

Lesson Five

Nuclear Bunker

Teachers' Materials

Nuclear Bunker Lesson Plan
Further Information

Lesson Materials

Domestic Nuclear Shelters
Nuclear Bunker Props and Roles

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Lesson Five: Nuclear Bunker

AIM

To examine the use and effectiveness of nuclear bunkers within the period of the Cuban missile crisis. Developing teamwork.

LESSON OUTCOMES

All students will be able to consider items that ensure survival in emergencies.

All students will also be able to develop team working skills. Some students will be able to consider effectiveness of nuclear bunkers and their use in the Cuban missile crisis.

A few students will be able to analyse and present a clear rationale for their decision making process.

CONCEPTS TO EXAMINE

Survival, nuclear bunker, team work.

OVERVIEW

The main purpose of this lesson is to enable students to develop team working skills through active and cooperative learning. They design, and make artefacts that they would need to take into a nuclear bunker to help them survive a nuclear attack. The timeline of the Cuban missile crisis is used to get students to consider the historical nature of the materials that they could take into the bunker, and the perceptions of the public at the time of the need for nuclear bunkers. Students role-play the experience of being in the nuclear bunker – and this could be done as a short activity or as a full dramatic production.

EQUIPMENT NEEDED

- Pens/Paper
- Scissors
- Colouring pens
- Video of *The House in the Middle* (<https://www.youtube.com/watch?v=pGJcwaUWNZg>)
- Survival Kit pages
- Props for the bunker (these could be made)
- Student roles

SUGGESTED TIME

This is a one hour lesson, but can be differentiated to cover a series of lessons by making props and other artefacts for use in an overall production at the end.

ROOM LAYOUT

Large clear space for roleplaying activity. Chairs and tables could be used as props.

SKILLS

- Enquiry
- Drawing/Writing
- Creative production
- Team work
- Self evaluation

INSTRUCTIONS

Starter

Watch a short clip of *The House in the Middle*

Ask students to draw a quick sketch individually of what they think a nuclear bunker would look like.

Compare the drawings that are produced in the *Domestic Nuclear Shelters* resource with the images of a nuclear bunker.

Ask why the students think nuclear bunkers were discussed in the period of the Cuban missile crisis?

Main activities

In groups, students to make a list of all the things they think they would need to survive in a nuclear bunker for 2 weeks to 3 months during the Cuban missile crisis (so no computers, mobile phones etc).

They need to fit their whole group in the shelter. And all their supplies. The shelter is half/or quarter the size of their classroom. They can only take 14 unique items into the shelter with them. What items would they take?

Once the list is made students need to make (props) or draw the supplies that they will take into the shelter with them.

They need to justify each item. Students have a limited amount of time to do this – 10 minutes to make.

Four minutes before the end and every subsequent minute thereafter, students are told that they have to cut one item from the list. Which ones do they cut and why?

Give students a role to perform in the shelter, and their first line from the roles and props items. Students independently then think of their performance in the role play. They must consider how they will act it out. The role play can be any length between 5 minutes and a full drama piece/lesson - depending on the subject and time available. Students are to consider what they would do in the nuclear bunker after a nuclear bomb was dropped.

Students perform their role play – using their props.

PLENARY

- Students to answer the question: Would a nuclear bunker be effective for survival? Are there any potential problems?
- Give students the information from the survival pages i.e. the advice relating to what they should take into a shelter. Why do they think those foods and measurements were listed?
- Students to think of 3 ways in which they worked well in a team, and 1 way in which they could improve in the future.

DIFFERENTIATION

- Spend one lesson creating the props
- Tell the students that they can take 15 things into the shelter with them.
- Provide the students with the information in *Domestic Nuclear Shelters* resource before they discuss what they would take.
- Practice the role plays and character development before performance.

EXTENSION

- Make the props
- Make a script for the performance.
- Discuss what 5 roles would be best to have in the bunker – out of the 6 possibilities.
- Students can use money from the past ie shillings to consider historical and mathematical aspects.

