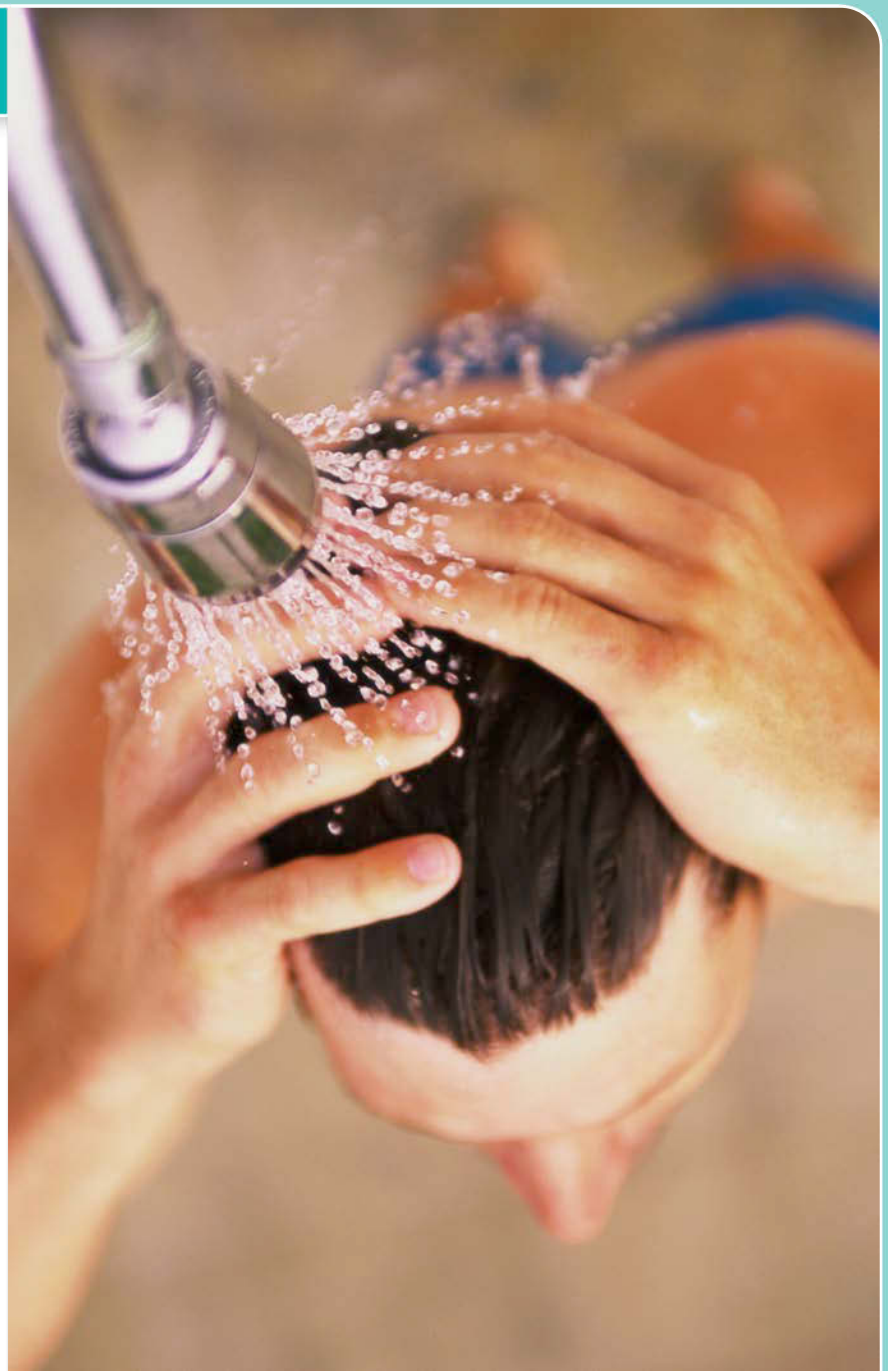
Microbeads, Mega-Problem

Did you know that a new form of plastic pollution might be lurking in your shower?

Exfoliating bath products like face or body wash often contain small plastic balls, called microbeads, which are less than one millimeter in diameter.

These small plastic particles wash down drains and out into aquatic environments – wastewater treatment plants are not equipped to remove them from the water.



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Microbeads look very similar to fish eggs, an important food source for many aquatic organisms. This means microbeads look delicious to many organisms living in the water, including ones that humans like to eat.

In addition to not being nutritious, plastic microbeads can absorb toxins from the water. When fish and other organisms consume the microbeads, these toxins bioaccumulate in their tissues.

