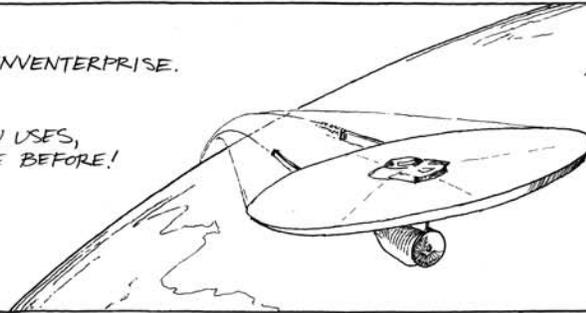


INVENTERPRISE 2007

ILLUSTRATION BY J. LACHAPPELLE

IDEAS... THE FINAL FRONTIER.
THESE ARE THE VOYAGES OF THE STARSHIP INVENTERPRISE.
OUR CONTINUING MISSION:
TO EXPLORE STRANGE NEW PLACES,
TO SEEK OUT NEW IMPROVEMENTS AND NEW USES,
TO BOLDLY GO WHERE NO ONE HAS GONE BEFORE!



THE INVENTERPRISE CAREENS THROUGH THE ATMOSPHERE OF AN UNCHARTED PLANET AS THE CREW CONTINUES ITS SEARCH FOR NEW LIFEFORMS...



UH, I THINK I FOUND SOME

SPLAT!



EGAD! THAT THING IS HUGE! ARE ITS BRETHREN HOSTILE?

WELL, CAPTAIN, THIS COMPUTER MODEL INDICATES THAT THE COLONY SHOWS NO VENGEANCE AFTER AN ATTACK ON AN INDIVIDUAL.

IF SOMEONE HAS ANOTHER QUARTER I'LL RUN THE SIMULATION AGAIN.

THE WIPERS CANNOT TAKE MUCH MORE OF THIS, CAP'N!

LAND THIS THING.



THE CREW DISEMBARKS TO FIND A WORLD RUN BY INSECTS.

TAKE US TO YOUR LEADER.

IF YOU MUST KNOW, WE'VE CAST OFF THE SHACKLES OF MONARCHY AND ARE NOW MORE OF A PARLIAMENTARY DEMOCRACY WITH ANARCHO-COMMUNIST TENDENCIES.

QUITE RIGHT.

SCRATCH



SIR, POLITICAL SYSTEMS ASIDE, IT OCCURS TO ME THAT THERE IS MUCH TO BE LEARNED FROM THESE INSECTS. FOR EXAMPLE, DID YOU KNOW THAT LARVAL SILK WORMS SPIN A FIBER THAT IS 10 TIMES STRONGER THAN THE POLYMER IN YOUR TOUPEE?

ER, TUMC

LOOKS BETTER TOO.



TRUE. AND THE LOWLY DUNG BEETLE CAN EAT MORE THAN HER OWN WEIGHT IN DUNG DAILY!

I CAN'T BELIEVE THEY JUST THROW THIS STUFF AWAY.



OR DID YOU KNOW, CAP'N THAT TERMITES ROUTINELY BUILT SKYSCRAPERS MILLIONS OF YEARS BEFORE HUMANS EVEN BUILT A SECOND STORY?

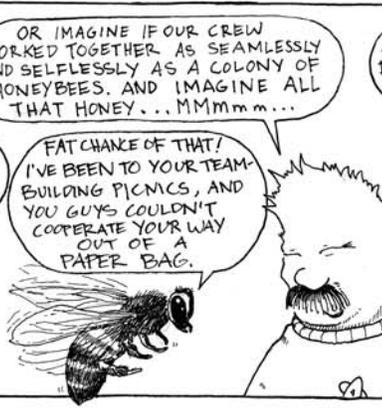
BEHOLD!

WHO'S THIS GUY?
TOURIST



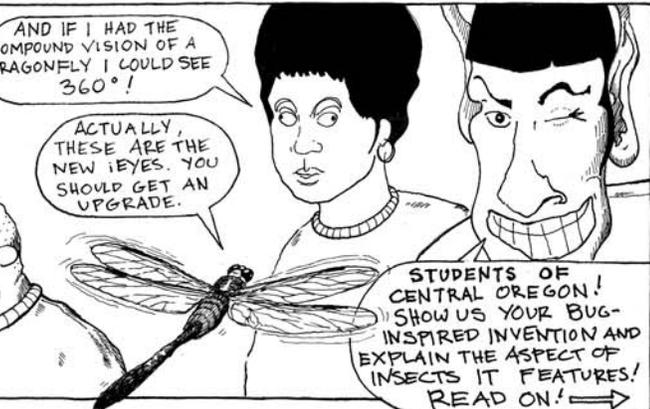
VERY INSPIRING! IMAGINE ALL THE LAUNDRY MONEY I COULD SAVE IF I JUST HAD A CARAPACE. EPAULETTES HAVE TO BE DRY-CLEANED, YOU KNOW.

BUCK UP, KID! IMAGINE LOSING YOUR CAR KEYS IN THIS TIN CAN!!



OR IMAGINE IF OUR CREW WORKED TOGETHER AS SEAMLESSLY AND SELFLESSLY AS A COLONY OF HONEYBEES. AND IMAGINE ALL THAT HONEY... Mmmmm...

FAT CHANCE OF THAT! I'VE BEEN TO YOUR TEAM-BUILDING PICNICS, AND YOU GUYS COULDN'T COOPERATE YOUR WAY OUT OF A PAPER BAG.



