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Our curriculum unit is aimed at high school biology classes, but also could be used for other general science classes. The core unit includes five lessons with each lesson being 45 minutes long. The following table describes the overall plan.

	Topic	Key Points
Lesson 1	**Introduction** - Introductory Slideshow - Identify Sources of Bias - DDT Homework	- To think critically about the source of information - To identify sources of bias in data - To review common misconceptions of science
Lesson 2	**Introduction** - Food Webs, Bioaccumulation and Data Visualization Presentation - Food Web Activity - Bald Eagle Homework	- To understand the natural history of osprey and eagles and where in the lifecycle DDE affects the survival of these birds - To understand the concept of bioaccumulation and biomagnification - To understand food webs
Lessons 3 & 4	**Data Analysis** - Data Introduction and Osprey Example - Bald Eagle Activity 1 - Bald Eagle Activity 2 - Bald Eagle Activity 3	- To learn about data sources available to the public - To review hypothesis formation and "cleaning" data - To learn how to graph and visualize data - To understand how to use Excel and organize data - To identify sources of bias in the dataset
Lesson 5	**Review** - The Story of Santa Catalina Island - Santa Catalina Island Restoration Activity	- To understand the importance of unbiased data - To consider the connection between the effects of pesticides on wildlife and effects of pesticides on humans

Lesson 1 – Introduction

Topic 1	Activity/Presentation	Time
Introductory Slideshow	What is science? What is bias?	25 minutes

Overall Goal

- To encourage students to evaluate the reliability and possible biases of data
- To introduce students to the importance of using non-biased data
- To understand how bias can unintentionally or intentionally be introduced to scientific experiments.
- To introduce students to the way in which DDT affects bald eagles
- To review the idea of identify bias presented information

Topic Objective

- To identify sources of bias in data and information
- To analyze how the source of information affects the way in which information is presented

Content

- Brief introduction to the five-lesson unit
- Introduction to basic concepts about science, sources of bias and methods scientists use to decrease bias in their investigations

Note Taking

- Because this section will be in presentation format, there will be a note taking sheet to guide students in their note taking

Topic 2	Activity/Presentation	Time
Identify Sources of Bias	Smoking Rates Activity	25 minutes

Topic Objective

- To evaluate the design of several experiments focused on determining the rate of smoking among high school students
- To discuss sources of bias in each experiment and develop an experimental design to minimize bias

Content

- An in class activity that can be completed by students individually or in groups depending on the class dynamics

Topic 3	Activity/Presentation	Time
DDT Homework	DDT Bias Activity	30 minutes

Top Objective

- To identify signs of bias and determine the accuracy of different pieces of information

Content

- A homework activity where students are put in the role of a reporter writing an article on DDT and evaluate an article that claims DDT has no effect on bird reproduction and the response of a Fish and Wildlife Service scientist.

National – California Educational Standards

Topic	National Standards	California Standards
Introductory Slideshow	**Unifying Concepts** - Change, constancy, and measurement - Evidence, models and explanation **History of Natural Science** - Nature of scientific knowledge	Investigation and Experimentation - Work with data and analyze relationships 1(a) - Understand inconsistent results 1(b) - Formulate explanations using logic and evidence 1(d)
Smoking Rates Activity	**Unifying Concepts** - Change, constancy, and measurement - Evidence models and explanation	Investigation and Experimentation - Select and use appropriate tools and technology to perform tests, collect data, analyze relationships and display data 1(a) - Understand inconsistent results 1(b) - Formulate explanations by using logical results 1(d) - Recognize the cumulative nature of scientific evidence 1(k)
DDT Bias Activity	**Unifying Concepts** - Change, constancy, and measurement **Science in Personal and Social Perspectives** - Environmental quality - Natural and human induced hazards - Science and technology	Investigation and Experimentation - Understand inconsistent results 1(b) - Formulate explanations by using logical results 1(d) - Recognize the cumulative nature of scientific evidence 1(k)

Lesson 2 – Introduction

Topic 1	Activity/Presentation	Time
Introductory Slideshow	Food Webs, Bioaccumulation, and Visualizing Data	25 minutes

