



# The Nucleus

*Official Quarterly Newsletter of the  
Texas Association of Biology Teachers*

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## President's Message:

School is out for most of us (and almost out for the rest). The Texas Legislature, in its infinite wisdom has not seen fit to make the blind salamander the State amphibian. However, it did decide that TAKS will be no more, but there will be end-of-course exams aplenty to take their place. You might get a raise. You might not. Retired educators might get a raise. They might not. Ah, it's great to live in Texas!

There are some upcoming events and dates that you may want to include as you set your calendar of professional activities. For example, you can register now for CAST 2007 and you can also register for the National Association of Biology Teachers annual convention. You can help others grow by sharing your ideas through writing an article for this newsletter as Franklin Bell has done (see pages 2 and 3). Now is the time to register for

summer professional development opportunities, such as those listed on TABT's home page. Additional professional growth opportunities through AP and PreAP Biology summer institutes are listed at <http://apps.apcentral.collegeboard.com>.

Back by popular demand is a trip to Port Aransas, TABT's Mini Conference in October! The information for this is found in this issue of *The Nucleus* on pages 5 and 6. Those who attended last year reported that the event was well worth the money and that they learned a lot while having fun.

On page 4 you'll find photos from CAST 2006, but next time you'll see photos taken during the first TABT internationally sponsored trip to the Galapagos Islands. Fifteen other passengers and I will be leaving on June 1. Isn't TABT a great organization?!

Jennifer Jordan, TABT President  
[jenn\\_jordan@sbcglobal.net](mailto:jenn_jordan@sbcglobal.net)



### **TABT THANKS ITS CORPORATE MEMBERS**

**Carolina Biological Supply  
Fisher Science Education  
Flinn Scientific  
George Seidel & Associates  
Glencoe/McGraw-Hill  
Holt, Rinehart, and Winston  
Prentice Hall School Division  
Sargent Welch Scientific  
Science Kit/Boreal Laboratories  
Ward's Natural Science Establishment**

### ***In this issue ...***

President's Message..... Page 1  
TABT Thanks Its Sponsors..... Page 1  
Whole Plant Transpiration, Franklin  
Bell, 2006 Texas OBT..... Pages 2 - 3  
Scenes From CAST 2006..... Page 4  
TABT Mini Conference 2007..... Pages 5 - 6  
NABT Membership Application..... Page 7  
TABT Membership Application..... Page 8

## Whole Plant Transpiration, Teacher Guide

This lab is an alternate to the AP Biology Transpiration lab (#9A) in the College Board lab manual. It is easier to set-up, run, and is less time consuming to conduct. Additionally, the data is easy to generate and of high quality.

### **Materials:**

- Small potted plant (impatiens, tomato seedling, Mexican heather, etc.) with lots of green leaves, few flowers
- Plastic container (may be the one it comes in)
- gallon size “food storage” bag (*not* zipper-style)
- String

### **Set-up:**

- Water the plants well (saturate) the night before beginning the lab
- Wrap the root ball of plant in a plastic bag
- Tie bag around the base of the plant with string so that only the leaves are exposed
- Remove flowers and buds from the plant before massing so flowers and petals won't drop off plant during the lab



### **Conducting the lab:**

- Write the mass of the plant and bag on the plastic bag each day so data will not get “lost” during the week. It is best to begin the lab on Monday and mass the plants each day of the week. For alternating block schedule, M, W, F will work, but an extra data point may be required
- Calculate amount of surface area for each plant by calculating it for one leaf and extrapolating to the entire plant by counting the number of leaves.
- When the lab is over, remove the plants from the bags, water them, and let the students take them home and plant them.

### **Measure using the following treatments:**

- Control – normal light conditions in your room.
- Fan – place plants about 1-2 meters away from a fan on low. Leaves should not be rustling as this can cause some plants to close their stomata.
- Light – under a light bank on 24 hrs a day
- Moist – mist the inside of a 10-gallon aquarium and invert it over the plants
- Dark – Inside a cabinet



## Transpiration Lab (#9A, College Board lab Manual)

### *Objectives:*

- To understand how water moves from roots to leaves in terms of the physical and chemical properties of water and the forces provided by differences in water potential.
- To understand the role of transpiration in the transport of water within a plant.
- To understand the structures used by plants to transport water and regulate water movement.
- To test the effects of environmental variables on rates of transpiration using a controlled experiment.

### *Introduction:*

See College Board Lab Manual

### *Procedure:*

1. Wrap the entire root ball in a plastic bag, snug it up to the stem with string, mark with your group name, and weigh on Monday. Weigh each successive day for the entire week.
2. All groups put their **controls** in one place, those in front of the **fan** together, those in **bright light** together, and the last are **misted** and covered with a 10-gallon aquarium. **Dark** are placed in a drawer or cabinet at the back of the room.
3. If your plant blooms, be sure any leaves or blooms that fall off are put back in the center of the plant to be weighed each day so as not to represent water loss.
4. Write a hypothesis about what you think what will happen based on your knowledge of transpiration and plants.

