

1940s House: Making a Connection between WWII and Rationing

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GRADE LEVELS	5-7
TIME ALLOTMENT	Five one-hour sessions
OVERVIEW	<p>In <i>1940s House</i>, a modern day family takes on the challenge of domestic life in this re-creation of a World War II British household. While the military threat is metaphorical, the privations are real and the pressures create tensions nonexistent in modern society. The family must calculate everything from energy usage to shampoo allotment.</p> <p>Using mathematical calculations, students will “invent” rationing procedures using their knowledge of addition, subtraction, multiplication, division, and ratios, which will enable them to solve the problems presented. Small groups allow students the chance to think their way through the real-life problems presented to them and to improve problem solving techniques. Through viewing and discussion of the video and investigation of the Web resources, students will develop a deeper understanding of rationing and the mathematics needed in a WWII household.</p>
SUBJECT MATTER	Mathematics, Social Studies
LEARNING OBJECTIVES	<p>Students will be able to</p> <ul style="list-style-type: none"> • Solve problems involving measurement, money and percents involved in rationing everyday necessities • Demonstrate their knowledge WWII England by simulating similar circumstances within the classroom • Work in cooperative groups to improve problem-solving skills

STANDARDS

- **Mathematics Content Standards for California Public Schools**
(<http://www.cde.ca.gov/standards/math>)

Grade Five –Number Sense

2.3 Solve simple problems, including ones arising in concrete situations, involving the addition and subtraction of fractions and mixed numbers (like and unlike denominators of 20 or less), and express answers in simplest form.

Grade Five –Measurement and Geometry

1.2 Construct a cube and rectangular box from two-dimensional patterns and use these patterns to compute the surface area for these objects.

1.3 Understand the concept of volume and use the appropriate units in common measuring systems (i.e., cubic centimeter [cm³], cubic meter [m³], cubic inches [in³], cubic yard [yd³]) to compute the volume of rectangular solids.

1.4 Differentiate between, and use appropriate units of measures for, two- and three-dimensional objects (i.e., find the perimeter, area, volume).

Mathematical reasoning

1.0 Students make decisions about how to approach problems:

1.1 Analyze problems by identifying relationships, discriminating relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.

1.2 Determine when and how to break a problem into simpler parts.

MEDIA COMPONENTS

Equipment

- Large screen television with remote control
- VCR with remote control
- Overhead Projector

- Computer

Video

- *1940s House*, Item number NFOH900

Video available for \$34.98 at:

<http://shop.pbs.org/products/NFOH900>

Or call (800) PLAY-PBS (752-9727)

Web Sites

- <http://www.airraidsirens.com/audiovideo.html>

This page provides a large variety of air raid sound clip files saved as both QuickTime and mp3 formats.

- http://www.iwm.org.uk/lambeth/1940s_index.htm

Imperial War Museum's site for 1940s House features publications that can be purchased and worksheets that can be downloaded.

- <http://www.iwm.org.uk/education/index.htm>

This site has links to all the historical museums in The British Isles and has wonderful recourses, shopping, tours, educational materials, and more.

- <http://www.iwm.org.uk>

'Make, Mend or Spend' - An online challenge all about clothes rationing! You have decide whether to make do and mend your clothes, or spend coupons from your ration book.

MATERIALS

- Handout: 1940s House -What to Watch for (one per student)
 - Handout: 1940s House Film Questions (one per student)
 - Handout: Mathematics Worksheet (one per student)
 - Handout: Wages and Necessities (one per group)
 - Handout: Fuel Sheet (one per group)
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- Handout: Store Merchandise #1 (one per group)
- Handout: Store Merchandise #2 (one per group)
- Handout: Store Merchandise #3 (one per group)
- Handout: Sanction List (one per group)
- Handout: Coupon sheet
- Large brown paper grocery bags (one per student)
- Map of the world and Western Europe
- Transparencies with Photos of WWII
- Blank Transparencies
- Flip chart sheet with 'What to Watch for' questions
- One die
- Paper and pencils

PREPARATION FOR TEACHERS

- Photocopy all student handouts
- **Preview** the whole program (both tapes) before beginning to plan your lesson
- **Cue** video to first video segment
- Display world and Western Europe maps prominently
- Print pre-view questions on large sheet of paper, ready to post on wall
- **Bookmark** Web sites

INTRODUCTORY ACTIVITY: SETTING THE STAGE

- Write on overhead: 'What is rationing?' Write student responses on board.
- Ask students, 'Do you need math skills to know how to ration food, money, and other items?'
- Familiarize students with the time period, location, and economic situation in England during the War.
- Use the maps and ask students the following questions:

When was WWII?

