

# PGSS 2015

## The Pennsylvania Governor's School for the Sciences

at  
Carnegie Mellon University  
Pittsburgh, PA

June 28 – August 1, 2015



*Sponsored by the  
Commonwealth of Pennsylvania  
Department of Education  
and the Team PA Foundation  
and by the  
PGSS Campaign, Inc.  
Alumni and Friends of the  
PGSS Program*

### Information Line

(412) 268-6669

Weekdays, 9 a.m. – 5 p.m.,  
except holidays

### Websites

PA Department of Education:

[www.education.state.pa.us](http://www.education.state.pa.us)

For PGSS:

[www-pgss.mcs.cmu.edu](http://www-pgss.mcs.cmu.edu)

### E-mail Queries

[pgss@cmu.edu](mailto:pgss@cmu.edu)

### **IMPORTANT!**

**USE COMPLETE ADDRESS**  
**MAIL APPLICATIONS TO:**

**Pennsylvania Governor's School  
for the Sciences  
c/o Department of Physics  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213**

# APPLICATION FORM

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## DEADLINE NOTICE & PROCEDURES

**POSTMARK DEADLINE: January 31, 2015**

*The application must be completed according to the directions on pages 2 and 9 and mailed by the applicant's Guidance Counselor, postmarked no later than January 31, 2015. Homeschoolers should phone the PGSS Program Office (Information Line) for instructions on who may complete the various parts of the application.*

Applications postmarked after January 31, 2015 will be disqualified for lateness. *It is the applicant's responsibility to make sure the application has been completed according to directions and that it has been mailed in complete form and postmarked by the deadline. The Pennsylvania Department of Education and the Pennsylvania Governor's School for the Sciences are not responsible for lost, incomplete or delayed applications, or those sent to an incorrect address.*

## NOTIFICATION

Notification of final status in the Governor's School for the Sciences selection process will be made via letter to the applicant's home in the first week of April. The Pennsylvania Governor's School for the Sciences (PGSS) and the Pennsylvania Department of Education (PDE) cannot respond to requests for advance notice, individual assessments or appeals.

**This application form expires on January 31, 2015 and may not be used for submission after that date.**

**ELIGIBILITY:** *No exceptions are made to these requirements.*

- **GRADE LEVEL AT TIME OF APPLICATION DEADLINE:** Current **junior** only.
- **SCHOOL ENROLLMENT:** Must currently attend a public, charter or non-public secondary school or be homeschooled.
- **PENNSYLVANIA RESIDENCY:** The primary full-time residence of least one custodial parent or legal, court-appointed guardian of the applicant must be in Pennsylvania. Military dependents based in Pennsylvania are eligible.
- **COMMITMENT TO PROGRAM:** If accepting an invitation to participate in the Pennsylvania Governor's School for the Sciences, the student must commit to being in residence for the full program, June 28 – August 01, 2015. Trips home or other absences are not allowed. Formal training unrelated to the curriculum (e.g. music practice, dance practice, or athletic training regimens for individual or team competitions) cannot be accommodated in the program.
- **GROUND FOR DISQUALIFICATION:** Ineligibility (see above); lateness; failure to send application to the correct office; incompleteness of the application (it must be submitted in its entirety at one time); plagiarism; or falsification of information on the application.