### *Results:*

Determine the % change in mass over the week and graph. Be sure your graph has all of the appropriate titles and units.

### *Analysis:* (From the College Board Lab Manual)

1. For this experiment, what were the independent variable and the dependent variable? What were the constants?
2. Calculate the average rate of water loss per day for each of the treatments. (Humidity, Light, Fan, Dark, Room or control).
3. Explain why each of the conditions causes an increase or decrease in transpiration compared with the control.
4. How did each condition affect the gradient of water potential from the stem to leaf in the experimental plant?
5. What is the advantage to a plant of closed stomata when water is in short supply? What are the disadvantages?
6. Describe several adaptations that enable plants to reduce water loss from their leaves. Include both structural and physiological adaptations.
7. Why did you need to calculate the % water loss each day instead of graphing the total amount of water lost each day?

## Views From CAST 2006 – TABT’s 20<sup>th</sup> Anniversary



Team TABT at CAST 2006 consisted of (back row) Joe Stanaland, Jennifer Jordan, Debbie Richards, Anita Gordon, and Karen Hewitt; (front row) Kristin Martin and Benjy Wood.



Jennifer Jordan, TABT’s President Elect takes her turn at riding the bull.



TABT’s future and past leadership – Benjy Wood, President Elect; Jennifer Jordan, President; Debbie Richards, Past President; Anita Gordon, Joe Restivo, and Alton Biggs all presidents “ustawuzes”.



Tom Avery accepts from Debbie Richards the Friend of TABT Award for Sargent Welch, a Corporate Member that shows leadership in science education.



Jennifer Jordan received the TABT official gavel from Debbie Richards.



We salute Virginia Woods, a charter member, past president, Honorary Member, and legend in her own time for science educators in Texas. Virginia, TABT loves you!



# Texas Association of Biology Teachers

## TABT Mini-Conference 2007

University of Texas Marine Science Institute  
Port Aransas, Texas

October 18-21, 2007



The Texas Association of Biology Teachers is sponsoring a Mini-Conference at the UTMSI at Port Aransas.

### Agenda\*

#### Thursday, October 18, 2007

Arrive evening – dinner on your own

#### Friday, October 19, 2007

Breakfast – included

Boat trip aboard the research vessel, *Katy*

Lunch – included

Study of local ecosystems

Dinner – included

Speaker or Video

#### Saturday, October 20, 2007

Breakfast – included

St. Jo Island Excursion – uninhabited island with natural beach

Lunch – included

Groomed Beach Excursion or other local ecosystem

Dinner - on your own

#### Sunday, October 21, 2007

Breakfast – included

TABT Share-a-thon and updates

Noon – depart for home – lunch on your own



**Cost of the conference is \$150** and includes boat trip aboard the *Katy*, ferry to St. Jo Island, three nights lodging in UTMSI dorms, meals as indicated above, one year membership in TABT and a TABT T-shirt.

**Space is limited** to the first 25 individuals to submit payment.

\*Agenda is subject to change without notice due to weather, equipment, scientific opportunities, watching a drilling platform be brought in through the ship channel, etc.



# Texas Association of Biology Teachers

Mini-Conference, October 18-21, 2007, at UTMSI, Port Aransas  
Registration Form  
(please print)

Name \_\_\_\_\_ Sex  Female  Male

School Name \_\_\_\_\_ District \_\_\_\_\_

School Address \_\_\_\_\_

School phone (\_\_\_\_) \_\_\_\_\_ School Fax (\_\_\_\_) \_\_\_\_\_

Home address \_\_\_\_\_

Home phone (\_\_\_\_) \_\_\_\_\_

E-mail (all correspondence will be sent via e-mail)  
\_\_\_\_\_

T-shirt size \_\_\_\_\_ TABT Member already?  Yes  No

Dietary restrictions/considerations \_\_\_\_\_

Health concerns/allergies \_\_\_\_\_  
\_\_\_\_\_

Emergency contact \_\_\_\_\_ Relationship \_\_\_\_\_

Emergency contact phone (\_\_\_\_) \_\_\_\_\_

Roommate preferences (please remember this is dormitory style housing with multiple roommates and bunk beds, single rooms are not available) \_\_\_\_\_  
\_\_\_\_\_

Sunday morning of the conference will involve a share-a-thon where each participant brings an activity, lesson, cool demo idea, etc (10 minutes max) to share with the group. What do you intend to bring to share?  
\_\_\_\_\_

Space is limited to the first 25 participants to submit payment. Refunds are only given in the event you can not attend and your space can be filled.

**Make check out to TABT for \$150 (sorry no Purchase Orders) and mail along with this completed form to:  
Jennifer Jordan (Attn: TABT), 1513 Cherokee Run, Pflugerville, TX, 78660**

**For TABT Use Only:**

**Paid** \_\_\_\_\_

**Room** \_\_\_\_\_

**Confirmation e-mail sent** \_\_\_\_\_

**Special consideration** \_\_\_\_\_

# Join NABT! National Association of Biology Teachers

## MEMBERSHIP APPLICATION

**Yes**, I want to join the National Association of Biology Teachers (NABT) and receive all member benefits, including:

- 9 issues of *The American Biology Teacher*
- ABT Online supplements
- weekly electronic issues of *News & Views*
- conference and publication discounts
- and more!

