Lesson Plan for Implementing NETS•S—Template I
(More Directed Learning Activities)

Template with guiding questions

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Grade Level(s)	3rd grade
Content Area	Mathematics
Time line	2-3 weeks

Standards (What do you want students to know and be able to do? What knowledge, skills, and strategies do you expect students to gain? Are there connections to other curriculum areas and subject area benchmarks?)

Content Standards	**Reason with shapes and their attributes.** **MGSE3.G.1** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. **ELAGSE3W2: Write informative/explanatory texts to examine a topic and convey ideas and information clearly.** b. Develop the topic with facts, definitions, and details.
NETS*S Standards:	1c. Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. 2b. Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices. 6b. Students create original works or responsibly repurpose or remix digital resources into new creations. 6d. Students publish or present content that customizes the message and medium for their intended audiences.

Overview (a short summary of the lesson or unit including assignment or expected or possible products)

Students will learn about quadrilaterals and the characteristics for each shape. They will be expected to compare and contrast how quadrilaterals are similar (sides, angles, vertices) and different (parallelogram-two pairs of parallel sides or trapezoids- one set of parallel sides). During the lesson they will engage in activities tied in with technology to enhance learning in the classroom by communicating comprehension of material. Students will be assessed using *Plickers* and other assessments provided by teacher (*Quadrilateral Classification Quiz*). Finally, students will create presentations using *Sway*.

Essential Questions (What essential question or learning are you addressing? What would students care or want to know about the topic? What are some questions to get students thinking about the topic or generate interest about the topic? What questions can you ask students to help them focus on important aspects of the topic? What background or prior knowledge will you expect students to bring to this topic and build on?)

- What is a quadrilateral?
- What is a rhombus?
- What is a square?
- What is a rectangle?
- What is a trapezoid?
- What is a parallelogram?
- How do we compare and contrast shapes?
- What are sides, angles, and vertices?
- What can you think of that looks like a quadrilateral?
- Where can you find quadrilaterals?

Assessment (What will students do or produce to illustrate their learning? What can students do to generate new knowledge? How will you assess how students are progressing (formative assessment)? How will you assess what they produce or do? How will you differentiate products?)

Students will use *Padlet* to type responses demonstrating their knowledge and comprehension of quadrilaterals (rhombus, rectangle, square, and trapezoid). They will discuss what angles, vertices, and sides are. Higher order thinking skills will be demonstrated by students analyzing and describing the number of paired sets for each shape. They will also take a quiz on *Plickers* to determine their comprehension of content standards. The final quiz will be a *Quadrilateral Classification Quiz* where students will determine if a polygon (such as a square) is an example of the five types of quadrilaterals (rectangle, rhombus, parallelogram, trapezoid, and square). Their final project will require students to demonstrate what they have learned by creating a presentation using *Sway*.

Resources (How does technology support student learning? What digital tools, and resources—online student tools, research sites, student handouts, tools, tutorials, templates, assessment rubrics, etc—help elucidate or explain the content or allow students to interact with the content? What previous technology skills should students have to complete this project?)

Padlet - Allows students to share knowledge digitally while collaborating with peers.

VoiceThread and Adobe Spark- Enables students to listen and visually learn about a topic.

Plickers - Measures student learning while engaging with technology.

Smart Exchange - Enables students to physically interact with lessons and practice skills.

Sway - Students can use this tool to share what they have learned about a topic using images, videos, and audio.

Other resources used came from https://thisreadingmama.com/quadrilateral-activity-pages/ and https://www.lauracandler.com/classifying-quadrilaterals/

Students should have prior experience with using tools such a Padlet and Sway to effectively manage time. This will allow everything to flow smoothly by eliminating tons of questions and help prevent frustration or emotional breakdown from students.

Instructional Plan

Preparation (What student needs, interests, and prior learning provide a foundation for this lesson? How can you find out if students have this foundation? What difficulties might students have?)

In second grade, students practiced identifying and drawing triangles, quadrilaterals, pentagons, and hexagons. For third grade, they will build on their experiences and further investigate quadrilaterals (technology will be used to help explore learning using tools like, Adobe Spark, VoiceThread, Padlet and SMART Exchange). First, I will introduce the topic by using number talks to see where my students' foundation stands with geometric shapes ("What makes a shape a quadrilateral?" "Are squares, rectangles, and rhombuses considered quadrilaterals? Why or why not?") Students will be able to identify shapes that are quadrilaterals by examining the properties of the geometric figures. They will learn and use vocabulary terms to help them determine what a quadrilateral, rhombus, square, rectangle, trapezoid, and parallelogram is. Students will be able to state facts like "a quadrilateral must be a closed figure with four straight sides." They will begin to notice characteristics of the angles and the relationship between opposite sides of different shapes. Students will be encouraged to provide details and use proper vocabulary when describing the properties of quadrilaterals. They will also practice drawing and sorting geometric figures. Some challenges in the beginning may be identifying squares, rectangles, and rhombuses as quadrilaterals and getting students to compare and contrast the different shapes. However, as we continue to practice over time students will become masters of the standard.

