap
Parenthesis	Astanh	Rib
Penalize	Tah-ni-des-tanh	Set Back
Primary	Altseh-nan-day-hi-gih	1st Position
Proceed	Nay-nih-jih	Go
Protect	Ah-chanh	Self Defense
Railhead	A-do-geh-hi	Shipping & Receiving Point

Rally	A-lah-na-o-glalth	Gathering
Range	An-zeh	Distance
Reached	Baz-ni-tsood	Reached
Reconnaissance	Ha-a-cidi	Inspector
Reinforce	Nal-dzil	Reinforce
Relieved	Nah-jih-co-nal-ya	Remove
Replacement	Ni-na-do-nil	Replacement
Report	Who-neh	Got Words
Representative	Tka-naz-nili	Triple Men
Request	Jo-kayed-goh	Ask For
Retreat	Ji-din-ned-chanh	Move Back
River	Toh-yil-kal	Much Water
Route	Gah-bih-tkeen	Rabbit Trail
Runner	Nih-dzid-teih	Runner
Sabotage	A-tkel-yah	Hinder
Saboteur	A-tkel-el-ini	Troublemaker
Sailors	Cha-le-gai	White Caps
Seamen	Tkal-kah-dineh-ih	Seamen
Secret	Bah-has-tkin	Secret
Side	Bosh-keesh	Side
Signal	Na-eh-eh-gish	By Sign
Shell	Be-al-doh-be-ca	Shell
Short	Be-oh	Short
Space	Be-tkah	Between
Stream	Toh-ni-lin	Running Water
Submerged	Tkal-cla-yi-yah	Under Water
Submit	A-nih-leh	Send
Such	Yis-cleh	Socks
Supplementary	Tka-go-ne-nan-dey-he	3rd Position
Supply	Nal-yeh-hi	Supplyu
Territory	Ke-yah	Land
That	Than-zie-cha	Turkey Hat
The	Cha-gee	Blue Jay
There	Bih	There
They	Ni-ghai	They

Together	Ta-bil	With
Torpedo	Lobe-ca	Fish Shell
Tracer	Beh-na-al-kah-hi	Track
Traffic Diagram	Hane-ba-na-as-dzoh	Story Line
Troops	Nal-deh-hi	Troops
Unit	Da-az-jah	Bunch
Vicinity	Na-hos-ah-gih	There About
Was	Ne-teh	Was
Weapons	Beh-dah-a-hi-jah-geni	Weapons
Zone	Bah-na-has-dzoh	Area

Punctuation

Word	Navajo	Literal Translation
Colon :	Naki-alh-deh-da-al	Two Spots
Comma ,	Tsa-na-dahl	Tail
Dash -	Us-dzoh	Dash
Parenthesis ()	Astsanh	Rib
Period .	Da-ahl-zin	Black Spot
Question ?	Ah-jah	Ear
Semi Colon ;	Da-ahl-zhin Bi-tsa Na-dahl	Spot Tail

Day Three K-8 Standard Alignment

K

K.6.01 e. Explain the consequences of an individual's decisions and actions.

K.6.01 b. Know that individuals choose jobs that impact their lives, families and communities.

R.I.K.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

These standards will be met and reinforced as we study and discuss the lives and impact of the Navajo Code Talkers and Philip Johnston on the war efforts and work to create, code, and decode messages using the Navajo Code Talkers code. We'll discuss and practice how messages would be scripted, what the literal words were, and what the actual meaning was,

ex. what a hummingbird really meant, and how a single word could change the entire message in possibly dangerous/detrimental ways.

1

1.5.01. c. Identify contributions of diverse historical figures that have influenced their community, state, nation, and/or the world.

R.I.1.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

These standards will be met and reinforced as we study and discuss the lives and impact of the Navajo Code Talkers and Philip Johnston on the war efforts and work to create, code, and decode messages using the Navajo Code Talkers code. We'll discuss and practice how messages would be scripted, what the literal words were, and what the actual meaning was, ex. what a hummingbird really meant, and how a single word could change the entire message in possibly dangerous/detrimental ways.

