Hiroshima and Nagasaki: 80Years

Commemorative Ideas for Schools

Background

Members from eight local peace and social justice organisations* met in January 2025 to discuss the upcoming 80th Anniversary of atomic bombings of Hiroshima and Nagasaki. This meeting was initiated by Léonie Ebert, founder of the Graham F. Smith Peace Foundation. The meeting participants considered how they could take action to inform young people about these devastating historical events and the ensuing nuclear era, to highlight the importance of promoting peace. Their mission was articulated as follows:

Our mission is to honour the memory of those who suffered and perished in the devastating nuclear bombings of Hiroshima and Nagasaki, as well as the generations who continue to endure their lasting impact. The unimaginable loss of life, widespread destruction, and enduring suffering caused by these events serve as a solemn reminder of the catastrophic consequences of nuclear warfare and signalled the dawn of the nuclear age.
By remembering these tragedies, we aim to foster global awareness, promote education about the dangers of nuclear weapons, and advocate for their total elimination. Through acknowledgment and understanding, we commit to building a future of peace, ensuring that such devastation is never repeated.

This resource pack of commemorative ideas is an initiative undertaken by this coalition. The creative team consisted of the following contributors:

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Cover page images

*Information about some of these organisations is provided in Resource G 'What is Peace?' (Page 39).

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Introduction

There are many ways that schools and their students may commemorate the atomic bombings of Hiroshima and Nagasaki, including various educational and commemorative activities. This can include incorporating these activities into the curriculum, and organising commemorative events within the school and the wider community. Schools can create memorials or art installations to honour the victims and promote peace and reflection.

This guide to commemorative ideas consists of three sections plus a number of useful resources. These are briefly outlined as follows:

1. **Curriculum Integration**: Diverse lesson activities may be incorporated into a range of subject streams to teach students about Hiroshima and Nagasaki. These include:

- **History Lessons:** Incorporate the events of August 6 and 9, 1945, into history lessons, focusing on the context of World War II, the decision-making process leading to the bombings, and the immediate and long-term consequences.
- **Science Lessons:** Feature the development of nuclear science and nuclear weapons in science lessons, exploring the contributions of key scientists and discussing responsibilities and ethics in science.
- **Civics and Ethics:** Discuss the ethical implications of using nuclear weapons, the impact on human lives, and the ongoing efforts towards disarmament and peace.
- **Literature and Language Arts:** Analyse primary source materials like letters, diaries, and survivor accounts, as well as poems and stories inspired by the events.
- **Art and Creative Expression:** Encourage students to create artwork, poems, and other forms of expression to reflect on the impact of the bombings and promote peace.

2. **Commemorative Events and Community Engagement**: Organise events that bring together students, educators, and community members to reflect on the events and promote peace and understanding. Proposals include:

1. **Memorials and Installations:** Students can collaborate on creating memorials or art installations in the school to honour the victims and promote reflection on the events
2. **Memorial Services:** Hold memorial services to reflect on the events and honour the lives lost.
3. **"Silent Walk" or "Vigil":** Organize a silent walk or vigil to remember the victims and raise awareness about the need for peace.
4. **Community events:** Schools may engage with the local community to promote and organise commemorative public events.

3. **Specific Activities**: A number of craft activities for younger students are included:

- **"Peace Cranes" Project:** Encourage students to make paper cranes, a symbol of peace, as a way to honour the victims and promote hope for the future.
- **Make Your Own Paper Peace Pole**: Students may join the global movement by creating their own peace pole.
- **Make a Paper Lantern**: Students may create lanterns for use in memorials and other commemorative installations.

4. **Resources:** These include links to survivor stories, a book list, craft project guides, and a comprehensive paper on key issues of the nuclear era.

By incorporating these activities into the school curriculum and community, schools can play a crucial role in commemorating the bombings of Hiroshima and Nagasaki and promoting a message of peace and understanding.

Curriculum Integration

To teach effectively about Hiroshima and Nagasaki, incorporate diverse lesson activities that explore the historical and scientific context, the impact of the bombs, and the lasting legacy of the events. This could include discussions about the events leading up to the bombings, analysis of primary source documents and scientific theories, creation of memorials, and debates about the moral and practical implications of the decision to develop and use nuclear weapons.

History Lessons

Here are some ideas for engaging history lessons on Hiroshima and Nagasaki:

1. Historical Context and Decision-Making

- **Timeline Activity**

Create a timeline of events leading up to the atomic bombings, including the rise of Japan, World War II, the US entry into the war, and the development of the atomic bomb.

- **Debate the Decision**

Facilitate a debate on the decision to use the atomic bomb, exploring arguments for and against, based on historical evidence and perspectives.

- **Analyse Primary Sources**

Examine documents like Harry S. Truman's announcement of the bombings, Henry Stimson's statement, and letters from people in Hiroshima and Nagasaki.
their contributions to science.

2. Impact and Aftermath

- **Compare and Contrast**

Compare the devastation and aftermath of Hiroshima and Nagasaki, focusing on the immediate and long-term effects on people, infrastructure, and the environment.

- **Analyse the Short and Long-Term Effects**

Discuss the short-term physical and psychological effects of the bombings, as well as the long-term health impacts, including cancer and radiation exposure.

Useful resources: see **Resource A** for links to survivor stories and **Resource F** for a paper on the nuclear era.

- **Explore the Culture of Remembrance**

Examine how Hiroshima and Nagasaki are commemorated, including museums, memorials, and peace movements.

Useful resources:

1. The 2024 Nobel Peace Prize was awarded to Nihon Hidankyo for their activism against nuclear weapons. The 2024 Nobel Peace Prize Award Ceremony may be viewed at https://youtu.be/zqvPpz1huIw

2. The International Campaign Against Nuclear Weapons (ICAN) and other international organisations lobbied from 2006 for nuclear weapons to be outlawed on humanitarian grounds: their efforts culminated in the Treaty on the United Nations Prohibition of Nuclear Weapons being passed in 2017. This achievement is documented in the film *The Beginning of the End of Nuclear Weapons* (duration 56 minutes), which is accessible at https://www.youtube.com/watch?v=qzWyYuYLxIM

Science Lessons

Here are some ideas for science lessons on topics relating to the bombings of Hiroshima and Nagasaki:

- **Explore nuclear science history**

Research the scientific context of nuclear weapons development, including significant milestones and the work of key scientists (e.g., Albert Einstein, Marie Curie, Lise Meitner, Robert Oppenheimer).

- **Analyse theories**

Examine scientific theories underpinning nuclear weapons, such as special relativity and nuclear physics.

- **Discuss responsibilities and ethics in science**

Carry out case studies of scientists whose work enabled nuclear weapons and debate their contributions to science.

Civics and Ethics

Discuss the ethical implications of using nuclear weapons, the impact on human lives, and the ongoing efforts towards disarmament and peace.

Useful resources:

1. See **Resource F** for the paper on the nuclear era (includes information about ICAN).
2. See **Resource G** for information about several local organisations working for peace and disarmament.

Ethical Considerations

Discuss the ethical implications of using nuclear weapons, and the concept of "just war".

Lessons Learned

Reflect on the lessons of Hiroshima and Nagasaki, including the dangers of war, the importance of diplomacy, and the pursuit of peace.

Explore barriers to peace; conflict resolution; International institutions such as the United Nations and the International Committee of the Red Cross (ICRC); the peace movement and resistance to war.

Global Impact

Consider the broader global impact of the bombings, including the rise of the nuclear age and the ongoing threat of nuclear war.

Literature and Language Arts

Analyse primary source materials like letters, diaries, and survivor accounts, as well as poems and stories inspired by the events.

Useful resources:

1. see **Resource A** for links to survivor stories
2. see **Resource B** for a list of children's story books about the bombings

Debates

Facilitate debates on the morality and necessity of using atomic bombs, allowing students to explore different perspectives and engage in critical thinking.

Some ideas for debate topics are:

- Was the bombing of Hiroshima and Nagasaki necessary to end World War II in the Pacific?
- Can the use of nuclear weapons be justified in war?
- Can nuclear weapons be justified for deterrence?
- Can nuclear weapons win a war?

Art and Creative Expression

Encourage students to create artwork, poems, and other forms of expression to reflect on the impact of the bombings and promote peace. Consider activities like designing a peace memorial, folding origami cranes, or exploring the symbolism of these events through art. Traditional Japanese crafts like paper lanterns or calligraphy could also be explored.

Information about folding paper cranes, lanterns and peace poles is provided in the Specific Activities section below. Some additional specific ideas are:

Peace Memorial

Students can create a classroom memorial dedicated to the victims of Hiroshima and Nagasaki, including a poem, peace cranes, and other symbolic art pieces.

Symbolic Art

Encourage students to express their feelings and understanding of the events of Hiroshima and Nagasaki through various art forms like drawing, painting, collages or sculpting. Focus on themes of peace, hope, and remembrance.

Creative Writing

Encourage students to write poems, short stories, or fictional narratives about the experience of the bombings, or the aftermath.

Research and Presentation

Students can research the events of Hiroshima and Nagasaki and present their findings through art, such as murals, posters, or even a digital art project. Posters could include compelling quotes from survivor stories (see Resource A for links).

School and Community Events

Organise events that bring together students, educators, and community members to reflect on the events and promote peace and understanding.

Memorials and Installations

Students can collaborate on creating memorials or art exhibitions of students' creation within the school to honour the victims and promote reflection on the events. Community members could be invited to view students' creations via a school open day.

Memorial Services

Hold memorial services to reflect on the events and honour the lives lost. These could be held at the school for students only, inclusive of family and friends, or with an open invitation to members of the community.

"Silent Walk" or "Vigil"

Organise a silent walk or vigil to remember the victims and raise awareness about the need for peace. This could be a school event or coordinated with community plans. Students may like to hold a commemorative object, such as their own creative work, during the walk/vigil.

Community Events

Schools may engage with their local community in devising or organising other commemorative events. This might include installing memorials or exhibitions of students' art and creative expressions in civic spaces.

