

WESTERN SCHOOL OF TECHNOLOGY AND ENVIRONMENTAL SCIENCE

Information Technology - Programming

Information Technology (IT) will prepare students with the fundamental and advanced computer skills, interpersonal and problem solving skills necessary to succeed in the computer career field. The program will give the students a background in microcomputer hardware, software applications including Microsoft (MOS) certifications in Word, Excel, PowerPoint and Access, and programming languages including HTML, JavaScript, Java, and Visual Basic.

BCPS Magnet Transportation Information: *Western School of Technology & Environmental Science (Southwest Area) Transportation is provided at community pick-up points only for students who are zoned for high schools in the Southwest or Northwest areas, as well as those who would otherwise attend Dulaney or Towson High School.*

Open House: Thursday, November 3, 2011 6- 8 p.m.

2012-2013 Assessment Guidelines

Assessment Date: Saturday, January 21, 2012 **Assessments by appointment**


Pre-Assessment Workshop: Tuesday January 17, 2012 5:30 pm-7:00 pm
 Students will have the opportunity to practice the skills necessary for the math assessment and the reading comprehension assessment. **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.** 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 Friday, **January 13, 2012** by emailing Greg De Veau at gdeveau@bcps.org or calling 410-887-0840.

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 style="text-align: center;">Western School of Technology & Environmental Science 100 Kenwood Avenue Catonsville, MD 21228</p>	<p><u>Directions to Western:</u> From the north:</p> <ul style="list-style-type: none"> Take 695 West towards Glen Burnie to the Wilkens Avenue East Exit 12B. Turn right on Wilkens Avenue, go under the beltway and turn left on Kenwood Avenue (there will be a sign to the Beltway Towson on Kenwood Avenue). Stay on Kenwood Avenue past the entrance to the beltway. Western will be at the top of the hill on your left. <p>From the south:</p> <ul style="list-style-type: none"> Take 695 North towards Towson to the Exit 12C Wilkens Avenue Exit. As you come off the exit, stay straight to the stop sign. Turn left at stop sign on Kenwood Avenue. Western will be at the top of the hill on your left.
	
<p><u>Magnet Coordinator</u> Lisa Gleason 410-887-0849 lgleason@bcps.org</p>	

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Information Technology - Programming

Prior to the Assessment

This **MUST** be completed prior to coming to the audition.

Complete the 2012-2013 Applicant Self-Evaluation included with these guidelines.

Prior to attending the assessment, student applicants may want to review:

Math Concepts: basic operations, basic knowledge of fractions and percentages, math functions and operations, solutions of word problems, solving equations, and writing equations of lines.

A sample practical test has been included with these guidelines.

On the Day of the Assessment

The assessment takes approximately 2 hours.

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 must attend the school-based assessment for the program to which they applied. All students will be contacted regarding a specific appointment time.

Students should plan to arrive at least 15 minutes prior to their assessment time and report to the front lobby of Western. Assessments will start at the designated time. Students should be accompanied by at least one parent/guardian. **There will be no assessment provided for applicants arriving after the assigned assessment time.** Parents may stay in a designated area during the assessment.

Assessment Description

Applicants will need to bring two #2 pencils to take the assessment. Applicants will complete a math assessment and a practical assessment.

Assessment Process:

Applicants will be given an assessment composed of three sections.

Reading Comprehension (20 points): Applicants will demonstrate the ability to read and comprehend a section of networking curriculum.

Math Assessment (20 points): Applicants will have a timed mathematics assessment.

Practical Assessment (20 points): Applicants will be asked to complete a tutorial and to write a short computer program using Java. The assessment will measure the students' ability to follow procedural directions and logically analyze and write code.

Documented testing accommodations, as appropriate to the assessment, will be provided.
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Information Technology - Programming