Dr./M \_\_\_\_\_

School/Org. \_\_\_\_\_

Mailing Address \_\_\_\_\_

\_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Province \_\_\_\_\_ County \_\_\_\_\_

This is my  home  business address.

E-mail Address \_\_\_\_\_

Fax \_\_\_\_\_

### Type of Membership

- FULL MEMBER** \$79/yr
- FOREIGN MEMBER\*** \$119/yr (U.S. check or international money order only)
- STUDENT MEMBER** \$39/yr (open to regularly matriculated students not in full-time employment)

*Signature of faculty member required below:*

\_\_\_\_\_  
 **SPOUSE MEMBER** \$33/yr

*(when accompanied by an active membership)*

- SUSTAINING MEMBER** (\$750/yr)
  - ORGANIZATIONAL MEMBER** (\$149/yr)
  - LIFE MEMBER** (one payment): Ages 21-29: \$1250; 30-39: \$1000; 40-49: \$850; 50-59: \$600; 60+: \$400
- \*U.S. rates apply to citizens of Canada and Mexico.*

**NOTE:** \$48 of membership dues goes toward a subscription to *The American Biology Teacher*, for each year joined, except spouse members, in which case only the sponsoring active member receives a subscription to be shared by the two persons.

### Professional Information

*Please complete the following to help NABT better serve your needs:*

#### 1. Professional Class

- Biology Teacher
- Department Head
- Supervisor/Administrator
- Teacher Educator
- Student
- Other \_\_\_\_\_

#### 2. Teaching Level

- Elementary
- Middle/Junior High
- High School
- Two-Year College
- Four-Year College/University
- Other

#### 3. Interest in NABT Sections

- Elementary/Middle School Section
- High School Section
- Two-Year College Section
- Four-Year College Section
- AP Biology Section
- Role & Status of Women in Biology Education
- Multicultural Affairs Section
- Retired Section

4. Do not provide my name & address to other companies

### Payment Method

NABT accepts checks drawn on U.S. banks and international money orders (payable to NABT), MasterCard, VISA, and Purchase Orders or join online at [www.nabt.org](http://www.nabt.org).

- Check  Purchase Order # \_\_\_\_\_ *(please attach)*
- MasterCard  VISA

*If paying by credit card, please complete the information below:*

Acct. # \_\_\_\_\_

Expiration date \_\_\_\_\_

Card holder \_\_\_\_\_

Signature \_\_\_\_\_

RECRUITED BY: TABT, Alton L. Biggs

*Complete and return to:*

National Association of Biology Teachers  
P.O. Box 791048, Baltimore, MD 21279-1048  
FAX (703)264-7778



**Texas Association of Biology Teachers**  
**c/o Alton Biggs, Computer Records Clerk**  
**2006 Creekview Drive**  
**Commerce, Texas 75428-3947**



**Membership Application (Please Print All Information)**

Name: \_\_\_\_\_ Telephone: (\_\_\_\_) \_\_\_\_\_

Home Street Address, City, State, Zip: \_\_\_\_\_

E-mail address (*very important*): \_\_\_\_\_

Type of membership:  Active (\$10)  Student (\$5)  Retired (\$5)  Life (\$250)

Please complete the following to assure balanced representation in planning TABT activities

1. Professional Class (**Check one only**)

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Biology Teacher          | <input type="checkbox"/> Department Chairman | <input type="checkbox"/> Curator/Interpreter |
| <input type="checkbox"/> Supervisor/Administrator | <input type="checkbox"/> Teacher Training    | <input type="checkbox"/> Student             |
| <input type="checkbox"/> Other _____              |  |  |

2.  Male  Female (**OPTIONAL**)

3. Have you ever received the OBTA?  No  Yes If yes, what year? \_\_\_\_\_

4. Number of years teaching? \_\_\_\_\_

5. Organizational Class (**Check one only**)

- Elementary  Middle/Junior High  Secondary  College/University  Zoo/Aquarium  
 Business/Institution  Other \_\_\_\_\_

6. Special Interests (**Check no more than 2**)

- Cellular/Molecular  Botany/Plant Science  Laboratory Science  Reproduction/Evolution  Zoology  
 Computer Instruction  Environmental Biology  Teaching Materials  Other \_\_\_\_\_

7. I am also a member of (**Check all that apply**):  National Association of Biology Teachers (NABT)

National Science Teachers Association (NSTA)  Science Teacher Association of Texas (STAT)

**Please send membership application and dues to:** Alton L. Biggs, TABT Records Clerk  
 2006 Creekview Drive, Commerce, TX 75428-3947

**Make all checks payable to: Texas Association of Biology Teachers**