ENRICHMENT

- Take students to the Kelvedon Hatch Secret Nuclear Bunker in Essex or the Hack Green Secret Nuclear Bunker in Cheshire.
- Make a drama production of the nuclear bunker activity.
- Perform the role play outside the classroom.
- Play clip from the Hiroshima PowerPoint about a dramatic version of the moments before a nuclear bomb is dropped – created by a Bristol CND competition winner.

Further information: Nuclear Bunkers

What are bunkers?

A bunker is a place of sanctuary and protection to defend against military munitions. They can be used in war time to protect against ongoing conflict or alternatively they can be used in peace time during civil emergencies or potential conflict based situations.

They were primarily used in World Wars One, Two and the Cold War. However they are still used throughout the world in ongoing conflict situations. During World War One they were primarily used by soldiers in battle to protect against gunfire and other land-to-land weapon use. In World War Two bunkers were used by the civilian population to shelter from air to land bombing campaigns that could sometimes destroy whole cities, such as Coventry or Dresden. The military continue to use these as protection against enemy fire during conflict.

What is a nuclear bunker?

Nuclear bunkers were constructed after the development of the atomic bomb in 1945. Their designed purpose is to safeguard civilian life from the threat of the initial blast of a nuclear explosion, or later the fallout effects of the radiation that comes with the use of nuclear weapons. A nuclear bunker needs to be secure on all sides, including the door. The occupants of such a bunker must be protected for numerous days, weeks, months and possibly years. Nuclear bunkers are often sealed from the outside world and provide the supplies, equipment and ventilation to the occupants so they are able to function without intervention. Nuclear bunkers are often called Fallout Shelters as they may not protect against the initial blast if within the blast area. They are supposed to protect against the radiological and debris based effects of fallout.

During the Cold War

In the Cold War many countries built nuclear bunkers as protection against casualties due to fallout from a potential nuclear strike. At the height of the Cold War and the Cuban missile crisis bunkers were in place to ensure that governmental operations could continue even if nuclear weapons had been used, with the option of a retaliatory attack. Since the end of the Cold War some nations such as Finland still build nuclear, biological and chemical weapon proof bunkers. Finland builds them for every building over 600 square meters. Fallout shelters have become very popular in film and television, depicting whether they are useful or not.

I don't have a nuclear bunker what do I do?

Building nuclear bunkers has often been time consuming and expensive, and it is impossible to build shelters for the whole population. Some governments have tried to consider ways in which the population can protect themselves, through the use of information materials such as *Protect and Survive*. In the Cold War some private individuals could afford to build their own bunkers. The government encouraged others to construct their own rudimentary shelters to protect themselves within the home. The building of nuclear bunkers and fallout shelters is problematic. It is unlikely that many would survive a nuclear blast and as such they serve no purpose. Further if people using them did survive – they would emerge into a place that would be highly radioactive and possibly completely destroyed. As such individuals would have to remain in their shelters indefinitely.

Domestic Nuclear Shelters

Stocking your shelter

Life in the confined space of a survival shelter needs careful planning.

You should store as much as possible of the following in your shelter:

Water

Water in sealed or covered containers to last you and your family for 14 days. Four pints per person per day would be sufficient for drinking and basic cleanliness.

Food

Enough food for 14 days, including tinned or powdered milk for the children and food for the baby — and a closed cupboard or cabinet in which to store these supplies.

A nutritionally balanced diet is not important for this length of time. A list of suggested foods and quantities for one adult is given on the back cover of this booklet. These have been chosen because they store easily and most can be eaten cold.

Nursing mothers will need extra food and children between the ages of one and five years should be counted as half an adult for the purposes of food stocks. They should also have the equivalent in dried or evaporated milk of one pint of milk per day. If your family includes a baby that is not breast fed you should provide dried infant formula.