2

R.I.2.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

2.6.01 Recognize the impact of individual and group decisions on citizens and communities.

These standards will be met and reinforced as we study and discuss the lives and impact of the Navajo Code Talkers and Philip Johnston on the war efforts and work to create, code, and decode messages using the Navajo Code Talkers code. We'll discuss and practice how messages would be scripted, what the literal words were, and what the actual meaning was, ex. what a hummingbird really meant, and how a single word could change the entire message in possibly dangerous/detrimental ways.

3

3.6.01 Recognize the impact of individual and group decisions on citizens and communities.

3.5.01 Identify major people, events, and issues in United States and world history.

R.I.3.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

These standards will be met and reinforced as we study and discuss the lives and impact of the Navajo Code Talkers and Philip Johnston on the war efforts and work to create, code, and decode messages using the Navajo Code Talkers code. We'll discuss and practice how messages would be scripted, what the literal words were, and what the actual meaning was, ex. what a hummingbird really meant, and how a single word could change the entire message in possibly dangerous/detrimental ways.

4

4.6.01 Recognize the impact of individual and group decisions on citizens and communities.

4.6.01a. Identify leadership qualities of leaders of the past.

R.I.K.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

These standards will be met and reinforced as we study and discuss the lives and impact of the Navajo Code Talkers and Philip Johnston on the war efforts and work to create, code, and decode messages using the Navajo Code Talkers code. We'll discuss and practice how messages would be scripted, what the literal words were, and what the actual meaning was, ex. what a hummingbird really meant, and how a single word could change the entire message in possibly dangerous/detrimental ways.

5

5.6.01a Recognize the impact of individual and group decisions on citizens and communities.

5.6.01c. Identify and describe factors that either contribute to cooperation or cause disputes within and among groups and actions.

R.I.5.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

These standards will be met and reinforced as we study and discuss the lives and impact of the Navajo Code Talkers and Philip Johnston on the war efforts.

6

6.6.01 Understand the impact of individual and group decisions on citizens and communities.

R.I.6.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

R.I.6.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

These standards will be met and reinforced as we study and discuss the lives and impact of the Navajo Code Talkers and Philip Johnston on the war efforts and work to create, code, and decode messages using the Navajo Code Talkers code. We'll discuss and practice how messages would be scripted, what the literal words were, and what the actual meaning was, ex. what a hummingbird really meant, and how a single word could change the entire message in possibly dangerous/detrimental ways.

7

7.6.02 Understand how individuals and groups can effect change and have an impact at local, regional, and global levels.

7.6.01 Understand the impact of individual and group decisions on citizens and communities.

R.I.7.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

These standards will be met and reinforced as we study and discuss the lives and impact of the Navajo Code Talkers and Philip Johnston on the war efforts and work to create, code, and decode messages using the Navajo Code Talkers code. We'll discuss and practice how messages would be scripted, what the literal words were, and what the actual meaning was, ex. what a hummingbird really meant, and how a single word could change the entire message in possibly dangerous/detrimental ways.

8

8.6.02 Understand how individuals and groups can effect change and have an impact at local, regional, and global levels.

8.6.01 Recognize the impact of individual and group decisions on citizens and communities.

R.I.8.4 Interpret words and phrases as they are used in a text, and analyze how specific word choices shape meaning or tone.

These standards will be met and reinforced as we study and discuss the lives and impact of the Navajo Code Talkers and Philip Johnston on the war efforts and work to create, code, and decode messages using the Navajo Code Talkers code. We'll discuss and practice how messages would be scripted, what the literal words were, and what the actual meaning was, ex. what a hummingbird really meant, and how a single word could change the entire message in possibly dangerous/detrimental ways.

unit six: day four

## *Make your own wallet-sized Code Machine by Paul Gardner-Stephen*

http://www.instructables.com/id/Make-your-own-wallet-sized-Enigmatm-like-Machine/step2/Getting-Started/

Aside from a fun spy gimmick (that turns out to be somewhat useful in real-life), the main interest is that it highlights the work that was done by the cryptographers during world war two at Bletchley Park to crack the German codes, and is generally acknowledged as shortening the war by perhaps two years. This work also resulted in some of the early and important advances in computing.

