SCORE
(South Carolina Oyster Restoration and Enhancement)

A class field trip for grades 7-12 with classroom follow-up

Background Information (to be presented in advance or at beginning of field trip)
- Oyster ecology (keystone species, filtration, habitat)
- Oyster life history (importance of shell substrate)
- Need for restoration/enhancement
  - (overharvesting, boat wakes, etc.)
- Methods (replanting shell)

General equipment: sturdy shoes or boots which can get wet, work gloves, writing instruments, data notebook or clipboard and datasheets (1 for each team)

Group Activity 1. Shell bagging [only if field trip is at Bowens Island or Fort Johnson]

Leader will demonstrate technique before activity begins

Number of students 10-30, teams of 2-5
Number of leaders:1-6
Equipment: per team: 2 buckets, 2 PVC tubes, 20 mesh bags (cut to 4.5 ft lengths), 1 shovel, 1 rake
Time allotment: 1 hour (or more)
Procedure
- 1-2 people stretch mesh bags on tubes
- 1 person shovels shell into buckets
- 1-2 people carry buckets to tubes and fill
- Somebody ties off bag (could be anybody except shoveler) and moves to the stacking zone

Rotate positions as needed/desired.

Group Activity 2. Water quality measurements

Number of students: 12-16, teams of 3-4
Number of leaders: 1-4
Time allotment: 1 hour

1. Water clarity
   a. Secchi disk demonstration
   b. Students try
   c. Record/compare
2. Sample collection
   a. Demonstration of sampling bottle deployment
   b. Students procure sample for subsequent measurements
   c. Take temperature using thermometer (record)
3. YSI demonstration
   a. Salinity, temperature, DO (Record)
4. Salinity (refractometer, hydrometer)
   a. Explanation of 3 methods

b. Distribute instruments
c. Students take turns measuring
d. Record (include instrument used)/compare

5. DO (LaMotte kit, Chemets)
   a. Explanation of methods
   b. Divide into teams
   c. Do 2-3 tries with each kit, allowing different teams to have a turn
   d. Record/compare
6. pH (LaMotte kit)
   a. Teams take turns
   b. Record/compare
7. Ammonia nitrogen (LaMotte kit)
   a. Teams take turns
   b. Record/compare

Follow up in class: compare the results obtained with different measuring devices and by different teams. Research/discuss the significance of different water quality parameters. Research/discuss factors affecting water quality parameters, interactions between parameters, etc.

Group Activity 3

Number of students: 12-18, teams of 4-6
Number of leaders: 3
Equipment: , meter tape, quadrat, bucket
Time allotment: 1 hour

Extend meter tape on shore running parallel to water line and about mid way up reef. Select 3 spots along the line (1 for each team). Lay down the open-bottomed quadrat. Using gloves pick up all the shell within the quadrat and transfer to a bucket or sieve. Examine each piece of shell and count all live oysters. One person records while others count. Replace the shell on the shore. Segregate any crabs or other organisms on a separate sieve. Identify with provided charts. Record ID and relative abundances.

Group Activity 4.

Number of students: 12-18, teams of 4-6
Number of leaders: 3
Time allotment: 1 hour
Equipment: sieves, bucket, wire cutters

"harvest" one of the 3 shell trays adjacent to the reefs. Use the wire cutters to remove the cable ties holding the cover. Remove the tray contents and place on the large sieve (careful – shell can be sharp). Use the bucket to get water to rinse the mud off. Remove crabs, mussels, etc as found and place on smaller sieve. Examine each shell and count live oysters. (Somebody records). Replace shell into tray after counting. Replace cover. Identify crabs and other animals using provided charts. Record ID and approximate abundances.

Follow up activities for activities 3 and 4(in classroom)

Chart the data
Compare the results obtained by different teams

Compare the abundance of spat on the open shore and in the tray
Compare the abundance and type of crabs, etc. on the open shore and in the tray
Hypothesize a reason for any differences observed

Group Activity # 5

Number of students 6-30, teams of 5-6
Number of leaders: 1-5
Equipment: sieves, small shovels, identification keys
Time allotment: 1 hour

Each team selects a different habitat or section of shore to sample. (Examples: upper marsh, mudflat, lower marsh, shell bank, water's edge) Try not to cause damage to the area you are sampling. Carefully search for living organisms (crabs, mussels, clams, snails). Place these on a sieve. Estimate the area you have sampled (e.g. 1 square yard, 10 running feet). Using the keys, books, etc. identify the organisms you have found in your habitat. [Remember to sample only in your habitat]. Record types and quantities of organisms.
Follow-up in classroom: Compare the types of organisms in different habitats. Make charts of the abundances by type and habitat. Discuss habitat differences, adaptations.