

ENVIRONMENTAL TOPICS IN COMPUTER STUDIES

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Resources:

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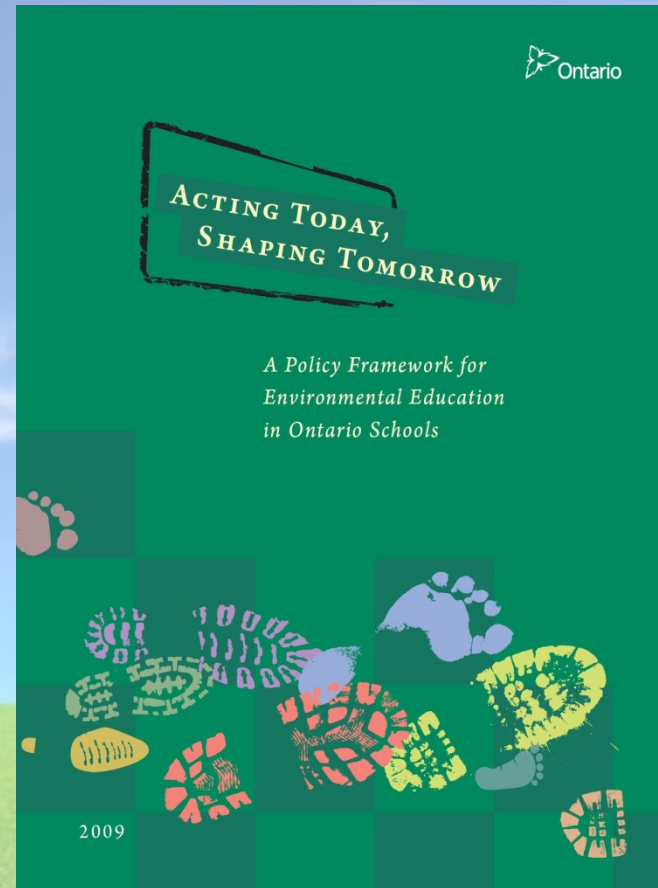
Outline

- Environmental Expectations
- Electronic Waste
- The Carbon Footprint of Computing
- Green Information Technology
- Corporate Responsibility
- Embedding Environmental Education