Specific Activities

"Peace Cranes" Project

Encourage students to make paper cranes, a symbol of peace, as a way to honour the victims and promote hope for the future. Throughout Asia, the crane is a symbol of happiness and eternal youth. In Japan, the crane is one of the mystical or holy creatures (others include the dragon and the tortoise) and symbolises good fortune and longevity because of its fabled life span of a thousand years.

The Peace Crane Project invites students worldwide to fold an origami crane, write a message of peace on its wings, and exchange it with another student globally. This project helps students learn about peace, make friends, improve skills, learn geography, discover new cultures, and empowers them to make a positive impact. It's FREE to participate! Even if you're not ready for a global exchange, check out their resources at Peace Crane Project. Instructions for making a paper crane are also provided in **Resource C**.

Schools can also arrange for Peace Cranes to be sent to Hiroshima and be placed at the Children's Peace Memorial.

Address for Sending Paper Cranes:
c/o Hiroshima Peace Culture Foundation
Peace Promotion Division, International Peace Promotion Department
Citizens Affairs Bureau, City of Hiroshima
1-5 Nakajima-cho, Naka-ku, Hiroshima City, Japan 730-0811

For more information visit Paper Cranes and Children's Peace Monument

Make Your Own Peace Pole

A Peace Pole is an internationally-recognised symbol of the hopes and dreams of the entire human family, standing vigil in silent prayer for peace on earth. Each Peace Pole bears the message ***May Peace Prevail on Earth*** in different languages on each of its four or six sides. There are estimated to be over 250,000 Peace Poles in every country in the world dedicated as monuments to peace. The Peace Pole Project is a now a Global Movement spreading the universal message of peace.

Students may create their own paper peace pole using the pattern at **Resource D**.

Make a Paper Lantern

Students may create lanterns for use in school lantern events, or memorials and other commemorative installations and events to raise awareness for the event and honour Japanese culture.

Students may create their own lanterns using the pattern at **Resource E**.

Resource A

Survivor Stories

The "hibakusha" are survivors of the atomic bombs dropped on Hiroshima and Nagasaki. Despite enduring radiation sickness, loss of family and friends, and discrimination, many have turned their tragedies into a campaign for peace and a nuclear-free world.

Written testimonies

Hibakusha testimonies may be found on the following websites (plus others):

1. Nihon Hidankyo
   https://www.ne.jp/asahi/hidankyo/nihon/english/weapons/weapons2.html
2. Hiroshima Peace Memorial Museum https://hpmm-db.jp/en/
3. Nagasaki Peace Museum https://nagasakipeace.jp/en/search/survivors/

Video stories

Junko's Story: Surviving Hiroshima's Atomic Bomb (10 minutes)
This written piece with short video is Junko's story as a 13-year-old at high school in Hiroshima when the bomb fell. It includes a few bomb-damaged everyday items as well as Junko talking about her experiences in Japanese (with good English subtitles). She lives in Sydney. *Recommended for high school class students as a general introduction to the topic.*
https://www.sbs.com.au/hiroshima/

The Silent Witness: A Survivor's Story of Hiroshima (17 minutes)
A documentary about Tomiko Morimoto West's experience as a 13-year-old girl in Hiroshima, Japan, on August 6, 1945, the day the first atomic bomb was dropped. West, now in her 90s, has chosen to share her story for the first time in the hopes of promoting peace in a world rife with conflict. The film won the Emmy Award for Outstanding Short Documentary category as part of the 45th Annual News & Documentary Emmy® Awards.
https://www.youtube.com/watch?v=ouzfAL8pKcE&pp=0gcJCfcAhR29_xXO

Keeping the Hibakusha Message Alive (12 minutes)
Eighty years after the atomic bombings in Japan, the number of survivors known as hibakusha continues to decrease. A man in Nagasaki is working to pass on their message of peace to younger generations. A short video from The Japan Broadcasting Corporation.
https://youtu.be/kF2MsxkE304?si=XiYisAMhh6iVJ6qp

Resource B

Books about Hiroshima and Nagasaki

Sourced from Pragmatic Mom https://www.pragmaticmom.com/2015/08/hiroshima-bombing-kids-books/

AGES 4 and up

My Hiroshima by Junko Morimoto

This is author and illustrator Junko Morimoto's first-hand account of experiencing the atomic bombing of Hiroshima. She was born in Hiroshima City, Japan, and witnessed firsthand the devastation it caused. This book gets graphic, as it should, describing the aftermath of the bomb explosion. [picture book, ages 4 and up]

The Paper Crane by Molly Bang

A kind man who owns a restaurant on a busy street prospers until a new road is built and no one uses the old one. The man becomes very poor and, on many days, no one stops by at all. One day, a stranger comes and though he has no money, the kind man makes him a meal fit for a king. In return, the stranger shows him how to fold a crane from a paper napkin. This crane is special; when the kind man claps his hand, the bird comes to life and dances. News of this wondrous bird spreads and people flock to his restaurant again. In time, the stranger comes back. This time the stranger plays the flute that makes the bird dance like never before. When he finishes, he climbs on the back of the crane and they both fly away, never to be seen again. [picture book, ages 4 and up]

AGES 8 and up

The Peace Tree from Hiroshima: Little Bonsai with a Big Story by Sandra Moore, illustrated by Kazumi Wilds

Itaro, Wijiro, Somegoro, and Marusu — four generations of Yamaki men — took care of the special bonsai tree from Miyajima. When the atomic bomb exploded in Hiroshima, it was just two miles away from their home. The Yamaki family decides to gift their precious bonsai tree to the United States in a gesture of hope and peace. It resides today in the National Arboretum in Washington. Masaru's grandson Akira visited it and thus the circle continues. A tree that inspires peace. [historical fiction picture book, ages 8 and up]

Hiroshima by Laurence Yep

Based on real accounts by Hiroshima survivors, the fictional story of twelve-year-old Sachi follows her witness to the devastation in her city as a result of the bombing and describes her healing process as she helps to rebuild her home. [middle grade, ages 8 and up]

Sadako and the Thousand Paper Cranes by Eleanor Coerr

Sadako is based on a real little girl who lived in Japan from 1943 to 1955. She was in Hiroshima when the bomb was dropped. Ten years later she died from leukemia, a result of the radiation from the atomic bomb. Her courage inspired countless children in Japan and around the world. This is her story. [chapter book, ages 8 and up]

One Thousand Paper Cranes: The Story of Sadako and the Children's Peace Statue by Ishii Takayuki

A nonfiction companion book to ***Sadako and the Thousand Paper Cranes***, this tells the story of how Sadako's peace statue came to be. Sadako had actually folded more than 1,500 paper cranes before dying at age 12. She was in 7th grade. Her classmates rallied and created a movement so broad in trying to raise money for a marker for Sakado that, in the end, they raised an astounding $450,000! Her memorial statue stands today in Hiroshima at the Peace Memorial Park.

AGES 9 and up

The Complete Story of Sadako Sasaki by Sue Mantle Dicicco and Masahiro Sasaki

Review from Ms. Yingling Reads:

"This is an excellent overview of what happened in Hiroshima, from the viewpoint of the effects of the bombing on one family. While I was familiar with Sadako's story, I appreciated that this really was a more complete version, encompassing the family's life before, during, and just after the bombing, as well as a depiction of Sadako's life before she became ill. This made the story even more effective and poignant. The aftermath of her death, especially with the input of her brother, was very moving as well. Combined with this fresh, updated cover, I can see this being very popular in elementary or middle schools, where it is never too early to gently inform students about the grim effects of war." [middle grade, ages 9 and up]

Hiroshima and Nagasaki: The Atomic Bombings That Shook the World by Michael Burgan

Vivid storytelling brings World War II history to life and place readers in the shoes of the people who experienced the atomic bombings of Hiroshima and Nagasaki, Japan. From the development of the bombs and the decision to use them to the moments they were dropped and the devastation they wrought, readers get a firsthand look at events that truly shook the world. Suspenseful, dramatic events unfold in chronological, interwoven stories from the different perspectives of people who experienced the events while they were happening. Narratives intertwine to create a breathless, "What's Next?" kind of read. Students gain a new perspective on historical figures as they learn about real people struggling to decide how best to act in a given moment. [middle school; ages 9-14]

AGES 10 and up

Soul Lanterns by Shaw Kuzki

Twelve-year-old Nozomi lives in Hiroshima many decades after it was attacked with a nuclear bomb. Every year, she participates in a paper lantern-floating ceremony to honor the deceased. Her mother always releases a white lantern with no name, and as she begins to dig into the lost stories of what happened on August 6, 1945, she finds that a project she is working on is helping to heal her community. This story speaks to the urgent need for peace in our world. [middle grade, ages 10 and up]

On the Horizon by Lois Lowry

Review from Children's Books Heal: "Lois Lowry personalizes WWII's most infamous events — Pearl Harbor and Hiroshima — for young readers who may not be familiar with this period of our history. It brings history alive through the moving and heartbreaking stories of ordinary individuals, who are unaware of what will happen at 8:15 a.m. Some survived. Others didn't. The story is told in free verse which beautifully fits the tone of each vignette. It is told in two parts. Lowry carefully crafts each and every word so that readers feel that they have been part of something powerfully intimate. She does so with simplicity and sincerity. Kenard Pak's black-and-white illustrations are haunting and will evoke a response from readers. This book belongs in every school library." [middle grade, ages 10 and up]

Sachiko: A Nagasaki Bomb Survivor's Story by Caren Stelson

Review by Ms. Yingling Reads:"Sachiko Yasui was six years old when the US dropped the atomic bomb on Nagasaki. Miraculously, she survived with minimal immediate wounds, as did her parents, three siblings, and an uncle. While they struggled with housing, food, and general survival for quite some time, the real problem was the aftereffects of the radiation. Her brothers and uncle succumbed quickly, and cancer eventually took her sister and father as well. At the time of publication, however, Sachiko was still alive. She chose not to speak about her experiences until after the death of her mother in 1992. This book tells her story in an informative and yet gripping way. The historical background of the war is explained in understandable ways and adds depth to the narrative. Period photos, ads, and other documents are all helpful in explaining the larger picture, and the bibliography will help students find other books on the topic. [middle grade, ages 10 and up]

AGES 11 and up

The Last Cherry Blossom by Kathleen Burkinshaw

Review by Children's Books Heal: A captivating journey about life, love, secrets, pain, loss, and hope that will tug at your heart long after you put the novel down. The first half of the story focuses on family, cultural traditions, food preparation, ceremony, ritual, and the beautiful cherry blossom and New Year's festivals. Even though there are frequent air raid drills and black-out curtains, traditional Japanese life continues with a strong sense of community. The plot picks up momentum as more soldiers are being sent to war and not returning home. The Emperor sends out propaganda that the Japanese are beating the Allies in the Pacific, but the Americans bomb Nagasaki. There is an eruption of bright light and loud sounds. Yuriko's world implodes on that tragic day. [middle grade, ages 11 and up]

Resource C

How to Fold a Peace Crane

the PEACE CRANE project

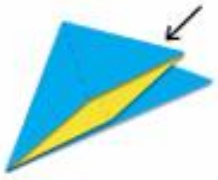
HOW TO FOLD A PEACE CRANE

To participate in The Peace Crane Project you will need a square piece of paper, plus markers, pens, paint, or pencils.