## APPLICANT RESPONSIBILITIES AND UNDERSTANDINGS

- **KEEP PAGE 1 AND PAGE 2 FOR YOUR RECORDS.**
- **DO NOT WAIT UNTIL THE LAST WEEK TO COMPLETE THE APPLICATION.**
- **NOTIFY COUNSELOR AND TWO TEACHER REFERENCES OF INTENTION TO FILE APPLICATION WELL IN ADVANCE OF DEADLINE.** Discuss "pre" deadlines for completing work in order to send packet off on time. Homeschoolers should contact the PGSS Program Office for specific instructions on who may complete the forms.
- **REVIEW ALL FORMS BEFORE PROCEEDING WITH THE APPLICATION PROCESS.**
- **SUPERVISE COMPLETION:** The applicant is responsible for staying in communication with the counselor and teacher references to make sure the application is completed appropriately and sent off by the postmark deadline.
- **DO NOT ADD UNSOLICITED REFERENCES, RECOMMENDATIONS OR MATERIALS.** Send only those requested. Do not add newspaper clippings, photographs, research papers, certificates or other unsolicited materials. Extraneous letters of recommendation other than the two teacher references and the counselor's recommendation and other unsolicited materials will be removed from applications. The only exception is the optional extra letter of reference allowed if the applicant opts to respond to Topical Essay C (1) (see page 4).
- **NOTIFICATION OF FINAL STATUS:** Notification is by first-class letter to the applicant's home address, in the first week of April. This information is not available in advance or over the internet or by telephone.
- **UNDERSTANDINGS:** The Pennsylvania Governor's School for the Sciences and the Pennsylvania Department of Education cannot provide individual assessments or grant appeals to the selection process. Furthermore, the Pennsylvania Governor's School for the Sciences and the Pennsylvania Department of Education are not responsible for late, lost, incorrectly addressed, incomplete or damaged applications.

## APPLICATION PROCEDURES

- **TEACHER REFERENCES:** Select one science teacher and one mathematics teacher, as per the guidelines on the respective forms, pages 5 – 6 and 7 – 8 of the application, to serve as references. Fill out the information lines on the tops of the forms and give them to teachers. The teachers complete the forms and send them directly to the counselor, to maintain confidentiality.
- **GUIDANCE COUNSELOR RECOMMENDATION:** Fill out the information lines on the top of the form (page 9) give the full form (pages 9 – 10) to counselor. (Homeschoolers, give Counselor form to the Homeschool Evaluator.)
- **PERSONAL DATA FORM:** Complete the information lines on page 3 of the application and respond to the prompts on page 4 (resume of extracurricular activities, narrative statement and essay). Staple the responses to the prompts to the form. Give the completed form to the guidance counselor.
- **SUBMISSION:** As per in the instructions on the Counselor's recommendation, the counselor (or Homeschool Evaluator) coordinates the applicant's Personal Data Form, the two teacher references, the counselor's information (page 10) and the applicant's transcript and current report card. The counselor/evaluator sends the application to the office of the Pennsylvania Governor's School for the Sciences, c/o Department of Physics, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, no later than the postmark deadline. No new information will be accepted after the deadline.
- **STRONGLY RECOMMENDED:** The applicant or the counselor/evaluator may include (DO NOT STAPLE) a SELF-ADDRESSED, STAMPED POSTCARD (NOT AN EMPTY ENVELOPE), with the words "PGSS Application Received" for the acknowledgment of the receipt of the PGSS application. If this has not been received three weeks after posting the application, contact the Information Line, (412) 268-6669 or e-mail [pgss@cmu.edu](mailto:pgss@cmu.edu).

## GOVERNOR'S SCHOOL INFORMATION

(412) 268-6669 weekdays 9 a.m. to 5 p.m., except holidays. E-mail: [pgss@cmu.edu](mailto:pgss@cmu.edu). Website: [www-pgss.mcs.cmu.edu](http://www-pgss.mcs.cmu.edu).

# 2015 PGSS Personal Data Form

## PROCEDURES CHECKLIST

- ☐ **Read** page 2 of this application.
- ☐ **TYPE OR CLEARLY PRINT ALL INFORMATION REQUESTED ON THIS PAGE IN DARK INK.**
- ☐ **COMPLETE Parts I, II, III and IV.** Staple responses required in Part II to this form. **Read and sign** Part III.  
The parent/legal guardian must **read and sign** Part IV.
- ☐ **Submit** the completed form and attached responses **to the guidance counselor/evaluator** before the deadline date.
- ☐ The postmark **deadline** is January 31, 2015.
- ☐ *This application form expires January 31, 2015 and may not be used for subsequent submissions. Current applications are available online at [www-pgss.mcs.cmu.edu](http://www-pgss.mcs.cmu.edu).*
- ☐ Information: (412) 268-6669, weekdays, 9 a.m. - 5 p.m., except holidays.

