Water-Themed
Lessons & Activities
from FAIRMOUNT WATER WORKS

Powered by Water: How Water Wheels Work

Introduction:

The historic use of water wheel technology was used to power early industry such as grain mills. It was adopted by Philadelphia's Watering Committee to operate pumps at Fairmount that pushed water from the Schuylkill River to a reservoir built on the highest part of the city nearby (a plateau called the Faire Mount), the site of the current day Philadelphia Museum of Art. This reservoir supplied Philadelphians for the first time with abundant drinking water in a way that was both efficient and economical .

Learning Objectives:

Students will be able to

- Discover how water wheels work
- Discuss how we use technology to help us do work more efficiently

Materials:

- Bucket and pitcher for testing
- Paper cups
- Paper plates
- Marker
- Masking tape
- Skinny wooden stick, chopsticks (taped together to make one long stick) or something similar

Activity Procedure:

1. Tape paper cups around the inside of the first plate
2. Poke a hole through both plates just big enough for the stick to fit through
3. Tape the other plate to the cups (don't obstruct the cups) and put the stick through the "wheel"; make sure your stick is also long enough on both sides to enable you to hold it and it spins freely
4. Using the pitcher, stand over a basin or the sink and ask someone to pour water, aiming at the cups to see your wheel in action
5. If you can find a really long stick, tie a string at one end and a cup at the other. With the string fully unwound, start filling the cups with water. As the water wheel spins, the string will wind up from bottom to top.
6. Put a small weight in the cup and now see what happens. Do you need to pour faster? More?

Suggested Grade Level: K-5th

Suggested Subject Area(s): Environmental Science