Blue represents the front side of the paper. Yellow represents the back. Your paper may look different.

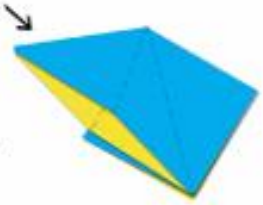
1. Fold your paper in half, diagonally.

2. Fold in half again.



3. Bring top point of top layer down to meet bottom point, opening paper as you go, to form a square.

4. Does your paper look like this? If so, turn it over. If no, go back to step 3.



5. Repeat fold on this side.

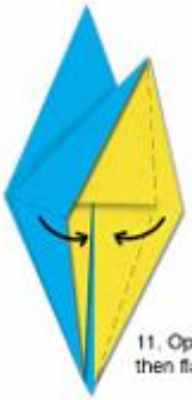
6. Fold sides of top layer to middle, then unfold.

7. Fold top down to side creases, then lift top layer upward.

8. Create a boat-like shape by folding sides inward.

9. Flatten boat shape inward.

10. Turn over and repeat folds on the other side.



11. Open to boat shape then flatten.

12. Fold sides of top layer to middle.

13. Does it looks like this? Then turn over and repeat the folds in step 12.

14. Reverse fold the bottom points.

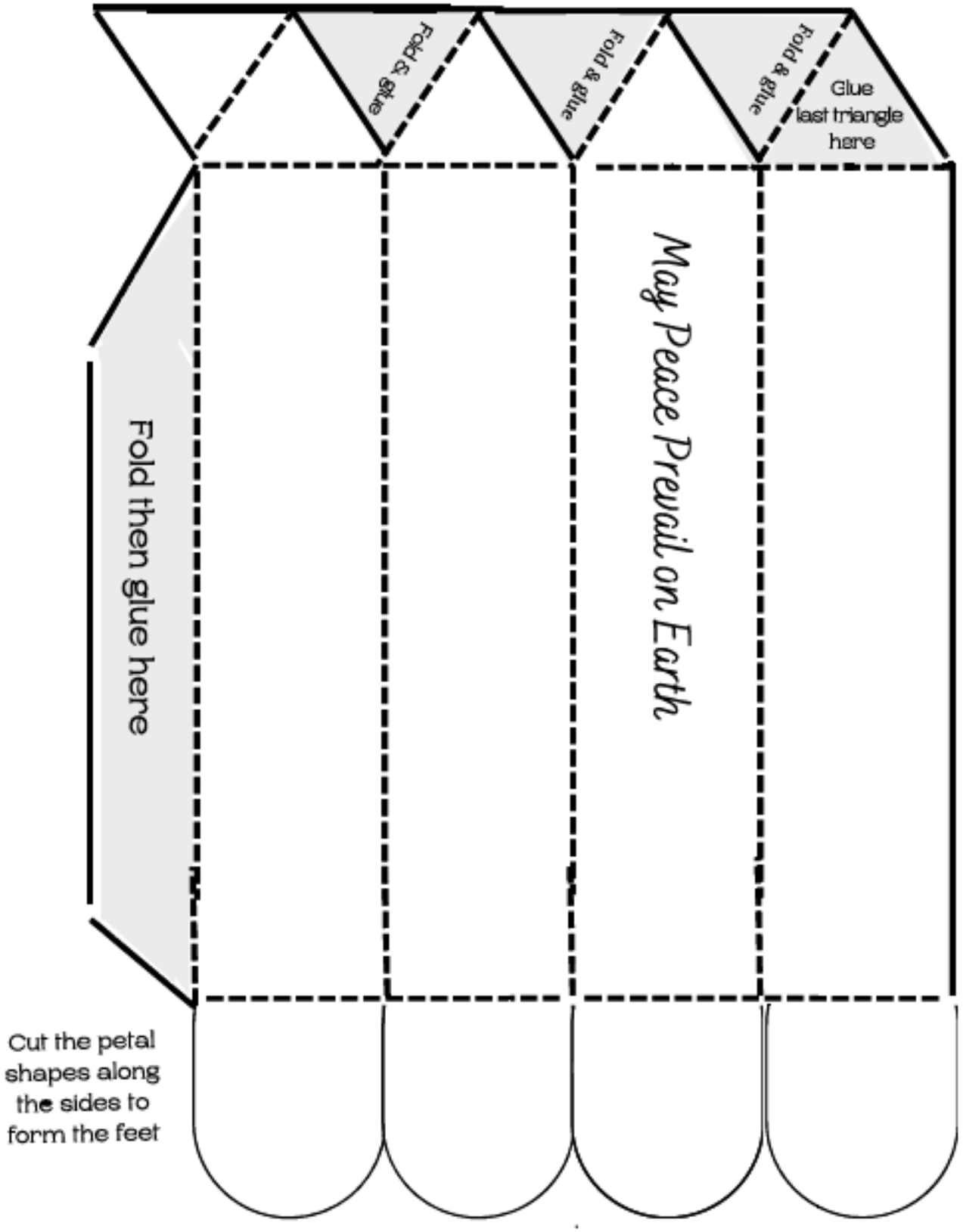
15. Reverse fold one point.

Write and draw words and pictures of peace on your Peace Crane. Share it with the world! Join the Peace Crane Exchange List:

PeaceCraneProject.org

Resource D

Make Your Own Paper Peace Pole



Write 'May Peace Prevail on Earth in 3 more languages and decorate pole.
Carefully cut on solid lines. Then fold to shape on dotted lines

Glue: You may require a glue pen to help stick the top in shape.

Tip: Wikipedia 'Peace Pole' under Further Reading has hundreds of translations.

Image: With thanks from the Goulburn Valley Peace Pole Project

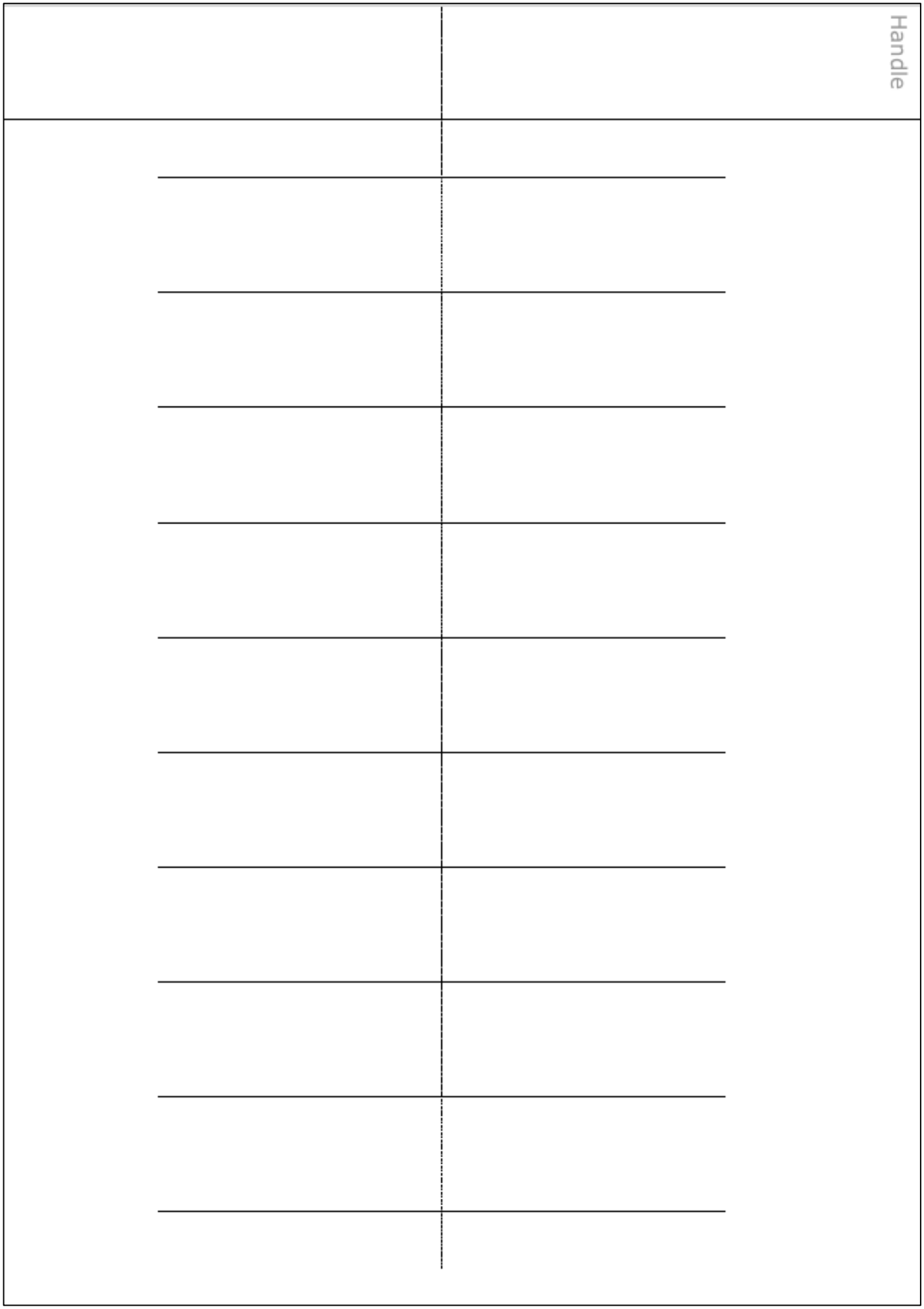
Resource E

How to Make a Paper Lantern

1. Cut off one end of the paper. Set aside to use as the handle.
2. Decorate the sheet using coloured pens, paint or glitter.
3. Fold your paper in half lengthwise along the dashed line.
4. Cut the marked lines along the sheet. (Do not cut the edge of the paper).
5. Unfold the paper.
6. Match the long edges together on the lantern and use tape to hold it in place.
7. Staple the handle to the top of the lantern.