Which countries were involved in the war?

Where was the war fought?

What was the war about?

- Have students brainstorm what they think it was like in England during WWII. Write their ideas on the board.
- Turn off all lights (ensure ahead of time that blinds are drawn). Drop under the desk/table in front of room and play air raid media clip from book marked site (see Web site list).
- Turn lights back on and explain to students that what they just heard was an air raid siren and if they had lived during the War and heard the siren they would have had to rush to the nearest bomb shelter.

LEARNING ACTIVITIES

- Before you begin viewing the film, explain to students that they will be watching this program to:

Familiarize themselves as to how life was during WWII in England

Determine what a typical household was like

Determine what the government was like

- Explain to the students that will be working in cooperative groups after the video

Segment 1

- **Cue** the tape to the beginning of the tape, *1940s House*. Only show the introduction to the ideas/plot of the program.
 - **(Focus for media interaction)** Tell students that anytime they hear the air raid siren, they are to put down all materials, be quiet, look at the teacher and wait for further instruction.
 - **Play** the video. **Pause** after the description of the house modifications segment. Ask for student
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responses.

- **Resume play** to watch the family interviews
- **Pause** after the interviews and ask students what they think about the families? Would they want to live during this time?
- **(Focus for media interaction)** Provide students with pre-film questions on the flip chart and tell students to take notes as they watch the next segment of the video
- **Resume play** with the Hymers family interview
- **Pause** after the beauty regime segment. Ask for student responses. Discuss the answers to the questions. Ask them what they think will happen next?
- **(Focus for media interaction)** Pass out the second set of questions, and tell students to take notes as they watch this segment.
- **Resume play**
- **Pause** just before the blackout inspection occurs
- Ask the students what they would do if there was a blackout deadline approaching

Activity 1

- **Step 1:** Split the class into groups of 5-6 students per group. Ensure that there are students of varying skill and strength levels in each group.
- Discuss different group roles: person in charge of materials, facilitator, fuel warden, war room representative, group recorder, ration coordinator. Have students decide what other roles they might need.
- **Step 2:** Pass out brown paper bags. Provide each group with a weekly wage amount and a list of necessities. Also, define each of the roles of the group and their responsibilities:

Materials Person: Cut brown paper bags into sheets

of paper for each household member. This will be their writing paper (it's rationed as well).

Ration Coordinator: Research the Mend, Make or Spend Web site to see how to allocate your money. This information should be shared with your household.

War Room Rep: Must attend a meeting to learn about the regulations and laws that will be imposed on all households. This information (can be found in the video) should be shared with your household.

Fuel Warden: Provide the necessary information to calculate energy consumption and also how much fuel your household is allowed to use each week. You can begin calculating ways to conserve energy.

Recorder: Use the paper bag strips to record the group's findings.

- **Step 3:** Have the students come back together and hand out the Cost of Living Worksheets: Fuel Sheet, Wage and necessities. These are the items the group (household) will have to budget. (Teacher will have to fill in the fuel costs)
- Hand each group the #1 Store Merchandise list.
- Once the house members review their cost of living, pass out the Mathematics Worksheet. Group members will need to equally divide the math problems up among them. Each person will be responsible for the problems they have chosen. The fuel warden may want to try #13 (bathtub problem).

Have students initial the problems they are responsible for so that the teacher can individually grade them. Group members can help each other, but not do another's work for them. The recorder will write down their final answers on the paper bag.

- These math problems are not due until the end of the 5th day.
- Finish tape one

Segment 2

- **Cue** the tape to the beginning of tape two and **play**.
- **(Focus for media interaction)** Tell students that the next segment will help them answer some of their missing information on the worksheets.
- **Pause** tape after Mr. Hymer leaves the home for work, not to return for some time.

Have groups discuss among themselves what it would be like to have a family member leave for a long time and not be able to talk to them.

Do they think the Hymers ladies will be able to get along on their own? Have groups share with whole class their responses.

- Allow groups to continue to work on their missing information on the worksheets (especially #10).

Activity 2

- Allow students to work on the online Web site challenge activities. They can work individually or with groups.
- Have groups work on their budgets for one week. Discuss as a group how it went.