## PART Ia: Student Information

Intermediate Unit \_\_\_\_\_  
Applicant's Current Grade Level \_\_\_\_\_

Student's Name \_\_\_\_\_ ☐ Male or ☐ Female  
*first middle last*

Permanent Home Address \_\_\_\_\_  
*street or box number street or route city state zip*

Home Telephone (\_\_\_\_\_) \_\_\_\_\_ (No cell numbers unless no other home phone is available.)

Email Address (PLEASE PRINT CLEARLY) \_\_\_\_\_

Name of High School \_\_\_\_\_ ☐ Public or ☐ Non-Public

Name of School District in which you reside (even if you do not attend the public school) \_\_\_\_\_

Student's Date of Birth \_\_\_\_/\_\_\_\_/\_\_\_\_  
*month day year*

**OPTIONAL:** How do you identify yourself? *Please check one below. This information is confidential and will be used for statistical accounting.*

☐ African American ☐ Asian ☐ Caucasian/White ☐ Hispanic/Latino ☐ Indian (Asian)  
☐ Middle Eastern ☐ Native American Indian/Alaskan/Hawaiian ☐ Other \_\_\_\_\_

## PART Ib: Parent or Legal Guardian Information

Parent's or Legal Guardian's Full Name \_\_\_\_\_

Parent's or Legal Guardian's Home Address \_\_\_\_\_  
*street or box # street or route city state zip*

Parent's or Legal Guardian's Phone Number (\_\_\_\_\_) \_\_\_\_\_

**COMPLETE PARTS II, III AND IV ON PAGE 4.**

## PART II. PGSS Application

The following three responses to items A, B and C are required. Staple your work to this form. An application missing any part may be disqualified for incompleteness. These responses receive emphasis in the selection process. You can review the selection criteria online at [www-pgss.mcs.cmu.edu](http://www-pgss.mcs.cmu.edu).

### A. EXTRACURRICULAR BULLETED RESUME

- **Format:** Resume format, 3 page maximum, typed/word-processed, single- or double-spaced, letter quality font no smaller than 12 points. Your name should appear at the top of each page.
- **Prompt:** Divide the resume into two parts. In the first part, make a bulleted list of extracurricular, science-related activities, such as independent research projects or special study projects, or competitions in which you have been involved in the past two to three years in your school, community or personal pursuits. Identify your role in each. List awards and honors for science, math or computer science related achievements and the source, reason and date of each. In the second part of the resume, make a bulleted list of extracurricular, non-science-related activities, including sports, jobs, personal pursuits, etc.

### B. NARRATIVE STATEMENT

- **Format:** Essay format, 2 pages maximum, typed/word-processed, double-spaced, letter quality font no smaller than 12 points. Your name should appear at the top of each page. Title the essay "Narrative Statement."
- **Prompt:** Introduce yourself to the selection committee. Discuss why you wish to participate in scientific or mathematical research and what you hope to gain from an experience like the Governor's School. Be as specific as possible about why you are willing to spend five weeks of your summer to come to PGSS, and why you think the committee should choose you. You may include information about your background, your interests, your pastimes (academic and nonacademic) and any other aspects of your life that will aid the committee in understanding who you are and why you want to participate in PGSS.

### C. TOPICAL ESSAY

- **Format:** Essay format, 2 pages maximum, typed/word-processed, double-spaced, letter quality font no smaller than 12 points. Your name should appear at the top of each page. Title the essay with the keywords of the chosen topic.
- **Prompt:** Select ONE of the following essay topic, and focus on that topic:
  - (1) **Science/Math Achievement:** Describe the science or mathematics related achievement of which you are most proud. Explain why you are particularly proud of it. **Optional:** *You may include an additional letter of support related to this particular achievement from an adviser if it is not otherwise addressed in one of the prescribed teacher forms. Check here if you are including the extra letter.* ☐
  - OR -
  - (2) **Most Influential Person or Event:** What single person or event in your science and mathematics education has been the most influential in your decision to pursue a career in science or mathematics? Please be specific about why this person or event has been so influential.