Overall Goal

- To introduce food webs and the concepts of bioaccumulation and biomagnification
- To prepare students to analyze the bald eagle data in lessons 3 and 4
- To understand the concept of bioaccumulation and how it relates to the affects of toxic chemicals as wildlife population declines
- To understand the importance of connecting numerical data with actual biological phenomena

Topic Objective

- To understand the difference between bioaccumulation and biomagnification
- To visualize the graphs of different kinds of data sets

Content

- A slides show introducing food webs, bioaccumulation, and biomagnification using osprey and bald eagle examples

Note Taking

- Because this section will be in presentation format, there will be a note taking sheet to guide students in their note taking

Topic 2	Activity/Presentation	Time
Food Webs/ Bioaccumulation Activity	Food Web Activity	25 minutes

Topic Objective

- To introduce students to the concepts of bioaccumulation
- To introduce students to the toxic properties of DDE
- To show students how quantitative data is used and interpreted

Content

- A brief introduction on the principles of bioaccumulation
- An in-class activity showing how DDE moves through a food web

Topic 3	Activity/Presentation	Time
Bald Eagle Reading Homework	The range, habitat and niche of the Bald Eagle	30 minutes

Top Objective

- To introduce the natural history of bald eagles so that students can understand what part of the bald eagle life cycle is affected by DDE exposure

Content

- A homework activity where students read the USGS – Biological Resource Division, Patuxent Wildlife Research Center article, *The range, habitat and niche of the bald eagle*

National – California Educational Standards

Topic	National Standards	California Standards
Slideshow – Food Web, Bioaccumulation, and Visualizing Data	**Unifying Concepts** - Evidence, models and explanation **Physical Science** - Chemical reactions **Science in Personal and Social Perspectives** - Environmental quality	Ecology - To analyze change in an ecosystem 6(b) - To know about fluctuations in populations 6(c) - To know the relation between stability, producers and decomposers 6(e) - Food chains 6(f) Investigation and Experimentation - Formulate explanations by using logical results 1(d) - Recognize the cumulative nature of scientific evidence 1(k)
Food Web Activity	**Life Science** - Interdependence of organisms **Science in Personal and Social Perspectives** - Environmental quality	Ecology - To analyze change in an ecosystem 6(b) - To know about fluctuations in populations 6(c) - To know the relation between stability, producers and decomposers 6(e) - Food chains 6(f)
Bald Eagle Reading Homework	**Life Science** - Behavior of organisms	Ecology - Analyze how change in an ecosystem due to human activity can result in changes in population size 6(b)

Lessons 3&4 – Data Analysis

Topic 1	Activity/Presentation	Time
Introductory Slideshow and Osprey Data	Data Introduction and Osprey Data	15 minutes

Overall Goal

- To formulate hypotheses and select data in a manner that minimizes bias.
- To organize, view and analyze data in Excel.
- To generate possible explanations for trends found in data.

Topic Objective

- To learn about data sources available to the public.
- To practice formulating a hypothesis and selecting data in a manner that minimizes bias.
- To gain an appreciation for graphing as a way to visualize data.

Content

- A slideshow introducing students to CEETV, the Contaminants Exposure and Effects-Terrestrial Vertebrates database, as source of data that can be used to investigate the effectiveness of the DDT ban. The introductory presentation also reviews how to formulate a hypothesis and determine the type of data needed in order to reduce potential bias.
- An activity using osprey data from CEETV to explore the effectiveness of DDT ban.

Note Taking

- Because this section will be in presentation format, there will be a note taking sheet to guide students in their note taking

Topic 2	Activity/Presentation	Time
Data Analysis – Excel	Bald Eagle Activity 1	35 minutes

Topic Objective

- To practice formulating a hypothesis and "cleaning" a dataset in order to remove records that would introduce bias into the investigation.
- To learn how to manipulate data and graph using Excel.
- To discuss the meaning of their graph and explore possible explanations for the pattern they observe.

Content

- An activity using a dataset from CEETV containing data on DDE concentrations in bald eagle eggs in the U.S. Using this dataset students are introduced to Excel and its functions.
- Students sort their data and eliminate records that would introduce bias.

- Students divide records into groups by year and calculate DDE means for each group.
- Students graph their results and discuss the meaning of their graphs.