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

WESTERN SCHOOL OF TECHNOLOGY AND ENVIRONMENTAL SCIENCE

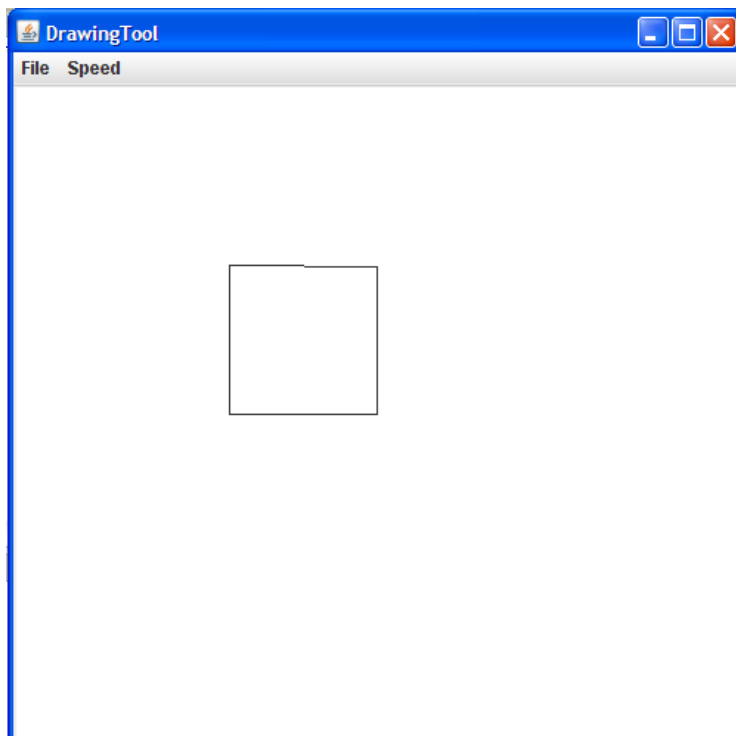
Information Technology - Programming

Information Technology – Programming Magnet Assessment Practice

For the IT Programming Assessment at Western School of Technology, students will demonstrate the ability to read and follow directions as well as the ability logically analyze and write code. Students will complete a tutorial and learn how to program in Java with the `DrawingTool` class. Students will be expected to learn to program by example.

Using the `DrawingTool` class, students will use simple methods like: `forward(100);` `turnLeft(90);` and `turnRight(90)`. The following example is a section of code that draws a square with each side having a length of 100 units. The square appears in the drawing window below.

```
// draw a square
pencil.forward(100);
pencil.turnLeft(90);
pencil.forward(100);
pencil.turnLeft(90);
pencil.forward(100);
pencil.turnLeft(90);
pencil.forward(100);
```



WESTERN SCHOOL OF TECHNOLOGY AND ENVIRONMENTAL SCIENCE

Information Technology - Programming

Based on the sample code above and the image that is created, answer the following questions.

1. What is the purpose of the value 90 in the lines of code that use `pencil.turnLeft(90);`?
2. Describe the changes you would make to the sample code above in order to create a square with each side measuring 250 units.

Be careful: You must write code of #3. When writing code the commands must appear exactly as show above. For example, if you need to write `move()`, you can NOT write `Move()` or `move ()` or `MOVE()` or `move` or anything other than `move()`.

3. Complete the code below to create a rectangle with length of 150 units and a width of 75 units.

```
// draw a rectangle
pencil.forward(150);
pencil.turnLeft(90);
```

Solutions

- 1) The value 90 represents 90 degrees. By turning 90° a right angle is formed in the corner of the square.
- 2) For each line of code `pencil.forward(100);`, increase the value from 100 to 250. Replace each 100 with 250 in all four places that it appears.
- 3)

```
// draw a rectangle
pencil.forward(150);
pencil.turnLeft(90);
pencil.forward(75);
pencil.turnLeft(90);
pencil.forward(150);
pencil.turnLeft(90);
pencil.forward(75);
```

**Western School of Technology Admissions Assessment
Sample Mathematics Problems**

1.) Solve the following: $\frac{1}{4} + \frac{1}{5}$

2.) Solve the following: $\frac{4}{5} - \frac{3}{7}$

3.) Solve the following: $\frac{3}{10} \div \frac{6}{5}$

4.) Determine the 7th term of the sequence. -10, -6, -2, 2, ...

5.) Evaluate $6 \div (2 + 1) \cdot 3 - 9$

6.) Solve for x: $-8x + 4 = 20$

7.) Solve for z: $\frac{3}{4}z + 2 = 8$

8.) Solve for a: $4a - 2 = 2a + 8$

9.) Solve for x: $\frac{2}{5} = \frac{4}{x}$

10.) The cost to enter a carnival is \$5.00. Each ride at the carnival costs \$0.50. The cost to enter the carnival and for x number of rides is \$7.50. Write an equation that models this situation.

11.) What is the slope of the line joining (4, 5) and (-3, 2)?

12.) Find the equation of the line with slope of 4 that passes through the point (0, -6).

13.) Find the equation of the line with slope of 5 that passes through the point (2, 4).

14.) Find the equation of the line containing the points (2, 6) and (4, 0).