The device consists of two fixed rotors and a reflector, plus an outer index ring. This is somewhat simpler than the real Enigma machines that used three or four rotors which could be rearranged and selected from a selection, and generally featured a plug-board as well.

This version allows students to take a simple password and using the Enigma machine to encrypt it into a good quality random looking password or other word. It also has the advantage of turning a remembered password into what is known as "two factor authentication", where there is something you know (the password), and something you need (the Enigma machine). This means that if someone has only the Enigma machine or only the password, they still can't pretend to be you!
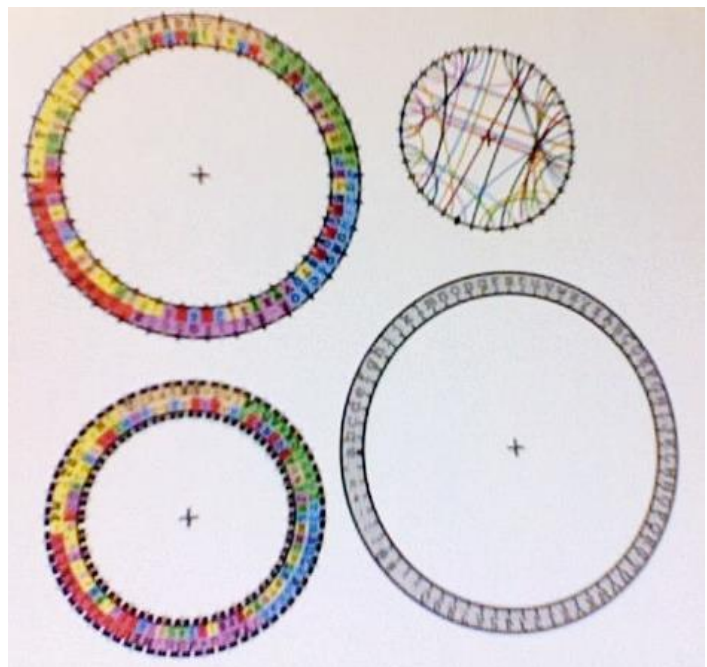
You will need (per coder):
1x thumb tack
1x small split pin

1x 50mm paper clip (that 2" if you are in the USA and still using UK measurements)
1x Amazing Wallet Size Enigma(tm)-Like Machine PDF file to print
1x A0 high-speed colour plotter connected to a CIA main-frame you have hacked, or failing that, your desktop computer and printer.
1x laminating machine to make the rotors more resilient (optional)

He says, "Since we are operating on a need-to-know basis, all I can provide was the PDF file." Actually, he provided two PDF files, so that students can make an amazing double-sided enigma-like machine. This means they will have two different wirings to choose from, doubling their key space, for the small cost of making the thing too fat to easily fit in your wallet!
(It seemed like a good idea at the time.)

You will also notice that the PDF files have two pages. The first page has enough wallet-sized rotors to make four whole machines. The second page has a double size set of rotors, so that students can make a much easier to read "desk version" if you like.

Cut out one or more sets of rotors, and laminate them if you are using a laminator.

If you are laminating them, make sure you leave at least 10mm (2/5") between the rotors so that you can cut them out with a few millimeters (about 1/8") around them so that they stay nice and strong.