Why not try printing the template onto coloured paper?

Enlarge this template to fit A4 paper



Resource F

The Nuclear (Atomic) Era

Compiled by Léonie Ebert

The Start of the Nuclear (Atomic) Era

The nuclear era began in earnest during World War II with the development of the first atomic bombs under the Manhattan Project, a top-secret U.S. government initiative. The project, which involved scientists such as J. Robert Oppenheimer, Enrico Fermi, and Niels Bohr, culminated in the successful detonation of the first nuclear weapon on July 16, 1945, at the Trinity test site in New Mexico. This marked the beginning of the atomic age.

The world witnessed the destructive power of nuclear weapons when the United States dropped two atomic bombs on Japan—Hiroshima on August 6, 1945, and Nagasaki on August 9, 1945. These bombings resulted in the deaths of over 200,000 people, mostly civilians, and forced Japan's surrender, effectively ending World War II. However, these events also sparked global debates about the ethics, safety, and future of nuclear technology.

After the war, nuclear technology expanded beyond military applications into energy production, medicine, and scientific research. The promise of "atomic energy" was seen as a revolutionary force for progress, but it also carried significant risks, as demonstrated by subsequent disasters and environmental impacts.

Nuclear Disasters: Testing in Australia and the Pacific

Nuclear Testing in Australia
Australia became a site for British nuclear testing during the Cold War. Between 1952 and 1963, the British government conducted a series of nuclear tests in remote parts of Australia, including:
1. Monte Bello Islands (1952, 1956): The first British atomic bomb, "Hurricane," was detonated here in 1952.
2. Emu Field (1953) Two "Totem" tests were conducted, releasing radioactive fallout that affected Indigenous populations and livestock.
3. Maralinga (1956–1963):** Seven major tests were carried out, along with hundreds of smaller trials involving plutonium dispersal. These tests contaminated vast areas of land, displacing local Aboriginal communities and leaving long-term environmental damage.

Despite claims of minimal risk, many Australians and Indigenous groups suffered from radiation exposure, leading to health issues like cancer and birth defects. Decades later, cleanup efforts have been criticized as inadequate, and the legacy of these tests remains controversial.

Nuclear Testing in the Pacific
The Pacific region also bore the brunt of nuclear testing, particularly by the United States and France:

1. U.S. Tests in the Marshall Islands (1946–1958): The U.S. conducted 67 nuclear tests in the Marshall Islands, most notably the Castle Bravo test in 1954—the largest-ever U.S. nuclear explosion. Fallout from this test severely impacted nearby atolls, contaminating water supplies and food sources. Many Marshallese were forcibly relocated and continue to suffer from radiation-related illnesses today.

2. French Tests in French Polynesia (1966–1996): France conducted nearly 200 nuclear tests in Mururoa and Fangataufa atolls. The tests caused widespread environmental destruction, including coral reef damage and seismic activity. Local populations reported increased rates of cancer and other diseases due to radiation exposure.

These tests not only caused immediate devastation but also left lasting scars on ecosystems, human health, and cultural heritage. International protests eventually led to bans on atmospheric and underwater nuclear testing, though underground testing continued until the Comprehensive Nuclear-Test-Ban Treaty (CTBT) was adopted in 1996.

Future Disadvantages of Nuclear Technology

While nuclear technology has brought significant advancements, its disadvantages cannot be ignored:

1. Environmental Impact: Uranium mining and nuclear waste disposal pose serious environmental challenges. Spent fuel rods remain radioactive for thousands of years, requiring secure storage solutions that are costly and complex.

2. Risk of Accidents: Major nuclear accidents, such as those at Chernobyl (1986) and Fukushima (2011),highlight the catastrophic consequences of system failures or natural disasters. Such incidents release large amounts of radiation, causing loss of life, economic damage, and long-term ecological harm.

3. Proliferation Risks: The spread of nuclear weapons remains a grave concern. Countries developing civilian nuclear programs could potentially divert resources toward military purposes, increasing global instability.

4. High Costs: Building and maintaining nuclear power plants is expensive. Additionally, decommissioning old reactors and managing their waste adds to the financial burden.

5. Public Fear and Opposition: Public perception of nuclear technology is often shaped by fears of accidents, terrorism, misuse and concerns about waste storage and emissions. These issues can impede investment in nuclear energy and limit its adoption as a clean energy source.

Future Benefits of Nuclear Technology

Despite its drawbacks, nuclear technology offers several potential benefits:

1.Clean Energy Source: Nuclear power generates electricity without emitting greenhouse gases, making it a key player in combating climate change. Unlike fossil fuels, it provides a reliable baseload power supply, complementing renewable energy sources like wind and solar. However, expense, waste storage and dangers of emissions need to be considered.

2. Medical Applications: Radioisotopes produced through nuclear technology are essential in diagnosing and treating diseases like cancer. Techniques such as PET scans and radiation therapy save millions of lives annually.

3. Scientific Research: Nuclear reactors and particle accelerators enable groundbreaking research in fields like materials science, astrophysics, and biology. They help us understand fundamental aspects of matter and energy.

4. Space Exploration: Nuclear propulsion systems could revolutionize space travel by providing efficient and long-lasting energy for missions to distant planets and beyond.

5. Food Security: Irradiation techniques extend the shelf life of food products by killing bacteria and pests, reducing spoilage and improving food safety.

6. Desalination and Water Purification: Nuclear energy can power desalination plants, addressing water scarcity in arid regions.

The nuclear era began with the promise of unprecedented power and progress but quickly revealed its darker side through wartime destruction and environmental contamination. Disasters stemming from nuclear testing in places like Australia and the Pacific underscore the need for responsible stewardship of this technology. While the future holds both risks and rewards, balancing the benefits of nuclear energy and medicine against its dangers will require international cooperation, stringent safety measures, and ethical considerations. As humanity navigates the complexities of the 21st century, the choices we make about nuclear technology will shape our collective destiny. Its future entails balancing significant benefits (clean energy, medical advances) against disadvantages (environmental harm, proliferation risks).

Certainly! In addition to the nuclear testing disasters in Australia and the Pacific, there have been several significant **nuclear energy-related disasters** worldwide. These incidents highlight the risks associated with nuclear power generation and underscore the need for stringent safety protocols. Below is an overview of major nuclear energy disasters.

Major Nuclear Energy Disasters Worldwide

1. Chernobyl Disaster (1986) - Ukraine (then part of the Soviet Union)
Cause:
A flawed reactor design, combined with operator errors during a safety test, led to a catastrophic explosion at Reactor No. 4 of the Chernobyl Nuclear Power Plant.
Impact:
- Massive release of radioactive materials into the atmosphere, affecting large parts of Europe.
- Immediate deaths of 31 people, with thousands more developing radiation-related illnesses over time.
- Long-term environmental damage, rendering the surrounding area uninhabitable for centuries.
- Economic costs exceeded $200 billion, including cleanup efforts and resettlement of affected populations.
Legacy:
The Chernobyl disaster remains one of the worst nuclear accidents in history and led to significant reforms in nuclear safety regulations globally.

2. Fukushima Daiichi Disaster (2011) - Japan
Cause:
A magnitude 9.0 earthquake and subsequent tsunami overwhelmed the Fukushima Daiichi Nuclear Power Plant's cooling systems, causing meltdowns in three reactors.
Impact:
- Large-scale release of radioactive materials into the air and ocean.
- Evacuation of over 150,000 people from nearby areas, many of whom remain displaced.
- Contamination of agricultural land and fisheries, impacting Japan's economy and food supply.
- Estimated cleanup costs exceed $200 billion, making it one of the costliest industrial disasters ever.
Legacy:
The Fukushima disaster reignited global debates about the safety of nuclear power, especially in regions prone to natural disasters. Many countries reconsidered their reliance on nuclear energy.

3. Three Mile Island Accident (1979) - United States
Cause:
A combination of mechanical failures and human error led to a partial meltdown of the reactor core at the Three Mile Island Nuclear Generating Station in Pennsylvania.
Impact:
-small amounts of radioactive gases were released, but no immediate fatalities or acute health effects were reported.
- The incident caused widespread public fear and eroded trust in nuclear power.
- Cleanup costs reached nearly $1 billion, and the damaged reactor was permanently shut down.
Legacy:
While the accident had limited environmental and health impacts, it marked a turning point in U.S. nuclear policy, leading to stricter safety standards and a decline in new nuclear plant construction.

4. Kyshtym Disaster (1957) - Soviet Union
Cause:
An explosion at the Mayak nuclear fuel reprocessing plant in the Ural Mountains due to improper cooling of radioactive waste.
Impact:
- Release of massive amounts of radioactive material, contaminating an area of approximately 20,000 square kilometers.

