NYSTCE Flex Multi-Subject: Teachers of Childhood (Grade 1–Grade 6) Template

Template Contents

This template for NYSTCE Flex Multi-Subject: Teachers of Early Childhood (Birth–Grade 2) Part Two: Mathematics (NYSTCE Flex Multi-Subject 1–6 Math) contains the following sections:

- Competency 0005
- Template Instructions
- Prompt Section
- Written Analysis Section

Part Two: Mathematics Competency 0005: Analysis, Synthesis, and Application

Competency 0005 from the NYSTCE Multi-Subject: Teachers of Childhood (Grade 1–Grade 6) Framework includes the following performance expectations and performance indicators:

Performance Expectations

The New York State Grade 1–Grade 6 Multi-Subject teacher accurately and effectively applies relevant content knowledge and pedagogical content knowledge in number and operations, operations and algebraic thinking, fractions, ratios and proportional reasoning, and measurement and data to analyze and synthesize assessment data about an individual student, identify conceptual or procedural errors, and provide a well-reasoned and accurate analysis of the student's mathematical knowledge. The teacher uses the assessment results and knowledge of how students learn to present an appropriate instructional approach that meets the needs of the student.

Performance Indicators

a. analyzes and interprets samples of a student's work and other assessment data to monitor student progress and determine a student's strengths and areas of need in mathematics

b. demonstrates knowledge of the content by identifying and analyzing any errors or misconceptions in work samples

c. describes appropriate and effective content-specific instructional strategies, activities, or interventions to address a student's identified needs

d. demonstrates the ability to generate real-world scenarios that illustrate specific mathematical concepts

e. demonstrates the ability to justify the effectiveness of selected instructional strategies, activities, or interventions for promoting a student's mathematical understanding

NYSTCE®

New York State
Teacher Certification Examinations™

NYSTCE Flex Multi-Subject: Teachers of Childhood (Grade 1–Grade 6) Template:
Part Two: Mathematics Competency 0005

Template Instructions

NYSTCE Flex Multi-Subject 1–6 Math enables you to demonstrate your functional content knowledge of NYSTCE Field 222 Multi-Subject: Teachers of Childhood (Grade 1–Grade 6) Part Two: Mathematics Competency 0005 by submitting materials on the following scenario:

You will describe a class activity that aligns with a Grade 1–Grade 6 New York State Next Generation Mathematics Learning Standard. The class activity can be from a lesson you have delivered or from a planned lesson you may deliver in the future. It should include actual or simulated examples of student thinking that reflect the strengths and areas of need of a student who is learning information, concepts, and skills from the learning standard. The class activity should allow you to demonstrate depth in your understanding of content and instruction related to the learning standard. You will give evidence of your understanding by analyzing student thinking developed as a response to the activity and then recommending an instructional intervention based on this response.

Your submission will be evaluated on the extent to which you demonstrate the **depth of your content knowledge** of NYSTCE Field 222 Multi-Subject: Teachers of Childhood (Grade 1–Grade 6) Part Two: Mathematics Competency 0005.

NYSTCE Flex Multi-Subject 1–6 Math involves responding to 5 prompts and writing an analysis in which you demonstrate your knowledge of the content assessed by the test competency.

Your responses to the first 5 prompts should be **no more than 6 single-spaced pages of written text and graphics.** Your written analysis should be **no more than 3 single-spaced pages.** The competency text and template instructions do not count toward your page limits.

After you complete both the Prompt Section and the Written Analysis Section, you will upload this completed template to the Pearson ePortfolio System.

For more information about the NYSTCE Flex Assessment, preparing your materials for submission, and scoring of your submission, refer to the NYSTCE Flex Assessment Handbook.

Prompt Section

1. **Background Information about the Learning Standard:** Indicate a grade level, a domain, a cluster heading within the selected domain, and one or more content standards within the selected cluster for grades 1–6 from the
   NYS Next Generation Mathematics Learning Standards (pp. 25–88).