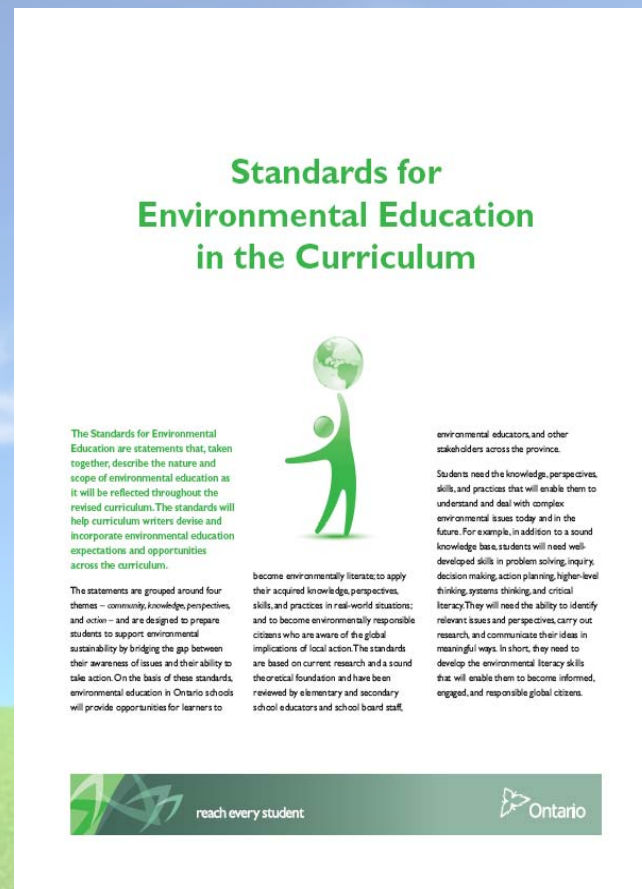
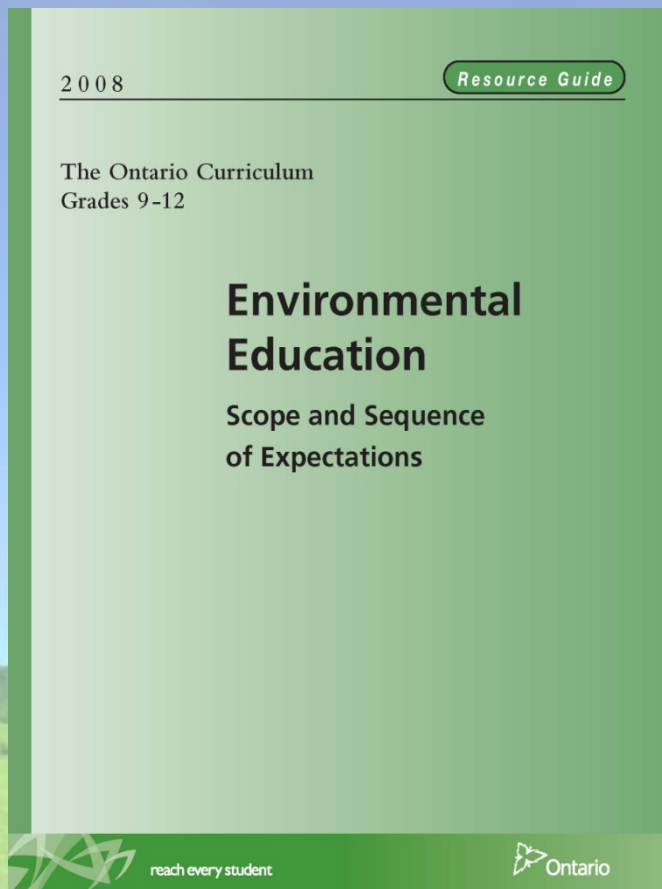


ENVIRONMENTAL EXPECTATIONS

Ministry Documents



Ministry Documents



ICS20

C2.2

Identify measures that help reduce the negative effects of computers on the environment



ICS20

C2.4

Describe, ... , how and where recycled electronic waste is processed, and identify local companies and institutions that offer such services.





ELECTRONIC WASTE

Impacts of Electronic Waste

China



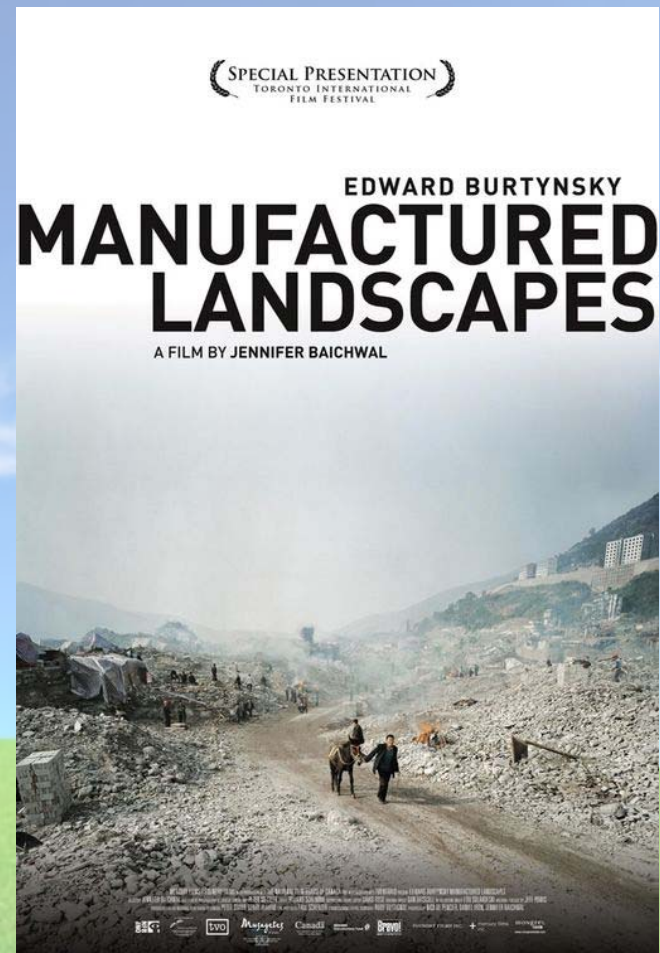
“E-waste is the term used to describe old, end-of-life or discarded appliances using electricity”