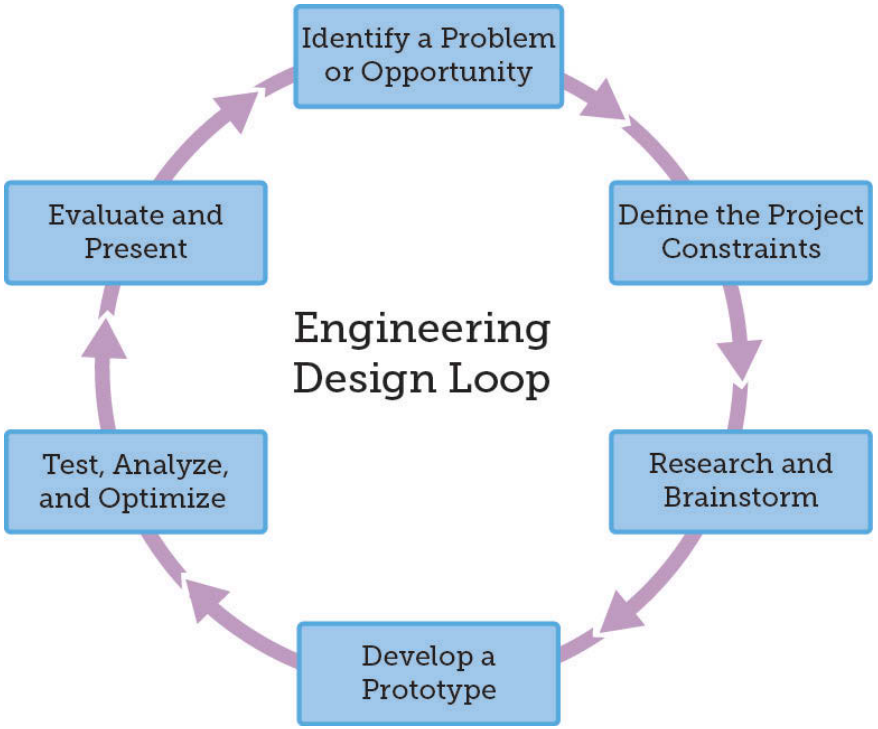
Get Started!

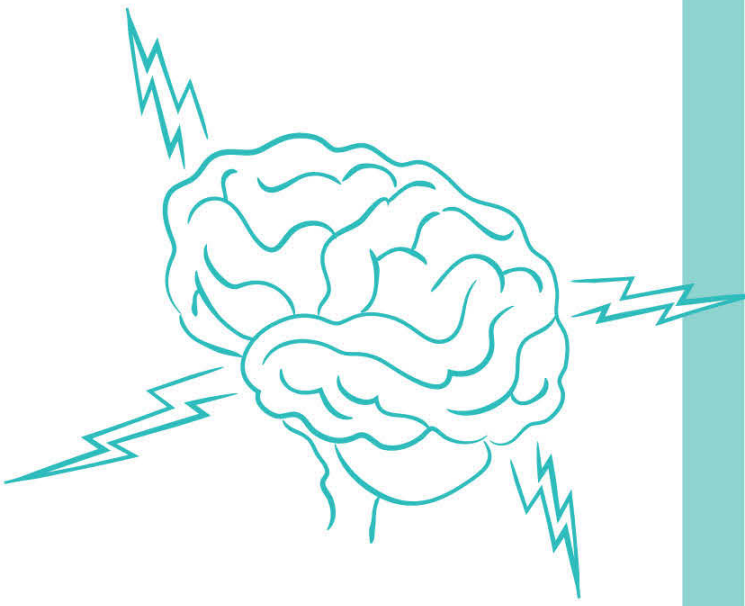
State governments, such as those in Illinois and New York, are moving to ban the sale and distribution of products with plastic microbeads. Similarly, companies that produce these products are looking in to alternative exfoliating products. However, both of these are slow-moving and future based decisions. How can we remove the microbeads that are already in the water? How can we stop more from entering?

Your class represents engineers and scientists who have been hired to find short-term ways to reduce the amount of plastic microbeads entering open-water ecosystems.

Brainstorm Solutions!

Work in teams to design your solution. As you go through the planning and prototype process, keep the engineering design loop in mind:





Work Through It!

As you develop your solution, use the following questions as guidance:

- Have you done sufficient research, from diverse and reliable sources?
- What types of constraints are there on your design?
- What are the costs associated with your solution?
- What benefits does your solution provide?

Finish Up!

Once your group has optimized your solution, prepare a presentation for the class. Your class members will serve as a governing board concerned about how microbeads are affecting the local waterways. Be sure to explain how your design works, and what makes it the best solution to the problem.