Grade Level: [4th Grade]
Domain: [Geometry (NY-4.G)]
Cluster: [Draw and identify lines and angles, and classify shapes by properties of their lines and angles.]
Standard: [2a. Identify and name triangles based on angle size (right, obtuse, acute).]

2. **Background Information about Student Learning:** Describe any skills or concepts that students have previously learned or have recently been studying that are related to the learning standard. If you are focusing on a planned lesson, describe related skills and concepts on which you would plan to provide instruction prior to the lesson. The purpose of this information is to describe concepts, skills, and knowledge students can use as they complete a class activity (to be introduced in the response to Prompt #3) and may be further developed as they progress toward its instructional goal. Refer to the study guide and the sample completed template for examples of appropriate background information tasks to include.

[In previous grades, students learned how to identify basic polygons. During the current academic year, students have reviewed geometric terminology such as point, line, and plane as tools for describing geometric figures accurately. They have also reviewed the distinguishing characteristics of angles and basic polygons. For example, in their most recent lesson, students were introduced to the terms "acute triangle," "obtuse triangle," "right triangle," "scalene triangle," "isosceles triangle," and "equilateral triangle."]

3. **Description of Class Activity:** Describe a class activity that aligns with the learning standard and supports a major instructional goal. The class activity can be part of a previously delivered lesson or part of a planned lesson, as noted above. Examples of activities can include, but are not limited to, discussions, open-ended questions, word problems, and the use of manipulatives. The activity should be effective in revealing students' strengths and areas for improvement in the selected standard, and it should also allow a teacher to use this information to develop academic intervention activities to support student learning. Your description of the activity should primarily focus on instructional content; nonessential information related to its implementation (e.g., potential accommodations, grading criteria, expected implementation time) should not be included. The task should represent a substantial mathematics activity, with opportunities for students

NYSTCE®
New York State
Teacher Certification Examinations™

NYSTCE Flex Multi-Subject: Teachers of Childhood (Grade 1–Grade 6) Template:
Part Two: Mathematics Competency 0005

to develop and describe a mathematical argument. Refer to the study guide and the sample completed template for examples of activity descriptions.
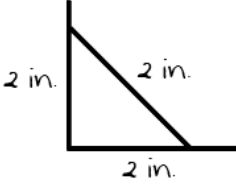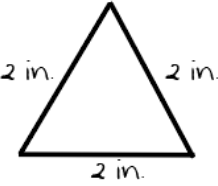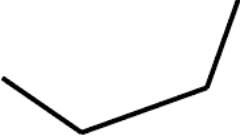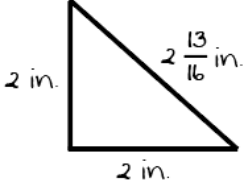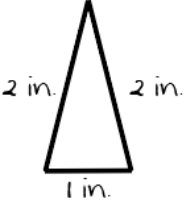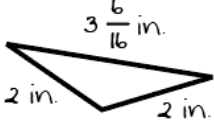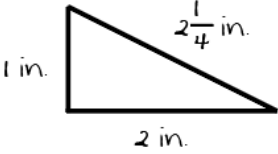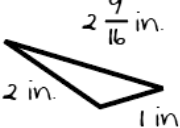
[The lesson begins with the teacher displaying pictures of angles at the front of the classroom, one at a time. Some of these pictures show real-life examples, such as angles formed by intersecting streets on a map. For each picture, students think quietly for 5–10 seconds. Then, the class says aloud in unison the type of angle they believe is shown.

Next, students join with a partner to form pairs. Each pair receives rulers, protractors, and a handout. The handout contains a table with columns labeled "Right," "Acute," and "Obtuse," and rows labeled "Equilateral," "Isosceles," and "Scalene." Students use their tools to try to create a triangle that matches each combination of properties in the table.]

