

Kansas Association of Biology Teachers Newsletter

April 1993 Volume 34, No. 2

John Wachholz, Editor - Osprey Educational Productions

Your membership **expiration date** can be found on your mailing label. All dues are now payable on September 1st of each year. Please note that the Post Office will **not** accept staples. This is the reason for your newsletter being mailed in an envelope. This will also allow for machine stamping at a small savings which will help cover the cost of the mailing.

Please mail or phone meeting dates and other items of interest to biology teachers to John Wachholz, 2311 Applewood Lane, Salina, Kansas 67401, (913) 825-7742 (Home) 913 826-4751 (School).

From Your President

Dear KABT Members,

With all the important issues concerning science being proposed, debated, and signed into law, this spring has been a very active one for KABT. At NSTA's convention in Kansas City I had the opportunity to hear Peter Raven talk on biodiversity, destruction of the rain forests, and our environmental policies. Not only was it inspiring, but it reminded me how important it is to stress environmental biology to our students. It also reinforced the serious need for our country, this state, and every community to change not only their basic consumer first philosophies, but our destructive attitude of always placing the economy before the environment. I believe teachers must lead the way. As science educators, we can make a significant impact on our communities through our students. The environmental future of this earth lies in their

hands! Hopefully we can show them how important this issue is and what they personally can do about it.

Along that same line, I would like to remind everyone that Steve Case and I are busy preparing next fall's KABT Ecology Conference. If you have a good ecology lab that you would like to share or ideas for a guest speaker, please let us know. Both of our addresses and phone numbers are in each addition of the KABT Journal.

I also want to remind all members to please send a letter to your area board member about your views on dissection. This has the potential of legally

changing biology teaching for us all. I know we are all very busy, but this is so important please take the time to write. If you write a letter to a board member, why not make a copy and send it to NABT at 11250 Roger Bacon Drive #19, Reston, Virginia 22090. Just label it "Position Statement on Animal Use".

Don't forget our spring trip to the Cimmaron Grass Lands during Memorial Day weekend. Bob Rose and Stan Roth have everything under control. It will be a great trip! Bob is preparing a booklet with the natural history of the area along with bird and animal checklists. So place it on your calendar now.

Before we could get our newsletter out the legislature passed a bill (SB 137) that allows "rattlesnake roundups" in Kansas. I believe it wouldn't hurt to call or write your representatives to voice your displeasure with

this bill. You can also call a toll free 1-800-432-3924 to talk to or leave a message to your representative or representative Carl Holmes (chairman of the House Committee) and/or Senator Don Sallee (chairman of the Energy and Natural Resource Committee). As a last resort you can write to Governor Joan Finney, State Capitol Building, Topeka, KS. 66612.

One last concern. It has been brought to my attention that the Board of Regents has recommended that college bound students take one year of biology, chemistry, and physics. At first glance this seems like an excellent suggestion. However, some KABT members from smaller districts are worried that if these recommendations are adopted by their school districts, their second year biology classes will be dropped. They have proposed an alternative suggestion: "Require one unit from the biological sciences, one unit from the physical sciences, and then allow the students to choose their third unit based on their interests." Do we have enough qualified physics teachers to place in every high school, or should that not be a concern (reasoning that if the demand is high enough, colleges will graduate more physics teachers)? What do you think? Let your KABT board member or myself know and we will discuss it at the next meeting.

As I have stated before, KABT can be only as successful as its members will allow it to be. Please be an active member of KABT. Find time to get involved. Write letters to your KABT board members, send a favorite lab or article to our editors, volunteer for a KABT office, or be a presenter at one of our meetings. Your involvement will make a difference!

I hope the remainder of your semester is a great one and that I see you on Memorial Day at the Cimmaron Grass Lands!

Keep the kids excited,

Pat Lamb, KABT President

**PROPOSED CONSTITUTIONAL
AMENDMENTS**

So as to eliminate confusion in the future, I am proposing the following changes in the KABT constitution. These changes are only to acknowledge the position of KABT Journal Editor and describe the method of selection for this newly formed position.

Article II, Section 1, b. of the Bylaws will read as follows:

b. The appointed officers shall include the Editor of the KABT Newsletter, Editor of the KABT Journal, and the Administrative Secretary.

Bylaws, Article II, Section 6, move (b.) to (c.) and insert a new (b.)

Article II, Section 6, b. of the Bylaws will read as follows:

b. The Editor of the KABT Journal, "The Kansas Biology Teacher", shall be responsible for all phases of publication and may appoint staff members to assist. In general, the Editor shall be obligated to implement the stated objectives of the KABT. The journal's purpose is to inform the members of new developments in science and to be of assistance to biology teachers. The Editor is responsible for reporting annually to the Executive Council.

PUBLISHING DATES FOR NEWSLETTER

The newsletter is published on or near the first week of September, November, February and April. Manuscripts must reach the editor by the 15th day of the previous month if possible. The KABT Newsletter includes abbreviated minutes of the official meetings, announcements of future activities, brief news notes, and other brief items of interest to biology teachers. Send your contributions to John Wachholz, Editor, 2311 Applewood Lane, Salina, KS 67401 (913) 825-7742.

Newsletter & Journal Information Needed

Articles are needed for the newsletter. Please forward them to John Wachholz, 2311 Applewood Lane, Salina, Kansas 67401, (913) 825-7742. Please help with the newsletter. The most helpful occurrence would be for all individuals sending information to the newsletter to send it via PSINet-KEMNET or on a disk. If you send it on a disk, any format is

acceptable. ASCII text is easy for me to work with. Your help is appreciated. (MSDos, Mac, Apple - just send it!) Articles for the Kansas Biology Teacher should be sent to John Richard Schrock, editor KBT, Division of Biology, Box 50, Emporia State University, Emporia, KS 66801-5087.

Outstanding Biology Student Certificates

These are available for students who you feel have completed a biology course under you and have shown outstanding achievement. Send your name and address to KABT Student Certificates, 2311 Applewood Lane, Salina, KS 67401

Kansas Biology Teacher Is Off The Ground

The forth issue of KABT's journal, The Kansas Biology Teacher is in your hands or will be soon. We hope you found its contents helpful and stimulating, just as the first two issues. While you examine its contents, think about what you can do to make the next issue even better. I'd suggest you plan to write your own contribution to the journal. Its purpose is to share ideas regarding the teaching of biology. We know you have many ideas the rest of us would like to know about.