**Western School of Technology Admissions Assessment
Sample Mathematics Problems Solutions**

1.) Solve the following: $\frac{1}{4} + \frac{1}{5}$

$$\frac{1}{4} + \frac{1}{5} = \frac{5}{5} \cdot \frac{1}{4} + \frac{4}{4} \cdot \frac{1}{5} = \frac{5}{20} + \frac{4}{20} = \frac{9}{20}$$

2.) Solve the following: $\frac{4}{5} - \frac{3}{7}$

$$\frac{4}{5} - \frac{3}{7} = \frac{7}{7} \cdot \frac{4}{5} - \frac{5}{5} \cdot \frac{3}{7} = \frac{28}{35} - \frac{15}{35} = \frac{13}{35}$$

3.) Solve the following: $\frac{3}{10} \div \frac{6}{5}$

$$\frac{3}{10} \div \frac{6}{5} = \frac{3}{10} \cdot \frac{5}{6} = \frac{15}{60} = \frac{1}{4}$$

4.) Determine the 7th term of the sequence. -10, -6, -2, 2, ...

Pattern increases by 4

-10, -6, -2, 2, 6, 10, 14

The 7th term is 14.

5.) Evaluate $6 \div (2 + 1) \cdot 3 - 9$

Use order of operations (PEMDAS)

$$6 \div (2 + 1) \cdot 3 - 9$$

$$6 \div 3 \cdot 3 - 9$$

$$2 \cdot 3 - 9$$

$$6 - 9$$

$$-3$$

**Western School of Technology Admissions Assessment
Sample Mathematics Problems Solutions**

6.) Solve for x: $-8x + 4 = 20$

$$\begin{aligned} -8x + 4 &= 20 \\ -8x + 4 - 4 &= 20 - 4 \\ -8x &= 16 \\ \frac{-8x}{-8} &= \frac{16}{-8} \\ x &= -2 \end{aligned}$$

7.) Solve for z: $\frac{3}{4}z + 2 = 8$

$$\begin{aligned} \frac{3}{4}z + 2 &= 8 \\ \frac{3}{4}z + 2 - 2 &= 8 - 2 \\ \frac{3}{4}z &= 6 \\ \frac{4}{3} \cdot \frac{3}{4}z &= 6 \cdot \frac{4}{3} \\ z &= \frac{24}{3} \\ z &= 8 \end{aligned}$$

8.) Solve for a: $4a - 2 = 2a + 8$

$$\begin{aligned} 4a - 2 &= 2a + 8 \\ 4a - 2 + 2 &= 2a + 8 + 2 \\ 4a &= 2a + 10 \\ 4a - 2a &= 2a - 2a + 10 \\ 2a &= 10 \\ \frac{2a}{2} &= \frac{10}{2} \\ a &= 5 \end{aligned}$$

9.) Solve for x: $\frac{2}{5} = \frac{4}{x}$

$$\begin{aligned} \frac{2}{5} &= \frac{4}{x} \\ (x) \frac{2}{5} &= \frac{4}{x} (x) \\ \frac{2x}{5} &= 4 \\ \left(\frac{5}{2}\right) \frac{2x}{5} &= 4 \left(\frac{5}{2}\right) \\ x &= \frac{20}{2} \\ x &= 10 \end{aligned}$$

**Western School of Technology Admissions Assessment
Sample Mathematics Problems Solutions**

10.) The cost to enter a carnival is \$5.00. Each ride at the carnival costs \$0.50. The cost to enter the carnival and for x number of rides is \$7.50. Write an equation that models this situation.

$$5.00 + 0.50x = 7.50$$

11.) What is the slope of the line joining (4, 5) and (-3, 2)?

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 5}{-3 - 4} = \frac{-3}{-7} = \frac{3}{7}$$

12.) Find the equation of the line with slope of 4 that passes through the point (0, -6).

$$m = 4$$
$$(0, -6) \rightarrow b = -6$$

$$y = mx + b$$
$$y = 4x + b$$
$$y = 4x - 6$$

13.) Find the equation of the line with slope of 5 that passes through the point (2, 4).

$$m = 5$$
$$y = mx + b$$
$$y = 5x + b$$

Substitute in the points (2, 4) and solve for b.

$$4 = 5(2) + b$$
$$4 = 10 + b$$
$$b = -6$$
$$y = 5x - 6$$

14.) Find the equation of the line containing the points (2, 6) and (4, 0).

Find the slope.