- Thousands of people were exposed to radiation, resulting in increased cancer rates and other health issues.
- The disaster was kept secret by the Soviet government for decades, delaying proper response and exacerbating its effects.

Legacy:
Known as one of the most severe nuclear accidents before Chernobyl, the Kyshtym disaster highlighted the dangers of inadequate waste management and lack of transparency.

5. Windscale Fire (1957) - United Kingdom
Cause:
A fire broke out in the graphite core of the Windscale nuclear reactor in Cumbria due to overheating during routine operations.
Impact:
- Release of radioactive iodine and other isotopes into the environment.
- Increased cancer risks among local populations, particularly thyroid cancer cases.
- The incident prompted changes in reactor design and operational procedures.

Legacy:
The Windscale fire was the worst nuclear accident in UK history and contributed to greater awareness of the importance of safety in nuclear facilities.

6. Goiania Accident (1987) - Brazil
Cause:
Scrap dealers stole a radiotherapy device containing cesium-137 from an abandoned hospital and dismantled it, unaware of its hazardous nature.
Impact:
- Spread of radioactive contamination throughout the city of Goiania.
- Four deaths and hundreds of cases of radiation sickness.
- Extensive decontamination efforts required, costing millions of dollars.

Legacy:
This incident demonstrated the dangers of poorly secured radioactive materials and emphasized the need for better regulation and disposal practices.

Other Notable Incidents

While not full-scale disasters, several smaller-scale incidents have raised concerns about nuclear safety:
1.Sellafield Leak (UK, 2005): A leak of radioactive waste forced the closure of the Sellafield reprocessing plant.
2. Tokai Mura Criticality Accident (Japan, 1999):** Improper handling of uranium fuel resulted in a criticality accident, killing two workers and exposing others to high levels of radiation.
3. Palomares Incident (Spain, 1966):** A U.S. B-52 bomber carrying hydrogen bombs crashed, scattering radioactive material across Palomares.

Lessons Learned from Nuclear Energy Disasters

These disasters have taught the world valuable lessons about the risks and responsibilities associated with nuclear technology:
1. Safety First: ** Robust safety protocols and redundant systems are essential to prevent accidents.
2. Transparency: ** Governments and operators must prioritize transparency to build public trust and facilitate timely responses to crises.
3. Regulation: ** International bodies like the International Atomic Energy Agency (IAEA) play a crucial role in setting and enforcing safety standards.
4. Decommissioning and Waste Management: ** Proper disposal of radioactive waste and safe decommissioning of aging reactors are critical to minimizing long-term risks.
5. Alternative Energy Sources: ** Some countries, such as Germany, have accelerated transitions to renewable energy following nuclear disasters.

Balancing Risks and Rewards

The history of nuclear energy disasters underscores the dual-edged nature of this technology. On one hand, nuclear power provides a low-carbon energy source capable of addressing climate change. On the other hand, the potential for catastrophic accidents—and their long-lasting consequences—cannot be ignored. Moving forward, advancements in small modular reactors (SMRs), *thorium-based reactors**, and other innovative technologies may offer safer alternatives, but vigilance and accountability will remain paramount.

These incidents highlight the risks of nuclear power while emphasising the need for improved safety, regulation, and waste management. The long-term health effects of nuclear disasters, particularly those experienced in Japan after the atomic bombings of Hiroshima and Nagasaki and the Fukushima Daiichi nuclear accident, have provided critical insights into the impacts of radiation exposure on human health. These events have shaped our understanding of radiation biology, epidemiology, and public health policy Below is a detailed overview of what we have learned about the **long-term health effects from these incidents:**

1. Atomic Bombings of Hiroshima and Nagasaki (1945)

Key Observations

- The atomic bombings exposed hundreds of thousands of people to high levels of ionizing radiation, leading to both immediate and delayed health effects.
- Long-term studies, primarily conducted by the Radiation Effects Research Foundation (RERF), have tracked survivors (known as *Hibakusha*) over decades.

Long-Term Health Effects:

1. Cancer Risks:
   - Radiation exposure significantly increased the risk of developing various cancers, including leukemia, thyroid cancer, breast cancer, lung cancer, and stomach cancer.
   - Leukemia cases peaked within 5–10 years after exposure and declined thereafter, while solid tumors (e.g., lung and breast cancer) showed a more gradual increase over decades.
   - The risk of cancer was dose-dependent: higher radiation doses correlated with greater likelihood of developing cancer.
2. Non-Cancer Health Effects:
   - Chronic diseases such as cardiovascular disease and stroke were observed at higher rates among survivors compared to the general population.
   - Immune system suppression and accelerated aging were also reported.
3. Genetic Effects:
   - Contrary to early fears, no significant increases in genetic mutations or hereditary effects were found in the children of survivors. This suggests that direct radiation exposure primarily affects individuals rather than future generations.
4. Psychological and Social Impacts:**
   - Survivors faced lifelong psychological trauma, stigma, and social isolation due to their experiences and perceived "contamination."
   - Mental health issues, including post-traumatic stress disorder (PTSD), depression, and anxiety, persisted for decades.

2. Fukushima Daiichi Nuclear Accident (2011)

Key Observations:

- Unlike the atomic bombings, the Fukushima disaster involved lower levels of radiation exposure spread over a wider area. However, the evacuation of over 150,000 people led to significant social and psychological consequences.
- Ongoing studies by organizations like the **World Health Organization (WHO)** and the **United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)** continue to monitor health outcomes.

Long-Term Health Effects:
1. Cancer Risks:
   - While initial projections suggested a small increase in cancer risks (particularly thyroid cancer) among children exposed to radioactive iodine-131, actual incidence rates have been lower than expected.
   - Thyroid screening programs identified many cases of thyroid nodules and benign abnormalities, raising concerns about overdiagnosis rather than direct radiation effects.
2. Non-Cancer Health Effects:
   - Increased rates of chronic diseases, such as diabetes and hypertension, have been linked to stress and lifestyle changes caused by displacement and loss of livelihoods.
   - Studies show elevated mortality rates among elderly evacuees due to disruptions in healthcare access and social support networks.
3. Psychological and Social Impacts:
   - Psychological distress has been one of the most significant long-term health effects. Evacuees experienced high rates of PTSD, depression, and anxiety, exacerbated by uncertainty about returning home and concerns about radiation exposure.
   - Social fragmentation and economic hardship further compounded mental health challenges.
4. Environmental and Food Safety Concerns:
   - Persistent fears about radiation-contaminated food and water have influenced dietary habits and trust in government safety measures.
   - Long-term monitoring of agricultural products and seafood remains essential to ensure public confidence.

Lessons Learned About Radiation Health Effects**

1. Radiation Biology and Dosimetry:**
- The relationship between radiation dose and health effects is now better understood, thanks to data from Hiroshima, Nagasaki, and Fukushima.
- Low-dose radiation exposure (as seen in Fukushima) poses a smaller but still measurable risk compared to acute high-dose exposures (as seen in Hiroshima and Nagasaki).
2. Cancer Latency Periods:**
- Different types of cancer have varying latency periods. For example:
  - Leukemia typically appears within 5–10 years.
  - Solid tumors, such as lung and breast cancer, may take 20–30 years or more to manifest.
3. Psychosocial Factors:**
- Psychological and social impacts often outweigh direct physical health effects in low-dose radiation scenarios like Fukushima.
- Addressing mental health needs and rebuilding community resilience are crucial components of disaster recovery.
4. Public Communication and Trust:
- Misinformation and lack of transparency can exacerbate fear and mistrust, as seen in both Fukushima and Chernobyl.
- Effective communication strategies are vital to managing public perception and ensuring compliance with safety guidelines.

Broader Implications for Global Health Policy

1. Improved Radiation Protection Standards:
- International organizations, such as the IAEA and WHO, have updated safety standards based on lessons from these disasters.
- Guidelines now emphasize minimizing unnecessary radiation exposure, especially for vulnerable populations like children and pregnant women.

2. Health Surveillance Systems:
- Longitudinal studies of affected populations help identify emerging health trends and inform preventive measures.
- Examples include the RERF's Life Span Study and Japan's ongoing Fukushima Health Management Survey.
4. Preparedness and Response Planning:
- Governments worldwide have adopted stricter emergency response plans for nuclear accidents, focusing on rapid evacuation, decontamination, and medical care.
- Training programs for healthcare professionals address the unique challenges of treating radiation-related illnesses.

Conclusion on health effects

The long-term health effects of nuclear disasters in Japan—whether from the atomic bombings or the Fukushima accident—highlight the complex interplay between physical, psychological, and social factors. While radiation exposure poses clear risks, particularly for cancer development, the broader impacts of displacement, stigma, and mental health challenges underscore the importance of holistic approaches to disaster management. Long-term health effects from nuclear disasters in Japan include increased cancer risks, non-cancer diseases, psychosocial impacts, and environmental concerns. Key lessons involve understanding radiation biology, addressing mental health needs, improving communication, and enhancing global safety standards.

Environmental effects from nuclear incidents

The environmental effects of nuclear disasters and activities are profound, long-lasting, and multifaceted. Radiation contamination, habitat destruction, and ecosystem disruption are among the most significant consequences. Below is a detailed analysis of what we have learned about how nuclear disasters—such as those in Hiroshima and Nagasaki, Chernobyl, Fukushima, and nuclear testing sites—impact the environment,

1. Immediate Environmental Effects**

1. Radiation Release:**
- Nuclear explosions or accidents release large quantities of radioactive isotopes into the atmosphere, soil, and water. These include:
  -Cesium-137 and Strontium-90: Long-lived isotopes that persist in the environment for decades.
  - Iodine-131: Shorter-lived but highly dangerous to humans and animals due to its concentration in the thyroid gland.
  - Plutonium-239: Extremely toxic and long-lasting, with a half-life of over 24,000 years.
2. Air and Water Contamination:
- Fallout from nuclear explosions spreads radioactive particles over vast areas, contaminating air, surface water, and groundwater.
- In Fukushima, radioactive materials leaked into the Pacific Ocean, affecting marine ecosystems and fisheries.
3. Soil Degradation:
- Radioactive particles settle on soil, rendering it unsafe for agriculture. Crops grown in contaminated soil absorb radionuclides, which can enter the food chain.
- For example, farmland near Chernobyl remains unusable decades later due to high cesium levels.

