Building & Maintaining a Computer Science Program

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Areas We’re Going to Discuss

- Building the program *(getting started)*
- Maintenance *(keeping it going)*
- Growth *(expanding)*
You (the Teacher)

1. Be somewhat proficient.
2. Never act like you know more.
3. Use things you’re comfortable with and what works for YOU!
5. Constantly learn.
   a. DFW-CSTA, www.dfwcsta.com
   b. Central Texas CSTA ← link to Google Groups
   c. Houston CSTA, houstoncsta.org
   d. WeTeach_CS! www.weteachcs.org
You are their...

- facilitator
- sponsor
- coach
- chauffeur
- encouragement
- **LEADER!**
You will LEAD better by asking questions and **not** by giving directions.

John Maxwell
“What courses do you offer?”

TEKS Technology Application

- Fundamentals of Computer Science
- Computer Science (Pre-AP or “regular”)
- AP Computer Science A
- AP Computer Science Principles
- Computer Science 2
- Computer Science 3
- Game Programming & Design
- Digital Forensics
- Discrete Math for CS
- Mobile App Development

CTE Information Technology

- Computer Programming
- Advanced Computer Programming
- Principles of Information Technology
The Class

1. Keep it organized, structured, and predictable.

2. Give them time to write code. They have to practice this skill to get better.

3. Allow students to collaborate.
Curriculum

- A+ Computer Science, Stacey Armstrong
  - www.apluscompsci.com
- O(N) CS Lessons, John Owen
  - www.oncslessons.net
- Exposure Java, Leon Schram
  - www.schram.org
- Blue Pelican
  - www.bluepelicanjava.com

Note: This is all for Computer Science courses. Other courses have separate curriculum.
Recruiting & Increasing Enrollment

● Actively promote the courses.
  ○ CSEd Week is a good time.
  ○ Before students choose courses for next year.
  ○ Make a video! Like this... or this!

● Students are the best at promoting!
  ○ Word of mouth travels fast.
  ○ When students say good things, more students join.

● Outreach
  ○ Go to the middle schools/junior highs and elementary schools, and PROMOTE!
  ○ Make a website, Facebook page, Twitter, etc.
Funding

- Campus funds
- District funds
  - Federal funding
- PTA
- Sponsors
- Crowd funding
  - DonorChoose.org
- Fundraisers
- Booster club (501(c)(3) organization)
Extracurricular Activities

- **Programming contests**
  - UIL invitationals
  - Local school-sponsored contests
  - HP CodeWars
  - Lockheed Martin CodeQuest
  - Facebook Hacker Cup
  - Google Code Jam

- **Cyber-security**
  - AFA CyberPatriots
  - “Phillips Academy Capture-the-Flag” - PACTF
  - “High School Capture-the-Flag” - HSCTF

- **Hackathons**
  - HackDFW

- **Other**
  - National STEM Video Game Challenge
  - IBM Master the Mainframe
  - Technovation (girls only)
  - Rose-Hulman Autonomous Vehicle Challenge

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NEVER FORCE THE KIDS INTO ANYTHING!

Practice sites:
- Codingbat.com
- Practiceit.com
- Projecteuler.net
- Uva.onlinejudge.org
- spoj.com
Extracurricular (cont.)

- Evolve
- Find new things to do
- Don’t be a “one-trick pony.”
- Keep searching for resources and ideas
The Kids

- Each student will have different strengths.
- Help them find their place in your organization.
- Some will be strong programmers...
- ... some will be excellent problem-solvers...
- ... some will have amazing engineering skills...
- ... some will show incredible creativity...
- ... some will possess outstanding leadership!
- **What’s their role and what activity will they enjoy the most?**
The Lab!

Make them feel like they BELONG!
- Give them a place to hangout.
- Teach them to respect the lab.
- They own (and run) the computer club.
Communication

- How do we communicate with our kids?
  - There’s always weekly meetings. But, not everyone can make it each week.
  - We use Slack (www.slack.com)
To Grow... “You NEED Parents, Admin & District Support”

- Get them on your side!
- Show progress
  - What has the program done lately?
- Use the community
  - Parents have leverage
  - You’d be amazed how many parents WANT CS education
- Remember your counselors
  - They’re the ones putting students in your classes.
Success and Failure

Failures
- You need to allow the students to fail!
- They must learn from their mistakes.
- When they experience failure, they will truly appreciate success.

Successes
- Winning isn’t about placing first, second, or third.
- It’s not even about taking home a shiny, plastic trophy.
- It’s about doing better than the last time.
- It’s about learning from the experience. That’s progress!
Myths, Faults, and Fallacies

“It’s the kids.”
“I have no support.”
“I’m not familiar with...”
“It’s the demographic area...
... you know what I mean?”
Something I Learned...

“No” destroys.

● When you say “no,” it closes doors to opportunities. When you say “yes,” the opportunities are endless!
● Have a “can do” attitude!

“Yes” builds!
Contact Us!

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