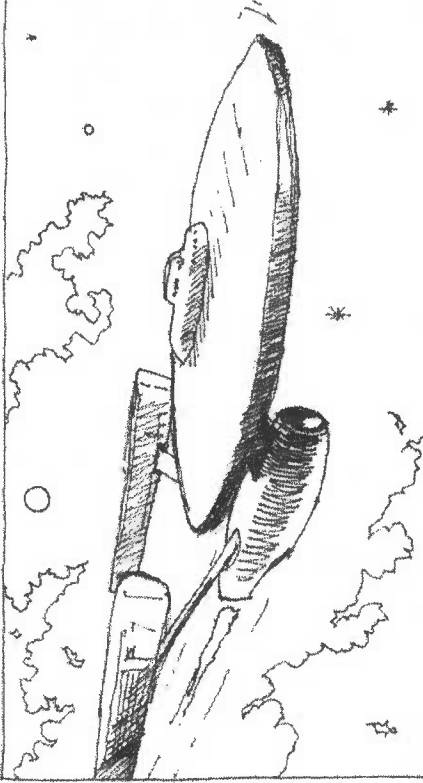


# INVENTERPRISE 2004

ILLUSTRATED BY J. LACHAPPELLE

IDEAS - THE FINAL FRONTIER.  
THESE ARE THE VOYAGES OF THE STARSHIP  
INVENTERPRISE.

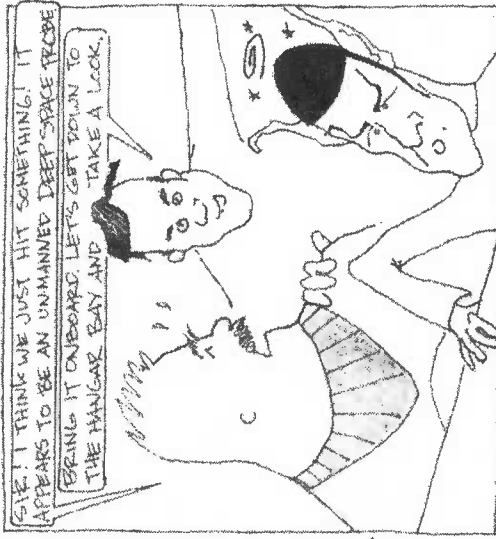
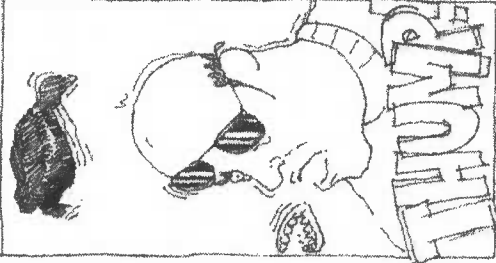
OUR CONTINUING MISSION: TO EXPLORE STRANGE  
NEW PLACES, TO SEEK OUT NEW  
IMPROVEMENTS AND NEW USES,  
TO BOLDLY GO WHERE NO ONE HAS GONE BEFORE.



SOMEWHERE, IN UNCHARTED DEEP SPACE, THE CREW OF THE  
INVENTERPRISE IS ON A VISIBILITY MISSION TO SEE IF BE SEEN.

AFOOT AND LIGHTEARTHED  
I TAKE TO THE OPEN  
ROAD!

HEY, SLOW IT DOWN!  
THERE, LIEUTENANT!