2. Long-Term Environmental Effects**

1. Ecosystem Disruption:
- Radiation damages plant and animal DNA, leading to mutations, reduced fertility, and population declines.
- In Chernobyl's **Exclusion Zone**, studies have documented abnormalities in wildlife, such as higher rates of cataracts in birds and smaller brain sizes in mammals.
- However, some species have adapted to the absence of human activity, creating an unintended "wildlife sanctuary." This paradox highlights the dual impact of radiation exposure and reduced human interference.
2. Forest and Vegetation Damage:
- High radiation levels kill vegetation directly or stunt growth over time.
- In Hiroshima and Nagasaki, trees within close proximity to the blast zones were completely destroyed. Some resilient species, like the ginkgo tree, survived and became symbols of recovery.
3. Water Systems:
- Radioactive contamination of rivers, lakes, and oceans harms aquatic life. Fish and other organisms absorb radionuclides, which can accumulate up the food chain (biomagnification).
- In Fukushima, elevated levels of cesium were detected in fish years after the accident, impacting local fishing industries.
4. Radioactive Waste Management:
- Spent nuclear fuel and contaminated materials require secure storage for thousands of years. Improper disposal risks further environmental contamination.
- For instance, waste from uranium mining and processing has polluted landscapes in countries like Australia and Kazakhstan.

3. Specific Examples of Environmental Impacts

1. Chernobyl (1986):
- The explosion released approximately **50 million curies** of radiation, contaminating over 200,000 square kilometers across Europe.
- The Red Forest, located near the reactor, died due to acute radiation exposure and remains one of the most contaminated areas in the world.
- Groundwater contamination continues to pose risks, despite efforts to contain the site with the New Safe Confinement structure.
2. Fukushima (2011):
- Over 1 million tons of contaminated water were stored at the plant, raising concerns about leaks into the ocean.
- Marine ecosystems suffered from initial radiation releases, though recovery has been observed in some species.
- Decontamination efforts, including topsoil removal, have altered local landscapes and displaced wildlife.
3. Nuclear Testing Sites:
- Testing in places like the Marshall Islands, Australia, and the Nevada Test Site left lasting scars:
  - Coral reefs and marine life around Bikini Atoll were devastated by U.S. tests like Castle Bravo.
  - Radioactive contamination rendered parts of these regions uninhabitable and disrupted traditional ways of life for Indigenous communities

4. Broader Environmental Concerns

1. Climate Change vs. Nuclear Energy:
- While nuclear power itself produces no greenhouse gases during operation, the environmental costs of uranium mining, waste management, and potential accidents must be weighed against its benefits as a low-carbon energy source.
2. Biodiversity Loss:
- Radiation hotspots reduce biodiversity by killing sensitive species and favouring hardier, less diverse organisms.
- Long-term exclusion zones (e.g., Chernobyl) demonstrate both the resilience and fragility of ecosystems under extreme stress.
3. Human-Induced Changes:
- Evacuations following nuclear disasters often lead to secondary environmental impacts, such as abandoned infrastructure deteriorating and polluting surrounding areas.
- Conversely, reduced human presence in exclusion zones allows nature to recover in unexpected ways, highlighting the complex relationship between humans and the environment.

Lessons Learned and Mitigation Strategies**

1. Improved Safety Protocols:
- Stringent safety measures for nuclear power plants aim to prevent future accidents and minimize environmental damage.
- Advances in reactor design, such as passive cooling systems, reduce reliance on external power sources during emergencies.
2. Remediation Efforts:
- Techniques like phytoremediation (using plants to absorb contaminants) and soil washing help clean up radioactive sites.
- In Fukushima, extensive decontamination involved removing topsoil, cleaning buildings, and monitoring radiation levels.
3. International Cooperation:
- Global agreements, such as the **Comprehensive Nuclear-Test-Ban Treaty (CTBT)**, seek to limit environmental harm from nuclear testing.
- Collaborative research initiatives improve understanding of radiation's ecological impacts and inform conservation strategies.

Conclusion on environmental effects

Nuclear disasters and activities have devastating environmental effects, ranging from immediate contamination to long-term ecological disruption. While the natural world can exhibit remarkable resilience, the persistence of radioactive materials ensures that their impacts endure for generations. By learning from past incidents and adopting sustainable practices, humanity can mitigate these effects and protect the environment for the future. The environmental effects of nuclear disasters include radiation contamination, ecosystem disruption, soil degradation, water pollution, and loss of biodiversity. Key examples include Chernobyl's Red Forest, Fukushima's marine contamination, and nuclear testing fallout in places like the Marshall Islands. Long-term recovery requires improved safety protocols, remediation efforts, and international cooperation.

Informing the world about the horrors of nuclear weapons

The horrors of nuclear weapons have been a central focus of global advocacy and diplomacy since the atomic bombings of **Hiroshima and Nagasaki** in 1945. Japan, the United Nations, and other nations and organizations have played pivotal roles in raising awareness about the catastrophic consequences of nuclear weapons and advocating for their elimination. Below is an overview of what has been done historically and what efforts are ongoing today:

Historical Efforts to Inform the World

1. Japan's Role
- Hibakusha Testimonies: Survivors of the atomic bombings, known as *Hibakusha*, have shared their personal stories globally to highlight the human suffering caused by nuclear weapons. Their testimonies emphasize the physical, psychological, and social impacts of radiation exposure.
- Peace Museums: Cities like Hiroshima and Nagasaki established museums and memorials to educate visitors about the bombings. These institutions serve as reminders of the devastation and advocate for peace and disarmament.
- Annual Peace Ceremonies: Since 1947, Hiroshima and Nagasaki have hosted annual memorial ceremonies on August 6 and 9, respectively, to honor victims and call for the abolition of nuclear weapons.
2. The United Nations' Role
- Establishment of International Bodies:**
  - The United Nations Atomic Energy Commission (UNAEC) was created in 1946 to address the dangers of nuclear weapons and promote peaceful uses of atomic energy.
  - The International Atomic Energy Agency (IAEA) was founded in 1957 to monitor nuclear activities and prevent proliferation.
- Resolutions and Treaties:
  - The UN General Assembly adopted resolutions condemning nuclear weapons and promoting disarmament.
  - Key treaties include:
    - Partial Test Ban Treaty (1963): Prohibited nuclear tests in the atmosphere, outer space, and underwater.
    - Non-Proliferation Treaty (NPT, 1968): Aimed to prevent the spread of nuclear weapons while promoting disarmament and peaceful nuclear energy use.
    - Comprehensive Nuclear-Test-Ban Treaty (CTBT, 1996): Banned all nuclear explosions, though it has not yet entered into force due to non-ratification by key states.
3. Global Advocacy and Civil Society**
- Campaigns and Movements: Organizations like the Pugwash Conferences on Science and World Affairs and the International Physicians for the Prevention of Nuclear War (IPPNW) have worked to educate the public and policymakers about the dangers of nuclear weapons.
- Nobel Peace Prizes: Several anti-nuclear activists and organizations have been awarded the Nobel Peace Prize, including the IPPNW (1985) and the International Campaign to Abolish Nuclear Weapons (ICAN, 2017).

Current Efforts to inform the World

1. Japan's Ongoing Advocacy**
- Global Leadership: Japan remains one of the strongest voices against nuclear weapons, leveraging its unique position as the only country to have experienced nuclear attacks.
- Support for Disarmament Initiatives: Japan actively supports international efforts to eliminate nuclear weapons, including the NPT and the Treaty on the Prohibition of Nuclear Weapons (TPNW, 2017). However, Japan has not yet signed or ratified the TPNW, citing concerns about its reliance on the U.S. nuclear umbrella for security.
Educational Programs: Japan promotes education about the atomic bombings through school curricula, museum exhibits, and international outreach programs.
The Japanese organisation *Nihon Hidankyo* was awarded the Nobel Peace Prize for its efforts to achieve a world free of nuclear weapons.

https://www.nobelpeacecenter.org/en/nobel-peace-prize
https://www.nature.com/research-intelligence/Nobel-Peace-Prize-2024

2. United Nations' Current Actions**
-Treaty on the Prohibition of Nuclear Weapons (TPNW): Adopted in 2017, the TPNW is the first legally binding international agreement to comprehensively ban nuclear weapons. It prohibits their development, testing, production, possession, transfer, and use. As of 2023, over 90 countries have signed the treaty, and more than 60 have ratified it.
- International Day for the Total Elimination of Nuclear Weapons: Established in 2013, this day (September 26) raises awareness and mobilizes support for disarmament.
- Disarmament Education: The UN conducts educational campaigns and workshops to inform younger generations about the risks of nuclear weapons and the importance of disarmament.

3. Other Nations and Organizations
-The International Campaign to Abolish Nuclear Weapons (ICAN) is a global coalition of non-governmental organizations (NGOs) founded in 2007 working to eliminate nuclear weapons and ensure they are never used again
- Humanitarian Pledge: Initiated by Austria in 2014, this pledge calls for filling the "legal gap" in prohibiting nuclear weapons. Over 120 countries endorsed it, leading to the creation of the TPNW.
- Mayors for Peace: Founded by the mayors of Hiroshima and Nagasaki, this global network includes over 7,000 cities advocating for nuclear disarmament and peace education.
- Red Cross and Red Crescent Movement: This movement emphasizes the humanitarian consequences of nuclear weapons and supports the TPNW.

4. Scientific and Academic Contributions
- Researchers and scientists continue to study the long-term effects of nuclear weapons on health and the environment, providing evidence to support disarmament efforts.
- Universities and think tanks host conferences and publish reports highlighting the risks of nuclear proliferation and the benefits of disarmament.