Send your article(s) to John Richard Schrock, editor KBT, Division of Biology, Box 50, Emporia State University, Emporia, KS 66801-5087.

Simple Things To Help The Environment

Part I

The following is a list of things we can all do to help conserve earth's resources:

In Your Home

1. Recycle everything you can; cans, glass, aluminum foil, and pans, scrap metal, cardboard. Only send to the land fill that you can't reuse.
2. Use cloth napkins and rags instead of paper.
3. Use cloth diapers rather than disposables.
4. Use a coffee mug instead of disposable cups.
5. Don't use electricity if it can be done by hand.

Food/cooking

1. When cooking, cover your pots to keep heat in.

2. Don't open the oven door more than necessary.

To Save Water

1. Don't leave water running. Install a water saving shower head. Replace leaky washers.
2. Install a space-occupier in your toilet tank.
3. Water your lawn only when the grass doesn't spring back when it's stepped on.

To Save Energy

1. Turn the temperature setting on your water heater to medium or 130 degrees.
2. Insulate your water heater if it is located in an unheated space. Insulate hot water pipes.
3. At night, or anytime you are out of the house for four or more hours, turn your thermostat 10 degrees lower. This will save 10% or more on energy use.
4. Turn off lights and appliances when not in use.
5. Close drapes and shades at night and on cloudy days; open those on south-facing windows on sunny days.
6. Use kitchen and other electrical appliances such as dishwashers, washing machines, and dryers at night.
7. Get an energy audit from your utility company.

Part II

In Your Yard

1. Plant drought-tolerant plants, shrubs and trees.
2. Water plants and lawn in the morning to minimize evaporation.
3. Pull weeds instead of using herbicides.
4. Learn about natural insect controls as alternatives to pesticides.
5. Use organic fertilizers...manure helps condition your soil and fertilizes at the same time.

6. Large expanses of lawn must be maintained with chemicals and extensive watering. Dig up some of your grass and plant shrubs or trees instead.

On Vacation

1. Make sure your plastic doesn't end up in lakes, streams, rivers or the ocean.
2. Watch out for wildlife. Give consideration to all living things you see crossing the road.

In Your Car

1. Drive a fuel efficient car or use public transportation, carpool, bike or walk.
2. Keep the car engine tuned up and recycle motor oil.
3. Keep your tires properly inflated. Just having tires at the right pressure would save about 2 billion gallons of gasoline a year.
4. Keep your wheels in alignment to save your tires.
5. Don't litter.

Part III

At Your Business

1. Start a recycling program for paper, cardboard, etc.
2. Print things on recycled paper. Use both sides.
3. Encourage people to use mugs instead of paper cups.
4. Route things around the office. Post non-urgent communications rather than making multiple copies.

When You're Shopping

1. Buy products that are recycled, recyclable, reusable.
2. Use your telephone for comparative shopping.
3. Run several errands at once instead of several trips.

4. Avoid buying anything disposable such as paper plates and towels, styrofoam cups, etc. If you must buy disposables, buy paper rather than plastics or styrofoam.
5. Bring your own reusable tote bag to the store.
6. Buy durable products and keep them a little longer. Cheap furniture, clothes and appliances often have short life spans.
7. Buy foods without additives and preservatives.
8. Buy locally grown food and products when possible.
9. Check the energy rating on major appliances you buy.
10. Put your parcels into one big sack instead of collecting several small ones.
11. Purchase appliances with alternatives to ozone-damaging chlorofluorocarbons.
12. Read the labels and buy the least toxic product available for cleaning, pest control and other jobs.
13. Don't buy things with excess packaging (individually wrapped cheese slices, etc.)
14. Buy packaged goods that come in bulk.
15. Buy used and recycled goods.
16. Don't buy products made from tropical hardwoods.

Part IV

Personal Efforts

1. Join a conservation organization.
2. Volunteer your time to conservation projects.
3. Check your lifestyle. Think about the effects of your daily actions on the environment.
4. Write your legislators when you have an opinion about pending legislation on environmental issues.
5. Take time to learn about and enjoy nature.
6. Watch nature and other environmental programs.

7. Encourage family, friends and neighbors to save resources.
8. Purchase from environmentally responsible businesses. Complain to merchants about excess packaging, use of plastics, etc. Write letters to companies.
9. Teach children to respect the environment. Take them on a hike, help them plant a tree or build a bird house.
10. Educate yourself and others on wildlife and environmental issues.

Information from Central Iowa's Environment Guide sponsored by 5 WOI-TV.

Biotechnology News Bulletin

March 17, 1993

----- News Summaries -----

GAO CAUTIONS HHS AGAINST FDA APPROVAL OF BGH

In a letter to Secretary of Health and Human Services Donna Shalala, Eleanor Chelimsky, assistant comptroller of the General Accounting Office (GAO), said the Food and Drug Administration (FDA) should take another look at bovine growth hormone (BGH) before approving it for commercial use. Chelimsky pointed out that a GAO study from last August found that the use of BGH caused an increase in the incidence of mastitis, or udder infections, in cows treated with the hormone. The report pointed out that the use of antibiotics for treating mastitis could lead to drug residues in milk destined for consumer markets. "The FDA should study the degree to which antibiotics must be used to treat cows and the incremental effects on the nation's milk and beef supply," the letter stated. The FDA is expected to approve the use of BGH at a meeting in Maryland at the end of this month.

Source: Nancy Bazlichuk, "Official Advises FDA to Look at Health Effects of Cow Hormone," Burlington Free Press, March 16, 1993.