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{0 - 6}{4 - 2} = \frac{-6}{2} = \frac{-3}{1} = -3$$

$$y = mx + b$$
$$y = -3x + b$$

Substitute in one of the points and solve for b.

$$(2, 6)$$
$$6 = -3(2) + b$$
$$6 = -6 + b$$
$$b = 12$$
$$y = -3x + 12$$

WESTERN SCHOOL OF TECHNOLOGY & ENVIRONMENTAL SCIENCE

APPLICANT SELF-EVALUATION 2012-2013

Information Technology-Programming

DO NOT include this worksheet with your application.

Important: All applications must be postmarked by the application deadline of **November 30, 2011**. Incomplete applications will not be considered for admission.

Admission Criteria

Magnet Program	Admission Criteria
Information Technology - Programming	<ul style="list-style-type: none"> ✓ Algebra I or higher in grade 8 ✓ B average (2.5 or better) in English/Language Arts, Mathematics, Social Studies and Science ✓ Satisfactory Attendance (94% or higher) ✓ Performance on Magnet Assessments (reading comprehension test, math test, and practicum)

Magnet Assessment Date

On January 21, 2012, (inclement weather date: January 28, 2012), all applicants will be required to attend the assessment held at Western School of Technology and Environmental Science. Applicants should be accompanied by at least one parent/guardian. All applicants will be contacted regarding a specific appointment time.

Placement Prior to the Lottery

According to Superintendent's Rule 6400, *at the high school level where the number of qualified applicants exceeds the number of available seats, up to 20% of the seats may first be filled with candidates who show exceptional commitment and promise in the specialized program as evidenced by their performance on the approved magnet assessment(s). The remaining seats will be filled using the centralized random lottery selection process from the remaining pool of qualified applicants.* Specifically, applicants who earn the highest combined scores on the program assessments may fill up to 20% of the seats available in the magnet program.

Qualifying for Admission

The applicant must earn at least 80 points from the stated criteria in order to qualify for admission.

How to Calculate Your Grade Average

Convert your marking period grades to points (A=4, B=3, C=2, D=1, E=0). Then divide by the number of marking periods.

Subject	Last Year's Report Card				Current Year's Report Card	Total Points	Total Marking Periods (4 or 5)	Grade Average
	1 st marking pd. grade/points	2 nd marking pd. grade/points	3 rd marking pd. grade/points	4 th marking pd. grade/points (if applicable)	1 st marking pd. grade/points			
English/Lang Arts								
Math								
Science								
Social Studies								

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Criteria		Scoring		My information	My Score
Admission Criterion #1 Math Enrollment	Algebra I	Algebra I and higher	10 points	My current math course is _____ (record math course here)	_____/10 pts
		Algebraic Thinking 2	5 points		
		Pre-Algebra, Math 8, or below	0 points		
Admission Criterion #2 Grade Average (see "How to Calculate Your Grade Average")	"B" average or higher (2.5 or higher)	English/LA, Social Studies and Science:		English/Lang. Arts Average: ____	_____/5 pts
		Score 5 points each for a grade average equaling "B" or higher (2.5 or higher)		Social Studies Average: ____	_____/5 pts
		Score 0 points for a grade average less than "B" (less than 2.5)		Science Average: ____	_____/5 pts
		Mathematics		Mathematics Average: ____	_____/10 pts
Score 10 points each for a grade average equaling "B" or higher (2.5 or higher)		Score 0 points for a grade average less than "B" (less than 2.5)			
Admission Criterion #3 Attendance	94% Attendance Total unexcused absences in Grade 7 -plus- first quarter/trimester in Grade 8	Total unexcused absences in Grade 7 -plus- first quarter/trimester in Grade 8 = 14 days or less.	5 points	Total unexcused absences in Grade 7 (all quarters/trimesters) = ____ days -plus- Total unexcused absences in Grade 8 (first quarter/trimester only) = ____ days Total unexcused absences = ____ days	_____/5 pts
		Total unexcused absences in Grade 7 -plus- first quarter/trimester in Grade 8 = 15 days or more.	0 points		
Admission Criterion #4 Reading Assessment	Score on assessment determines total points earned.	Applicants may earn up to 20 points.		To be determined on January 21, 2012.	_____/20 pts
Admission Criterion #5 Math Assessment	Score on assessment determines total points earned.	Applicants may earn up to 20 points.		To be determined on January 21, 2012.	_____/20 pts
Admission Criterion #6 Practical Assessment	Score on assessment determines total points earned.	Applicants may earn up to 20 points.		To be determined on January 21, 2012.	_____/20 pts
Points to Qualify	80 points	My Score:			_____/100 pts

DO NOT include this worksheet with your application.

FOR STUDENT SELF-ASSESSMENT USE ONLY – does not indicate qualification for programs.