INNOVATION LAB

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Std/Section/ House	8th Standard/ 'E' Section/ St. Andrew's House

Class Teacher/ House Leader	Class Teacher- Mrs. Jacqueline Bernard House leader- Jaden Jude Lewis

OBA Mentor	Mr. Senthil Radhakrishnan

Title	Nuclear Weapons

Social Problem

- **Why have we chosen to do this topic?**
  Our team has picked this topic, as we have seen the extent of dreadful damage nuclear power has already done to our world. So we want to put forward our idea and stop the production of these hideous and awful weapons.
- **What is a nuclear weapon?**
  A nuclear weapon is an explosive device that derives its destructive force from nuclear reactions, either fission (fission bomb) or a combination of fission and fusion
- **History**
  In the years after 1895, people studying physics begin to understand how atoms are made. Around 1915, people began to have the idea that breaking special atoms can release large quantities of energy and can be used to make a bomb. In 1939, people studying physics began to understand the theory of nuclear fission weapons, but no country knew how to build one. When World War II started, Germany, the United Kingdom and the United States wanted to build nuclear weapons. Germany could not build them because many of the best people studying physics fled Germany after Nazi rule started. The United Kingdom started working in 1939, but the cost was so great that they stopped research in 1942. In 1942, the United States started a very large program to build nuclear weapons. It built upon the work done in the United Kingdom. The program was called the "Manhattan Project".

- **How are Nuclear Weapons made**
  Nuclear weapons are usually made from the elements uranium or plutonium. These elements can be made to undergo nuclear fission and have a nuclear chain reaction. This produces a very large amount of energy and radiation, and has the ability kill people or animals within several kilometers. Most of the radiation is X-rays, which heats the air to produce a huge nuclear fireball. The rapid expansion of the fireball creates a dangerous shock wave that can destroy houses or buildings several kilometers away. Over time the radiation can potentially kill people farther away how much radiation that was released. The radiation released also has the potential to cause mutations in the DNA, which can cause cancer and radiation poisoning. Nuclear bombs also release fallout, which is nuclear material and dust that has been irradiated and become radioactive. Fallout from a nuclear explosion can be blown by the wind large distances from where the explosion occurred, and can remain dangerous for long periods of time.
- **How much does a nuclear weapon cost?**
  A nuclear weapons may cost depending on their purpose, size, range and destruction levels. It may range from a many 100,000$ to few billion.
- **Effects of a nuclear weapon.**
  Nuclear weapons are the most dangerous weapons on earth. One can destroy a whole city, potentially killing millions, and jeopardizing the natural environment and lives of future generations through its long-term catastrophic effects. The dangers from such weapons arise from their very existence.
- **Which countries have nuclear weapons?**
  The Treaty of non-proliferation of Nuclear Weapons (NPT) signatories: China, France, Russia, United Kingdom and United States of America. Other countries which possess nuclear weapons are: India, Israel, Pakistan and North Korea. NATO countries also share nuclear weapons.
- **Case Studies**
  - **Hiroshima and Nagasaki Bombs, 1945**
    Hiroshima and Nagasaki bombings. The two atomic bombs dropped on Japan in 1945 killed and maimed hundreds of thousands of people, and their effects are still being felt today. The uranium bomb detonated over Hiroshima on 6 August 1945 had an explosive yield equal to 15,000 tons of TNT. The incidence of leukemia among survivors increased noticeably five to six years after the bombings, and about a decade later survivors began suffering from thyroid, breast, lung and other cancers at higher than normal rates. For solid cancers, the added risks related to radiation exposure continue to increase throughout the lifespan of survivors even to this day, almost seven decades after the bombings. Women exposed to the bombings while they were pregnant experienced higher rates of miscarriage and deaths among their infants. Children exposed to radiation in their mother's womb were more likely to have intellectual disabilities and impaired growth, as well as increased risk of developing cancer.
- **Who are actually responsible for building nuclear weapons**
  We think that the heads of state of nuclear weapons possessing countries are responsible for building or importing nuclear weapons for either defense, military exercises or declaring war over other countries.
- **What is disarmament?**
  Disarmament is the act of reducing, limiting, or abolishing weapons.
- **What has the UN done to stop the use of nuclear weapons**

The United Nations has sought to eliminate such weapons ever since its establishment. The first resolution adopted by the UN General Assembly in 1946 established a Commission to deal with problems related to the discovery of atomic energy among others. The Commission was to make proposals for, inter alia, the control of atomic energy to the extent necessary to ensure its use only for peaceful purposes. The resolution also decided that the Commission should make proposals for "the elimination from national armaments of atomic weapons and of all other major weapons adaptable to mass destruction." A number of multilateral treaties have since been established with the aim of preventing nuclear proliferation and testing, while promoting progress in nuclear disarmament. These include the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), the Treaty Banning Nuclear Weapon Tests In The Atmosphere, In Outer Space And Under Water, also known as the Partial Test Ban Treaty (PTBT), and the Comprehensive Nuclear-Test-Ban Treaty (CTBT), which was signed in 1996 but has yet to enter into force.

- **Why some countries does not sign any treaties and still conduct nuclear tests?**
  Dictatorship, change in government, revolutions or even sometimes just to look are most likely the reason why some countries have not accepted ban nuclear arms fearing that anything might happen to their country and has a chance to fight back. For example: North Korea has conducted nuclear tests during 2006, 2009, 2013 and twice in 2016

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Proposed Solution

- The UN has to organize a staged wise manner for the complete disarmament of nuclear weapons. There will be a treaty signed from all nations to completely stop the destruction of nuclear weapons.
- Now all the countries who agree to this will have to stop the production of nuclear weapons, but the nuclear weapons made by those countries need not be destroyed. So there will be a secret private facility where all the nuclear weapons of all the member countries will be stored. Because there will be some countries who do not agree to this, and if one of the country who do not agree to this attacks one of the countries who does belong to this organization, then it will be considered an attack against all the member countries.
- Any conflicts between two or more countries must be settled by peaceful bi or multi-lateral meetings within the countries as wars and protests do not help.(These meetings must be between the heads of state only and not ambassadors and representatives since they have to indirectly to the head of state, therefore further delaying the solution of the conflict)

Tasks & Timelines

- Our team leader, Jaden has done exceptionally well in helping and encouraging the team to move forward and complete the project and also with the solutions of the topic chosen.
- Ashwin has immensely contributed by collecting information on various topics from various websites and has prepared this complete documentation.
- Kushal, Syed, Joshua as team player have contributed to the completion of the project.

Sources/References

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