Topic 3	Activity/Presentation	Time
Data Analysis – Excel	Bald Eagle Activity 2	25 minutes

Top Objective

- To gain expertise with manipulating data and graphing in Excel.
- To explore how different ways of dividing and visualizing data can lead to different results and hence conclusions.

Content

- An activity having students look at the records they used to create the graph in Bald Eagle Activity 1 and propose possible hypothesis to explain their results. In particular they are encouraged to question whether the trend they observe is a trend across the US or limited to specific location(s).
- Students reexamine their data by dividing data into groups by state, discuss the results and formulate a new hypothesis.

Topic 4	Activity/Presentation	Time
Data Analysis – Excel	Bald Eagle Activity 3	25 minutes

Topic Objective

- To develop critical thinking skills with regard to science, in particular by identifying sources of bias.

Content

- In this activity the results of Bald Eagle Activity 2 are discussed with emphasis on how bias was introduced to the first investigation. Students are asked to share their results and new hypotheses. Santa Catalina is identified as a potential hotspot.
- Students investigate their new hypothesis by looking at the bald eagle data one last time. This time they contemplate a graph in which the bald eagle data has been divided into 2 large datasets, one containing all US data with the exception of data from Santa Catalina and the other dataset containing data only from Santa Catalina.
- Students discuss the meaning of their graphs and formulate ideas about what might have caused the patterns they observe.
- Students discuss how combining the data records in different ways led to a different result thereby reviewing ideas about bias presented earlier in the unit.

National – California Educational Standards

Topic	National Standards	California Standards
Introductory Slideshow & Osprey Data	**Unifying Concepts** - Systems, order and organization - Change, constancy and measurement	Investigation and Experimentation - Select and use appropriate tools and technology to perform tests, collect data, analyze relationships and display data 1(a) Ecology - Analysis of changes in ecosystems resulting from changes in climate, human activity, introduction of non-native species or changes in population size 6(b)
Data Analysis – Bald Eagle Activity 1	**Unifying Concepts** - Evidence models and explanation	Investigation and Experimentation - Select and use appropriate tools and technology to perform tests, collect data, analyze relationships and display data 1(a) - Understand inconsistent results 1(b) - Identify possible reasons for inconsistent results 1(c)
Data Analysis – Bald Eagle Activity 2	**Unifying Concepts** - Change, constancy, and measurement - Systems, order and organization - Evidence, models and explanations **Science and Inquiry** - Abilities necessary to do scientific inquiry - Understanding about scientific inquiry **Science in Personal and Social Perspectives** - Environmental quality - Science and technology in local, national and global changes	Investigation and Experimentation - Select and use appropriate tools and technology to perform tests, collect data, analyze relationships and display data 1(a) - Understand inconsistent results 1(b) - Identify possible reasons for inconsistent results 1(c) - Formulate explanations by using logic and evidence 1(d) - Recognize the cumulative nature of scientific evidence - Recognize the cumulative nature of scientific evidence 1(k) - Analyze situation and solve problems that require combining and applying concepts from more than one area of science 1(l)
Data Analysis – Bald Eagle Activity 3	**Unifying Concepts** - Change, constancy, and measurement - Systems, order and organization	Ecology - Analyze changes in an ecosystem resulting from change in climate, human activity, introduction of a non-native species or changes in

	- Evidence, models and explanations **Science and Inquiry** - Abilities necessary to do scientific inquiry - Understanding about scientific inquiry **Life Science** - Interdependence of organisms **Science in Personal and Social Perspectives** - Environmental quality - Natural and human induced hazards - Science and technology in local, national and global changes	population size 6(b) - Know each link in a food web 6(f) Investigation and Experimentation - Select and use appropriate tools and technology to perform tests, collect data, analyze relationships and display data 1(a) - Understand inconsistent results 1(b) - Identify possible reasons for inconsistent results 1(c) - Formulate explanations by using logic and evidence 1(d) - Recognize the cumulative nature of scientific evidence - Recognize the cumulative nature of scientific evidence 1(k) - Analyze situation and solve problems that require combining and applying concepts from more than one area of science 1(l) Investigate a science-based societal issue by researching the literature, analyzing data and communicating the findings 1(m)

Lesson 5 – Review

Topic 1	Activity/Presentation	Time
Slideshow	The Story of Santa Catalina Island	25 minutes

