Think Like a Biologist

The Living Earth

- The Living Earth is California's new biology class.
- It combines traditional biology topics with some earth science topics.
- Learning with now be more hands on and scientific!
 - □ You will no longer simply memorize facts!
 - □ Now we will learn to think and act like scientists.

What is Biology?

□ <u>Biology</u> is the study of living organisms

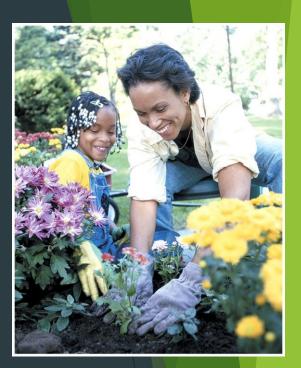
□ What is <u>Science</u>?

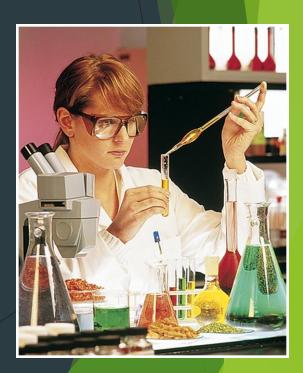
an organized way of using evidence to learn about the natural world.



Why Study Biology?

- Two important reasons for studying Biology:
 - 1. Biology is relevant to our everyday experience
 - Medical advances
 - Addressing needs of growing human population
 - Challenges of decreasing rate of biodiversity
 - Biotechnology advances





Why Study Biology?

2. Biology can be controversial

- **Examples:**
 - Dealing with endangered species?
 - □ Use of human fetal tissue in biomedical research?
 - □ Safety of irradiated foods?

In Big Advance in Cloning, **Biologists Create 50 Mice**

Indicates More Rapid Progress Than Imagined

By GINA KOLATA

seven of

ones. They say

total of more than

feat, scientists said, meant hat cloning an adult animal like

Scientists from Hawaii said yesterday that they had made dozens of adult mouse clones and even cloned some of those clones. The announcement, coming after months of rumors, still stunned biologists when they heard the details. It means, they say, that advances in cloning are coming faster than even the most confident scientists had imagined.

he Aem Mark Cimes The research team took just months to churn out clones of adult mice, following the announceme last year that the first clone adult animal, Dolly the created in Scotland In today'

ones

Rvuzo 1

have to be perfected in mice and then monkeys, he said. Dr. Zirkin said that human cloni "needs to be discussed," but I ed that the main signif

clinics add human cloning to their

repertoires." The method would first

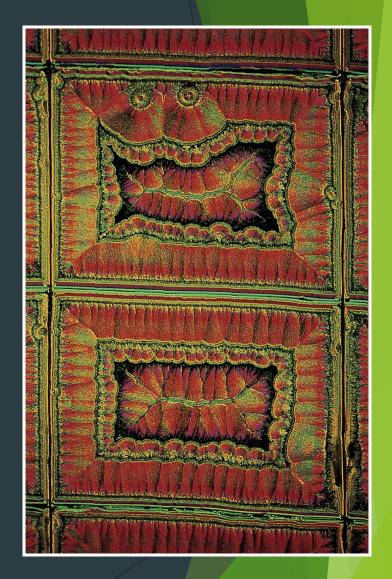
tically duplianimal by using a single cell has captivatientists and the public for dec-

But until last year, when the birth of Dolly was announced, most scientists had given up on the idea of cloning adults, although they gener-

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What is Life?

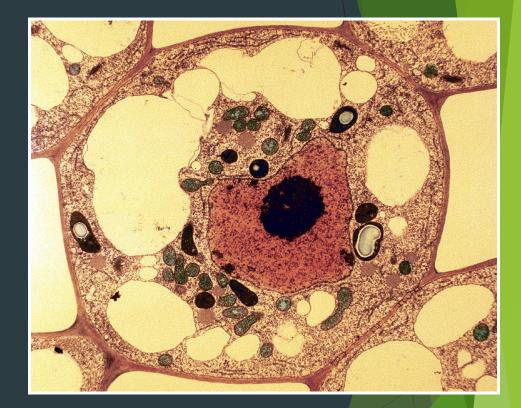
- □ Living organisms:
 - Highly organized and complex.
 - Are composed of one or more cells.
 - Contain a blueprint of their characteristics.-- DNA
 - □ Acquire and use energy.
 - Carry out and control numerous reactions.