CRITICS SAY MINNESOTA LAW WILL SCARE OFF BUSINESSES

A Minnesota law requiring an environmental impact statement and a permit before a genetically engineered organism can be released into the environment is coming under fire. With the planting of the first crop of Calgene's genetically engineered Flav'r Savr tomatoes this spring, critics say that the Minnesota law will scare off business interests. According to Calgene spokesperson Steve Benoit, Calgene will not sell in Minnesota this year anyway based on marketing factors. He would not specify what the marketing factors were, however. "What's hurting the market for their products is the perception they might not be safe. Regulation helps rather than hurts it," said state representative Phyllis Kahn. Dr. Henry Miller of the FDA's Office of Biotechnology visited Minnesota in January and sharply criticized the Minnesota law. "It has very little scientific credibility. There is no evidence that the Minnesota rules are protecting Minnesota from anything except the availability of many improved products and new research," Miller said. Ann Kapucinski, a professor of fisheries and wildlife at the University of Minnesota and a strong backer of the Minnesota rules said that "they're scientifically sound and I can defend every one of them." John Hynes of the Minnesota Environmental Quality Board said that Calgene could sell the Flav'r Savr in the state by obtaining a blanket permit.

Source: Sharon Schmickle, "Genetically Altered Tomatoes Vanguard of Uncertain New Era," Minneapolis Star Tribune, March 15, 1993.

GERMANS SHUNNING GENETICALLY ALTERED FOODS

German consumers are turning their heads on genetically altered foods. Aggressive consumer campaigns are having an effect across the country as the government has enacted strict regulations like the one requiring scientists to obtain government permission before genetically modifying plants and animals or

building a facility that will enable such experimentation. "It might be safe, but consumers can have a broad range of criteria, perhaps religious, perhaps ethical. You can't limit it to safety," said consumer activist Christiane Toussaint, who coordinates a number of consumer organizations that are calling for the labeling of genetically engineered foods. "Science has really suffered as a result of [their] tactics," said Heinz Saedler of the Max Planck Institute for Plant Breeding. How far Germany can go with its regulations remains to be seen as relations with the entire EC are expected to complicate the issue.

Source: Sharon Schmickle, "Germany's Shunning of Gene-Altered Food Frustrates Scientists," Minneapolis Star Tribune, March 16, 1993.

INDIAN FARMERS PROTEST DUNKEL DRAFT

Earlier this month, farmers in India protested the Dunkel Draft of the General Agreement on Tariffs and Trade (GATT) which will loosen up local control over plant genetic resources in developing countries. Farmers believe the draft will take away their right to store and reproduce seeds. More than 200,000 farmers attended the protest in New Delhi and demanded that the text be distributed in all Indian languages to ensure democratic participation at all levels of government. Calling it a Seed Satyagraha, the KRRS, a state level farmers' organization in Karnataka, demanded that Cargill and other multinational corporations "quit India" or face a "blitzkrieg to oust multinational corporations not only in the agricultural field but in all sectors of the Indian economy."

Source: Vandana Shiva, "Farmers Rally Against Dunkel Draft and MNCs," March 3, 1993.

USDA AMENDS VETERINARY BIOLOGICS PATENTS

Late last month, the USDA amended veterinary biologics patent laws to enable researchers to extend the duration of their

patent while awaiting premarketing approval from the government. "The testing process can extend the time a patent is granted for such products; therefore, provisions should be made to accommodate patent holders as provided by the new law," said John Payne of USDA's Animal and Plant Health Inspection Service. The rule will bring USDA regulations on veterinary biologics in line with the provisions of the Generic Animal Drug and Patent Term Restoration Act of 1988.

Source: "USDA Takes Steps to Protect Veterinary Biologics Patents," USDA Ag News Fax, February 26, 1993.

PHARMACEUTICAL COMPANIES VOLUNTARILY RESTRAIN PRICES

After harsh criticism from President Clinton, pharmaceutical companies have agreed to voluntarily restrain their pricing increases to equal the level of inflation, which many see as a move to simply avoid strict government regulation. "I am skeptical about any voluntary effort by the pharmaceutical industry to restrain their prices," said Representative Henry Waxman (D-CA). Dr. P. Roy Vagelos, chair of pharmaceutical giant Merck, said, "We have the highest risks of any industry I know. We are betting on things that may or may not mature and become available to the public in 10 to 15 years. That has to be rewarded." The Office of Technology Assessment responded that "in recent years the financial rewards from R&D have more than offset its costs and risks." Pre-tax profits for many of the pharmaceutical giants over the past four years have been four to five times higher than any other industry.

Source: Milt Freudenheim, "Drug Makers Propose Self-Control on Prices," New York Times, March 16, 1993.

FDA APPROVAL OF BGH EXPECTED SOON

Sources believe that the Food and Drug Administration (FDA) is close to approving the commercial use of bovine growth hormone (BGH). The FDA's committee on veterinary medicine is expected to meet in early April and

approval is expected shortly thereafter. "We think it's only a matter of weeks," said Ed Coughlin of the National Milk Producers Federation, an industry group that supports the technology. "As wrong as I think the National Milk Producers is on policy, I think they are correct on their timeline," said John Stauber of the Pure Food Campaign. Many farmers, consumers and animal concerns groups are gearing up for a massive ad campaign targeted at consumers. The Pure Food Campaign is even setting up a 900 number where consumers can call in and find out which products contain BGH-treated milk. The Milk Producers and other groups plan to try to persuade consumers that BGH is safe. "The dairy industry must be prepared to parry the thrust of anti-biotechnology, anti-animal agriculture groups that are willing to undermine public confidence in dairy products to achieve their goal of preventing BGH use," said the Federation's executive direction Jim Barr. Many predict that the controversy will hurt farmers as consumers will shy away from purchasing dairy products that they are unsure of.

Agriculture Secretary Espy said last week that after receiving petitions containing the signatures of some 15,500 farmers, he may let farmers decide upon the future of the nation's dairy promotion board in a national referendum. The petitions were presented to Espy at the Land O'Lakes annual meeting last week by members of the Dump the National Dairy Board Campaign. The dairy board was formed to administer money deducted from farmers' milk sales. The Campaign is upset with the board's support of growth hormones and their efforts to convince consumers that milk from hormone-treated cows is safe. Espy said he will initiate the referendum after he reviews the petitions and determines the validity of the signatures.

Source: Lee Egerstrom, "Espy May Let Farmers Vote on Future of Dairy Program," Journal of Commerce, March 2, 1993; Paul Adams, "NDB

Opponents Pass Signatures to Espy," Agri News, March 4, 1993; Dirck Steiml, "After Fierce Debate, FDA Likely to OK Milk Hormone," Des Moines Register, March 7, 1993; Pure Food Campaign Press Release, March 3, 1993.