## PART III: Applicant's Statement and Signature

- *I certify that, to the best of my knowledge, all of the information I have provided is accurate and that the work submitted is my own. I acknowledge that information about my selection to the Pennsylvania Governor's School for the Sciences and the projects I may develop there may be shared with the public.*
- *I understand that it is my responsibility to return this form and the required attachments to my guidance counselor.*
- *I acknowledge that it is my responsibility to stay in touch with my guidance counselor to ensure that the application is submitted in complete form, postmarked by the appropriate date and mailed to the PGSS Program Office at Carnegie Mellon University.*

APPLICANT'S SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

## PART IV: Parent/Guardian's Statement and Signature

- *I have reviewed the information on this form and give my permission for my child to proceed with the application procedures. I authorize my child's school and its employees to release any information necessary for this application.*
- *I acknowledge that it is my child's responsibility to ensure that the application is submitted in complete form, postmarked by the appropriate date, and mailed to the PGSS Program Office at Carnegie Mellon University.*
- *I understand that the application becomes the property of the Pennsylvania Governor's School for the Sciences (PGSS) and cannot be returned. I am aware that the PGSS and the PDE cannot respond to requests for individual assessments or appeals.*

PARENT/GUARDIAN'S SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

# 2015 PGSS Science Teacher Reference

Applicant's Name: \_\_\_\_\_

Counselor: \_\_\_\_\_

High School: \_\_\_\_\_

Current Grade Level: \_\_\_\_\_

Name of Teacher: \_\_\_\_\_

Subject: \_\_\_\_\_

## PROCEDURES

- 1. WHO MAY COMPLETE THIS FORM:** A teacher in any subject considered "science," who has had the applicant in class or as an advisee, may complete this form. The applicant selects the reference. The applicant need not be studying with the reference at present; however, the applicant should be careful to choose someone who can best and most completely answer all questions on both sides of this form. *Parents or legal guardians may not complete forms for their children. Homeschoolers should call the PGSS Information Line at (412) 268-6669 for advice on references.*
- 2. BOTH SIDES OF THIS FORM MUST BE COMPLETED FROM PARTS I THROUGH V.** Using the criteria below, and on the reverse of this page (page 6), please evaluate the applicant in detail. The Governor's School is seeking evidence of mature and conscientious study; a commitment to examining complex issues related to the sciences, mathematics and computer science; the ability to apply analytical processes, research and technology; and the flexibility to work both independently and in cooperation with culturally diverse peers and adults.
- 3. This form must be signed and dated on the reverse side (page 6) in part V.**
- 4. Please complete this form and return it to the student's Guidance Counselor as soon as possible, before the date set by the Counselor.** The counselor must be able to mail the complete application no later than the application deadline, January 31, 2015, and must therefore set an *earlier* deadline for receiving your recommendation.
- 5. The application will be disqualified if it is late or incomplete. It is extremely important that you comply with the Guidance Counselor's requested deadline for receiving your recommendation.**

## PART I

How does the applicant compare in overall promise with other students whom you have taught during your career?  
Please check one statement below:

- ☐ Among the very best I have known
- ☐ Very good, but not the very best
- ☐ Average
- ☐ Below average

What is the comparison group?

Approximate number of students: \_\_\_\_\_, over \_\_\_\_\_ years of teaching.

## PART II

Please check one selection below to indicate your recommendation for the applicant for the Pennsylvania Governor's School for the Sciences:

- ☐ Highly recommended
- ☐ Recommended
- ☐ Recommended with reservations
- ☐ Not recommended

**COMPLETE PARTS III, IV AND V ON PAGE 6.**

## PART III

For each item below, please assess the applicant by assigning one of the following values:

*A = exceptional   B = above average   C = average   D = below average   E = no opportunity to observe*

- |                                      |  |
|--------------------------------------|--|
| _____ analytical ability             | _____ appropriate reaction to and use of criticism |
| _____ initiative and independence    | _____ industry and energy level                    |
| _____ written communication skills   | _____ ability to do research                       |
| _____ oral expression                | _____ leadership qualities                         |
| _____ personal organizational skills | _____ interaction with others                      |

## PART IV

Please write a statement about this applicant's strengths and weaknesses, explaining why you rated the applicant as you did in Parts I - III. Please cite examples of outstanding contributions, achievements or challenges. Your response is important and will assist the selection committee in understanding if this student is ready for a sustained, intensive living/learning experience.