5. Youth Engagement**
- Young activists and student groups are increasingly involved in anti-nuclear campaigns. For example:
  - ICAN’s youth wing organizes events and digital campaigns to engage younger audiences.
  - Social media platforms amplify messages about the dangers of nuclear weapons and the need for action.

Challenges and Criticisms**

While significant progress has been made, challenges remain:
- Nuclear-Armed States' Resistance: Countries like the U.S., Russia, China, France, and the UK oppose the TPNW, arguing that it undermines existing frameworks like the NPT.
- Geopolitical Tensions: Rising tensions between nuclear powers (e.g., U.S.-Russia, India-Pakistan) complicate disarmament efforts.
- Public Awareness Gaps: Many people, especially younger generations, lack knowledge about the realities of nuclear weapons due to fading memories of past disasters.

Conclusion on informing the World

Japan, the United Nations, and other nations and organizations have taken substantial steps to inform the world about the horrors of nuclear weapons and advocate for their elimination. Through treaties, education, survivor testimonies, and grassroots activism, they strive to ensure that the lessons of Hiroshima and Nagasaki are never forgotten. While challenges persist, ongoing efforts underscore humanity’s collective commitment to achieving a world free of nuclear weapons.

Japan, the UN, and other entities have raised awareness about nuclear weapons' horrors through survivor testimonies, treaties (e.g., NPT, TPNW), educational initiatives, and global campaigns. Current actions include promoting the TPNW, hosting disarmament events, and engaging youth. Challenges include resistance from nuclear-armed states and geopolitical tensions, but advocacy continues to push for a nuclear-free world.

Informing Adelaide about the horrors of the atomic bombing of the Japanese cities of Hiroshima and Nagasaki in 1945.

Commemoration of the bombings of Hiroshima and Nagasaki held since 1980s. The event is held at Peace Park each year on August 6th at 8 am.

The International Campaign to Abolish Nuclear Weapons (ICAN)

ICAN is a global coalition of non-governmental organizations (NGOs) working to eliminate nuclear weapons and ensure they are never used again. ICAN was founded in 2007 and has since become one of the most prominent voices advocating for nuclear disarmament. Its work focuses on raising awareness about the catastrophic humanitarian consequences of nuclear weapons, promoting international treaties to ban them, and mobilizing public support for disarmament. Below is an overview of ICAN's key activities and achievements:

1. Mission and Vision

- Mission: ICAN aims to stigmatize, prohibit, and eliminate nuclear weapons through a legally binding international treaty.
- Vision: A world free of nuclear weapons, where humanity is protected from the existential threat posed by these weapons.

2. Key Achievements

Advocacy for the Treaty on the Prohibition of Nuclear Weapons (TPNW):
- ICAN played a central role in the negotiation and adoption of the Treaty on the Prohibition of Nuclear Weapons (TPNW) in 2017. This landmark treaty:
  - Prohibits the development, testing, production, possession, transfer, use, or threat of use of nuclear weapons.
  - Requires states to assist victims of nuclear weapon use and testing and remediate contaminated environments.
  - Is the first legally binding agreement to comprehensively ban nuclear weapons.
- As of 2023, over 90 countries have signed the TPNW, and more than 60 have ratified it.
- ICAN was awarded the **Nobel Peace Prize** in recognition of its efforts to draw attention to the catastrophic humanitarian consequences of nuclear weapons and its ground-breaking work to achieve the TPNW.

3. Key Areas of Work**

a. Raising Awareness About Humanitarian Consequences:
- ICAN highlights the devastating effects of nuclear weapons on human health, the environment, and global security. It emphasizes that even a limited nuclear conflict could cause widespread famine, climate disruption, and millions of deaths.
- The campaign organizes events, publishes reports, and collaborates with scientists, medical professionals, and survivors (Hibakusha) to educate the public and policymakers.
b. Building a Global Movement: **
- ICAN coordinates a network of over **500 partner organizations** across more than 100 countries. These partners include peace groups, environmental organizations, faith-based groups, and youth movements.
- By uniting diverse stakeholders, ICAN amplifies its message and builds grassroots support for nuclear disarmament.
c. Engaging Governments:
- ICAN works directly with governments to promote the ratification and implementation of the TPNW.
- It organizes diplomatic conferences, briefings, and workshops to encourage states to join the treaty and fulfill their obligations under it.
d. Mobilizing Civil Society:
- ICAN empowers civil society to advocate for nuclear disarmament at local, national, and international levels.
- It provides resources, training, and tools to activists and encourages them to engage with decision-makers.
e. Promoting Youth Involvement:
- Recognizing the importance of engaging younger generations, ICAN runs programs like the **Youth for Disarmament** initiative.

- Young activists participate in campaigns, organize events, and use social media to spread awareness about nuclear weapons.
f. Countering Nuclear Deterrence Arguments:
- ICAN challenges the narrative that nuclear weapons provide security or stability. It argues that reliance on nuclear deterrence perpetuates global insecurity and increases the risk of accidental or intentional use.

4. Methods and Strategies

a. Public Education and Outreach:
- ICAN produces educational materials, including videos, infographics, and reports, to explain the dangers of nuclear weapons and the benefits of disarmament.
- It collaborates with schools, universities, and museums to integrate disarmament education into curricula.
b. Media and Communication:
- ICAN uses traditional and digital media to reach global audiences. It leverages platforms like Twitter, Instagram, and YouTube to share survivor stories, expert analysis, and campaign updates.
- The campaign also engages with journalists to ensure accurate reporting on nuclear issues.
c. Survivor Testimonies (Hibakusha):
- ICAN works closely with atomic bomb survivors (Hibakusha) and victims of nuclear testing to amplify their voices. Their firsthand accounts serve as powerful reminders of the human cost of nuclear weapons.
d. Advocacy at International Forums:
- ICAN participates in major international forums, such as the United Nations General Assembly and the Non-Proliferation Treaty (NPT) Review Conferences, to push for stronger commitments to disarmament.

5. Current Focus Areas

a. Universalization of the TPNW:
- ICAN continues to advocate for more countries to sign and ratify the TPNW, particularly those that possess or rely on nuclear weapons under "nuclear umbrella" arrangements.
b. Strengthening Norms Against Nuclear Weapons:
- Even in countries that have not joined the TPNW, ICAN works to build domestic support for disarmament and challenge policies that legitimize nuclear weapons.
c. Addressing Emerging Threats: **
- ICAN monitors developments in nuclear arsenals, missile systems, and artificial intelligence technologies that could increase the risk of nuclear war.d. Bridging Divides Between States:
- ICAN seeks to foster dialogue between nuclear-armed states and non-nuclear-armed states to reduce tensions and advance disarmament goals.

6. Challenges Faced by ICAN

- Resistance from Nuclear-Armed States: Countries like the U.S., Russia, China, France, and the UK oppose the TPNW, arguing that it undermines existing frameworks like the NPT.
- Public Apathy: Many people are unaware of the ongoing risks posed by nuclear weapons, making it harder to build widespread support for disarmament.
- Geopolitical Tensions: Rising conflicts and arms races complicate efforts to achieve progress on disarmament.

7. Conclusion

ICAN's work is vital in addressing one of the greatest threats to humanity: nuclear weapons. Through its advocacy, education, and mobilization efforts, ICAN has succeeded in

shifting the global conversation from deterrence to prohibition. While challenges remain, ICAN's tireless efforts continue to inspire hope for a safer, nuclear-free world.
ICAN works to abolish nuclear weapons by advocating for the Treaty on the Prohibition of nuclear weapons (TPNW), raising awareness about their humanitarian consequences, mobilizing civil society, and engaging governments. Its key achievements include the adoption of the TPNW and winning the 2017 Nobel Peace Prize. ICAN continues to focus on universalising the TPNW, strengthening norms against nuclear weapons, and educating the public about their dangers.

Countries which possess nuclear weapons

As of 2023, nine countries are known to possess nuclear weapons. These nations collectively hold an estimated 12,500 nuclear warheads, though the exact numbers are often classified or subject to speculation. Below is a list of these countries, along with details about their arsenals and policies:

1. United States
Number of Warheads: ~3,708 (deployed and stockpiled).
History: The U.S. developed the first nuclear weapons during World War II under the Manhattan Project and was the only country to use them in warfare (Hiroshima and Nagasaki, 1945).
Policy: The U.S. maintains a "nuclear triad" (land-based missiles, submarine-launched missiles, and bombers) and adheres to a policy of deterrence. It also provides a "nuclear umbrella" to allies like Japan and NATO members.
Modernization Efforts: The U.S. is investing heavily in modernizing its aging nuclear arsenal

2. Russia**
Number of Warheads: ~4,477 (deployed and stockpiled).
History: The Soviet Union tested its first nuclear weapon in 1949 (RDS-1) and became the second nuclear power. After the USSR's collapse in 1991, Russia inherited much of its nuclear arsenal.
Policy: Russia relies on nuclear weapons for deterrence and has adopted a trine that allows for their use in response to conventional attacks threatening its existence.
Modernization Efforts:** Russia is developing advanced systems, including hypersonic missiles and nuclear-powered torpedoes.

3. China
Number of Warheads: ~410 (deployed and stockpiled).
History: China conducted its first nuclear test in 1964 and has since maintained a smaller arsenal compared to the U.S. and Russia.
Policy: China follows a "no first use" policy, pledging not to use nuclear weapons unless attacked by another nuclear power.
Modernization Efforts: China is expanding its arsenal and improving missile technologies, including intercontinental ballistic missiles (ICBMs).

4. France
Number of Warheads:~290 (deployed and stockpiled).
History: France conducted its first nuclear test in 1960 and developed an independent nuclear deterrent outside NATO's framework.
Policy: France maintains a nuclear triad and emphasizes deterrence as a cornerstone of its defense strategy.
Modernization Efforts: France is updating its submarine-launched ballistic missiles (SLBMs) and air-launched cruise missiles.

