



Planning a NGSS Unit Emphasizing Math and ELA (K-12)
EDUO 9541 One semester unit/credit
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Course Syllabus

Course Overview

With the guidance of a course template, teachers will develop a successful Next Generation Science Standard teaching unit. At least one of the lessons will involve Math, Science, and English language arts. Website resources will provide information to aid in the planning of the NGSS unit and the individual Math, Science, and ELA lesson. Upon completion of this class the teacher will:

- develop a NGSS teaching unit
- create one teaching lesson plan involving Math, Science, and ELA
- relate the lesson referenced above to the unit developed
- plan for future improvements based upon assessments in the created lesson
- communicate how to teach the created lesson

Course Objectives: In this course, participants will demonstrate competency in developing a unit and lesson plan by:

1. Read, study and respond to given website resources concerning NGSS
2. Analyze the students for whom the NGSS unit plan will be prepared
3. Produce a teaching unit plan based on the results of #2
4. Make a complete teaching lesson plan as part of the unit in #3
5. Develop classroom management plans with the help of the findings of #1 & #2
6. Identify all elements that will be used in #4
7. Describe how the elements in #4 will be interwoven through the plan
8. Create assessment strategies that reflect how successful #4, #5, #6, & #7 were
9. Consider future plans based upon #8
10. Write out instructions for a substitute so she/he can teach the plan.
11. Create a chart from a math, science and ELA Venn diagram

Course Relation to CCS or other Professional Standards

This course aligns to the standards for:

[Next Generation Science Standards](#)

How to Submit Coursework

Combine all individual assignments and submit one document to the instructor for review. Follow assignment instructions on how to prepare and submit in the Assignment Dropbox. Name the file submitted with your last name and the course number (i.e. Brown, EDUO 9541). Make sure you place your full name, course number and assignment number at the top of each document page. You will receive feedback from your instructor

within 5 days indicating successful completion of the assignment or the need for revision. Assignment grades will be averaged for the final course grade. [A grading assessment rubric is located in this document.](#)

Course Assignments –

A. Knowledge

Study the Venn diagram in website #1 and read very carefully the material presented after the diagram.

#1 <https://static.nsta.org/ngss/PracticesVennDiagram.pdf>

Because you have taken this course and you have demonstrated the ability to integrate many teaching disciplines successfully into your NGSS program, your principal has asked you to meet with other teachers in your school to explain how to achieve this skill. You will concentrate on intertwining Math, Language Arts and Science into one lesson. Some of the teachers you will meet with are near retirement and may have polite resistant to your presentation.

Websites #2 & 3 can also help in preparing your responses to A1- 4. Look them over.

#2. <https://raft.net/for-educators/steam-activities/classroom-idea-sheets/#>

#3. <https://www.mheducation.com/prek-12/explore/ngss/white-papers.html>

A1 In a brief paragraph, relate what you will say to capture the teachers' interest and minimize possible opposition.

Now that you have them with you, the next step is to explain the importance of teaching the NGSS with the interwoven disciplines of language arts, math and science. You most likely would address self-contained teachers a bit different than single subject teachers.

A2. explanation of importance to self-contained teachers

A3. explanation of importance to single subject teachers

You are now ready to illustrate a lesson that would achieve what you have been talking about in A1-3. The center of the Venn diagram in website #1 encompasses standards from all three disciplines (E2, 4, 5, M3 & S7). You will use the standards in the center of the Venn diagram for your lesson illustration.

A4. Describe what your illustrated lesson would look like – no lesson plan – only explanation.

A5. Did websites #2 and #3 help you in answering A1-4 – yes (how) no (why not)?

B. Planning

NGSS Unit Plan with at least one lesson involving Math & ELA

Follow the template below B1-6 to create the NGSS unit plan.

B1 description and title

B2 goals

B3 objectives

Use the above **description, goals and objectives** designed for **this** course as a guideline in creating B1-3.

B4 Describe the students the unit is intended for - include the following:

- academic and language abilities,

- learning modalities,
- different intelligences,
- cultural differences
- maturity

B5 List the lessons involved in the unit and what NGSS standards they will involve – indicate which one(s) emphasize **Math & ELA**.

B6 calendar - create a calendar (or pacing guide) that details sequence, flow, and timing as you put all the lessons of your teaching unit together

*Look over website resources #4-7 studying the areas that relate to your grade level. Use the information to help develop your **Math & ELA** NGSS teaching plan (C1- 13)*

#4. <https://ngss.nsta.org/Classroom-Resources.aspx>

#5. https://www.invent.org/sites/default/files/2020-03/2020_STEMActivityGuide_Final.pdf

#6. <http://marsed.asu.edu/stem-lesson-plans>

#7. <https://www.resa.net/teaching-learning/content-areas/literacy>

C. Individual lesson plan This plan is one listed on your calendar (B5) that emphasizes **Math & ELA**.
Classroom Management

C1 What classroom management and community building strategies will you use for providing a safe classroom that will encourage risk taking?

C2 What strategies will you use to foster a sense of belonging and ownership for students?

Elements of the Plan

Identify the elements listed below that will be used in this teaching plan.

C3 text books

C4 materials and resources (print, video, audio, online, visual, other)

C5 activities

C6 discussion

C7 other

If any of the elements listed (C3-7) are not employed - explain why.

C8. Explain how each element relates as it is woven throughout the plan

C9. Discuss how each element influences B4 (students), and C1 and 2 (management).

Assessment

C10 What strategies will be used to assess pre-knowledge.

C11 Which ongoing techniques will be used to assess each of the elements as the unit progresses.

C12 Describe culminating assessment methods and or activities.

C13 How will you use the results of the assessments in C10-13 to design future classroom planning?

Calendar

C14. Create a calendar (or pacing guide) that details sequence, flow, and timing of your teaching plan.

C15. Explain the calendar as it relates specifically to **Elements** and **Assessment**.

Relationship to Unit Plan

C16 Discuss how this **Math & ELA** NGSS teaching plan and its standards relate to B1-5 of the unit plan.

Instructions

C17 In case you are absent when the lesson is to be presented, write out instructions so the substitute can easily follow the plan without additional communication.

Website Resources

C18. Which website resources (#4-8) did you find the most useful as you created your STEM NGSS teaching plan – why?

Venn diagram

Study website #9

#9. <https://static.nsta.org/ngss/PracticesVennDiagram.pdf>

Pencil out a Venn diagram of your individual math, English Language Arts and Science lesson plan and make a chart like the one in website 4.

C19. the chart

Course Assessment Rubric

EXCELLENT Meets or Exceeds Course Objectives: A to A -	ACCEPTABLE Majority of Work Meets Course Objectives: B + to B -	NOT ACCEPTABLE Needs Considerable Improvement: Resubmit Work Suggested: C or below
Responses are well organized with specific details excellently expressed and every requirement completed	Material is relevant as it connects to each assignment	Ideas are not clear or relevant and not well organized
Shows ability to transform knowledge into very successful teaching lessons	Shows the ability to transform knowledge into the classroom	Shows little to no understanding of the how to transform knowledge into the classroom
Creatively and clearly summarized the knowledge learned	Summarized the knowledge learned	Provided few or no facts or specific details of the learned material

Addendum:

- You are allowed 9 months to complete the course. Course questions? Contact your instructor by email.
- For questions involving your registration please contact us at support@dominicanCAonline.com or call (800) 626-5080. To change your address, link to your Dominican Store account at https://www.dominicancaonlinestore.com/store/index.php?main_page=login