

### Topic 3.4: How does energy transformation affect humans?

- Energy transformations provide \_\_\_\_\_, but not without risk of \_\_\_\_\_.
- We take action and create \_\_\_\_\_ to reduce the harmful impacts of energy transformation.
- We learn from our mistakes and each other to \_\_\_\_\_ harmful impacts of energy transformation.

#### Concept 1: Energy transformations provide \_\_\_\_\_, but not without risk of harm.

- Living things are \_\_\_\_\_ on energy transformations for life processes.
  - Energy transformations have both \_\_\_\_\_ and \_\_\_\_\_ associated with them.
  - Benefits include advances in \_\_\_\_\_ and generation of \_\_\_\_\_.
  - Risks include \_\_\_\_\_, \_\_\_\_\_, and r \_\_\_\_\_ exposure.
1. What do you think is the greatest impact, positive or negative, of our application of energy transformations? Justify your response.

#### Concept 2: We take action and create technology to \_\_\_\_\_ the harmful impacts of energy transformation.

- Humans are taking initiatives to \_\_\_\_\_ harmful effects of energy transformations.
- We are choosing more \_\_\_\_\_ technologies, reducing our energy \_\_\_\_\_, and introducing \_\_\_\_\_ programs.
- \_\_\_\_\_ is used to produce hydrogen fuel cells while releasing low amounts of \_\_\_\_\_ emissions.
- New ways of making \_\_\_\_\_ are being considered to reduce the amount of \_\_\_\_\_ emissions produced.
- Technology has been developed to produce electrical energy through \_\_\_\_\_.

1. Describe one way in which people or technology are helping to reduce the harmful impacts of energy transformation.

**Concept 3: We learn from our mistakes and each other to \_\_\_\_\_ harmful impacts of energy transformation.**

- Humans are \_\_\_\_\_ their mistakes with energy transformations to make sure that they are doing things differently in the future.
  - Humans have learned from various \_\_\_\_\_ plant accidents.
  - They are implementing new safety inspections and safer \_\_\_\_\_ so that these accidents do not occur again.
  - Canada is trying to \_\_\_\_\_ and s\_\_\_\_\_ nuclear wastes safely.
  - According to law, Canada must consider ways to \_\_\_\_\_ nuclear waste so that it does not harm \_\_\_\_\_ or the land.
  - The Nuclear Waste Management Organization (NWMO) collaborates with First Peoples to discuss appropriate ways of handling \_\_\_\_\_.
1. Is it possible to reduce harmful effects of energy transformation by learning from past mistakes? Justify your response using examples from this Concept.

**Topic 3.4 Summary: How does energy \_\_\_\_\_ affect humans?**

- Energy transformations provide \_\_\_\_\_, but not without risk of harm.
- We take action and create \_\_\_\_\_ to reduce the harmful impacts of energy transformation.
- We learn from our mistakes and each other to reduce \_\_\_\_\_ impacts of energy transformation.