ewasteguide.info

Ghana



Electronic Waste in China



Electronics Recycling



\$13.44 - Desktop computers

\$2.14 - Laptops

\$12.03 - Computer monitors

\$5.05 - Printers

\$0.32 - Per Peripheral

\$10.07 - Televisions

Electronics Recycling

Do What
You Can



“Our personal consumer choices have ecological, social, and spiritual consequences. It is time to re-examine some of our deeply held notions that underlie our lifestyles.”

David Suzuki





THE CARBON FOOTPRINT OF COMPUTING

Carbon Dioxide / Spam E-mail

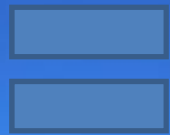
0.3g
CO₂



62 Trillion
E-mails



Carbon Dioxide / Spam E-mail



**33 Billion kWh /
Year**



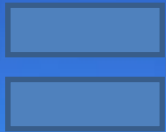
Carbon Dioxide / Spam E-mail

 **2.4 Million Homes**



Carbon Dioxide / Spam E-mail

**3.1 Million
Passenger Cars**



Carbon Dioxide / Google Search

0.2g
CO₂



7g
CO₂



GREEN INFORMATION TECHNOLOGY

Greening our Classrooms

- Take 5 minutes to discuss at your table ideas for greening your computer space



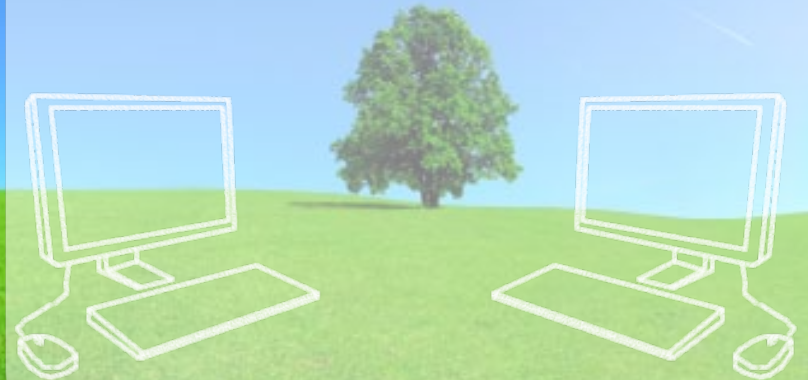
School Wide

Power Management

1. Monitors
2. Computers
3. Lights
4. Phantom Power

Printing

1. Online resources
2. Print less, photocopy more
3. EcoFont



School wide programs

Ontario
ECOschoools



“I encourage people to make environmentally conscious choices because we all have to solve this climate crisis.”