AND IF I HAD THE COMPOUND VISION OF A DRAGONFLY I COULD SEE 360°!

ACTUALLY, THESE ARE THE NEW EYES. YOU SHOULD GET AN UPGRADE.

STUDENTS OF CENTRAL OREGON! SHOW US YOUR BUG-INSPIRED INVENTION AND EXPLAIN THE ASPECT OF INSECTS IT FEATURES! READ ON! →

Welcome To Invention Enterprise 2007

Here's the challenge:

Bugs!

Many people consider them to be pests, but they are highly specialized and often helpful. Create an invention modeled after or inspired by a bug's feature, property, or anatomical structure that may help solve some of Earth's problems.

(Bugs include spiders, insects, millipedes, and centipedes)

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.
2. 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. **Please, no live bugs.**
3. Entry deliveries will be accepted Wednesday, November 7, through Friday, November 9. **Entries must be received by 5 p.m. Friday, November 9, 2007.** 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. A panel will judge entries for creativity, originality, coolness, and how well ideas are developed. **Entries must not defy the laws of nature.**
6. 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.
7. **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.**
8. **Teachers in grades K through 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.
9. Winners will be announced by December 1, 2007. **Have fun!**

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

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

Topics To Consider

- Food** Some cultures already eat bugs. What is your bug-inspired invention to help food production, processing, or distribution?
- Drink** Got any buggy ideas for drinks or for providing clean drinking water for people?
- Energy** Insects may provide you with inspiration to solve energy problems.
- Medical** Develop new medical devices or medicines based on your bug research.
- Biotechnology** Plan to genetically modify a bug to serve the greater good.
- Work** Some insects have amazing strength. Translate that into ways for humans to get the job done easier, cheaper, or faster.
- Tools** Bugs can do weird things. Does that suggest cool new tools?
- Technology** What far-out new gizmos are waiting to be invented using bug features? Consider electronics, transportation, communication, detectors, optics...
- Community** Insect colonies may inspire some brave new ideas about human communities of the future.
- Waste** Design a waste treatment or recycling system that is inspired by bugs.
- Materials** Check into some of the materials that bugs make or are made of. Can you invent a way to put these materials to good use for humans?
- Manufacturing** Almost everything we purchase from the store has been manufactured. Let bugs inspire you to design new ways to make some of these products.

We hope these topics give you ideas to get you started in inventing your own bug-inspired solution to one of these human problems.
If you wish, you can create your own bug topic!

Inventerprise 2007 Entry Form

Please Print

Grade _____ School _____ Teacher _____

Entry Title _____

Name* <i>(first and last)</i>	Youth			Adult		
	Small	Medium	Large	Small	Medium	Large

* List your shirt size in case you win!

Check this box if you want your entry returned

Make sure your name is on each piece of your entry. Number of entry parts _____

(Please print or cut out this form and firmly attach it to your contest entry.)

Bug Facts

With one bite, **mosquitoes** cause more human suffering than any other organism. Malaria, West Nile virus, encephalitis, and yellow fever kill 1 million people every year. Mosquitoes use infrared and carbon dioxide sensors to locate their prey.

Although most **tick** bites are harmless, these bloodsucking external parasites can transmit Lyme disease, babesiosis, ehrlichiosis, and tularemia. Scientists believe the chemicals ticks secrete to thin blood could lead to blood-thinning drugs. Discovering how ticks live without food for months could be useful.

When **caterpillars** are ready to change into **butterflies**, they form a pupa in which most of the tissue that makes up the caterpillar is digested in the same way the caterpillar digests its food. Only a few very special cells survive that direct the reformation of the digested material to form the mature butterfly.

The prickly pear cactus is an invasive species in Australia that rapidly choked grazing land. Australian scientists searched the prickly pear's home, North and South America, and found a **moth, *Cactoblastis cactorum***, whose caterpillar eats the cactus. Within 10 years of the moth's introduction to Australia, the cactus was under control.

Bees have long provided humans with honey and beeswax. In their quest for nectar, bees pollinate approximately 130 agricultural crops in the U.S., including fruit, fiber, nut, and vegetable crops. Bees communicate using chemicals called pheromones and they perform dances that direct other bees to food.

DuPont scientists have discovered how to make **spider** silk, one of the world's toughest fibers. It is lightweight, incredibly strong, and so stretchable it could be used to clothe a ballerina.

Fireflies produce light via a chemical reaction combining luciferin, luciferase, ATP, and oxygen. The lighting efficiency of this reaction is close to 100%. In contrast, standard electric light bulbs lose 90% of their energy to heat and compact fluorescent bulbs lose more than half their energy as heat.

The **dung beetle** can lift 50 times its own body weight and consume more than its body weight in dung every day. The beetle improves soil structure through nutrient cycling and saves the cattle industry an estimated \$380 million annually in natural waste disposal.

Bugs display a variety of means of coloration for camouflaging themselves, discouraging predators, and attracting mates. These include light-absorbing pigments, light-scattering surfaces, and interference films, which give shiny bugs iridescence and varying colors.

A **praying mantis** can look over its shoulder and can turn its head 180 degrees without moving its body. Their huge compound eyes give them a wide field of vision. Males are great aerial fliers and have one ear for detecting bats. These insects help gardeners by eating a variety of other bugs.

Army ants live in colonies that make nightly raids. Daily they consume thousands of other bugs and even small lizards and snakes. Once they have cleared the food from an area, the whole colony moves. They have sensors that allow them to follow chemical trails laid down by fellow ants from the colony.

References

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