*You may use the space below or staple a letter to this form. Please check here if you are attaching a letter ☐.*

## PART V

Signature \_\_\_\_\_

Date \_\_\_\_\_

Address \_\_\_\_\_

# 2015 PGSS Mathematics Teacher Reference

Applicant's Name: \_\_\_\_\_

Counselor: \_\_\_\_\_

High School: \_\_\_\_\_

Current Grade Level: \_\_\_\_\_

Name of Teacher: \_\_\_\_\_

Subject: \_\_\_\_\_

## PROCEDURES

- 1. WHO MAY COMPLETE THIS FORM:** A teacher in any subject considered "mathematics," including statistics and computer science, who has had the applicant in class or as an advisee, may complete this form. The choice of the reference is the applicant's. The applicant need not be studying with the reference at present; however, the student should be careful to choose someone who can best and most completely answer all questions on both sides of this form. *Parents or legal guardians may not complete forms for their children. Homeschoolers should call the PGSS Information Line at (412) 268-6669 for advice on references.*
- 2. BOTH SIDES OF THIS FORM MUST BE COMPLETED FROM PARTS I THROUGH V.** Using the criteria below, and on the reverse of this page (page 8), please evaluate the applicant in detail. The Governor's School is seeking evidence of mature and conscientious study; a commitment to examining complex issues related to the sciences; the ability to apply analytical processes, research and technology; and the flexibility to work both independently and in cooperation with culturally diverse peers and adults.
- 3. This form must be signed and dated on the reverse side (page 8) in part V.**
- 4. Please complete this form and return it to the student's Guidance Counselor as soon as possible, before the date set by the Counselor.** The counselor must be able to mail the complete application no later than the application deadline, January 31, 2015, and must therefore set an *earlier* deadline for receiving your recommendation.
- 5. The application will be disqualified if it is late or incomplete. It is extremely important that you comply with the Guidance Counselor's requested deadline for receiving your recommendation.**

## PART I

How does the applicant compare in overall promise with other students whom you have taught during your career?  
Please check one statement below:

- ☐ Among the very best I have known
- ☐ Very good, but not the very best
- ☐ Average
- ☐ Below average

What is the comparison group?

Approximate number of students: \_\_\_\_\_, over \_\_\_\_\_ years of teaching.

## PART II

Please check one selection below to indicate your recommendation for the applicant for the Pennsylvania Governor's School for the Sciences:

- |   |                                      |   |   |
|---|--------------------------------------|---|---|
| <input type="checkbox"/> Highly recommended | <input type="checkbox"/> Recommended | <input type="checkbox"/> Recommended with<br>reservations | <input type="checkbox"/> Not<br>recommended |
|---|--------------------------------------|---|---|

**COMPLETE PARTS III, IV AND V ON PAGE 8.**

## PART III

For each item below, please assess the applicant by assigning one of the following values:

*A = exceptional   B = above average   C = average   D = below average   E = no opportunity to observe*

___	analytical ability	___	appropriate reaction to and use of criticism
___	initiative and independence	___	industry and energy level
___	written communication skills	___	ability to do creative problem solving
___	oral expression	___	leadership qualities
___	personal organizational skills	___	interaction with others

## PART IV

Please write a statement about this applicant's strengths and weaknesses, explaining why you rated the applicant as you did in Parts I - III. Please cite examples of outstanding contributions, achievements or challenges. Your response is important and will assist the selection committee in understanding if this student is ready for a sustained, intensive living/learning experience.