Alternatives to this are 7kg of full cream evaporated milk and ½kg sugar or 2½kg full cream dried milk and ½kg sugar, which should be sufficient for two weeks. To this can be added mashed 'adult' foods if the infant is more than three or four months old.

Radio

A portable radio (and a spare if possible) and spare batteries.

This is absolutely essential. It will be your only way of receiving instructions on when it is safe to leave your shelter and for how long. In the case of shelter types 3 and 4 an external aerial may be necessary.

Miscellaneous

Tin opener, bottle opener, cutlery, crockery and cooking utensils

Warm clothing and footwear and changes of clothing

Bedding, sleeping bags, etc.

Torches with spare bulbs and batteries, candles and matches. Open flames should not be used in shelter types 3 and 4 until the shelter door can be opened

Toilet articles and washbowls

First aid kit

Notebooks and pencils for noting radio instructions

Cleaning materials: including clothes, tissues, brushes, shovels and box of dry sand

Garden spade

Improvised lavatory seat, polythene buckets fitted with covers, polythene bag linings for emptying the contents, strong disinfectant and toilet paper. Alternatively camping or caravan type toilet arrangements may be used

Clock and calendar

and just outside your shelter

Dustbin for temporary storage of waste matter

Second dustbin for food remains, empty tins and other rubbish

Polythene bag or bin for outdoor clothes and boots.

If possible, extra water supplies in covered containers, and games, children's toys and books.

Stoves burning liquid fuel or gas may be used at or just outside the entrance of shelter types 1, 1a and 2, or in a similar way in types 1b, 3 and 4 but only when it is safe to open the hatch or door. Otherwise you should not use a stove of this kind in a sealed shelter.

Now the Inner Refuge

Still greater protection is necessary in the fall-out room, particularly for the first two days and nights after an attack, when the radiation dangers could be critical. To provide this you should build an inner refuge. This too should be thick-lined with dense materials to resist the radiation, and should be built away from the outside walls.

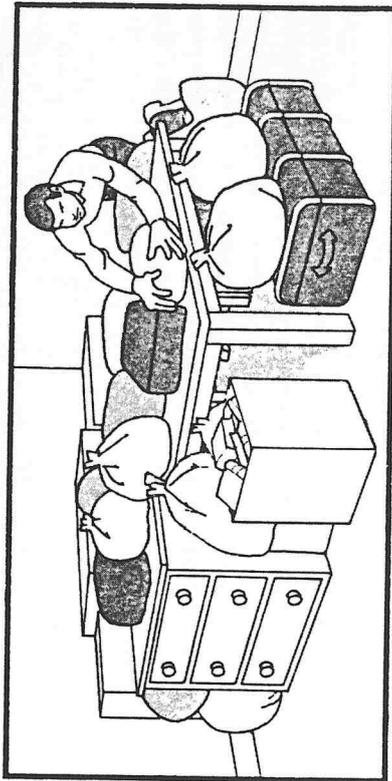
1. Here are some ideas:

Make a 'lean-to' with sloping doors taken from rooms above or strong boards rested against an inner wall. Prevent them from slipping by fixing a length of wood along the floor. Build further protection of bags or boxes of earth or sand - or books, or even clothing - on the slope of your refuge, and anchor these also against slipping. Partly close the two open ends with boxes of earth or sand, or heavy furniture.



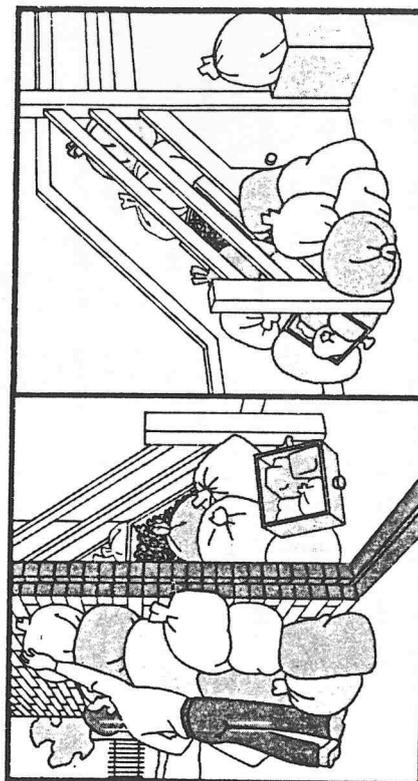
2.