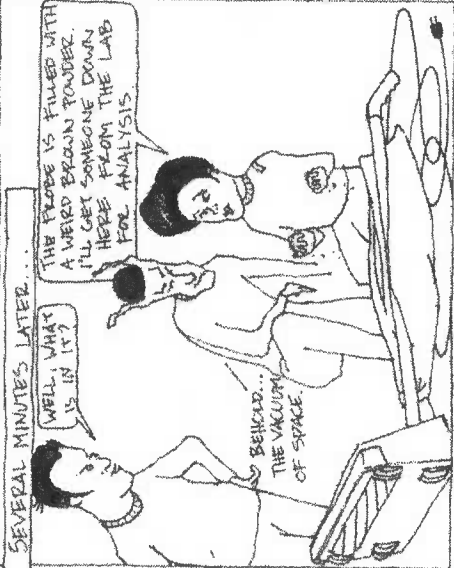
GEE, I THINK WE JUST HIT SOMETHING. IT  
APPEARS TO BE AN UNMANNED DEEP SPACE PROBE  
BRINGING IT ONBOARD. LET'S GET DOWN TO  
THE HANGAR BAY AND TAKE A LOOK.

SEVERAL MINUTES LATER...

WELL, WHAT  
IS IN IT?

THE PROBE IS FILLED WITH  
A WEIRD BROWN POWDER.  
I'LL GET SOMEONE DOWN  
HERE FROM THE LAB  
FOR ANALYSIS.

SO BEHIND...  
THE VACUUM  
OF SPACE.



SO, WHAT CAN YOU TELL  
US ABOUT THIS  
MYSTERIOUS SUBSTANCE,  
LAB GUY?

IT'S COMPLEX STUFF, AN AMAZING BLEND OF  
ORGANIC AND INORGANIC COMPOUNDS. HIGHLY ABSORBENT  
AND RICH WITH BACTERIA, NEMATODES, PROTOZOA  
AND FUNGUS.

IT WOULD APPEAR  
TO BE SOIL, SIR.  
MUCH LIKE THAT  
FOUND ON TWENTY-  
FIRST CENTURY  
EARTH!



YOU CAN GROW LOVELY CABBAGES IN THAT!!

IN FACT, THERE'S ALL SORTS OF USES  
FOR DIRT! WHY, JUST LAST WEEK WE  
ADDED A NEW ADDITION TO ENGINEERING  
NAMED USING ADOBE!

AND I LIKE TO PUT IT  
UNDER MY FINGER-  
NAILS AND PRETEND  
I'M CAMPING!

APPALLING!

I FEAR THIS 'DIRT' MAY SOIL OUR  
'DRY-CLEAN ONLY' UNIFORMS. SET  
PHASERS TO DETERGE!

(IT'S A LITTLE LATE FOR THAT, SIR.)



MUDPIES  
\$2.99

OH, ALL RIGHT THEN! STUDENTS OF CENTRAL  
OREGON, WHAT NEW USES FOR SOIL CAN  
YOU INVENT? READ ON FOR DETAILS...

## Welcome to Invention 2004.

Here's the problem:

**Soil is more than just dirt under your feet!  
Most people take soil for granted, but not you. Show us your brilliant idea that no one has thought of before for using soil!**

The next pages contain some 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 with friends 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, such as pictures, models, board games, descriptions, computer programs, dramas, tapes, or whatever medium best conveys your ideas.
3. Please bring or mail your entries to Bend Research Inc., 64550 Research Road, Bend, OR 97701. Entry deliveries will be accepted Wednesday, November 10, through Friday, November 12. **Entries must be received by 5 p.m. Friday, November 12, 2004.**
4. Include your first and last name, teacher, grade, and school 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.** Your entry will be returned to you if you check the appropriate box on the entry form.
5. A panel will judge entries for creativity, originality, coolness, and how well ideas are developed to address the problem. **Entries must not defy the laws of nature.**
6. Fabulous prizes (specially designed T-shirts) will be awarded to the top entrants in grades 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. **Cash prizes of up to \$1,000** will be awarded to the best high-school entries. The student submitting the best middle-school entry will choose between a **digital camera, an iPod®, or a mountain bike.**
8. Winners will be announced by December 1, 2004.
9. Have fun!

**For more information, go to our website at <http://www.cocc.edu/invention>  
or call Dari at 382-0212, ext. 127, or Chris at 382-0212, ext. 113.**

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

## Topics To Consider

### Agriculture

Your soil innovations have resulted in big increases in plant and animal food production.