TEXAS COMPANY PATENTS EDIBLE VACCINE

AgriStar, a Texas-based biotechnology company, recently received patent rights for an edible vaccine. Creation of the vaccine involves the insertion of genetic materials into plants such as tomatoes, which would cause the plant to produce substances that fight certain diseases when consumed by humans. Researchers say they have successfully developed a hepatitis vaccine in tobacco plants. Company officials say they will continue to perfect the technology and hope it will eventually be available on a worldwide basis.

Source: "Texas Firm Wins Rights to Edible Vaccine Technology," UPI, March 5, 1993.

NEW NEWS IN USDA RESEARCH

A USDA scientist has developed a new rice strain that is rich in the amino acid lysine which is essential in proper nutrition. The rice could be used to improve diets in developing countries where rice is the main source of protein, the scientist said.

USDA researchers are also working on discovering the genes that make plants shed their leaves or flowers. Scientist Mark Tucker is attempting to isolate the cellulase gene's promoter or switch which causes the plant to make the cellulase enzyme that leads to the premature shedding of flowers and fruits. Tucker said the discovery could lead them to determine exactly when is the right time to harvest thereby increasing crop yields.

Source: "New, More Nutritional Rice Developed, AP, March 2, 1993; "Scientists to Tell Plants When to Shed - or Keep - Leaves, Flowers, Fruit," USDA Ag News Fax, February 16, 1993.

CALGENE SUBMITS FINAL DATA TO FDA

Calgene, maker of the Flavr Savr genetically engineered tomato, has submitted final data on its product to the FDA. The data responds to questions posed by the FDA of earlier data submitted by Calgene. The company hopes that this new data will clear the way for FDA approval of the tomato in order to meet their fall deadline for commercial availability. Calgene has already contracted with an Illinois company called Calgene Fresh to grow, pack and distribute the Flavr Savr.

Source: "Calgene Submits Data for Genetically Engineered Tomato," Farming Today, UPI, March 2, 1993.

BIOTECH COMPANIES LOSING ON THE STOCK MARKET

Amgen's stock fell 20% last month, leading industry analysts to believe the biotech industry may be in some peril. Amgen is one of the leaders in the biotech industry and blamed its losses on poor sales of its cancer-fighting drug Neupogen. Other losers included Centocorp, Synergen and Xoma. Big pharmaceutical companies like Myers-Squibb, Pfizer and Johnson and Johnson were not exempt either. Most analysts attributed the uncertainty and instability to the lack of clarity in President Clinton's health care policy. "These are growing pains. This industry is in its infancy," said analyst Evan Sturza.

Source: Karen Zagor, "Amgen Warning Hits Biotech Shares," Financial Times, February 26, 1993; Daniel Southerland, "Biotech Leader's Stock Plunges 20%," Washington Post, February 26, 1993; "Biotechnology Sell-Off Hits OTC Market," Financial Times, February 23, 1993; Sara Calian, "Bloodbath in Biotech Draws Some brave Buyers to Amgen," Wall Street Journal, March 2, 1993.

Resources

SEEDHEAD NEWS is a quarterly publication of Native Seeds/SEARCH, a Native American organization seeking to preserve biological diversity through the collection and storage of

seeds used throughout their history. Memberships begin at \$18.00. For more information, contact Native Seeds/SEARCH, 2509 North Campbell, #325, Tucson, AZ 85719, (602) 327-9123.

Meetings - Dates

TROPICAL RAINFOREST RESEARCH, April 9-17, 1993, Brunei. FFI, contact: Conference Organizer, University of Brunei, Dasrussalam, Bandar Sen Bagawam 3186, Brunei.

ASSOCIATION OF BIOTECHNOLOGY COMPANIES 7TH INTERNATIONAL BIOTECHNOLOGY MEETING AND RESEARCH EXHIBITION, April 12-16, 1993, Research Triangle Park, NC. FFI, contact: ABC, (202) 234-3330, fax: (202) 234-3565.

STANDARDIZATION NEEDS IN BIOTECHNOLOGY, April 26-27, 1993, Gaithersburg, MD. FFI, contact: Dr. Lura Powell, National Institute of Standards in Technology, Building 221, Room B208, Gaithersburg, MD 20899, (301) 975-92627 or Frank Simione, American Type Culture Collection, 12301 Parklawn Drive, Rockville, MD 20852, fax: (301) 231-5826.

FIFTH ANNUAL MEETING OF THE NATIONAL AGRICULTURAL BIOTECHNOLOGY COUNCIL, June 2-4, 1993 at Purdue University. FFI, contact: Peter Dunn or Marshall Martin at (317) 494-4268/4596.

LAW AND SCIENCE AT THE CROSSROADS - BIOMEDICAL TECHNOLOGY, ETHICS, PUBLIC POLICY AND THE LAW, October 21-22, 1993, Boston, MA. FFI, contact: Suffolk University Law School, Advanced Legal Studies, 41 Temple Street, Boston, MA 02114, (617) 573-8627, fax: (617) 248-0648.

Produced by: Michelle Thom, Information Coordinator Institute for Agriculture and Trade Policy 1313 5th Street SE Suite 303 Minneapolis, MN 55414 Telephone: (612) 379-5980 Fax: (612) 379-5982 EMail: mthom@igc.org

AUTHOR: Ed Gowen

DATE: March 18, 1993

SUBJECT: WIND ENERGY
UNSAFE....compared to what?
COAL SPOKESMAN WARNS AGAINST
WINDMILLS

In a recent radio broadcast, the president of the West Virginia Coal Association warned listeners of the state's public radio station that windmills kill birds and cause visual blight.

The editorial commentary came in response to discussions about the possible installation of wind turbines in the state. West Virginia is a major producer of coal and is notorious for the contour strip mining that has defaced hundreds of miles of mountain ridgelines.

The editorial, according to listener Bill Hopwood, warned West Virginians that the advent of wind turbines will mean unemployment for coal miners, visual blight, and the death of migratory birds. The Coal Association claimed the backing of environmental groups in its opposition to siting wind turbines in the state.

