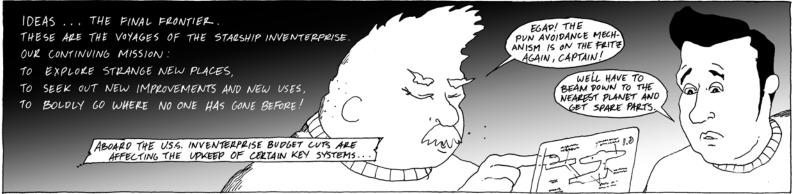
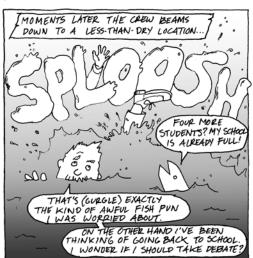
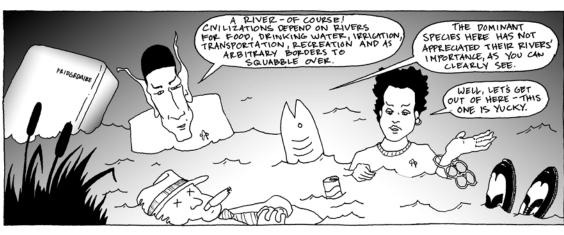
Inventer 200





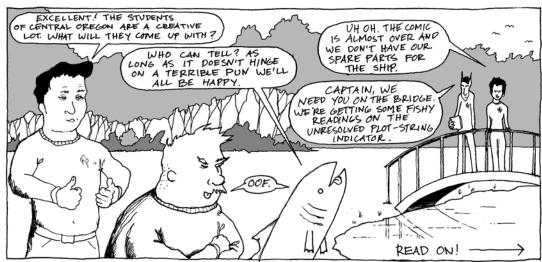












Welcome to Inventerprise 2008

Here's the challenge:

Rivers are important to civilization, but historically we have not looked after them very well. Invent or design something that will allow people to better use, preserve, and coexist with this vital natural resource.

The next pages contain ideas to help you get started.

Official Rules

- 1) Any Central Oregon student in Grades K-12 may enter. In Grades K-8, students may enter in groups of up to three students. Only individual entries are allowed in the high school competition.
- Use any format you like for your contest entry. Examples are pictures, models, tapes, descriptions, computer programs, dramas, or whatever medium best conveys your ideas.
- 3) Entry deliveries will be accepted Wednesday, November 12, through Friday, November 14. Entries must be received by 5 p.m. Friday, November 14, 2008. Please bring or mail your entries to Bend Research Inc., 64550 Research Road, Bend, OR 97701.
- 4) Include your first and last name, teacher's name, grade, and school name on the entry form provided. Cut it out and attach it to your entry. Make sure your name is on each piece of your entry. You'll get your entry back if you check the box on the entry form.
- 5) Parents and teachers may be consulted, but don't let grown-ups talk you out of your great ideas.
- 6) A panel will judge entries for creativity, originality, coolness, and how well ideas are developed. **Entries must not defy the laws of nature.**
- 7) Fabulous prizes (specially designed T-shirts) will be awarded to the top entrants. K-8 winners will also be invited to a special Science Night presentation in their honor. Less fabulous prizes will be awarded for good efforts.
- 8) A cash prize of \$1,000 will be awarded to the best high school entry; second place will receive \$500. The student submitting the best middle school entry will choose between a digital camera, an iPod[®], a mountain bike, or a season pass to Mt. Bachelor.
- 9) **Teachers in grades K- 5** will share \$1800 in gift certificates for classroom supplies if more than half the students in their class participate. Visit our website for details.
- 10) Winners will be announced by December 1, 2008. Have fun!

For more information, go to our website at http://www.cocc.edu/inventerprise or call Heidi at 382-0212, ext. 242, or Chris at 382-0212, ext. 113.

Inventerprise is sponsored by Bend Research Inc. with help from the Bend-La Pine School District and Central Oregon Community College.

