



STEM Certificate Contract

I, _____, commit to pursuing the STEM Certificate, and agree to the Crossroads' and NHAS Criteria outlined below.

In addition to completing the Crossroads' Math/ Science courses for Grades 6-8, I will meet or exceed the following Crossroads' Criteria during grades 7 and 8:

1. Core Knowledge/ Core Virtues Requirement

- a. Maintain an A average in Math and Science
- b. Maintain a minimum of a B average overall
- c. Embrace and demonstrate the Core Virtues

2. Math/ Science Requirement

Participate in **at least two** of the following each year and complete a reflection:

- a. Math Club
- b. Math Competitions (i.e. Mathleague, MATHCOUNTS, AMC8, and AMC10)
- c. STEM-related Clubs (i.e. FLL)
- d. National Science Bee Competition (beyond regional qualifying)
- e. Additional Math & Science Courses outside of curriculum, as approved by Advisor
- f. STEM Events off-campus (i.e. Dartmouth seminars or STEM-related writing competitions), as approved by Advisor, and in addition to another item on this list
- g. Similar activities as approved

3. Leadership Requirement

Complete **at least one** of the following each year and complete a reflection:

- a. Plan and implement a STEM Night activity
- b. Plan and implement a minimum of one after-school Math Club session
- c. Plan and lead a STEM-related middle school club during Friday club time
- d. Plan and lead a math or science class with the mentorship of the class teacher
- e. Plan and implement a lower school coding class
- f. Mentor a younger student

4. Capstone Presentation

- a. Present Capstone Project to the Crossroads community (in grade 8)
- b. Presentation will include background information, introduction, results and conclusions

I will meet with Dr. Day or Ms. Squire near the end of each semester in order to review my progress on the above requirements.

I will also meet or exceed the following NHAS Criteria during grades 7 and 8 (with NHAS mentorship):

1. Introductory Training Modules

- a. Complete NHAS safety training
- b. Complete NHAS ethics training

2. Research Project Establishment

- a. Choose a general area of research based on NHAS guidance
- b. Perform background literature research for a possible project based on the scientific model systems, advanced research instrumentation, and safety limitations of the STEM lab
- c. Design an investigation with the understanding that changes might be needed
- d. Submit an experimental design proposal including methods and materials as well as an estimate of time required

3. Conducting a Research Project

- a. Perform experiments and repeat/adjust those experiments based on the results gathered
- b. Safely and ethically conduct experiments in the lab
- c. Analyze results and represent them in appropriate formats

4. Presentation of Data

- a. Prepare a summary research paper with appropriate statistical analyses and graphical representation of the data

5. Additional Opportunities (not required)

- a. Paper reviewed by NHAS scientists for publication
- b. Paper submittal for AAAS/AJAS review when appropriate as decided by the NHAS

Once I have completed all Crossroads and NHAS criteria, I will receive special recognition and a STEM Certificate at 8th grade graduation.

By signing below, my parents, Advisor and I certify that we have read, understood, and committed to the STEM Certificate Requirements.

Signed,

Student

Date

Parent/Guardian

Date

Advisor

Date