Overall Goal

- To learn how science and unbiased data were used to identify the environmental policy violations of the Montrose Corporation
- To review concepts introduced in Lessons 1 to 4
- To understand the difficulties of restoring a habitat once it has been degraded

Topic Objective

- To introduce the impact of the Montrose Chemical Corporation and others on bald eagles and other wildlife
- To explain how scientific data were used to bring a lawsuit against the chemical corporations
- To understand restoration and learn about restoration projects currently being conducted on Santa Catalina Island

Content

- A slides show introducing the story of bald eagles on Santa Catalina Island and the government's lawsuit against the Montrose Corporation

Note Taking

- Because this section will be in presentation format, there will be a note taking sheet to guide students in their note taking

Topic 2	Activity/Presentation	Time
Restoration Activity	Santa Catalina Island Restoration Activity	25 minutes

Topic Objective

- To read and evaluate actual restoration projects that have been proposed for Santa Catalina Island

Content

- An in-class activity showing plans to restore fish and bald eagle habitat and giving students the opportunity to determine if there is sufficient information to feel confident that the restoration plans will be successful

National – California Educational Standards

Topic	National Standards	California Standards
Slideshow – Story of Santa Catalina Island	**Unifying Concepts** - Evidence, models and explanation **Physical Science** - Chemical reactions **Science in Personal and Social Perspectives** - Environmental quality	Ecology - Know biodiversity is the sum total of different kinds of organisms and is affected by alterations of habitats 6(a) - To analyze change in an ecosystem resulting from changes in climate, human activity, introduction of non-native species or changes in population sizes 6(b) - To know about fluctuations in populations 6(c) - To know the relation between stability, producers and decomposers 6(e) - Food chains 6(f) Investigation and Experimentation - Recognize the cumulative nature of scientific evidence 1(k)
Santa Catalina Restoration Activity	**Life Science** - Interdependence of organisms **Science in Personal and Social Perspectives** - Environmental quality	Ecology - To analyze change in an ecosystem resulting from changes in climate, human activity, introduction of non-native species or changes in population sizes 6(b) - To know about fluctuations in populations 6(c) Investigation and Experimentation - Select and use appropriate tools and technology to perform tests, collect data, analyze relationships and display data 1(a) - Formulate explanations by using logic and evidence 1(d) - Analyze situation and solve problems that require combining and applying concepts from more than one area of science 1(l)

California Life Science Standards – http://www.cde.ca.gov/standards/science/

Standards that all students are expected to achieve in the course of their studies are unmarked. Standards that all students should have the opportunity to learn are marked with an asterisk (*).

Cell Biology

1. The fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism's cells. As a basis for understanding this concept:

a. *Students know* cells are enclosed within semipermeable membranes that regulate their interaction with their surroundings.

b. *Students know* enzymes are proteins that catalyze biochemical reactions without altering the reaction equilibrium and the activities of enzymes depend on the temperature, ionic conditions, and the pH of the surroundings.

c. *Students know* how prokaryotic cells, eukaryotic cells (including those from plants and animals), and viruses differ in complexity and general structure.

d. *Students know* the central dogma of molecular biology outlines the flow of information from transcription of ribonucleic acid (RNA) in the nucleus to translation of proteins on ribosomes in the cytoplasm.

e. *Students know* the role of the endoplasmic reticulum and Golgi apparatus in the secretion of proteins.

f. *Students know* usable energy is captured from sunlight by chloroplasts and is stored through the synthesis of sugar from carbon dioxide.

g. *Students know* the role of the mitochondria in making stored chemical-bond energy available to cells by completing the breakdown of glucose to carbon dioxide.

h. *Students know* most macromolecules (polysaccharides, nucleic acids, proteins, lipids) in cells and organisms are synthesized from a small collection of simple precursors.

i.* *Students know* how chemiosmotic gradients in the mitochondria and chloroplast store energy for ATP production.

j* *Students know* how eukaryotic cells are given shape and internal organization by a cytoskeleton or cell wall or both.

