

ATOMS & NUCLEI

1. Medha's grandfather was reading article in newspaper. He read that after so many years of atomic bombing in Hiroshima or Nagasaki, Japan National census indicated that children born even now are genetically deformed. His grandfather was not able to understand the reason behind it. He asked his Granddaughter Medha who is studying in class XII science. Medha sat with her grandfather and showed him pictures from some books and explained the harmful effects of radiations.

(i) What are the values/ skills utilized by Medha to make her grandfather understand the reason of genetic deformity?

(ii) Name the nuclear reactions that occurred in atom bomb

2. Muthuswami a resident of Kundakulam was all set to leave everything and shift to another place in view of the decision of Govt. to start nuclear thermal power plant at Kundakulam. His granddaughter Prachi, a science student, was really upset on the ignorant decision of her grandfather. She could finally convince him not to shift, since adequate safety measures to avoid any nuclear mishap have already been taken by the Govt. before starting nuclear thermal plants.

What is the value displayed by Prachi in convincing her grandfather

What is the principle behind working of nuclear reactor

What are the main components of nuclear reactor

Why is heavy water used as moderator?

3. Two students Ram and Anand were reading the newspaper. The Headlines in the newspaper was about the nuclear power plant which was to be set up at Kodangulam. This was objected to by the local people. There was a healthy debate about nuclear power plant between Ram and Anand. Ram was supporting the people who were objecting, saying that power plant will emit harmful radiations and local people will be affected by it. Whereas Anand was against Ram's views. He mentioned that great scientists, including our former President Dr. Abdulkalam, and our Government had taken every care to provide safety measures with the best and latest technology.

a) What do you think of the new Kodangulam power plant – a boon or a sin?

b) Define nuclear fission AND

c) What is the role of control rods in nuclear reactor?

4. Ruchi's uncle who was a kabadiwala was getting weak day by day. His nails were getting blue, he stated losing his hair. This happened immediately after he purchased a big container of heavy mass from Delhi University Chemistry Department. Doctors advised him hospitalization and suspected he has been exposed to radiation. His uncle didn't know much about radiations but Ruchi immediately convinced her uncle to get admitted and start treatment.

(i) What according to you are the values utilized by Rama to convince her uncle to get admitted in hospital

(ii) Name the radioactive radiations emitted from a radioactive element

GENERAL VALUES

1. Sympathy

2. Empathy

3. Presence of mind / understanding the situation

4. Helping nature

5. Realising the importance of hardwork

6. Responsible behavior

7. Generosity & kindness

8. Open mindedness

9. Care for elders especially old people

10. Accepting others' ideas.