***The Eyes of Nye: Nuclear Energy***Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What are the three main sections of a nuclear power plant?

Reactor, Generator, Cooling Towers

2. What starts the nuclear chain reaction?

Uranium is bombarded by neutrons

3. What does fission mean?

To split apart an atom

4. What two products are formed from the fission of uranium?

Energy as Heat

Shoots out another neutron

5. How much nuclear waste is produced in 60 years of a power plant operating?

Enough waste to fit into a convenience store

6. How much waste would a coal plant produce?

Ten million times more waste

7. Where are most of the nuclear waste and spent fuel rods currently?

In reactor pools at the nuclear plant

8. What is the estimate for how long it takes nuclear waste to completely decay?

10 000 years

9. What materials are used to shield or block nuclear radiation?

Stainless steel, concrete

10. Why is Yucca Mountain such an attractive location for nuclear waste storage?

a. Dry site

b. Remote

c. Stable rock formation

11. What is the half-life of Plutonium, part of nuclear waste?

24 000 years

12. Why was the 10,000 year standard ruled invalid?

Plutonium would still be very dangerous at 10 000 years.

13. Give two positive and negative arguments involving the usage of nuclear energy.

No deaths in accidents in 50 years

20% of US energy production

Can be used by terrorists

Disposal is expensive

14. How much total nuclear waste exists worldwide?

300 000 tons

15. What are two other ideas for dealing with nuclear waste?

Burying under oceans or under remote islands,

drop into Earth’s crust, bury in polar ice caps

16. Why can’t the nuclear waste be shot into space?

An accident would cause a nuclear disaster

17. Describe transmutation.

A method of changing a dangerous radioactive substance into a less dangerous one that will decay in a few hundred years