Also, if you are laminating, after you cut the rotors out it can be helpful to cut a little nick or V shape into the index position (the double fat black or white mark on the outside of each rotor), so that you can (a) find it; and (b) use a finger nail to easily rotate it.
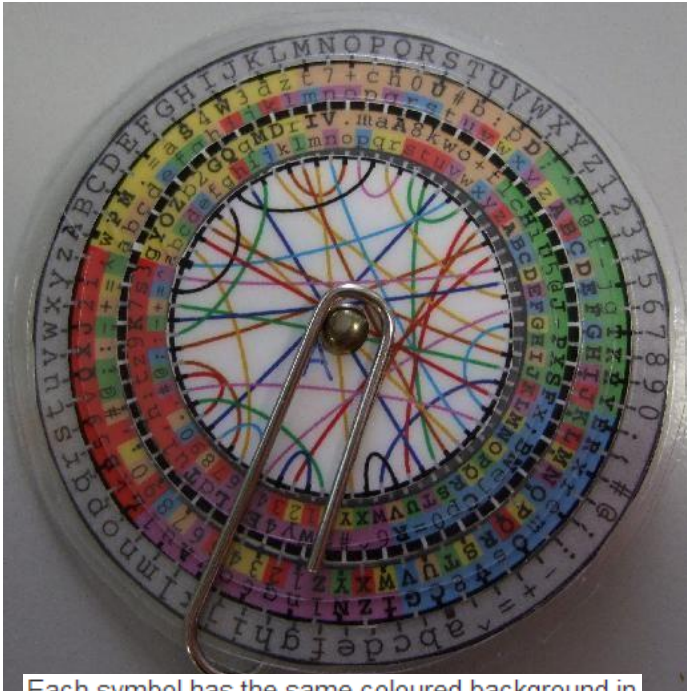
Put it together

This really just consists of first punching a hole EXACTLY in the center of each rotor with the thumb tack, and then threading them all together with the split pin.
Notice it said EXACTLY the centre? That's because it matters. If it is off center, then when the rotors spin around all sorts of non-linear things will happen, and basically you will end up in a lot of trouble. If necessary, re-print and make the rotors.

The thumb tack is the best way to make this hole, because it will be round. If you use the split pin to push through, it will make a slot, and when it rounds out, it will almost certainly not end up in the middle. Finally, when you are all done, slip the paper clip over the whole thing, with the smaller side over the head of the split pin. You might need to trim a little off the outer rotor if it won't fit.

The paper clip provides a bit of positive pressure on the rotors, thus increasing their friction. This makes it easier to turn one rotor without them all turning.

If all goes well, yours will look something like:

Okay, I've got this thing, and it looks cool and all, but how do I use it?

First, set the machine into your desired initial setting, which can be described with a 3 character sequence. In the first photo here, you can see that it is set to "CAT". (The index (fat) notch is lined up with the "C" on the grey outer index ring. The fat notch on the middle rotor is lined up with "A" on the outside index ring. The inner rotor is in position t.)

Each symbol has the same coloured background in both rings on each rotor. Capital letters are also in bold to help reduce confusion. The colours on the rotors help you to find the characters you are looking for a bit quicker.

There is a nice fast way to get nice random-looking passwords and encrypted words out of the thing in about 5 to 10 seconds, which is faster than the electronic password keepers. Apart from being unexpectedly practical, it also looks really cool.

You do it by setting the rotors to a 3 letter initial setting. In the photo it is set it to CAT. Then, a fourth letter is used to pick a slice of the wiring to use as the password. In the example they used "H", and thus a four letter group of "CATH", which yields that password "afQhONMx".

Make it even harder to crack by using only every other letter of the password (from the example that would be aQOM or fhNx), and doing it twice, i.e., using a total of 8 initialization letters in two lots of 4 (**CAT**H + **HAT**H) to obtain 4 password letters each time, and thus an 8 letter password over all.

(A) Notice that with the rotors in the AAA position that the grey ticks of the two outer rings coincide? By noting this (or the opposite when it occurs), we are able to resolve ambiguous rotor transitions that can result due to off-centre rotors or general wear and tear. Refer to box (4) for a description of how this works.

In this mode it is a simple substitution cipher.

Students can pull a password out using this method in perhaps 10 seconds, which is comparable to the electronic password device.

But there is a more complex way to use it, too...for a more secure and advanced nearly military grade encryption method have students follow the process described in all the little boxes in the second photo.