Hopwood, a resident of Washington, Pa. and renewable energy consultant, has been fighting the expansion of a coal mine near his home just north of the West Virginia border. He said it was the first time he has ever heard the coal industry express concern for the environment. "There's just no comparison between the impacts of a coal mine and a windfarm," Hopwood said.

The move by the trade group appears to be part of a larger effort nationwide to slow the expansion of renewable energy technologies. The Western Fuels Association, which represents strip mines and other energy producers in the western U.S., has aggressively attacked California's set- asides for renewable electricity generating capacity both in the regulatory arena and in glossy print advertisements.

Applying Biology & Getting Outdoors
A Scavenger Hunt

Each year teachers seem to wonder how they can get their students outdoors. Here is an activity that you might use to help you do this. Credit should be given to Gary Best at Buhler High School who game me the original idea.

The last grading period of each school year I have my Biology 1 classes team up in groups of two. They are given a list of approximately 50 - 80 items they are asked to collect and turn in. The list is given to them on a Thursday. This allows time for them to look-up items using resources provided. They collect over the week-end and bring them in on Monday. Each team is given a letter such as Team A or F. I have a computer spreadsheet for each hour and each team. During the class period on Monday they designate a sorter and runner. One student sorts the items and the other brings them to me for approval. The runner gives me their team letter and if the item is approved I type a one under that column in the spread sheet and a zero or leave it blank if they do not have the item..

Her is an example:

Item	Team A	Team B
Achene	1	0
Aggregate	1	1
Fruit		
Totals	2	1

After all is completed, your spreadsheet should calculate your totals for each hour. More your totals around using another spreadsheet and you can grade by curving or other methods.

One important catch. Each member of a team must take a written test answering the following question:

How much work did you collecting items and how much work did your partner do? Team members turn in their tests together and are graded as to team effort.

It should be noted that the environment is never going to improve unless we all work as a

team. Team effort is also essential for science to operate.

Following is a list of some of the possible items. If you have additional suggestions please send them to me. Does this make sense? John Wachholz

No. Item

1. Achene
2. Aggregate Fruit
3. Algae that lives on land
4. Annual plant
5. Annual Ring
6. Ant Lion
7. Aphid
8. Apothecia
9. Ascospores
10. Aspergillus
11. Bermuda Grass
12. Bipinnately compound leaf
13. Bivalvia shell
14. Box Elder Leaf (Not Poison Ivy)
15. Box Elder Leaf (Watch for poison ivy!)
16. Branch with Opposite Budding
17. Bristle
18. Brome grass
19. Brome grass inflorescence
20. Bulb
21. Bur Oak Leaf
22. Butterfly Larva
23. CH₀₆
24. Catalpa leaf
25. Cattail
26. Cheat grass
27. Chrysalis
28. Cicada Exoskeleton
29. Clavicle of chicken
30. Cockroach
31. Complete Flower
32. Composite Flower
33. Crayfish
34. Crustacean
35. Cyclops
36. Damsel Fly
37. Daphnia
38. Decomposer
39. Dicot Leaf
40. Double-pinnately or bi-pinnately compound leaf
41. Down feather
42. Earthworm Cocoon
43. Elm seed and fruit
44. Exoskeleton of insect
45. Female cottonwood fruit
46. Female pine cone
47. Fern sori
48. Fish Scale
49. Flea
50. Food Label Showing High Fiber, Low Salt, Sugar & Fat
51. Food Label Showing Poor Quality
52. Food Label That Shows No Salt, Sugar or MSG Added
53. Fossil found in Kansas
54. Four leaf clover
55. Freshwater Clam
56. Grasshopper Nymph
57. Grub
58. Herbaceous Plant
59. Heterotroph
60. Hilum
61. Horsetail or Equisetum
62. Hydra
63. Insect Gall
64. Invertebrate
65. Item
66. Juniper Fruit
67. Junk Food Label Showing Ingredients
68. Leaf from a bald cypress
69. Leaf scar
70. Leaf with double saw-toothed edges
71. Leaf with palmate venation
72. Leaf with palmate venation
73. Leaf with pinnate venation
74. Leaf with saw-toothed margin
75. Leaf with smooth margin
76. Leafhopper
77. Leech
78. Legume Fruit
79. Lenticel
80. Lichens
81. Male Cottonwood Flower
82. Male Earthworm
83. Male pine cone

84. May Fly
85. Million of something
86. Mitotic plant structure
87. Monocot Flower
88. Monocot Leaf
89. Morel
90. Mosquito
91. Moss gametophyte
92. Moss gametophyte and sporophyte
93. Moss sporophyte
94. Mutation
95. Name, phone number, and occupation of someone in biology career
96. Organism with bilateral symmetry
97. Organisms containing carotene
98. Orthopteran
99. Osage Orange Leaf
100. Palmately compound leaf
101. Perennial Plant
102. Perfect Flower
103. Persimmon leaf
104. Petiole
105. Phloem
106. Phloem tissue living
107. Photo that does not show any living organisms
108. Photograph that does not show any living organisms
109. Picture - organism with 46 chromosomes, two of which are X and Y
110. Planaria
111. Plant - common name indicates that the leaves resemble lions teeth
112. Pod
113. Pome
114. Producer
115. Product of cellular respiration
116. Product of photosynthesis
117. Prop roots
118. Pyracantha twig
119. Redbud Leaf
120. Rhizome
121. Rhizopus nigarans
122. Samara fruit
123. Sassafras leaf
124. Seed That Is Dispersed By Attachment
125. Seed That is Dispersed By Wind
126. Simple Leaf
127. Slug
128. Snail
129. Snake skin (from molting)
130. Something biodegradable
131. Something non-living with at least one characteristic of living organism
132. Something that has undergone meiosis
133. Something with a cell wall
134. Something with a stomate
135. Sowbug or Pillbug
136. Spider Web
137. Stem With Whorled Budding
138. Stomate
139. Taproot
140. Three year old woody stem
141. Tick
142. Tiger Beetle
143. Tuber
144. Tulip tree leaf
145. Xylem tissue living

Newsletter Answer Sheet Insert

Enclosed in your newsletter is a copy of an answer sheet that my students helped me design and I use in my classes. It has been extremely useful and I feel helpful to the student. In this day and age of paper consumption this is a way to eliminate some the excess paper usage. Following (I Hope!) is an explanation as to how it is used.