Al Gore



CORPORATE RESPONSIBILITY



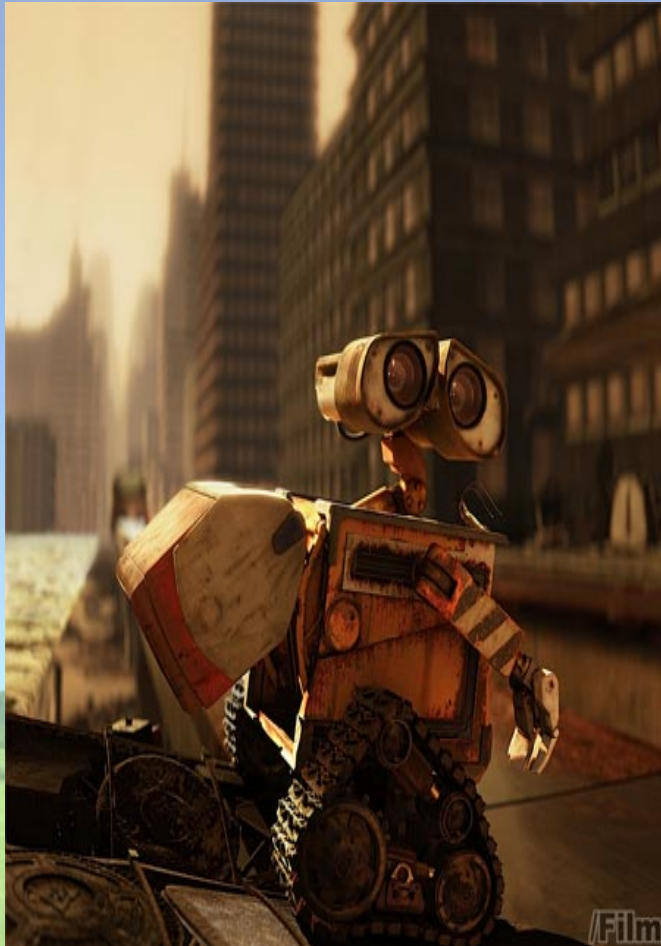
Greenpeace Rankings '09

Toxic Chemicals
E-Waste
Energy Usage



Nokia
Samsung
Sony Ericsson
LG Electronics
Toshiba
Motorola
Philips
Sharp
Acer
Panasonic
Apple
Sony
Dell
HP
Microsoft
Lenovo
Fujitsu
Nintendo

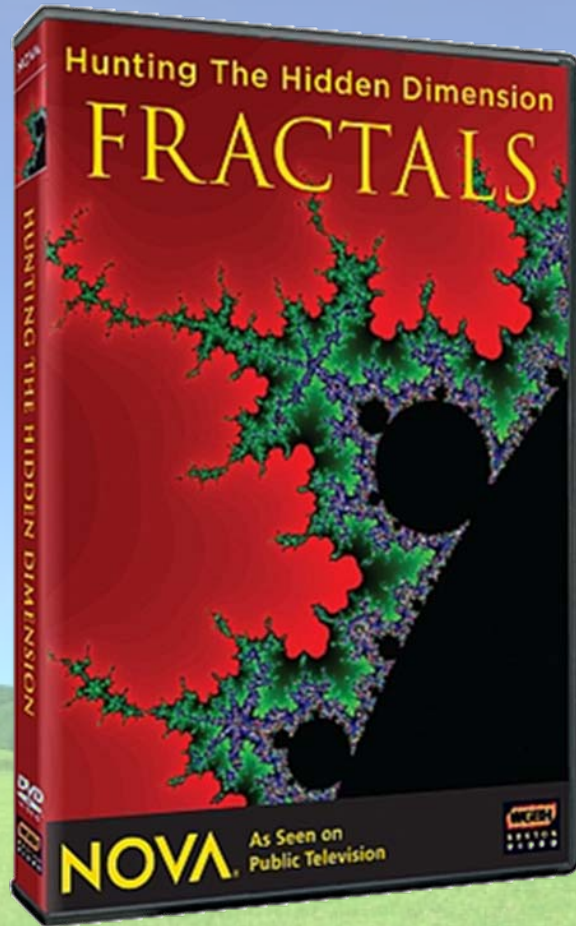
Wall - E





EMBEDDING ENVIRONMENTAL EDUCATION

Fractals in Nature



Coastline
Experiment



Wording

Charlie invested \$1000 dollars in stocks 10 years ago. He has been unlucky and his stocks have depreciated 1.3% per year. How much money does Charlie have left?