Topics To Consider

Food	We use rivers for irrigation, freshwater fisheries, and fish farms. Each has its own problems that need your innovation to solve.
Drink	Many use rivers for fresh drinking water. What inventions would help?
Energy	Dams displace people and ecosystems and disrupt fish migrations. Design a river energy generator that overcomes these problems.
Waste	What are your ideas for minimizing river pollution and soil erosion? Design a better waste treatment or recycling system for rivers.
Technology	What far-out new gizmos are waiting to be invented that are based on rivers? Consider transportation, recreation, pollution abatement, etc.
City Planning	Design an entire city that embraces its river.
	Start from scratch or redesign a Central Oregon city on a river. What are your original ideas for a small river community?
River Deltas	River deltas are diverse ecosystems. Share ideas for enhancing deltas.
Recycle	How can we recover and recycle the amazing amount of junk that often ends up floating downstream to the sea?
Aquifers	Aquifers are underground rivers and lakes. How would you prevent their contamination and ensure their replenishment?
Transportation	Got any ideas for improving transportation of cargo and people without negatively affecting the river?
We hope these	topics give you ideas to get you started in inventing your own means of improving the world's rivers.

If you wish, you can create your own river topic!

Grade Sch									
Entry Title		Teacher							
			Youth*			Adult*			
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*List your shirt size	in case you win				<u> </u>				
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River Facts

- Human civilizations have risen and fallen on the banks of the world's rivers.
- The oldest known civilizations on Earth arose on the banks of major rivers including the Nile in Africa, the Yangtze and Yellow Rivers in Eastern Asia, and the Tigris and Euphrates Rivers in the Middle East.
- Soils from uplands wash down and are deposited in the river valleys; these fertile valleys seeded the development of agriculture.
- Rivers provide fresh water for human consumption, hygiene, and irrigation. They provide a means of transportation, have helped define paths of conquest and migration, and have been a major determinant in where populations have chosen to live.
- A river or stream is an important feature of most of the world's cities and towns.
- Other major rivers of the world include the Volga (3700 km) in Europe, the Amazon (6300 km) in South America, the Murray-Darling (3720 km) in Australia, and the Mississippi (3770 km) in North America.
- Here in the US, there are 3.5 million miles of rivers. More details follow:
 - o More than 235,000 river miles in the United States have been channelized
 - o More than 600,000 river miles are impounded behind dams (17% of total US river miles)
 - o More than 25,000 river miles have been dredged for navigation
 - o More than 50% of US wetlands have been lost or destroyed since 1900
 - o Nearly 40% of the rivers and streams in the U.S. are too polluted for fishing or swimming
 - o Of the native freshwater fish species in North America, 30% are threatened, endangered, or of special concern
 - On average, we have built one dam a day every day since the signing of the Declaration of Independence.
- Rivers lead to the ocean, so trash in rivers ends up in the ocean! In 1997, a sailor found
 an area of the Pacific Ocean twice the size of Texas inundated with pieces of plastic. This
 area is called the North Pacific Subtropical Gyre. More plastic collects there every year,
 from rubber ducks to soda can rings to tiny little pieces of plastic that make animals sick.
 The plastic will not biodegrade in our lifetimes and since not all plastics are recyclable
 these aren't going away easily.
- Rivers are a key component of fish migration and spawning (egg laying). Some travel from saltwater to freshwater, including salmon and smelt, and some travel from freshwater to saltwater, including the American eel.
- Fish are vital to the diets of millions of people worldwide. Fish are also critical to river health through their consumption of other river plants and animals and in providing nutrients for other plants and animals.
- Oregon has 111,619 stream miles and is bordered by the fourth-largest U.S. river (based on volume), the Columbia, with an average flow of 265,000 ft³/sec.
- About 80% of the river water withdrawals in Oregon are for irrigation.
- Dams provide recreation, irrigation, energy, and flood control. However, they also cause loss of wetlands and river valley habitats, sedimentation, and they disrupt fish migration.

Sources: World Book Encyclopedia, Vol. F, www.enchantedlearning.com, www.opb.org/programs/oregonstory/water/resources/page_2.html, www.americanrivers.org, http://www.bestlifeonline.com/cms/publish/health-fitness/Our_oceans_are_turning_into_plastic_are_we_2.shtml, www.en.wikipedia.com, http://drake.marin.k12.ca.us/stuwork/rockwater/Upload%20this%20doc-dams%20and%20hydropower%20report/pros%20and%20cons.html