*You may use the space below or staple a letter to this form. Please check here if you are attaching a letter ☐.*

## PART V

Signature \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_



# 2015 PGSS Counselor Recommendation Form

Applicant's name: \_\_\_\_\_ Intermediate Unit: \_\_\_\_\_  
High School: \_\_\_\_\_ Applicant's Current Grade Level: \_\_\_\_\_  
Counselor's Name: \_\_\_\_\_ Office Telephone: (\_\_\_\_) \_\_\_\_\_  
School Address: \_\_\_\_\_  
Science Teacher Ref. : \_\_\_\_\_ Math Teacher Reference: \_\_\_\_\_

**INFORMATION: (412) 268-6669, except holidays.**

## PART I: Procedures Checklist

- ☐ **Required:** This applicant must be a current **junior**. *No other grade levels are eligible.*
- ☐ **Required:** Complete both sides of this form, Parts II – VIII, filling in all information requested in Parts IV and V, even if it appears on the transcript. *An application missing information may be disqualified for incompleteness.*
- ☐ **Required:** Attach the applicant's TRANSCRIPT and current grades as requested in Part III.
- ☐ **Optional but recommended:** Attach a LETTER, if you wish, in response to Part VII. Otherwise write in space provided.
- ☐ **Required:** The applicant returns to you the completed PERSONAL DATA FORM with 3 REQUIRED ATTACHMENTS: an extracurricular resume, an autobiographical statement and an essay. *You are encouraged to set a "pre" deadline by which the applicant returns this material to you. Note: An applicant who opts to respond to the essay prompt in Part II.C.(1) may include an extra recommendation. This is the only situation in which an extra reference is allowed.*
- ☐ **Required:** Teachers selected as references by the student complete the SCIENCE TEACHER REFERENCE and the MATHEMATICS TEACHER REFERENCE and return them directly to you. *You are encouraged to establish a "pre" deadline for the return of the Reference Forms.*
- ☐ **Optional but strongly recommended:** The counselor or the applicant may enclose (DO NOT STAPLE) a SELF-ADDRESSED, STAMPED POSTCARD (NOT AN EMPTY ENVELOPE) for acknowledgment of the receipt of the application packet.
- ☐ **ASSEMBLY REQUIRED: STAPLE the completed application parts in the following order (Personal Data Form on TOP, Counselor Recommendation and Transcript on BOTTOM). Please do not attach extra references or material not requested in the application.**
  - ☐ **Required:** PGSS Personal Data Form (PERSONAL DATA FORM MUST BE ON TOP OF THE APPLICATION).
  - ☐ **Required:** Required Attachments to the Personal Data Form: 1 resume and 2 essays.
  - ☐ **Optional:** If the student has chosen essay III.C.(1), an extra letter of support is allowed.
  - ☐ **Required:** 1 PGSS Science Teacher Reference Form. (Teacher letter must NOT be inside a separate envelope.)
  - ☐ **Required:** 1 PGSS Mathematics Teacher Reference Form. (Teacher letter must NOT be inside a separate envelope.)
  - ☐ **Required:** PGSS Counselor Recommendation (this form, completed).
  - ☐ **Optional but highly recommended:** Your separate letter of recommendation for this applicant.
  - ☐ **Required:** The Applicant's Transcript and Current Report Card.

## PART II: Deadline Notice and Submission Address

- ☐ **SEND APPLICATION TO:** Pennsylvania Governor's School for the Sciences  
c/o Department of Physics  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213

**POSTMARK DEADLINE: January 31, 2015.** The complete application must be postmarked by January 31, 2015. Applications postmarked after January 31, 2015, will be DISQUALIFIED. *Faxed transmissions will not be accepted.*

**PLEASE TURN OVER AND COMPLETE PARTS III – VIII.**

## PART III: Transcript

- ☐ Attach the applicant's transcript and current report card to this form.

## PART IV: Attendance Record

- ☐ Number of absences in the last full academic year: \_\_\_\_\_

**IMPORTANT:** *If the number exceeds 10, please state reason(s) and whether the number has remained high this year.*

- ☐ Number of tardies in the last full academic year: \_\_\_\_\_

**IMPORTANT:** *If the number exceeds 5, please state reason(s) and whether the pattern of tardiness has changed in the current year.*

## PART V: Academic Scores and Standing

- ☐ Please complete the following information as thoroughly as possible, even if it appears on the transcript. *If there are no PSAT or SAT scores to report, please explain why:*

Class rank, if available \_\_\_\_\_ Class size \_\_\_\_\_ Grade Point Average \_\_\_\_\_ Scale \_\_\_\_\_