What is Life?

Living organisms:

- Grow.
- Maintain constant internal environment.
- □ Produce offspring.
- Respond to environmental changes.
- □ May evolve.



Major Topics in The Living Earth

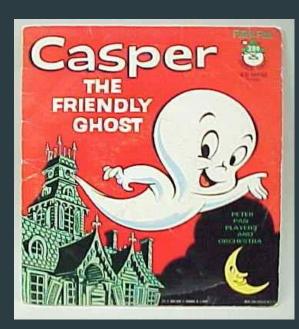
Evolution
Inheritance
Cells
Homeostasis
Ecology
Climate Change

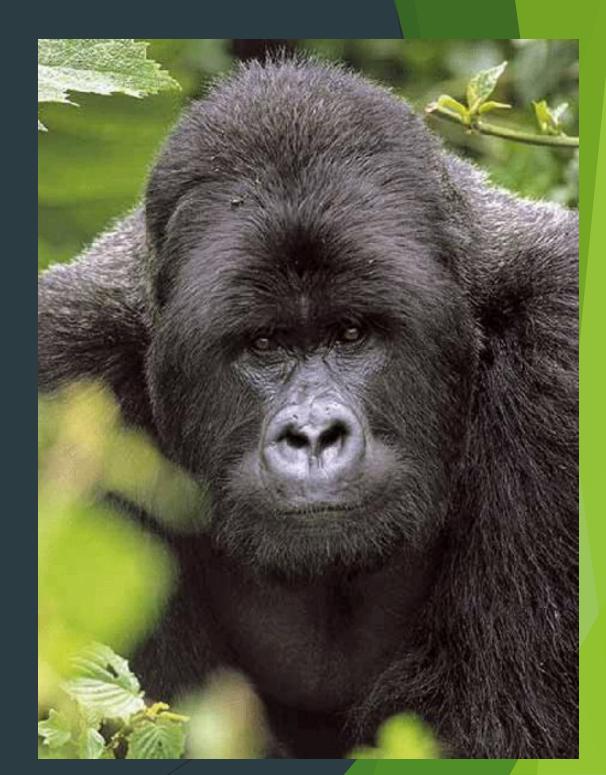




The Goals of Science

- Deals only with the natural world
 The supernatural is
 - outside the realm of science

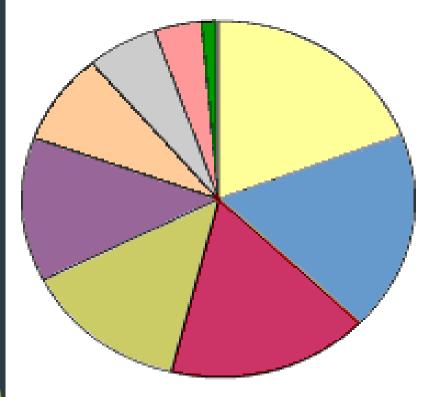


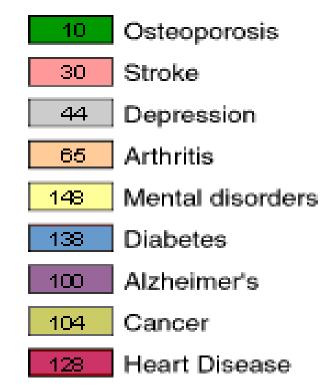


2. Collect and Organize Information

Estimated annual cost to the U.S. economy for several diseases

(dollar amounts in billions)





3. Propose explanations that can be <u>tested</u>



4. Summarizing SCIENCE is a body of <u>knowledge</u> that <u>explains</u> the natural <u>world</u>.

