

Information Technology - Programming

Information Technology program students demonstrate an interest in creating computer programs. They have solid skills in mathematics and logic and are self-starters who are comfortable working independently and solving problems creatively. They will apply their skills to create simple video games, websites, and programs for business applications.

BCPS Magnet Transportation Information: George Washington Carver Center for Arts and Technology (Central Area) Transportation is provided at community pick-up points for students from all areas of Baltimore County Public Schools.

Open House: Sunday, October 9, 2011 1 - 3 p.m.

2012-2013 Assessment Guidelines

Assessment Date: Saturday, January 7, 2012 *Auditions by appointment*

Pre-Audition Workshop: Wednesday, October 19, 2011 6 - 8 p.m.

This workshop will give students an opportunity to experience a few of the many skills that the program offers. In addition, expectations for the audition will be discussed. **The workshop is optional and participation in the workshop is not considered during the application, audition or decision process. Students MUST register to attend the workshop.** The cost of the workshop is \$10. It is recommended that you sign up for the workshop during the Open House, but if you are unable to attend the Open House, you may register until **October 14, 2011** by emailing Tom Dissinger (tdissinger@bcps.org) or calling (410) 887-2793.


Assessment reminders will be mailed to all applicants.

Parents/Guardians of applicants who have NOT received notification at least five (5) days prior to the assessment date MUST contact the school to verify/schedule an appointment.

Parent(s)/guardian(s) should contact both the school and Magnet Office immediately if the applicant cannot attend or complete the scheduled assessment due to an unforeseen illness or emergency. Please be aware that assessments will not be rescheduled without documentation verifying the illness or emergency.

Inclement Weather Date: Saturday, January 28, 2012, at the previously scheduled appointment time

Inclement Weather: In the event that schools are closed due to inclement weather, weeknight magnet assessments will be postponed. Weekend magnet assessments will be postponed if the snow emergency plan is put into effect for Baltimore County. Postponed assessments will occur on the designated inclement weather date.

<p>Carver Center 938 York Road Towson, MD 21204</p>	<p><u>Directions to Carver Center:</u></p> <p>From West:</p> <ul style="list-style-type: none"> • I-695 N to Towson • Take exit 26A toward Towson/York Rd • Turn left at West Rd (signs for Towson/York Rd) • Take the 1st right onto York Rd • Make a right at the next light, Fairmount Ave. <p>From East:</p> <ul style="list-style-type: none"> • I-695 W to Towson • Take exit 26 toward Towson • Turn left at MD-45/York Rd • Make a right at the next light, Fairmount Ave.
	
<p><u>Magnet Coordinator</u> Lori Turner (410) 887-2775/2793 lturner2@bcps.org</p>	

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Prior to the Audition

Demonstration of Interest

This MUST be completed prior to coming to the audition.

Research and Create a Display: Prior to coming to the audition, applicants should research **one** of the following three topics and **create a display** on a tri-fold display board or a poster board that shows the results of the research. At minimum, applicants should address the bulleted items listed. Applicants may use any type of reference (book, individual, or Internet) but must cite sources. All information can be found by searching the Internet.

Topic I: Computer Programming	Topic II: Video Game Company Jobs	Topic III: HyperText Markup Language (HTML)
<ul style="list-style-type: none"> • Explain what a <i>Computer Programmer</i> does. • List the typical salary for a <i>Computer Programmer</i>. • Explain what a <i>programming language</i> is. • List examples of programming languages. 	<ul style="list-style-type: none"> • List the primary jobs at a video game company. • Explain the main responsibilities for these jobs. 	<ul style="list-style-type: none"> • Explain what HTML is and what it is used for. • Explain what an HTML tag is and provide examples of tags. • Provide an example of how HTML is used.

Applicants should prepare to present the results of their research, using the display they created, in a small group setting. The presentation must be less than 2 minutes.

On the Day of the Audition

The audition takes approximately 2 hours.

Auditions by Appointment ONLY

It is the responsibility of the parent(s)/guardian(s) to:

- ensure that the applicant attends the assessment on the scheduled date and time.
- contact the schools if scheduled magnet assessment appointments conflict.

Failure to attend an assessment WILL result in disqualification.

Registration Information

Applicants will be advised of their appointments by postcard. Please arrive 15 minutes prior to the scheduled time. Students will register for the audition in the front lobby with the required materials. Students who are more than 10 minutes late may not be admitted into the audition. On average, the entire audition takes approximately 2 hours. Due to personnel and time constraints, auditions may not be rescheduled. Parents may stay in the main lobby during the audition, or return to the school within 2 hours. Due to the high volume of applicants, there will be no seating available in the school for parents/guardians.

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Assessment Description

Students should dress professionally. Males should wear either: (1) business suit with collar, dress shirt, and neck tie, or (2) sport coat, dress slacks, collar shirt, and neck tie, or (3) a collar shirt or sweater with khaki-style pants. Females should wear either: (1) a business suit with a blouse, or (2) a business pantsuit with a blouse, or (3) a skirt (knee length) or dress pants with blouse or sweater.

1. **Display and Presentation (26 points):** Using the display they created, applicants will present the results of their research in a small group setting. The presentation must be less than 2 minutes. Applicants will be evaluated on their ability to follow directions, the quality of the display, the accuracy of the work, and the professionalism of the presentation.
2. **Math Test (60 points):** Applicants will take a 20 minute, timed assessment in mathematics. Skills evaluated will include basic knowledge of fractions and percents, equations, slope, and solution of word problems. Applicants will be permitted to use the calculators that are in the computer. Students are strongly encouraged to review the sample questions to prepare.
3. **Interview (14 points):** Applicants will participate in an interview where their interest in programming and their ability to communicate will be assessed.