- Run off 30 (depending on your largest class) tests and number them.
- Number your test questions to coincide with the answer sheet. That is Multiple Choice (1 to however many have on the test), Matching, Completion, and Essay. You do not have to use the whole answer sheet.
- Mark the correct answers on your answer sheet for the multiple choice questions. In other works start to make you test key.
- Highlight with a magic marker the answers you have marked for your key.

- Tape over the area of the key that contains the highlighted answers with heavy scotch tape. I prefer the non-transparent tape.
- Lay the answer sheet on some soft wood or particle board.
- With a leather punch of the proper size (obtain from leather hobby stores and you can sharpen in the metal shop on the grinder) punch out the correct answers.
- Lay the key on the students test. (I have them printed at our VO-Tech school so they match better than Xerox copies but Xerox copies work.)
- Mark the incorrect answers with a highlighter and when the student receives their test back the correct answers are marked and they may go over the test.
- Make an extra key to grade the matching and completion answers. I usually cut the key up and staple it in a manner that allows the pages to be flipped for easy grader. I find it best to grade the papers in sections. For example I grade the Multiple Choice first, then the Matching and the Essay last.
- It should be noted the students will have to number the essay questions. You can just have them write out the questions as this will assist you with the grading.

altruism: unselfish regard for or devotion to the welfare of other

Following is a partial list of black scientists. I would like to compile a data base on these individuals for use in my classroom. If you know of others, please let me know.

1. Banneker, Benjamin
 2. Blackwell, David
 3. Branson, Herman
 4. Buggs, Charles
 5. Carruthers, George
 6. Carver, George W.
 7. Cobb, Jewell Plummer
 8. Drew, Charles
 9. Gourdine, Meredith
 10. Hawkins, Walter Lincoln
 11. Hawthorne, Edward
 12. Henry, Warren
 13. Hopkins, Esther
 14. Julian, Percy
 15. Just, Ernest
 16. Massey, Walter
 17. Milligan, Adolphus
 18. Turner, Charles
 19. Wilkins, J. Ernest Jr.
 20. Woods, Geraldine P.
-

If you have further questions feel free to contact me. The answer sheet is made with Microsoft Word 5.1 for the Mac. I can transfer it to Word PC or other formats and send it over PSI-net or place it on a disk if teachers so desire. Let me know if things like this are beneficial for the newsletter. John Wachholz

“Every man must decide whether he will walk in the light of creative altruism or the darkness of destructive selfishness. This is the judgment. Life’s most persistent and urgent question is, what are you doing for others?”

Dr. Martin Luther King

This page is For Minority Article

Laboratory Activity From Pat Lamb

Picture this if you will:

A good conscientious teacher standing in front of a class desperately trying to revive a dying lesson. He frantically moves around the room futilely trying to awaken his students. As he sinks deeper into his lecture, slowly, one by one, his students are attacked and succumb to his two enemies, confusion and boredom. Welcome to every teacher's "Twilight Zone".

Well, maybe its not as bad as that. But have you ever been in the middle of your cellular respiration lecture and notice that half of the class has a look that you would swear was used by all those "zombies" in the 1950's horror movies you use to watch as a kid? You know, its sort of a glazed over stare with the eyes fixed and the pupils dilated. You hear yourself saying something about oxygen and ATP production, but you're thinking that maybe you should run and call 911. Well maybe its not that bad, but doesn't it feel like that when you start to lose a class?

I think I have a lab that will help "revive" your cellular respiration lecture. It will give your students an opportunity to have a first hand experience with aerobic and anaerobic cellular respiration. They will not only understand what the lack of oxygen does, they will feel it. They can see and feel first hand:

1. How the body responds to a greater demand for oxygen (students will breath harder)
2. What a build up of lactic acid does (students arms will be sore - usually for only a short time)
3. How the excess energy used to make ATPs is eliminated from the body (all students will feel hot and some students will sweat)
4. How their circulatory system responds to this stress (heart will beat harder and quicker)

There are many more ways to relate this lab to cellular respiration. You could have them figure out how many glucose molecules they had to burn to make that many ATPs. Or you could go into the physiology of a muscle contraction and/or a nerve impulse and how they use ATPs. In any case, your class will not only have a lot of fun, but they will also have a concrete example to fall back on when you lecture. I believe it will be much easier for your students to relate the abstract and complicated cellular respiration pathways to the physiological functioning of their bodies. I hope it helps!

Good Luck,

Pat Lamb

Here's the lab as I give it to my students.

Aerobic and Anaerobic Use of ATP Lab

OBJECTIVE:

To actually physically experience the difference in muscle performance when using both aerobic and anaerobic respiration.

PROCEDURE:

PART A:

1. Place sphygmomanometer on "curler's" arm. **Do not pump it up!**
2. Select a dumbbell that is "heavy" for you personally.

3. Place your arm flat on the desk with your wrist, hand, and dumbbell extending over the edge.
4. Moving only your wrist, curl the dumbbell one time so that your partners can measure the vertical distance (in cm) the dumbbell covers.
 - To measure the vertical distance:
 - A. Place a meter stick on a chair to eliminate movement.
 - B. Using the bottom of one side of the dumbbell, measure its highest and lowest points during one curl.
5. Using only your wrist, curl the dumbbell as many times as you can for 30 seconds.
6. Your partners will:
 - A. Keep track of time
 - B. Count the number of curls
 - C. Make sure you cover the full distance in each curl (without raising your forearm off the desk).
7. You need to concentrate only on curling the dumbbell. However do note different physiological changes in your body (getting hot, sweating, increased respiration, increased blood circulation to area, etc.) Also try to determine when, and if, your forearm runs out of O₂.

PART B:

1. Immediately after curling for 30 seconds, your partner should pump up the sphygmomanometer to between 140 - 160 mmHg. Since we only want to slow down the circulation and not stop it, pump it up to 140 on smaller people and 160 on larger, more muscular individuals. If you don't start immediately they will replenish their stored ATPs and myoglobin.
2. Repeat steps 5 - 7.