Test Scores: PSATs: Verbal/Critical Reading \_\_\_\_\_ Writing \_\_\_\_\_ Math \_\_\_\_\_ Date \_\_\_\_\_

SATs: Verbal/Critical Reading \_\_\_\_\_ Writing \_\_\_\_\_ Math \_\_\_\_\_ Date \_\_\_\_\_

Other Tests (*Please define acronyms*):

Date \_\_\_\_\_ Test \_\_\_\_\_

Date \_\_\_\_\_ Test \_\_\_\_\_

Date \_\_\_\_\_ Test \_\_\_\_\_

## PART VI: Counselor's Recommendation

- ☐ Please check one selection below to indicate your recommendation for the applicant for the Pennsylvania Governor's School for the Sciences:

☐ Highly recommended

☐ Recommended

☐ Recommended with reservations

☐ Not recommended

## PART VII: Counselor's Statement

- ☐ Please comment on the applicant's special qualities, challenges or problems of which the selection committee should be aware. You are strongly encouraged to attach a separate letter. Check this box if attaching a letter: ☐.

## PART VIII: Counselor's Signature

- *The information I have provided is complete and correct.*
- *I have read the Procedures (Part I of this form) and the Deadline and Submission information (Part II) on page 9. I understand that an application may be disqualified if it is late, incomplete or sent to an incorrect agency.*
- *I understand that the applicant can be disqualified on the basis of grade level ineligibility, residency ineligibility, previous Governor's School participation, application to more than two Governor's Schools in a year, plagiarism or falsification of information.*

Counselor's Signature and Date \_\_\_\_\_

# The Pennsylvania Governor's School for the Sciences



*Sponsored by the Commonwealth of Pennsylvania Department of Education  
and the PGSS Campaign, Inc.: Alumni and Friends of the PGSS  
Hosted by the Mellon College of Science at Carnegie Mellon University  
June 28 – August 01, 2015*

**Tom Corbett, Governor**

**Carolyn C. Dumesq, Ed.D., Acting Secretary of Education**

In order to maintain our position of leadership in the global marketplace, it is essential to maintain a supply of new talent in the areas of science, technology, engineering and mathematics (STEM). It is understandably difficult in terms of budget, scheduling and heterogeneous talents among student bodies, for local schools to deliver the front line in STEM-related experiences to students with particular interest and aptitude in these fields. The Pennsylvania Governor's School for the Sciences (PGSS) meets this need by providing an intensive program of study and research in the natural and physical sciences, mathematics and computer science, which combines classroom instruction with hands-on, inquiry-based research, using the sophisticated technology and facilities available at Carnegie Mellon University.

## WHO MAY APPLY

Academically talented high school students who are current juniors at the time of the application deadline may apply to the Pennsylvania Governor's School for the Sciences. Applicants are expected to demonstrate academic achievement, sustained interest in the sciences and mathematics, and a record of pursuing this interest in activities beyond the classroom.

## THE SELECTION PROCESS

The application consists of four parts. The applicant must complete the Personal Data Form, attaching essays and an extracurricular resume. Two teachers – a science teacher and a mathematics teacher – each must complete a reference form. The applicant's guidance counselor must complete a recommendation form, attaching the transcript and current grades, attendance record and, if available, test scores and class standing. (Homeschoolers should contact the PGSS Office for instructions on who may complete the forms.)

PGSS typically receives over five hundred applications from students with excellent academic records, evidence of sustained interest and outstanding performance in science and mathematics and high standardized test scores. From the pool of qualified applicants, a minimum of 54 participants will be chosen from across the state. The competition is very intense. A selection panel comprised of PGSS administration, Carnegie Mellon University faculty and state education officials convenes to read the applications. All parts of the application are taken into account, with emphasis placed on the student's written expression and ideas conveyed through the essays, as well as the transcript. The teacher and counselor forms are read for evidence of the student's daily work habits, attitudes, curiosity, independence and reliability.