Throughout, these activities randomly sound the air raid alarm. At this point the teacher will role a die to impose a sanction (look at sanction list) for "wrong doing," not rationing properly, etc. Make sure that at some point the groups have to go shopping again with whatever money they have left, using one of the other Store Merchandise lists (less food).

- The number on the die will correspond to a numbered list of fees, i.e. \$3.00 for black out violation, meat has doubled in prices, etc.
- Students will then have to recalculate their household budgets! See if there are any of the math problems that people could not solve. Ask classmates if anyone can help. Solve as class and discuss reasoning.

CULMINATING ACTIVITY

- Allow students to share their own experiences of life during the 1940s based on these simple exercises.
- Review how students solved the many challenges they faced.
- Have students grade one another on how well they worked together as a group (they can use the same rubric as the teacher does for group work). Also, have students grade themselves with the Effort and Achievement rubric.
- Have students interview relatives or friends who may have lived during this time. Have them find out how life was affected in the United States.

CROSS-CURRICULAR EXTENSIONS

Language Arts

- Instruct students to write a letter to a friend or family member as though they were living in the 1940s in England.

Social Studies

- Have groups of students create scenarios of what is would be like for people in particular countries if there was another World War.
- What other countries had to undergo rationing and bombing during WWII. Focus on war in the Pacific.

Science

- How far can different sources of light travel at night? Experiment with different intensities of light and how visible they are to the naked eye at a distance. Hypothesize: could a plane flying overhead see a lit cigarette?

Drama

- Have students dramatize an event from this time period and present this to the class

COMMUNITY CONNECTIONS

- Students should check out links to WWII Veterans Web site where they can write to a war survivor. Students should share their thoughts about this time
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period after having viewed the video, *1940s House*

- Have students research the events and commemorations that take place on Veterans Day
 - Have students contact and visit a Veterans hospital and interview some of the staff and patients
 - Find a volunteer organization, similar to the ones where Mrs. Hymer and her daughter worked. Volunteer for a week. Find a Women's Club in your town and see if they were active during WWII. What services did they provide toward the war effort?
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PROBLEM SOLVING RUBRIC

4) Analyzed problems, and solved them. Determined when and how to break a problem into simpler parts. Used at least one method, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models to explain mathematical reasoning used to solve each problem. Expressed the solution clearly and logically.

3) Analyzed and solved $\frac{3}{4}$ of problems. Determined when and how to break a problem into simpler parts. Used at least one method, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models to explain mathematical reasoning used to solve each problem. Expressed the solutions clearly and logically.

2) Analyzed and solved $\frac{1}{2}$ of problems. Determined when and how to break a problem into simpler parts. Used at least one method, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models to explain mathematical reasoning used to solve each problem. Solutions were not expressed clearly.

1) Found one or more of the solutions, but could not use at least one method, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models to explain mathematical reasoning used to solve each problem. Could not express the solutions clearly and logically.

Teachers can use this rubric for formative and summative assessment of mathematics problems.

EFFORT AND ACHIEVEMENT RUBRICS

Scale: 4=excellent; 3=good; 2=needs improvement; 1=unacceptable

A: Effort

4) I worked on the task until it was completed. I pushed myself to continue working on the task even when it became hard and a solution was not obvious. I decided that a hard problem is a great time for me to strengthen my math skills.

3) I worked on the task until it was completed. I pushed myself to continue working on the task even when it became hard and a solution was not obvious.

2) I put some effort into the task, but I stopped working when the problem became hard.

1) I put little effort into the task.

B: Achievement

4) I exceeded the objectives of the task or lesson.

3) I met the objectives of the task or lesson.

2) I met a few of the objectives of the task or lesson, but did not meet others.

1) I did not meet the objectives of the task or lesson.

(Adapted from: Classroom Instruction That Works by Marzano, Pickering, Pollock—SBN #0-87120-504-1. Page 52)

This rubric is for each student to fill out at the end of the 5th day. It is for them to reflect on their personal effort and how it affected their achievement.

COOPERATIVE GROUP RUBRIC

- 4) Encouraged others in the group. Listened to all suggestions politely. Actively participated, giving positive and pertinent suggestions. Completed individual tasks assigned. Stayed on task.
- 3) Encouraged others in the group. Listened to all suggestions politely. Gave some suggestions, and was positive most of the time. Completed almost all the individual tasks assigned. Stayed on task.
- 2) Listened to some suggestions politely. Gave some suggestions, and was positive most of the time. Completed some of the individual tasks assigned.
- 1) Listened to others rarely. Gave few positive suggestions. Completed few of the individual tasks assigned.