Re-Wording

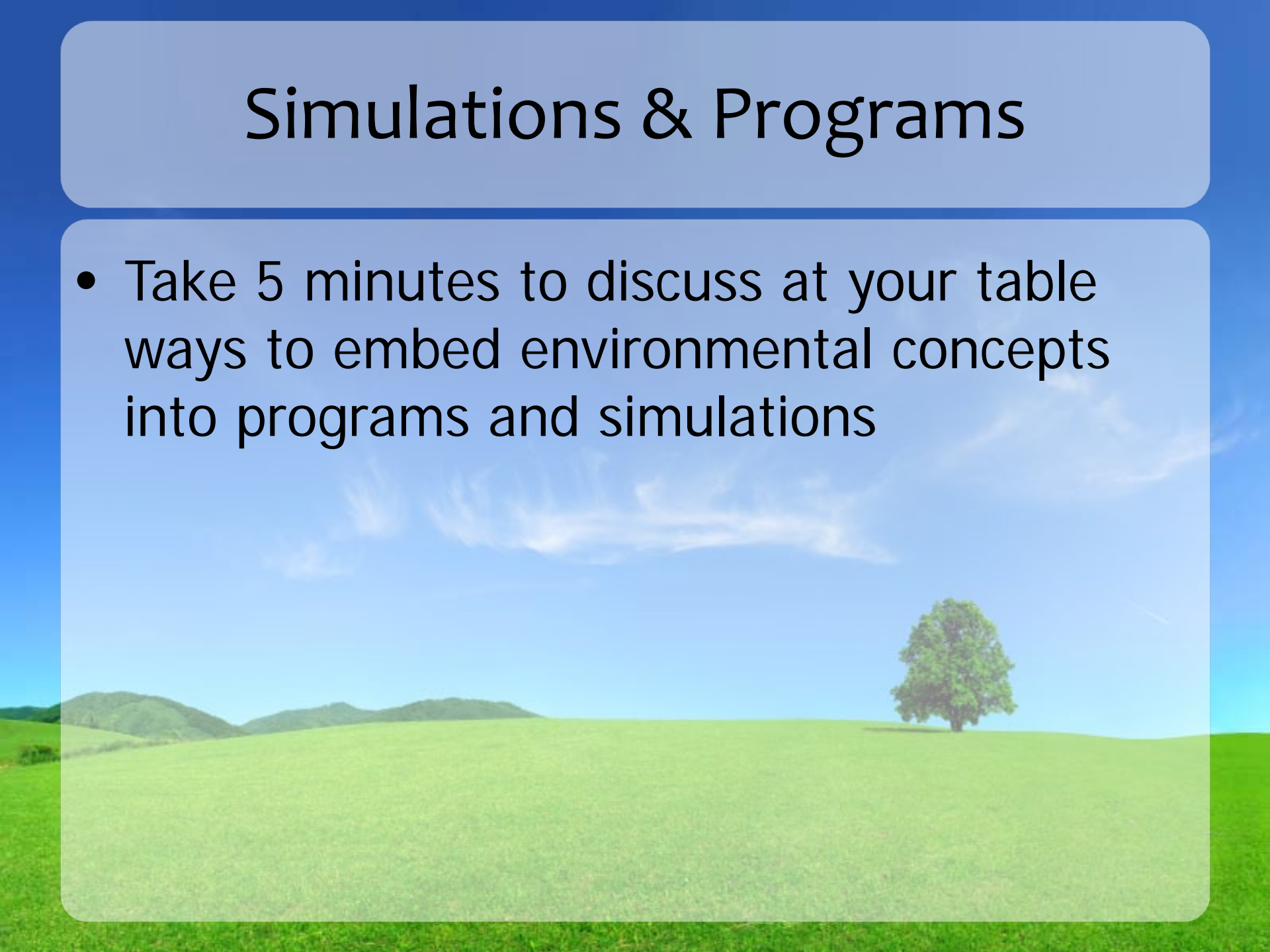
Due to changes in weather patterns, an area of grassland has been experiencing soil erosion at a rate of 1.3% per year for the past 10 years. The soil used to be 1m thick.

How thick is the soil now?



Simulations & Programs

- Take 5 minutes to discuss at your table ways to embed environmental concepts into programs and simulations



Thank You

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wiki.acse.net

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