5. United Kingdom
Number of Warheads:~225 (deployed and stockpiled).
History: The UK tested its first nuclear weapon in 1952 and later developed thermonuclear weapons. Its arsenal is entirely submarine-based.
Policy: The UK adheres to a minimum credible deterrent strategy and relies on the U.S. for some nuclear technology.
Modernization Efforts: The UK is replacing its aging Trident submarines and extending the life of its warheads.

6. Pakistan
Number of Warheads~170 (deployed and stockpiled).
History: Pakistan conducted its first nuclear tests in 1998 in response to India's tests. Its program is driven by regional security concerns, particularly vis-à-vis India.
Policy: Pakistan does not have a "no first use" policy and reserves the right to use nuclear weapons in response to conventional attacks.
Modernization Efforts: Pakistan is developing short-range tactical nuclear weapons and enhancing its delivery systems

7. India
Number of Warheads 164 (deployed and stockpiled).
History: India conducted its first nuclear test in 1974 ("Smiling Buddha") and declared itself a nuclear weapons state in 1998 after additional tests.
Policy: India has a "no first use" policy but retains the option to retaliate massively if attacked.
Modernization Efforts: India is expanding its arsenal, developing ICBMs, and enhancing its sea-based deterrent with nuclear submarines.

8. Israel
Number of Warheads: Estimated at ~90 (undeclared but widely acknowledged).
History: Israel has never officially confirmed possessing nuclear weapons but is believed to have developed them in the 1960s with French assistance.
Policy:** Israel maintains a policy of "strategic ambiguity," neither confirming nor denying its nuclear capabilities.
Modernization Efforts:** Israel is believed to be upgrading its Jericho missile systems and maintaining a submarine-based deterrent.

9. North Korea
Number of Warheads: Estimated at ~50–60 (deployed and stockpiled).
History: North Korea conducted its first nuclear test in 2006 and has since carried out several more tests. Its program is a key element of its national security strategy.
Policy: North Korea has threatened to use nuclear weapons pre-emptively and views them as essential for regime survival.
Modernization Efforts: North Korea is developing long-range ballistic missiles capable of reaching the continental U.S.

Countries That Once Had Nuclear Weapons**

Some countries previously possessed nuclear weapons but dismantled their arsenals:
South Africa: Developed nuclear weapons in the 1980s but voluntarily dismantled them in 1991.
Belarus, Kazakhstan, Ukraine: Inherited nuclear weapons after the Soviet Union's collapse but transferred them to Russia in the 1990s.

Non-Nuclear Weapon States with Nuclear Ambitions**

Several countries have pursued or considered nuclear weapons but do not currently possess them:
Iran: Has a controversial nuclear program, though it claims its activities are peaceful.
Saudi Arabia: Has expressed interest in acquiring nuclear weapons if Iran develops them.
Turkey: Has discussed the possibility of developing nuclear weapons amid regional tensions.

Global Nuclear Disarmament Efforts**

While these nine countries possess nuclear weapons, many others support disarmament initiatives, such as the Treaty on the Prohibition of Nuclear Weapons (TPNW). However, none of the nuclear-armed states have signed or ratified the TPNW, citing security concerns or The International Campaign to Abolish Nuclear Weapons (ICAN) founded in 2007 described below.

Conclusion on possession of nuclear weapons

The possession of nuclear weapons remains concentrated among a small number of countries, each with unique historical, strategic, and political reasons for maintaining their arsenals. While efforts to reduce global stockpiles continue, the modernization of existing weapons and the emergence of new technologies pose ongoing challenges to disarmament. The nine countries with nuclear weapons are the United States, Russia, China, France, the United Kingdom, Pakistan, India, Israel, and North Korea. Their arsenals vary in size and purpose, reflecting differing security strategies and geopolitical contexts

Resource G

What is Peace?

by Léonie Ebert

Peace can be understood as a state of social harmony and tranquillity, free from conflict and violence. It is not just the absence of war, but also about equality in all forms, diversity, and justice. Peace is an ongoing process of learning from the past, building relationships, protecting the planet, and addressing the root causes of conflict.

Peace is action and peace in action is best done collaboratively. Here are examples of organisations working for peace and Pope Francis' peace message:

1. Women's International League for Peace and Freedom (WILPF).

WILPF is the oldest international women's peace organisation in the world, founded in 1915 during World War I. WILPF works towards peace and justice through non-violent means, with a focus on women's rights and a feminist perspective on peace and conflict. It is recognised as an honourable resource, a trusted support, and an ongoing stable anchor point in peace activism. As a mobiliser, convenor and thought leader, WILPF works hand in hand with activists, networks, coalitions, platforms and civil society organisations world-wide to advance a future of peace, justice and equality for all. WILPF affirms that peace and security efforts are more sustainable when women are equal partners in the prevention of violent conflict, the delivery of relief and recovery efforts and in the forging of lasting peace. Men are welcome as members. https://www.wilpf.org.au/

2. Rotary International - Promoting Peace

Rotary creates environments of peace. "As a humanitarian organisation, peace is a cornerstone of our mission. We believe when people work to create peace in their communities, that change can have a global effect. By carrying out service projects and supporting peace fellowships and scholarships, our members take action to address the underlying causes of conflict, including poverty, discrimination, ethnic tension, lack of access to education, and unequal distribution of resources. Our commitment to peacebuilding today answers new challenges: how we can make the greatest possible impact and how we can achieve us of lasting change. We are approaching the concept of peace with greater cohesion and inclusivity, broadening the scope of what we mean by peacebuilding, and finding more ways for people to get involved. "Rotary creates environments where peace can happen."
Source: Rotary International: https://www.rotary.org/en/our-causes/promoting-peace

3. The Graham F Smith Peace Foundation Inc.

The mission of the Peace Foundation is to "Work for Peace Through the Arts." It supports artists to create works which advocate for human rights, environmental sustainability, and social justice. All works are viewed through the lens of Aboriginal Reconciliation. This is very important as we are an Australian organisation on Aboriginal country.
The Peace Foundation provides grants and awards which enable artists to create and present inspirational and moving experiences. The Peace Foundation commissioned the Kaurna Reconciliation Sculptures (in the forecourt of the Festival Centre), and the Kaurna Walk and presented the 2024 Annual Peace Award to ActNow Theatre for 'Joshi and Sophia Don't Play Together' a production for schools about domestic violence. These are examples of the projects supported by the Peace Foundation. More work can be seen in 'Art for Peace: The Story of the Graham F Smith Peace Foundation' by Mark Street and Terry Cantwell which contains 218 pages of stunning images and uplifting stories of artists,

peace artists and people taking extraordinary actions and inspiring others. Books can be obtained at www.artspeacefoundation.org/art-for-peace/.
Volunteers are available to help in peace initiatives such as the Reconciliation Kaurna Walk.
www.artspeacefoundation.org

4. The Medical Association for the Prevention of War (MAPW)

MAPW is a professional, not-for-profit organisation that has promoted peace and disarmament since its establishment in 1981. It is a national association of health professionals advocating for health by championing peace. MAPW serves as the Australian affiliate of the 1985 Nobel Peace Prize Laureate International Physicians for the Prevention of Nuclear War, representing tens of thousands of medical professionals across more than 60 countries. The organisation employs research, advocacy, education, and partnership strategies to address the health impacts of war and conflict. MAPW aims to highlight and prevent the detrimental effects of war on both human and planetary health through various campaigns and initiatives, maintaining an apolitical stance while strengthening peace and disarmament efforts within the medical community. It established the International Campaign to Abolish Nuclear Weapons in Melbourne in 2006 (formally launched in Austria, 2007). https://www.mapw.org.au/

5. The Institute for Economics and Peace (IEP).

IEP is a global think tank headquartered in Sydney Australia with branches in New York, Mexico, and Oxford. IEP studies the relationship between peace, business, and prosperity, and seeks to promote understanding of the cultural, economic, and political factors that drive peacefulness. The Global Peace Index produced by IEP is a cited benchmark for measuring peace worldwide.
IEP launched its education program with the release of Building Blocks of Peace, a 4-module curriculum resource that offers step-by-step guidance for high school teachers to introduce "a fresh perspective to the issues surrounds global peace" into the classroom. Presented at both regional and national conferences, the Building Blocks of Peace materials are an addition to the resources available to teachers dedicated to educating global citizens. https://www.economicsandpeace.org/training/education/

6. Pope Francis' (1936-2025) Perspective on Peace

Pope Francis's approach to peace emphasised both the ecological and the social dimensions, urging individuals and communities to take action to build a more just and peaceful world.
Peace as a Gift and Responsibility:

- Pope Francis viewed peace as a gift from God, but also a responsibility shared by all people.
- He called for a culture of emphasising the importance of compassion, reconciliation, and mutual respect.
- He stressed that peace is not just about stopping conflict but about building a more just and equitable world.

Peace and Justice

- Pope Francis highlighted the close link between justice and peace, stating that without justice, peace is threatened, and without peace, justice is compromised.
- He argued that true peace requires addressing the root causes of conflict, such as inequality, injustice, and selfishness.

Peace and Disarmament:

- Pope Francis repeatedly called for disarmament, both of nuclear weapons and of the "hearts" that harbor selfishness and hatred.
- He viewed the use of nuclear weapons as immoral and called for a commitment to peace through negotiation and dialogue.

Peace and Dialogue:

- Pope Francis emphasised the importance of dialogue and understanding between different cultures and religions.
- He believed that interreligious dialogue is crucial for building bridges and fostering a culture of peace.

Practical Steps for Peace:

- Pope Francis encouraged concrete actions, such as forgiving debts, abolishing the death penalty, and establishing a world fund to fight hunger.
- He also emphasised the importance of small gestures of kindness, solidarity, and care in building a more peaceful world.

Taking Action

Students and teachers are invited to:

- Engage with or in peace organisations introduced above: contact us via our website;
- Investigate peace work being done in schools and universities;
- Advocate for and participate in Peace Education programs;
- Use the resources in this Commemorative Ideas pack and let us know your feedback/comments;
- Develop a School Peace Program (also develop one's own individual peace programs); and/or
- Promote peace within schools and communities by fostering empathy, critical thinking, and respectful dialogue.