4. **Sample Student Response:** Present a completed example of student work on the activity that provides evidence of at least one mathematical strength and one area of need related to the lesson's topic. This can be an actual student work sample from a lesson you have delivered, or a sample created by you that represents anticipated student work for a planned lesson. The student response may include, but is not limited to, a summary or an excerpt of a student discussion; work performed for an exit ticket or a formative assessment; calculations, drawings, and other student-created representations; and written text. The response may include images, and it should represent student thinking from a previously delivered or planned lesson. Refer to the study guide and the sample completed template for examples of work samples.

[One group's solutions to the activity are shown.

Types of Triangles

	Right	Acute	Obtuse
Equilateral	2 in. / 2 in. / 2 in.	2 in. 2 in. / 2 in.	Not possible?
Isosceles	2 in. / $2\frac{13}{16}$ in. / 2 in.	2 in. 2 in. / 1 in.	$3\frac{6}{16}$ in. / 2 in. / 2 in.
Scalene	1 in. / $2\frac{1}{4}$ in. / 2 in.	?	$2\frac{9}{16}$ in. / 2 in. / 1 in.

NYSTCE®
New York State
Teacher Certification Examinations™

NYSTCE Flex Multi-Subject: Teachers of Childhood (Grade 1–Grade 6) Template:
Part Two: Mathematics Competency 0005

The teacher overhears the students in the group claim that they had tried many examples of creating an obtuse equilateral triangle but couldn't make an example that was closed. However, the students agree that a right equilateral triangle is possible because it can be closed, and they draw the figure in the top left corner of the table as an example.

When the teacher asked about the blank space at the bottom of the table, the students responded that an acute triangle needed to have "at least two equal angles." However, because they were not able to draw a scalene triangle that had "three different sides" while also forcing it to have at least two equal angles, they left the space blank.]

NOTE: In the Written Analysis section of this template, you will analyze the strengths and areas of need in the above response and describe an instructional intervention that addresses the learning needs of the student(s) reflected in the response. You will also include a strategy for helping the student(s) build a viable argument (e.g., an explanation about why a solution is correct, a justification for a step in a solution process, a rationale for the validity of a result) that is related to the given learning standard.

5. References: List any additional sources used to prepare your submission.

[New York State Education Department. "New York State Next Generation Mathematics Learning Standards." NYSED, Sept. 2017, https://www.nysed.gov/sites/default/files/programs/standards-instruction/nys-next-generation-mathematics-p-12-standards.pdf.
Walle, John A. Van, D. et al. Elementary and Middle School Mathematics. Available from: Pearson Learning & Development, (11th Edition). Pearson Education (US), 2022.]

NYSTCE®
New York State
Teacher Certification Examinations™

NYSTCE Flex Multi-Subject: Teachers of Childhood (Grade 1–Grade 6) Template:
Part Two: Mathematics Competency 0005

Written Analysis Section

Type your analysis (**no more than 3 pages, including the prompt**) in Arial 11-point, single-spaced font, within the brackets following the prompt. If appropriate, you may include tables, charts, graphs, or other diagrams that you have prepared by inserting them into your analysis. However, the total length of your analysis, including any graphic elements, may not exceed 3 pages. The previous pages of competency text, instructions, and prompts do not count toward your page limit. Your submission cannot contain hyperlinks to any materials.

Using the sample student response developed for Prompt #4, prepare a response in which you:

1. identify a significant mathematical strength related to the standard you identified in Prompt #1 that is demonstrated in the sample student response, citing specific evidence from the response to support your assessment;

2. identify a significant area of need related to the standard you identified in Prompt #1 that is demonstrated in the sample student response, citing specific evidence from the response to support your assessment; and

3. describe an instructional intervention that you could use with the student(s) to build on student strengths and support student improvement in the identified area of need. The intervention should include a strategy for helping the student(s) build a viable argument related to the given standard.

[Analysis text here; can go up to page 3 of 3….]