Genetics

2. Mutation and sexual reproduction lead to genetic variation in a population. As a basis for understanding this concept:

a. *Students know* meiosis is an early step in sexual reproduction in which the pairs of chromosomes separate and segregate randomly during cell division to produce gametes containing one chromosome of each type.

b. *Students know* only certain cells in a multicellular organism undergo meiosis.

c. *Students know* how random chromosome segregation explains the probability that a particular allele will be in a gamete.

d. *Students know* new combinations of alleles may be generated in a zygote through the fusion of male and female gametes (fertilization).

e. *Students know* why approximately half of an individual's DNA sequence comes from each parent.

f. *Students know* the role of chromosomes in determining an individual's sex.

g. *Students know* how to predict possible combinations of alleles in a zygote from the genetic makeup of the parents.

3. A multicellular organism develops from a single zygote, and its phenotype depends on its genotype, which is established at fertilization. As a basis for understanding this concept:

a. *Students know* how to predict the probable outcome of phenotypes in a genetic cross from the genotypes of the parents and mode of inheritance (autosomal or X-linked, dominant or recessive).

b. *Students know* the genetic basis for Mendel's laws of segregation and independent assortment.

c.* *Students know* how to predict the probable mode of inheritance from a pedigree diagram showing phenotypes.

d.* *Students know* how to use data on frequency of recombination at meiosis to estimate genetic distances between loci and to interpret genetic maps of chromosomes.

4. Genes are a set of instructions encoded in the DNA sequence of each organism that specify the sequence of amino acids in proteins characteristic of that organism. As a basis for understanding this concept:

a. *Students know* the general pathway by which ribosomes synthesize proteins, using tRNAs to translate genetic information in mRNA.

b. *Students know* how to apply the genetic coding rules to predict the sequence of amino acids from a sequence of codons in RNA.

c. *Students know* how mutations in the DNA sequence of a gene may or may not affect the expression of the gene or the sequence of amino acids in an encoded protein.

d. *Students know* specialization of cells in multicellular organisms is usually due to different patterns of gene expression rather than to differences of the genes themselves.

e. *Students know* proteins can differ from one another in the number and sequence of amino acids.

f.* *Students know* why proteins having different amino acid sequences typically have different shapes and chemical properties.

5. The genetic composition of cells can be altered by incorporation of exogenous DNA into the cells. As a basis for understanding this concept:

a. *Students know* the general structures and functions of DNA, RNA, and protein.

b. *Students know* how to apply base-pairing rules to explain precise copying of DNA during semiconservative replication and transcription of information from DNA into mRNA.

c. *Students know* how genetic engineering (biotechnology) is used to produce novel biomedical and agricultural products.

d.* *Students know* how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, ligation, and transformation) is used to construct recombinant DNA molecules.

e.* *Students know* how exogenous DNA can be inserted into bacterial cells to alter their genetic makeup and support expression of new protein products.

Ecology

6. Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept:

a. *Students know* biodiversity is the sum total of different kinds of organisms and is affected by alterations of habitats.

b. *Students know* how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of nonnative species, or changes in population size.

c. *Students know* how fluctuations in population size in an ecosystem are deter-mined by the relative rates of birth, immigration, emigration, and death.

d. *Students know* how water, carbon, and nitrogen cycle between abiotic resources and organic matter in the ecosystem and how oxygen cycles through photosynthesis and respiration.

e. *Students know* a vital part of an ecosystem is the stability of its producers and decomposers.

f. *Students know* at each link in a food web some energy is stored in newly made structures but much energy is dissipated into the environment as heat. This dissipation may be represented in an energy pyramid.

g.* *Students know* how to distinguish between the accommodation of an individual organism to its environment and the gradual adaptation of a lineage of organisms through genetic change.

Evolution

7. The frequency of an allele in a gene pool of a population depends on many factors and may be stable or unstable over time. As a basis for understanding this concept:

a. *Students know* why natural selection acts on the phenotype rather than the genotype of an organism.

b. *Students know* why alleles that are lethal in a homozygous individual may be carried in a heterozygote and thus maintained in a gene pool.

c. *Students know* new mutations are constantly being generated in a gene pool.

d. *Students know* variation within a species increases the likelihood that at least some members of a species will survive under changed environmental conditions.

e.* *Students know* the conditions for Hardy-Weinberg equilibrium in a population and why these conditions are not likely to appear in nature.

f.* *Students know* how to solve the Hardy-Weinberg equation to predict the frequency of genotypes in a population, given the frequency of phenotypes.