## COSTS AND COMMITMENT

The PGSS Scholarship covers tuition, room, board, instructional materials and program activities for all participants. Families are responsible for transportation to and from the program, pocket money, a residential life deposit that is refunded if all conditions are met, and for damages not covered by the deposit. Students must remain in residence for the full 35-day program, including weekends. They must arrive promptly for all classes and activities. There is some unscheduled time nearly every day for personal use, but the Governor's School cannot provide special facilities or alter schedules for formal athletic training, intensive music study or other commitments unrelated to the program.

### A Typical Daily Schedule

#### Weekdays

7:00 a.m.	Breakfast
8:00 a.m. - 12:30 p.m.	Core courses
12:30 - 1:30 p.m.	Lunch
1:30 - 5:30 p.m.	Labs, electives, team projects
5:30 - 6:30 p.m.	Dinner, free time
6:30 - 8:00 p.m.	Electives, leadership, guest lectures, special events
8:00 p.m.	Students in dorm, study time

#### Weekends

**Saturdays:** Mornings, elective studies; afternoons, elective studies or special events; evenings, planned program activities.

**Sundays:** Morning and afternoon, free time; evening, help sessions and team project work.

*See other side for information about the curriculum, faculty and facilities.*

# The Pennsylvania Governor's School for the Sciences

## Academic Program

### Core Courses

To keep apace of the rapid changes in professional scientific inquiry, PGSS courses may change from year to year. The courses and research opportunities listed below provide a general picture of the experiences students can expect. Students are required to take all five Core Courses during the first two weeks, after which they may drop one, provided they are carrying at least one elective course. The following are examples of recent Core Courses:

- **Biotechnology of Viruses**, examining how biotechnology is used in the development of treatments for viral infections, the molecular interactions between different drugs and their targets, and the spread of infectious diseases.
- **Organic Chemistry**, treating the methods of preparation, reactions and uses of some of the important functioning classes of organic compounds.
- **Concepts of Modern Physics**, including special and general relativity, basics of particle physics and the particle physics/cosmology interface.
- **Discrete Mathematics**, looking at mathematics in a new way, using elementary combinatorics, graph theory, probability and game theory.
- **Computer Science**, using a mathematical approach to data organization, text compression and cryptography.

### Guest Lectures

The program will include a series of guest lectures, presented by experts in STEM-related fields. The particular focus of these lectures may vary from year to year.

### Laboratory Research and Team Projects

- Students select one laboratory course from biology, chemistry, physics or computer science. It is often recommended, but not necessarily required, that the laboratory course be in the same subject area as the team project.
- Students select one team project from a variety of topics, which will be proposed by the faculty in biology, chemistry, computer science, mathematics or physics. The project is a collaborative research experience which culminates in a formal scientific report which is published in the annual PGSS journal as well as an oral presentation to the entire program community and guests.

### Electives

PGSS will offer approximately five elective courses, which the student may choose, depending upon his/her particular interests. Each student may take up to three elective courses. However, students are strongly encouraged to strike a balance between academic and social activities. Carrying more than three electives, in addition to the required curriculum, is considered to be an academic overload and requires special permission from the program director. Elective offerings will vary from year to year, depending upon the latest interests of the faculty. The following are some of the topics which have been offered in recent years:

- **Laser Technology**
- **Intelligent Transportation Systems**
- **Mathematics Problem Seminar**
- **Anxiety, Depression and the Brain**
- **Origin of Mathematical Ideas**
- **Foundations of Music: Science and Mathematics**
- **Topics in Material Science**

### Faculty and Facilities

Carnegie Mellon University is renowned for its award-winning faculty and science research facilities. It is the recipient of many research grants and contracts that have permitted the acquisition of cutting edge technology. Pittsburgh is also the home of the Allegheny Observatory, the Carnegie Science Center, the Pittsburgh Supercomputing Center and the Carnegie Museums of Art and Natural History. All of these have hosted PGSS visits.

PGSS faculty are recruited mostly from Carnegie Mellon University, but also include educational leaders from other institutions. Guest lectures have been given by experts from science institutes in the Pittsburgh region and the nation.

Carnegie Mellon University is an urban campus. Students reside in supervised, gender-separate dormitories. There is a planned program of recreational activities.

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