RESULTS:

Pulse before exercise	Pulse after exercise
/ minute	/ minute

Conversions:

- 1.000 pound = .4536 kilograms
 100.0 centimeters = 1.000 meter

Dumbbell's Weight	Distance Dumbbell Moved
lb	cm
kg	m

Right Arm or	Aerobic (with blood	Anaerobic (without blood
--------------	---------------------	--------------------------

Left Arm	pressure cuff)	pres. cuff)
Number of Curls		

You must perform the calculation portion of this lab before you can complete the following table.

Energy Used	Aerobic Curls	Anaerobic Curls
Number of calories		
Number of ATPs		

CALCULATIONS:

To lift the dumbbell, we must overcome the gravitational force on that dumbbell. The gravitational force on that dumbbell equals the dumbbell's mass (determined earlier) times the acceleration of gravity. The acceleration of gravity is equal to 9.81 meters / second².

Force needed to lift dumbbell = mass of dumbbell x 9.81 m/s²

$$\text{Force} = \text{___ kg} \times 9.81 \text{ m/s}^2$$

$$\text{Force} = \text{___ kg m/s}^2$$

Energy is used to perform work. In our case, chemical energy from ATP's are used by your forearm muscles to overcome the dumbbell's gravitational force (found above). By moving the dumbbell (the distance it moved was measured earlier), the muscles are performing "work" on the dumbbell.

Work = Force x Distance

$$\text{Work} = \text{___ kg m/s}^2 \times \text{___ m}$$

$$\text{Work} = \text{___ joules}$$

$$(\text{joules} = \text{kg m}^2/\text{s}^2)$$

This is the amount of work needed to raise the dumbbell one time. Therefore the above equation can be written as:

$$\text{Work} = \text{___ joules/curl}$$

To find the total work expended by your arm, multiply the amount of work needed to raise the dumbbell by the number of times the dumbbell was curled (see results for number of curls).

$$\text{Total Aerobic Work} = (\text{___ joules/curl}) \times (\text{___ curls})$$

$$\text{Total Aerobic Work} = \text{___ joules}$$

$$\text{Total Anaerobic Work} = (\text{___ joules/curl}) \times (\text{___ curls})$$

$$\text{Total Anaerobic Work} = \text{___ joules}$$

Joules are units of measure for both work and energy. They can be converted into other units of measure for energy, such as calories.

$$1 \text{ joule} = 4.2 \text{ calories}$$

To convert the joules (those produced during total anaerobic and aerobic work) to calories, use the following equation:

$$\text{___ aerobic joules} \times 4.2 \text{ calories/joule} = \text{___ cal}$$

_____ anaerobic joules x 4.2 cal/joule = _____ calories

Record in your results the total number of calories determined for the energy used during the aerobic and anaerobic curls.

It requires 7,300 calories to create 1 mole of ATPs. One mole of ATPs can also use 7,300 calories to perform work (in our case, the movement of muscles and therefore, of a dumbbell).

Remember that the word "mole" is referring to a specific amount; 602,000,000,000,000,000,000 (6.02 x 10²³).

To determine the actual number of moles of ATPs used in moving the dumbbell for 30 seconds, complete the following equation:

$$\frac{\underline{(\# \text{ of calories used to move dumbbell})}}{(7300 \text{ calories / mole of ATP})} = \text{moles of ATP used}$$

FOR AEROBIC CURLS:

$$\frac{\underline{(\text{_____ calories})}}{(7300 \text{ calories / mole of ATP})} = \text{_____ moles of ATP}$$

FOR ANAEROBIC CURLS:

$$\frac{\underline{(\text{_____ calories})}}{(7300 \text{ calories / mole of ATP})} = \text{_____ moles of ATP}$$

To determine the actual number of ATPs used in moving the dumbbell, complete the following equation:

$$\frac{\underline{(\# \text{ of moles of ATP})} \times \underline{6.02 \times 10^{23} \text{ ATPs}}}{\text{moles of ATP}} = \# \text{ of ATPs used}$$

FOR AEROBIC CURLS:

$$\frac{\underline{\text{_____ moles ATP}} \times \underline{6.02 \times 10^{23} \text{ ATPs}}}{\text{moles of ATP}} = \text{_____ ATPs used}$$

FOR ANAEROBIC CURLS:

$$\frac{\underline{\text{_____ moles ATP}} \times \underline{6.02 \times 10^{23} \text{ ATPs}}}{\text{moles of ATP}} = \text{_____ ATPs used}$$

In your results record the total number of ATPs that you used to curl your arm both aerobically and anaerobically.

What % of the energy used to break down a glucose molecule is used to make ATPs? What happens to the rest of the energy?

After the lifting the dumbbell did you feel hot? Why?

Did you sweat? Why does the body perspire? How is evaporation important in this process?

How many glucose molecules must have been expended in the aerobic portion of this lab?

Did your pulse rate go up after exercising? Did you breathe harder after lifting the weights? Why?

Could you tell when most of your muscles went into anaerobic respiration? Did they respond to your commands? What happened and why (physiologically) did it happen?

Did you notice any lactic acid build up? Why was it made?

When You Do What You've Always
Done,

You'll Be Where You've Always **Been.**

" If your plan is for 1 year,
plant rice;
if your plan is for 10 years,
plant trees;
if your plan is for 100 years,
educate children.

Confucius

The protection of tropical
rainforests is the greatest
conservation challenge of our
era.

Tropical rainforests cover just
seven percent of the earth's
surface yet contain one-half of
the planets living species.

During the time it takes you to
read this, approximately fifty
acres of tropical rainforests
have been destroyed forever.

Let us be gentle
with everything on
the earth.

Let us count as friends

the land and sky,
the waters, and all the
creatures that live.

KEMNET Conference - Rock Springs

April 23-24

The second annual KEMNET
Conference is scheduled for Friday
April 23rd and Saturday April 24th. The
conference is an opportunity for
students and teachers to get together
and discuss the projects that occurred
this year and plan for next year.

Presentations by students about their
work are welcome and important to the
success of the conference.