8. Evolution is the result of genetic changes that occur in constantly changing environments. As a basis for understanding this concept:

a. *Students know* how natural selection determines the differential survival of groups of organisms.

b. *Students know* a great diversity of species increases the chance that at least some organisms survive major changes in the environment.

c. *Students know* the effects of genetic drift on the diversity of organisms in a population.

d. *Students know* reproductive or geographic isolation affects speciation.

e. *Students know* how to analyze fossil evidence with regard to biological diversity, episodic speciation, and mass extinction.

f.* *Students know* how to use comparative embryology, DNA or protein sequence comparisons, and other independent sources of data to create a branching diagram (cladogram) that shows probable evolutionary relationships.

g.* *Students know* how several independent molecular clocks, calibrated against each other and combined with evidence from the fossil record, can help to estimate how long ago various groups of organisms diverged evolutionarily from one another.

Physiology

9. As a result of the coordinated structures and functions of organ systems, the internal environment of the human body remains relatively stable (homeostatic) despite changes in the outside environment. As a basis for understanding this concept:

a. *Students know* how the complementary activity of major body systems provides cells with oxygen and nutrients and removes toxic waste products such as carbon dioxide.

b. *Students know* how the nervous system mediates communication between different parts of the body and the body's interactions with the environment.

c. *Students know* how feedback loops in the nervous and endocrine systems regulate conditions in the body.

d. *Students know* the functions of the nervous system and the role of neurons in transmitting electrochemical impulses.

e. *Students know* the roles of sensory neurons, interneurons, and motor neurons in sensation, thought, and response.

f.* *Students know* the individual functions and sites of secretion of digestive enzymes (amylases, proteases, nucleases, lipases), stomach acid, and bile salts.

g.* *Students know* the homeostatic role of the kidneys in the removal of nitrogenous wastes and the role of the liver in blood detoxification and glucose balance.

h.* *Students know* the cellular and molecular basis of muscle contraction, including the roles of actin, myosin, Ca^{+2}, and ATP.

i.* *Students know* how hormones (including digestive, reproductive, osmoregulatory) provide internal feedback mechanisms for homeostasis at the cellular level and in whole organisms.

10. Organisms have a variety of mechanisms to combat disease. As a basis for understanding the human immune response:

a. *Students know* the role of the skin in providing nonspecific defenses against infection.

b. *Students know* the role of antibodies in the body's response to infection.

c. *Students know* how vaccination protects an individual from infectious diseases.

d. *Students know* there are important differences between bacteria and viruses with respect to their requirements for growth and replication, the body's primary defenses against bacterial and viral infections, and effective treatments of these infections.

e. *Students know* why an individual with a compromised immune system (for example, a person with AIDS) may be unable to fight off and survive infections by microorganisms that are usually benign.

f.* *Students know* the roles of phagocytes, B-lymphocytes, and T-lymphocytes in the immune system.

Investigation and Experimentation – Science Content Standards

1. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.

Students will:

a. Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data.

b. Identify and communicate sources of unavoidable experimental error.

c. Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.

d. Formulate explanations by using logic and evidence.

e. Solve scientific problems by using quadratic equations and simple trigonometric, exponential, and logarithmic functions.

f. Distinguish between hypothesis and theory as scientific terms.

g. Recognize the usefulness and limitations of models and theories as scientific representations of reality.

h. Read and interpret topographic and geologic maps.

i. Analyze the locations, sequences, or time intervals that are characteristic of natural phenomena (e.g., relative ages of rocks, locations of planets over time, and succession of species in an ecosystem).

j. Recognize the issues of statistical variability and the need for controlled tests.

k. Recognize the cumulative nature of scientific evidence.

l. Analyze situations and solve problems that require combining and applying concepts from more than one area of science.

m. Investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings. Examples of issues include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California.

n. Know that when an observation does not agree with an accepted scientific theory, the observation is sometimes mistaken or fraudulent (e. g., the Piltdown Man fossil or unidentified flying objects) and that the theory is sometimes wrong (e.g., the Ptolemaic model of the movement of the Sun, Moon, and planets).