# Comparing Hazard and Risk

People make decisions based on perceived hazard or risk, believing that they are the same. **Hazard and risk are different**, leading to different potential outcomes or regulatory decisions - we break down the distinction below.

## Hazard

**Anything that can cause harm.**
(i.e. water, a bully, fire, etc.)

### Hazard Assessment

The process of identifying harm that a situation, substance, or chemical ***can*** cause. **Hazard assessments do not consider possible exposure.**

### Hazard Assessment Steps

1. **Hazard Identification**
   Identify and evaluate a hazard's properties and the type of adverse health effects it causes.
2. **Hazard Characterization**
   Describe the adverse effects that may result from exposure to the hazard without consideration of real-world exposure.

### Potential Outcome

Hazard-based decision making will likely result in avoiding the hazard altogether (i.e. regulatory ban, etc.).

## Risk

**The possibility that a hazard will actually cause harm.**
(i.e. drowning, being punched, burned, etc.)

### Risk Assessment

A four-step process designed to answer questions about the **type of harm** a hazard will cause, the **extent of harm** from exposure to the hazard, **probable contact** with the hazard (or exposure to the hazard), and concluding presence or absence of risk.

### Risk Assessment Steps

1. **Hazard Identification**
   Identify and evaluate a hazard's properties and the type of adverse health effects it causes.
2. **Dose-Response Assessment**
   Considers the extent of harm resulting from the hazard at various levels of exposure.
3. **Exposure Assessment**
   Identify how, when and how much of a hazard people may encounter.
4. **Risk Characterization**
   Combines hazard identification, dose-response, and exposure to characterize possible risk.

### Potential Outcome

Risk-based decision-making allows benefits to be maximized with safety measures in place to minimize the potential hazard (i.e. regulations requiring safety measures).

## Consider cars...

**Driving a car can be hazardous** activity as its inappropriate or unsafe use can cause harm to people and the environment. If the safety of cars was evaluated with a **hazard-based assessment**, they would **likely be avoided or banned**.

**Driving a car can be risky** when factors like weather and varying degree of driving ability are considered. If car safety was studied using a **risk-based assessment**, the **benefits** (freedom, convenience and practicality) of owning and driving a car **outweigh the risks when safety measures to mitigate those risks are adopted.**