Use tables if they are large enough to provide you all with shelter. Surround them and cover them with heavy furniture filled with sand, earth, books or clothing.



3.

Use the cupboard under the stairs if it is in your fall-out room. Put bags of earth or sand on the stairs and along the wall of the cupboard. If the stairs are on an outside wall, strengthen the wall outside in the same way to a height of six feet.



Extract from the Government's publication Protect and Survive, HMSO, 1976

DOMESTIC NUCLEAR SHELTERS

CND INFORMATION ROOM
22-24, UNDERWOOD ST.
LONDON N1 7JG
Tel: 01-250 4010



Advice on
domestic shelters
providing protection
against
nuclear explosions

A Home Office guide

Suggested food list

Supplies for two weeks for one adult

Biscuits, crackers, breakfast cereals etc.	2750g (6 lb)*
Canned meat or fish (e.g. corned beef, luncheon meat, stewed steak, pilchards, sardines)	2000g (4¼ lb)
Canned vegetables (e.g. baked beans, carrots, potatoes, sweetcorn etc.)	1800g (4 lb)
Canned margarine or butter, or peanut butter	500g (1 lb)
Jam, marmalade, honey or spread	500g (1 lb)
Canned soups	6 cans
Full cream evaporated milk or dried milk	14 small cans or 2 x 300g (½ lb) containers
Sugar	700g (1½ lb)
Tea or coffee (instant)	250g (½ lb)
Boiled sweets or other sweets	450g (1 lb)
Canned fruit, fruit juices, fruit squash, drinking chocolate	If sufficient storage space is available
<i>Approximate cost (mid 1980)</i>	£15-£20

* Imperial equivalents are only approximate.

This list is based on the assumption that cooking will not be possible and that the opportunities for warming foods or boiling water may be limited. For further details see *Domestic Nuclear Shelters — Technical Guidance*.

Government bookshops

49 High Holborn, London WC1V 6HB
13a Castle Street, Edinburgh EH2 3AR
41 The Hayes, Cardiff CF1 1JW
Brazennose Street, Manchester M60 8AS
80 Chichester Street, Belfast BT1 4JY

Government publications are also available through booksellers

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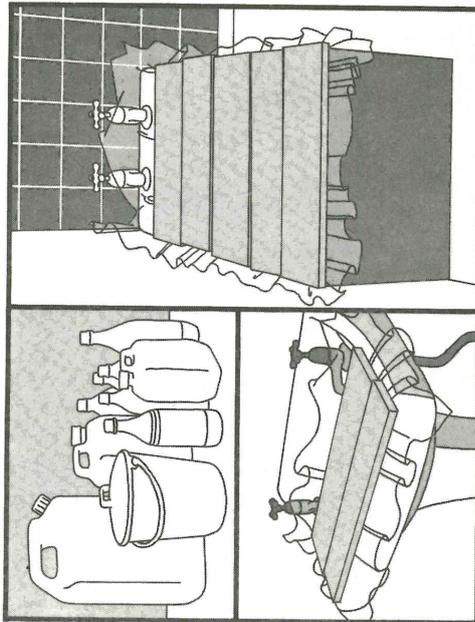
HMSO 50 pence (net)

