Picture Water Pollution Reference

Point source pollutants: Attributed to a single and identifiable physical location, these pollutants enter rivers and streams from a specific point.

Non-point source pollutants: These pollutants do not have a single point of origin or are not introduced into a receiving stream from a specific outlet. They generally enter rivers and streams after rains or snowmelt wash them off of the land.

Examples of non-point source pollutants depicted in the "Picture Water Pollution" illustration include:

- **Acid rain.** This precipitation has a low pH, which can degrade water quality and harm wildlife.
- **Agriculture**, including:
  - **Cattle.** When they walk in streams, cows cause erosion and kill vegetation both on the stream banks and in the water. Their waste also pollutes the stream with excess nutrients.
  - **Pesticides and fertilizers**. When washed into nearby waterways, these chemicals introduce excessive levels of nitrogen and phosphorus, which can cause overgrowth of algae that endanger fish by removing oxygen from the water.
- **Septic tanks**. These containers hold human sewage waste that can leak into groundwater supplies, affecting water quality. This pollutes the rivers and streams that the groundwater feeds.
- **Leach Fields**. These areas of soil absorb sewage liquid released from septic tanks. The excess nutrients in the sewage can ultimately drain into nearby waterways.
- **Construction**. Soils, sands, and other construction materials are washed by rainwater into rivers and streams, causing sedimentation.
- **Man pouring oil into river.** Oil can cause a variety of problems when introduced into a water system, including killing sensitive organisms and causing birds and other small animals to lose their ability to protect themselves from the cold.
- **Car pollutants**. A variety of pollutants, including oil and antifreeze, leak from cars, most of which are very harmful to aquatic organisms.
- **Home pollutants**. We use countless chemicals (e.g., cleaning products, bleaches, etc.) in our homes. These chemicals, which are toxic to aquatic organisms, can pollute rivers and streams via septic tank leach fields or **stormwater overflows** from sewage treatment facilities.
- **Impervious surfaces**. These surfaces are impenetrable by water and other liquids. When rain or snowmelt washes over the land, because it cannot soak into areas with impervious surfaces, the water picks up all of the pollutants on the surfaces and carries them into the nearest waterway. As a result, the velocity of runoff increases, causing erosion. Runoff flowing from impervious surfaces also tends to increase the water temperature of waterways because it is heated by the hot pavement, asphalt, etc.
- **Clear-cutting.** Clear-cutting along river banks causes an increase in sedimentation, and can also reduce the biodiversity of ecosystems.
- **Uncollected pet waste**. This waste can pollute nearby waterways with excess nutrients and harmful bacteria, including fecal coliform.
- **Storm drains**. These drains collect water—and all of the pollutants that it carries—running off of impervious surfaces and other areas prone to flooding. Storm drains are usually connected directly to a body of water with no filtration to remove pollutants. In instances of heavy rain, polluted waters run through storm drains into rivers and streams.
- **Boy releasing pet snake into river.** If this snake is not native to the area in which the boy is releasing it, it could potentially out-compete native species, causing an imbalance in the ecosystem.

Picture Water Pollution Reference (con't)

Examples of point source pollutants depicted in the "Picture Water Pollution" illustration include:

- **Landfills**. Pollution that contains hazardous chemicals leaks out of landfills and into the groundwater system, in turn, polluting the rivers and streams that the groundwater feeds.
- **Industrial waste**. Generated by industrial facilities such as mines and mills, this waste is often toxic and can kill aquatic organisms. Acidic runoff is particularly common from mines, and can be so serious that it renders streams uninhabitable.

Cut out and distribute the cards below for use during the "Picture Water Pollution" student competition.

NP	NP	NP	NP	NP	NP
NP	NP	NP	NP	NP	NP
NP	NP	NP	NP	NP	NP
P	P	P	P	P	P

"P" signifies point source pollutants;
"NP" represents non-point source pollutants.