(http://www.instructables.com/file/FDG5IBQG145SURM) Note that in that photo the rotors are set to position "AAA".

Master Your Mind! Mastermind!

Mastermind is a two-player game. One player is the codemaster, the other is the codebreaker. The codemaster chooses a secret code, the codebreaker tries to crack it. Most Mastermind boards give players eight or 10 chances to correctly guess the code before requiring a forfeit.

Before you being to play, you need to decide how many possible letters there are in your code. The original Mastermind used codes made of four or five colored pegs. You could just as well use letters or numbers - but stick to codes of between 5 to 8 different letters, about 4 or 5 long.

Once the codemaster has chosen a code (it's a good idea to write it down somewhere the codebreaker can't see it!) the codebreaker starts to guess codes.

After each guess, the codemaster tells the codebreaker

- how many letters (or pegs or numbers) they got in the right places, and

- how many they got right, but in the wrong places.

For example, if your code was FBEF and I guessed BACF, you would tell me I got

- one letter right and in the right place (that's the last F, but you don't tell me that!)

- and one letter right but in the wrong place (you know it's the B, but you don't tell me!)

Students may need to be about 8 or 9 years old and up to properly understand the rules of the game, or think logically about what information the codemaster's responses gives them.

You just need a pencil and paper to play this game - one piece of paper for the codemaster record his or her code, another to record the guesses and responses. You can also buy boxed mastermind sets, of course! The linked website has a java applet that lets you [play mastermind against the computer](#), either as the codebreaker or the codemaster.

Variation (actually the original game): Bulls and Cows!

The numerical version of the game is usually played with 4 digits, but can also be played with 3 or any other number of digits.

On a sheet of paper, the players each write a 4-digit secret number. The digits must be all different. Then, in turn, the players try to guess their opponent's number who gives the number of matches. If the matching digits are on their right positions, they are "bulls", if the right number—but on different positions--they are "cows". Example:

- Secret number: 4271

- Opponent's try: 1234

- Answer: 1 bull and 2 cows. (The bull is "2", the cows are "4" and "1".)

The first one to reveal the other's secret number wins the game. As the "first one to try" has a logical advantage, on every game the "first" player changes. In some places, the winner of the previous game will play "second". Sometimes, if the "first" player finds the number, the "second" has one more move to make and if he also succeeds, the result is even.

The secret numbers for bulls and cows are usually 4-digit-numbers, but the game can be played with 3 to 6 digit numbers (in every case it is more difficult than with 4).

The game may also be played by two teams of 2–3 players. The players of every team discuss before making their move, much like in chess.

The word version

This version is usually played orally, but is easier to play if each player (or each team) keeps written notes. It is exactly like the numerical version except instead of 4-digit numbers, 4-letter words are used. They must be real words, according to whatever language or languages you are playing the game in. Alternate versions of the game can be played with 3-letter or 5-letter words (out of a specific group of letters), but the 4-letter version is the most popular and can be more engaging than the numerical version.

The letters must be all different (ex. g, o, a, b, t, u, r, s, e). Then, in turn, the players try to guess their opponent's word who gives the number of matches. If the matching letters are on their right positions, they are "bulls", if on different positions, they are "cows". Example:

- Secret word: goat

- Opponent's try: boat

- Answer: 3 bulls and no cows. (The bulls are, o, a, t.)

Day Four K-8 Standard Alignment

K

RF.K.3. Know and apply word analysis skills in decoding words.

L.K.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend concepts and texts more fully.

These standards will be met and reinforced as students participate in creating the coding device and the Bulls & Cows and Mastermind coding and decoding games in their variations.

1

RF.1.3. Know and apply word analysis skills in decoding words.

L.1.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend concepts and texts more fully.

These standards will be met and reinforced as students participate in creating the coding device and the Bulls & Cows and Mastermind coding and decoding games in their variations.

2

RF.2.3. Know and apply grade-level word analysis skills in decoding words.

L.2.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend concepts and texts more fully.