Survival kit

PLAN YOUR SURVIVAL KIT Five essentials for survival in your Fall-out Room

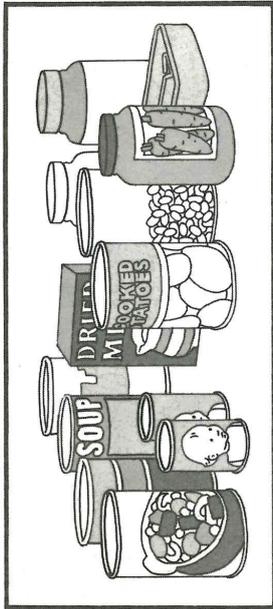
1 Drinking Water

You will need enough for the family for fourteen days. Each person should drink two pints a day — so for this you will need three and a half gallons each. You should try to stock twice as much water as you are likely to need for drinking, so that you will have enough for washing. You are unlikely to be able to use the mains water supply after an attack — so provide your drinking water beforehand by filling bottles for use in the fall-out room. Store extra water in the bath, in basins and in other containers. Seal or cover all you can. Anything that has fall-out dust on it will be contaminated and dangerous to drink or to eat. You cannot remove radiation from water by boiling it.



2 Food

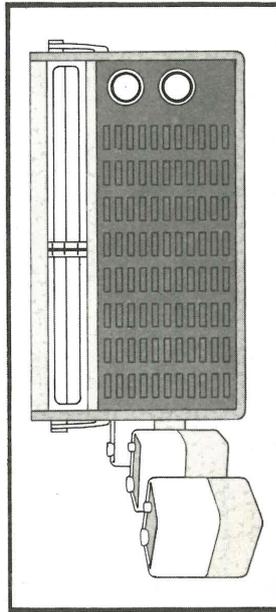
Stock enough food for fourteen days. Choose foods which can be eaten cold, which keep fresh, and which are tinned or well wrapped. Keep your stocks in a closed cabinet or cupboard. Provide variety. Stock sugar, jams or other sweet foods, cereals, biscuits, meats, vegetables, fruit and fruit juices. Children will need tinned or powdered milk, and babies their normal food as far as is possible. Eat perishable items first. Use your supplies sparingly.



3

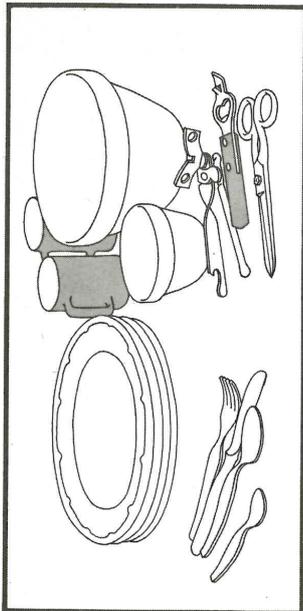
Portable Radio and Spare Batteries

Your radio will be your only link with the outside world. So take a spare one with you if you can. Keep any aerial pushed in. You will need to listen for instructions about what to do after the attack and while you remain in your fall-out room.