Your ideas have resulted in the cultivation of new plants and the domestication of new animals. Share them with us.

### Manufacturing

New manufacturing methods have emerged because of your innovations.

### Mining

Your extraction methods have allowed us to obtain and use raw materials present in soil.

### Natural Resources

Describe your new soil conservation methods that have preserved farmland.

Your work with dirt has improved land, water, and air quality. Show us how.

You have uncovered new sources of energy from your work with soil.

### Technology

Your new gadget, built entirely from dirt and dirt by-products, is a sensation!

Tell us more.

### Community

Your new soil-based building materials have changed the way people live.

Your invention makes it possible for people to live in harsh environments.

**Choose one of these topics or many! You can also invent your own topic related to new uses for soil.**

## Inventerprise 2004 Entry Form

Please Print

Grade \_\_\_\_\_ School \_\_\_\_\_

Teacher \_\_\_\_\_

Student Name(s) \_\_\_\_\_  
first last

Entry Title \_\_\_\_\_

\_\_\_\_\_

first

last

\_\_\_\_\_

\_\_\_\_\_

first

last

\_\_\_\_\_

Check box if you want your entry returned

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

Please cut out and firmly attach this entry form to your contest entry

# The Dirt on Soil

Soil is more than just dirt under our fingernails or under our feet. We can think of soil as a thin, living skin that covers Earth like the skin of an apple. Soil is a diverse mixture of rock particles, living and dead organisms, minerals, and nutrients.

## Layers of Soil

- **Ground level:** Where plants grow and animals live.
- **Topsoil:** Sometimes called the organic layer, it is the most productive layer, filled with food for plants and animals.
- **Subsoil:** A mix of minerals and some humus, where most of soil's nutrients are found.
- **Weathered and parent material:** Very deep (no organic matter here).
- **Bedrock:** Solid rock. If this rock is exposed by erosion or volcanic activity, the soil-making process begins again.

## Other Interesting Information About Soil

- It can take more than 500 years for natural processes to make 1 inch of topsoil. That means it can take 3,000 to 12,000 years to produce enough mature soil for farming.
- Soil is formed from rocks and decaying plant and animals. To help make soil, fungi and bacteria help break down organic matter, and plant roots and lichens break up rocks. Earthworms eat organic matter, recycle nutrients, and make surface soil richer.
- Different-sized mineral particles, such as sand, silt, and clay, give soil its texture.
- Over 70,000 kinds of soil have been identified in the United States alone! Soil is the most complicated biomaterial on earth.
- A handful of soil from a garden contains more individual organisms than the total number of people that have ever lived!
- "A hotter world is likely to have less organic material in its soil," according to Duke University's William Schlesinger. As the ground heats up, organic matter decomposes more readily. Not only does the soil become less fertile, meaning fewer crops, but also it releases more carbon dioxide, affecting global warming.
- Some countries in dry climates grow crops by drilling holes in the soil and injecting fertilizer and seeds in the holes.
- The soil on the Great Plains of the United States was carried there from Canada by glaciers.

## Some Soil Terms

- **Polypedon:** Body of individual soil.
- **Sand, Silt, and Clay:** Soil particles of different sizes.
- **Humus:** Organic soil particles formed from decaying material.
- **Loam:** The mineral portion of soil containing 7% to 27% clay and less than 52% sand.

## Interesting Historical Facts

- **George Washington Carver (1864-1943):** An African-American whose interest in soil brought him international acclaim for his agricultural research. He directed most of his attention to soil conservation and his research changed the farming practices in the southern United States.
- **The Dust Bowl.** During the 1930s, years of poor agricultural practices and drought caused the Dust Bowl, which lasted for 10 years. Before this, soil had been taken for granted or ignored and people involved in farming and ranching didn't worry about soil conservation or preserving soil quality. When a naturally occurring drought hit the Southern Plains in 1930, the soil was of such poor quality that it blew away. People lost their work, their property, and their homes.