Documented testing accommodations, as appropriate to the assessment, will be provided.

Applicants must score an 80% or higher to qualify for admission.

Magnet Events

Magnet EXPO!	Saturday, September 24, 2011 Crowne Plaza Timonium	10 a.m. - 2 p.m.
Magnet Application Meetings	Tuesday, September 27, 2011 Woodlawn HS Auditorium	Program starts at 6 p.m.
	Wednesday, September 28, 2011 Kenwood HS Auditorium	Program starts at 6 p.m.
Application Deadline	Wednesday, November 30, 2011	

Application packets are available at www.bcps.org/offices/omp. Applications must be hand delivered or postmarked on or before **November 30, 2011**. Late applications are not processed.

Information Technology - Programming

Course of Study

Students will learn to design, develop, and test software solutions using a variety of programming languages. Typical projects include simple video games, websites, and programs for business applications. During their Freshman to Junior years, students will be required to complete the five required classes and one elective from the lists below. As Seniors, students will either take two credits of Business/IT or designated AP classes, be involved in an internship or work-based learning experience, or take classes at a local college. Students will also have the opportunity to join the school's chapter of the Future Business Leaders of America (FBLA).

Required Classes (5 credits)

Information Systems Management: Students will develop managerial and technical skills while learning to use word processing, presentation, and spreadsheet applications.

Visual Basic: Students will learn fundamental programming concepts using Visual Basic by creating a variety of applications with graphical user interfaces.

HTML & JavaScript: Students will learn the Hypertext Markup Language (HTML) to create web pages. Students will also learn the fundamentals of JavaScript to give their web pages added functionality such as slide shows and rollovers.

C++: Students will learn the fundamentals of the C++ computer language along with more advanced concepts such as object-oriented programming, pointers, and data structures.

AP Computer Science A: Students will learn the fundamentals of the Java programming language. This course is designed to provide students with a learning experience equivalent to that of an introductory college course in Computer Science. It emphasizes object-oriented programming and algorithm development.

Possible Electives (1 credit required)

All of these classes will NOT be offered. Class availability will depend on staffing, enrollment, and guidelines established by the Baltimore County Public Schools (BCPS) and the Maryland State Department of Education (MSDE).

- Entrepreneurship
- Business Internship
- Accounting
- Principles of Business, Administration, and Management
- Financial Management Using Software Applications
- Advanced Simulation and Gaming
- Principles of Arts, Media, and Communication

***Please be advised courses may be subject to change.**

Articulation Agreement

Students who earn a grade of B or better in select courses may be able to transfer those courses to the Community College of Baltimore County and receive credit for them.

Future Business Leaders of America (FBLA)

Carver Center has an active chapter of FBLA. The FBLA Mission is to bring business and education together in a positive working relationship through innovative leadership and career development programs. Students are able to compete in a variety of business-related events at regional, state, and national competitions.

**Information Technology - Programming
Sample Math Questions**

Candidates will be able to use the calculators in the computers.

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|--|---|
| 1. Change .07% to a decimal | 6. Evaluate $a^2 + 7b$ where $a = 2$ and $b = 4$ |
| 2. Change 0.50 to a percent | 7. Solve for x: $2x + 3 = 23$ |
| 3. Solve $\frac{1}{4} + \frac{1}{2}$ and write as a fraction | 8. Find the slope for the line defined by the two points: $(-5,4)$ and $(0,-3)$ |
| 4. Evaluate $\$300 * 106\%$ | 9. Identify the slope and the y-intercept for the following: $y = -2x + 10$ |
| 5. Evaluate $3 + 27/3^2 - (7 - 5)$ | |

10. Complete the following using the formula $\text{Cost} + \text{Mark Up} = \text{Selling Price}$. Melville Sisters, Inc. obtains an outdoor fountain at a cost of \$871.50. They decide upon a 17% markup. What is the selling price?

11. An advertisement indicated that a new computer priced at \$600.00 could be purchased by putting \$102.00 down. What percent of the price is the down payment?

12. Sharon is a salesperson at a shoe store. Yesterday, she sold \$865.00 of merchandise. Sharon stated that this was 119 percent of the amount that she sold on Tuesday. How much did Sharon sell on Tuesday?

**Information Technology - Programming
Sample Math Questions**

13. Baxter Associates has a workers' compensation premium that is 73% of wages. Gene is paid \$16 per hour as a skilled worker. What is the cost of the worker's compensation insurance per hour for Gene?

14. A group of five people are all working on the same mathematics problem. On the night before it is due, they all call each other to discuss their work. Each person talks to all the other people at least once. What is the fewest number of telephone calls that could be made?

15. Your neighbor wants to hire your younger sister to baby-sit. The neighbor will pay your sister \$4 each day; or \$1 on the first day, \$2 on the second day, \$3 on the third day and so on; or \$.10 on the first day, \$.20 on the second day, then \$.40, then \$.8, and so on. Which pay plan should your sister select? Should she know how many days she is going to baby-sit before selecting her pay plan?

16. A kitten fell into a well 9.5 feet deep. Each day the kitten manages to climb 3 feet up the side of the well, but each night the kitten slips back 2 feet. In how many days will the kitten climb out of the well?

Solutions for IT Sample Questions

1. 0.0007
2. 50%
3. $\frac{3}{4}$
4. 318
5. 4
6. 32
7. 10
8. $-\frac{7}{5}$
9. Slope = -2; Y-intercept = 10
10. \$1019.66
11. 17%
12. \$726.89
13. \$11.68
14. 10 calls
15. Depends on the number of days
16. 8 days