# Nuclear Energy
# Nuclear Power: Risks and Benefits
## Suggested Responses

**Comprehension Questions**

1. c) hundreds of millennia.
2. b) Fissile isotopes break down into nonfissile ones
3. d) about 1 percent.
4. b) spent fuel.
5. Clothes and instruments that might have picked up contaminants.
6. True
7. The radioactive waste is mixed with glass or ceramic to prevent disintegration.
8. Synroc
9. Only about **3** percent of spent fuel is waste that interferes with a chain reaction. Reprocessing can reduce this waste by **80** percent.
10. Mining uranium from scratch is cheaper and easier.
11. It leaves less waste for future generations.
12. A famous nuclear meltdown occurred in 1986 at a plant in the Soviet Ukraine. The name of the plant was **Chernobyl**.
13. Building a single nuclear fission power plant is generally **more** expensive than building a fossil fuel-powered facility. Running a single nuclear fission power plant is generally **less** expensive than running a fossil fuel-powered facility.
14. Fuel for a nuclear fission power facility is typically around **14** percent of its running costs. Fuel for a fossil fuel power facility is typically around **80** percent of its running costs.

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**Nuclear Safety**

1.

| Isotope | Approximate half-life |
|---|---|
| Xenon-135 | 9 hours |
| Cesium-137 | 30 years |
| Strontium-90 | 29 years |
| Plutonium-239 | 24,100 years |
| Technetium-99 | 211,000 years |

2. Students' responses will vary.
3. Students' responses will vary.

**Transcript** – For student and teacher use.