We will be bringing in a number of
researchers to discuss their work and
how the students might participate in
their research. We will be discussing the
Monarch project, participation in a
American Burying Beetle project, Dr.
Manney will be discussing a network
wide UV-yeast project, and we will be
discussing plant systematics and
collections. In addition we will be
planning sessions on water quality.

The Conference will begin at 8:00 p.m.
on Friday evening and end at 4:00 to
5:00 p.m. Saturday. The Conference is
being sponsored by the Prairie Center so
there is no cost. If you were to bring 5 -

6 students from each school. If you want to bring more we may have to ask you to pay a registration fee.

Coleopterist Society Page

For All Those Born Before 1945

We Are Survivors !!!!!!!

Consider The Changes We Have Witnessed:

We were born before television, before penicillin, before polio shots, frozen foods, Xerox, plastic, contact lenses, frisbees and the pill.

We were before radar, credit cards, split atoms, laser beams and ballpoint pens. Before pantyhose, dishwashers, clothes dryers, electric blankets, air conditioners, drip-Dry Clothes -- and before man walked on the moon.

We got married first and then lived together. How quaint can you be?

In our time, closets were for clothes, not for "coming out of," bunnies were small rabbits and rabbits were not Volkswagens. Designer jeans were scheming girls named Jean or Jeanne, and having a meaningful relationship meant getting along well with our cousins.

We thought fast food was what you ate during lent, and out space was the back of the Riviera theater.

We were before house-husbands, gay rights, computer dating, dual careers and commuter marriages. We were before day-care centers, group therapy and nursing homes. We never hear of FM radio, tape decks, electric typewriters, artificial hearts, word processors, yogurt, and guys wearing earrings. For us, time-sharing meant togetherness -- not computers or condominiums. A "chip" meant a piece of wood, hardware meant hardware; and software wasn't even a word!

In 1940, "Made In Japan" meant junk and the term "making out" referred to how you did on your exam. Pizzas, "McDonalds" and instant coffee were unheard of.

We hit the scene when there were 5 and 10 cent stores, where you bought things for five and ten cents. Sanders or Wilsons sold ice cream cones for a nickel or a dime. For one nickel you could ride a street car, make a phone call, buy a Pepsi or enough stamps to mail one letter and two postcards. You could buy a new Chevy coupe for \$600, but who could afford one: a pity too, because gas was 11 cents a gallon!

In our day, cigarette smoking was fashionable, grass was mowed, coke was a cold drink and pot was something you cooked in. Rock music was Grandma's lullaby and AIDS were helpers in the principal's office.

We were certainly not before the difference between the sexes was discovered but we were surely before the sex change: we made do with what we had. And we were the last generation that were so dumb as to think you needed a husband to have a baby!

No wonder we are so confused and there is such a generation gap today!
But we survived !!!!!!!
What better reasons to celebrate?

As Heard On the John Erling Show - KRMG

"The world we have created is a product of our thinking. It cannot
be changed without changing our thinking." Albert Einstein

KABT Spring Field Trip & Meeting, 1993
Cimarron National Grasslands
May 28, 29, & 30

Register now for our spring field trip to the extreme southwest corner of the state. We have the group campground reserved for Friday night, May 28th. We'll decide collectively, Friday night on accommodations for Saturday and Sunday. Other camping options are available and nearby motels are optional. Registration is \$10.00 for KABT members. One additional family member can attend as a free guest. Non-KABT members (and non-family guests can register for \$20.00. Early registration provides (1) campground fees for Friday night, (2) a campground breakfast on Saturday, and (3) a multi-page field guide for the Cimarron Grasslands meeting. The field guide has been compiled by Bob Rose and Stand Roth. It includes pertinent maps (including an auto tour keyed to numbered stops); local historical information; relevant checklists for Cimarron Grasslands plants, fish, amphibians, reptiles, mammals, birds, and mammals; a reading/references list, the weekend and meeting itineraries, and other information.

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KABT Spring Field Trip & Meeting, 1993
Cimarron National Grasslands
May 28, 29, & 30 – Pre Registration Form

Name: _____ No. in Party: _____

Address for Mailing Field Guide:

Fee: \$10.00 for KABT member (and one family guest), includes breakfast, and 1 field guide.

\$20.00 for non-KABT member, includes fees, breakfast, and 1 field guide.

(**NOTE: on-site registration is \$10.00** for everyone, but does **NOT** include any of the items noted above.

Amount Enclosed: \$ ____ . 00 Make checks payable to "**Bob Rose.**"

Mail Registration form and check to:

Bob Rose

Executive Secretary, KABT

Wichita Collegiate School

1221 North Webb Road

Wichita, Kansas 67206-4073

K. A. B. T. Calendar of Events

Date	Event
April 20, 1993.....	EARTH DAY
April 23-24, 1993 Friday - Sat.	KEMNET Conference - Rock Springs 4H Ranch, Junction City
May 28-30, 1993 Friday - Sunday	KABT Spring Field Trip - Cimarron National Grasslands
Send Registration Form Located In This Newsletter To Bob Rose For This Field Trip	
May 30-August 20 1993.	Time For Summer Renewal, Revitalization, Relaxation, Reading
September 18, 1993, Saturday	Fall Meeting - Main Topic Ecology - Salina
October 28-30, 1993.....	NSTA Area Convention - Denver
November 17-21, 1993.....	NABT National Convention - Boston
March 30 - April 2, 1994.....	NSTA National Convention - Anaheim, California

Please Send Dates and Information to:

John Wachholz, 2311 Applewood Lane, Salina, KS 67401

KABT Membership Application - Renewal - Form

Name: _____

Mailing Address: _____

City: _____ State: ___ Zip: _____

School/Institution: _____

Position: _____

City: _____ State: ___ Zip: _____

Phone: Work (____) ____ - _____ Home: (____) ____ - _____

Enclosed Dues For KABT \$10.00 / Year _____

Life Membership Available For \$200

Yearly Due Date is September 1st.

Make Check Payable To KABT -- Tax ID #: 48-0945206

Date Sent: _____ Check #: _____ Date Received: _____

Remit total to:

Kansas Association of Biology Teachers

John Wachholz, Treasurer

2311 Applewood Lane

Salina, KS 67401-3707