American Nuclear Society

ANS NUCLEAR SCIENCE MERIT BADGE

Nuclear Power Technology Worksheet

Name: _____

1. _____made multiple contributions to nuclear science, including the photoelectric effect, mass defect, and the equation $E=mc^2$.
2. _____ is the energy produced when an atom is split or fused.
3. Fission produces two daughter atoms (fission fragments), neutrons, and lots of _____.
4. A _____ is a device in which a self-sustained nuclear fission chain reaction can be maintained and controlled.
5. _____ are used to control a nuclear reaction by absorbing neutrons.
6. There are currently _____ nuclear reactors in the United States, producing -_____% of our nation's electricity.
7. A Pressurized Water Reactor (PWR) has _____ loops, while a Boiling Water Reactor (BWR) has _____ loops.
8. Used fuel is stored in _____ and/or _____.
9. Requirements for permanent storage include prevention of seepage into the _____ supply.

10. _____ is when radioactive material is deposited on skin, clothing, or any place in the environment where it should not be.
11. Intensive testing is performed on _____ to ensure the protection of the used fuel rods inside, including tests for fire resistance and strength.
12. List two purposes of nuclear reactors other than power supply:
    a.
    b.
13. List the name or location of three specific nuclear reactors:
    a.
    b.
    c.
14. The sun produces energy through _____, which is the combining of two atoms to make one larger atom.
15. Fusion has not been able to reach the _____ energy point.