This rubric is for ongoing formative assessment by the teacher.

QUESTIONS TO CONSIDER

(Things to look for while watching *1940s House*)

- 1) What pretend "year" is it when the Hymers family begins living in the house?
- 2) Has World War II reached England at the beginning of the Hymers' adventure?
- 3) What appliances are missing in the *1940s House* that houses today have?
- 4) What socioeconomic class is the Hymers (poor, middle, rich)?
- 5) How do the Hymers look different from nowadays?
- 6) What are the filmmakers trying to tell us?
- 7) What is the message of the film?
- 8) Who are the filmmakers?
- 9) Is this reality T.V.?

FILM QUESTIONS-WORKSHEET

(Things to look for while watching second part of *1940s House*)

1) What is rationing? Do we have it today?

2) What was the garden used for? What was important about it?

3) What was a fuel warden ?

4) What was black out ?

5) What did the Hymers eat?

6) How did the Hymers 'lives change as the war progressed?

7) What information did the parents hide from the children?

8) How did the Hymers learn to cook the food of the 1940s?

9) What controls did the government impose upon the Hymers?

10) Name three items that the Hymers family could not purchase once the war began.

11) What female personal items were against the law to manufacture during the war?

12) What did the government say men were entitled to have, but women were restricted from having?

13) How many calories were in the pre-war diet?

MATHEMATICS-WORKSHEET

- 1) According to the film, $2\frac{1}{4}$ million people in England had to leave their homes during the war. If there were _____ people in England before the war, what % of the population had to leave their homes?
- 2) One in 25 city dwellers were killed during the war. If the population of city dwellers was _____, what was the number of city dweller that died?
- 3) By Christmas of 1939, there were 4,000 fatal roadway accidents. Twice the number in peacetime. How many roadway accidents were there during peacetime in one year? The war started in September of 1939.
- 4) If the birth rate was _____ before the war, and there was a 22% increase during the war, how many more babies were born during the war?
- 5) If there was an 83% cost of living increase, and the cost of living before the war was _____, how much more money did it take to buy YOUR groceries?
- 6) What is the square footage of your home? Choose one group member to go home and measure each room in their house. Bring the information back the next day for the group to calculate square footage.
- 7) Using your store merchandise list, and knowing your budget, find a recipe at home that you could make for your household. Then, alter the quantities to feed twice as many people, reduce the recipe by $\frac{1}{3}$.
- 8) Find a suitable recipe (ingredients & budget) and substitute three items in the recipe with the correct measurement conversions. Most cookbooks have a substitution/conversion chart in them.
- 9) Everyone in your household needs one new outfit. Material is 50 cents a yard. There are at least 3 adults in your home and each adult outfit takes $2\frac{1}{2}$ yards. The children's outfits take $1\frac{1}{2}$ yards each. Can you afford to buy, make, or mend peoples clothes? Defend you answer.
- 10) Go to your store merchandise sheet and buy food for your household for one week. Remember to use you ration book and your wage sheet. Explain your reasoning. Don't forget that you have to pay other bills as well this month.
- 11) Your furnace takes 4 cups of coal to run for 24 hours. How long can you run your furnace according to your fuel sheet?
- 12) How much money does your household have during their stay in the 1940s house?
- 13) If your bathtub uses 20 gallons at the 5-inch line, how many baths can your household take in one week? Remember to look at your fuel sheet to see how much energy it takes to heat the water.
- 14) Look at your fuel sheet and ration the amount of electricity your house can use in a week. Remember your budget!
- 15) How much will electricity cost you per week in \$ and units?

WAGES AND NECESSITIES

Length of stay in house:

Two months

Wage per week:

\$12.00 for the whole house (only one person is a wage earner)

Necessities:

Clothes

Food

Household cleaning supplies

Beauty supplies

Coal

Electricity

Water

School supplies

\$1.00 per child

Anderson Shelter (bomb shelter)

\$12.00

Bomb shelter supplies

\$3.00

FUEL SHEET

Coal \$_____per quart. _____1quart = 1 unit

Electricity \$_____per KWH. _____1 KWH= 3 units

Water \$_____per gallon. _____1gallon = 2 units

STORE MERCHANDISE- ONE

FOOD:

Cereal	\$0.25 per box
Bread	\$0.15 per loaf
Flour	\$0.10 per lb.
Sugar	\$0.10 per lb.
Eggs	\$0.15 per dozen
Butter	\$0.25 per lb
Milk	\$0.25 per gallon
Baking soda	\$0.05 per 8 oz
Baking powder	\$0.05 per 8 oz
Vanilla Extract	\$0.10 per 6 oz
Jam	\$0.25 per 8 oz
Candy	\$0.10 per lb.
Raisins	\$0.25 per 8 oz
Salt	\$0.10 per lb.
Pepper	\$0.10 per ½ lb.
Spices	\$0.10 per oz
Bacon	\$0.50 per lb.
Ham	\$0.50 per lb.
Ground beef	\$0.25 per lb.
3 lb. Beef roast	\$1.00
3 lb. Pork roast	\$0.75
Fish	\$0.50 per lb.
Cooking lard	\$0.15 per lb.
Canned beans	\$0.25 per lb.
Dried Beans	\$0.25 per lb.
Teas	\$0.10 per 8oz
Cleaning Soap	\$1.00 per box
Body soap	\$0.25 per bar
Toothpaste	\$0.15 per tube
Makeup	\$2.00 per kit (enough lipstick, face and eye color for 1 month)
Shampoo	\$0.25 per bottle (enough for 1 month)
Cold cream	\$0.25 per jar (enough for 1 month)
Band-Aids	\$0.20 per box
Flashlight with batteries	\$1.00
Matches	\$0.25 per big box

STORE MERCHANDISE- TWO

Ration coordinator must double the price of each item, from previous store list, to calculate the cost of these items.

FOOD:

Cereal	\$	per box
Bread	\$	per loaf
Flour	\$	per lb.
Sugar	\$	per lb.
Eggs	\$	per dozen
Milk	\$	per gallon
Baking soda	\$	per 8 oz
Baking powder	\$	per 8 oz
Candy	\$	per lb.
Raisins	\$	per 8 oz
Salt	\$	per lb.
Pepper	\$	per ½ lb.
Spices	\$	per oz
Bacon	\$	per lb.
Ham	\$	per lb.
3 lb. Pork roast	\$	
SPAM	\$0.50	per lb.
Cooking lard	\$	per lb.
Canned beans	\$	per lb.
Dried Beans	\$	per lb.
Teas	\$	per 8oz
Cleaning Soap	\$	per box
Body soap	\$	per bar
Makeup	\$	per kit
		(enough lipstick, face and eye color for 1 month)
Cold cream	\$	per jar (enough for 1 month)
Flashlight with batteries	\$	
Matches	\$	per big box

STORE MERCHANDISE- THREE

Ration coordinators will need to triple the prices from store merchandise- one to calculate the price of each of these items.

FOOD:

Cereal	\$	per box
Bread	\$	per loaf
Flour	\$	per lb.
Sugar	\$	per lb.
Eggs, Powdered	\$1.00	per can (makes 2 dozen)
Milk, Powdered	\$1.00	per can (enough to make 3 gallons)
Baking soda	\$	per 8 oz
Baking powder	\$	per 8 oz
Salt	\$	per lb.
Pepper	\$	per ½ lb.
Spices	\$	per oz
Bacon	\$	per lb.
Ham	\$	per lb.
SPAM	\$0.50	per lb.
Cooking lard	\$	per lb.
Canned beans	\$	per lb.
Dried Beans	\$	per lb.
Teas	\$	per 8oz
Cleaning Soap	\$	per box
Flashlight with batteries	\$	
Matches	\$	per big box

SANCTION LIST

(To be completed by war cabinet)

1) _____

2) Store Merchandise change (two)

3) Store Merchandise change (three)

4) _____

5) _____

6) _____

Role the dice to enforce a regulation.

Making a Connection Between WWII and Rationing

Coupons: each square is worth one of the item listed at the top of the column. Each group is rationed to this many items for the duration of the war. The spare can be used for one item in the store that is not rationed.

af id	Flour 1 lb.	Sugar ¼pound	6 eggs	Butter 1 lb.	Raisins 4 oz	Jam 16 oz	Cooking fats 1lb.	Bacon Ham 1lb	Beans 1lb	Meat ¼b	Tea 8oz	SPAR
				Milk 1gallon								
									Beans 1lb.dried			
								XX				
						Candy ¼ pound		XX				
								XX				
	XX							XX				
	XX							XX				
	XX							XX				
	XX							XX				