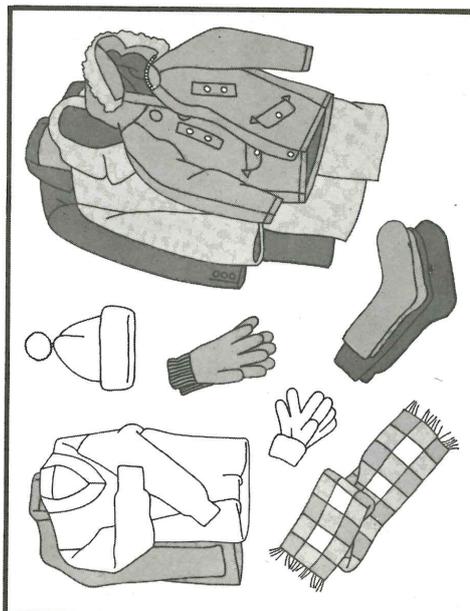


Survival kit

4 Tin Opener, Bottle Opener, Cutlery and Crockery

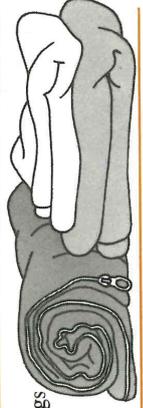
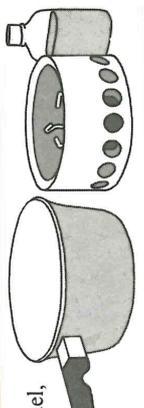
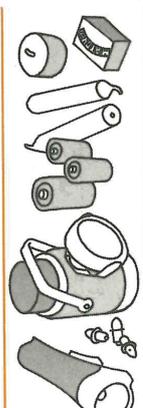
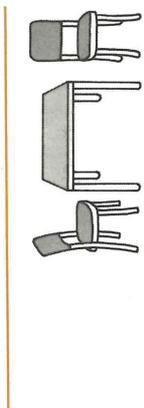
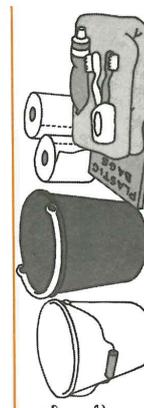


5 Warm Clothing



And don't forget to take this booklet with you

These further items will also be useful in the Fall-out Room:

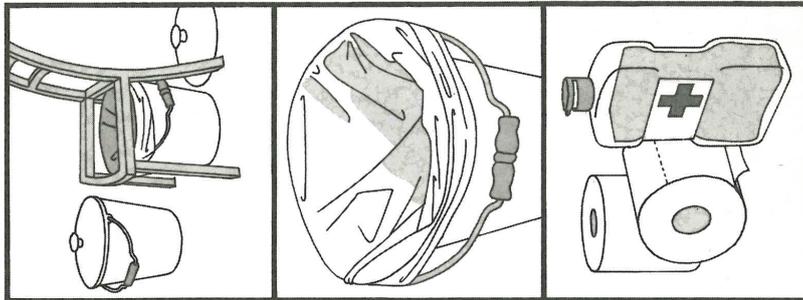
- 6. Bedding, sleeping bags 
- 7. Portable stove and fuel, saucepans 
- 8. Torches with spare bulbs and batteries, candles, matches 
- 9. Table and chairs 
- 10. Toilet articles, soap, toilet rolls, bucket and plastic bags (see Sanitation, p.17) 
- 11. Changes of clothing 

Sanitation

You will need special sanitation arrangements because there will be no water to waste in lavatories.

Keep these items in the Fall-out Room:

Containers such as polythene buckets, fitted with covers and – if possible – improvised seats.



Polythene bag linings for emptying the containers.

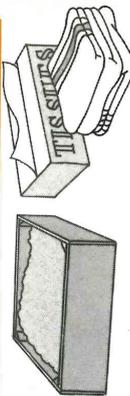
Strong disinfectant and toilet paper.

12. First aid Kit — with household medicines and prescribed medicines.



And at least aspirins or similar tablets, adhesive dressings, cotton wool, bandages, disinfectant, ointment, including 'Vaseline'.

13. Box of dry sand, cloths or tissues for wiping plates and utensils



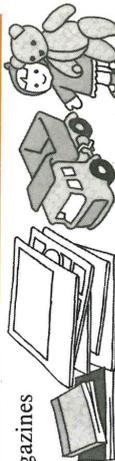
14. Notebook and pencils for messages



15. Brushes, shovels and cleaning materials, rubber or plastic gloves, dustpan and brush



16. Toys and magazines



17. Clock (mechanical) and calendar



Roles and lines

Teacher: "It's time to take the register"

Doctor: "Make sure you are all taking your medicine"

Religious Leader: "Let us pray"

Fire Fighter:
"Be careful with lighting fires"

Child: "I'm afraid"

Maintenance worker: "Do we need to fix something in here?"

Father: "It will be alright"

Police Officer: "Let us all make sure we uphold the law"

Mother: "Things will work out"

Nurse: "I will do my best to care for you"

Nuclear Scientist: "Don't go outside"

Props