These standards will be met and reinforced as students participate in creating the coding device and the Bulls & Cows and Mastermind coding and decoding games in their variations.

3

RF.3.3. Know and apply grade-level word analysis skills in decoding words.

L.3.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend concepts and texts more fully.

These standards will be met and reinforced as students participate in creating the coding device and the Bulls & Cows and Mastermind coding and decoding games in their variations.

4

RF.4.3. Know and apply grade-level word analysis skills in decoding words.

L.4.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend concepts and texts more fully.

These standards will be met and reinforced as students participate in creating the coding device and the Bulls & Cows and Mastermind coding and decoding games in their variations.

5

RF.5.3. Know and apply grade-level word analysis skills in decoding words.

L.5.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend concepts and texts more fully.

These standards will be met and reinforced as students participate in creating the coding device and the Bulls & Cows and Mastermind coding and decoding games in their variations.

6

RL.6.4. Determine the meaning of words and phrases as they are used, ex. in a text.

L.6.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend concepts and texts more fully.

These standards will be met and reinforced as students participate in creating the coding device and the Bulls & Cows and Mastermind coding and decoding games in their variations.

7

RL.7.4. Determine the meaning of words and phrases as they are used, ex. in a text.

L.7.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend concepts and texts more fully.

These standards will be met and reinforced as students participate in creating the coding device and the Bulls & Cows and Mastermind coding and decoding games in their variations.

8

RL.8.4. Determine the meaning of words and phrases as they are used, ex. in a text.

L.8.3 Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend concepts and texts more fully.

These standards will be met and reinforced as students participate in creating the coding device and the Bulls & Cows and Mastermind coding and decoding games in their variations.

Wings of the Crane Unit Five K-8 Academic Vocabulary Guide

K

- Map
- Globe
- Human
- United States of America
- Respect

- President
- Food
- Cooperation
- Pledge
- Rules
- Job

- Leader
- Community
- Wants
- Basic needs (food, clothing, shelter)

1

- Past
- Present
- Future
- Rights

- Responsibilities
- Patriotic
- Values
- History

- Law(s)
- Citizen
- Veteran(s)

2

- Map key
- Economy
- Consumer
- Type

- Urban
- Rural
- Decision
- Conflict

- Events
- History

3

- Scarcity
- Product
- Urban
- Rural

- Manufacturing
- Distribution
- Tools
- Resources

- Threatened
- Force
- Cause
- Effect

4

- Document
- Missions
- Supply
- Demand

- Political
- Audience
- Drawing conclusions

- Trade
- Merchant
- Relationship

5

- Rights
- Implied

- Point of view
- Theme

- Aviation
- Historian

- Human Rights
- Integration
- Suffrage

6

- Power
- Interdependence
- Criteria
- Bias
- Similarity

7

- Spatial
- Impact
- Capitalism

8

- Human impact
- Family
- Interdependence
- Order
- Sequence
- Line
- Commerce
- Exchange
- Consumerism
- Innovation
- Opportunity
- Profit

- Debt
- Model
- Credit

- Event
- Cause and effect
- Base
- Control
- Degree

- Property
- Viewpoint
- Stress

- Edge

- Point of view
- Propaganda
- Symbolism

- Paraphrase
- Free enterprise

Wings of the Crane Unit Six Sample Supply List

Day One

- Printouts
- Pencils
- Materials for chosen challenges, ex.:
    - Balls
    - Masking tape
    - Cones & other obstacle course materials
    - Balloons
    - Cups
    - Number Cards
    - Bandanas/blind folds
    - Combination locks

Day Two

- Printouts
- Access to internet
- Scissors
- Stick glue

Day Three

- Printouts
- Access to internet
- Pencils
- Paper

Day Four

- Thumb tacks
- Brads or small split pins
- 50mm paper clip (that 2" if you are in the USA and still using UK measurements)
- Amazing Wallet Size Enigma(tm)-Like Machine PDF printouts
- contact paper or lamination (optional)
- Scissors
- Paper
- Pencils