Management Describe the classroom management strategies will you use to manage your students and the use of digital tools and resources. How and where will your students work? (small groups, whole group, individuals, classroom, lab, etc.) What strategies will you use to achieve equitable access to the Internet while completing this lesson? Describe what technical issues might arise during the Internet lesson and explain how you will resolve or troubleshoot them?

Students will work as a whole group during instructional time. I have found that time is more productive when we use the laptop cart and work as a whole group. Managing the classroom is easier when everyone has their own laptops to focus on opposed to rotating in groups. I can monitor students by walking around the classroom and providing assistance when needed. Students know to quietly raise their hands when they need help and to remain in their seats unless they have permission to get up. They are also aware of the expectations of respecting each other's space and working responsibly among their peers. The one issue that could possibly occur is a laptop dying or interruption of the internet service. Students will use classroom desktops if there are not any other available laptops. If the internet service is not connecting I will have students to restart the laptop or desktop and try again to see if it will connect. If for some reason the internet service is not available then we will continue with work the next day. Another possible issue that can be managed is making sure that students are on the correct browser. Sometimes using Google Chrome works better than using Internet Explorer and vice versa depending on the site you are using. Being aware of these possible issues can help save lots of instructional time from being wasted.

Instructional Strategies and Learning Activities – Describe the research-based instructional strategies you will use with this lesson. How will your learning environment support these activities? What is your role? What are the students' roles in the lesson? How can you ensure higher order thinking at the analysis, evaluation, or creativity levels of Bloom's Taxonomy? How can the technology support your teaching? What authentic, relevant, and meaningful learning activities and tasks will your students complete? How will they build knowledge and skills? How will students use digital tools and resources to communicate and collaborate with each other and others? How will you facilitate the collaboration?

Students will practice authentic learning by exploring shapes using a set of AngLegs. They will become explorers as they build a variety of quadrilaterals (rectangle, square, rhombus, and trapezoid) and evaluate the angles, sides, and vertices of each shape. Students will build on higher order learning by analyzing the different quadrilaterals. They will express characteristics of a parallelogram by stating that it has two pairs of parallel lines. They will demonstrate what sides, angles, and vertices are (using the smart board) and also acknowledge that a trapezoid is a quadrilateral that is not a parallelogram because it only has one set of parallel lines. Students will also get to explore around the classroom to find examples of quadrilaterals by having a "Quadrilateral Hunt." Once they are finished they will share what they have found with the peers. As students engage in activities I will play the role as the facilitator. While the class is working on hands on activities (AngLegs, *Padlet*, *SMART Exchange*) I will monitor the room to make sure everyone is on task and also to provide assistance as needed.

Differentiation (How will you differentiate content and process to accommodate various learning styles and abilities? How will you help students learn independently and with others? How will you provide extensions and opportunities for enrichment? What assistive technologies will you need to provide?)

Differentiation will be shown by students using AngLegs, boards and markers, and technology to display comprehension of standards. Students will physically (using Padlet, AngLegs, or markers and boards) or verbally write their responses identifying and comparing and contrasting the different types of quadrilaterals. Padlet is supportive for students who are shy or may struggle with speaking. VoiceThread enables struggling readers or English Language Learners (ELL) to engage in learning by listening to and visually seeing what is being taught. For extensions, students will create their own riddles describing different types of quadrilaterals and partner with peers so they can guess each other's riddles. If there is any additional time left they will also design their own quadrilateral books to share with the class.

Reflection (Will there be a closing event? Will students be asked to reflect upon their work? Will students be asked to provide feedback on the assignment itself? What will be your process for answering the following questions?
- Did students find the lesson meaningful and worth completing?
- In what ways was this lesson effective?
- What went well and why?
- What did not go well and why?
- How would you teach this lesson differently?)

Students worked in groups to create their own presentation sharing what they have learned about quadrilaterals using [Sway](#). They found the project to be meaningful because they were able to share examples of everyday objects that they found that symbolized quadrilaterals. They were able to be creative and collaborate with their peers which is always a great way to encourage participation. My students love working with one another and sharing their thoughts and ideas. Overall, the lesson went great. I would just remember to have an assigned "job" for each student when working in groups to manage conflicts of sharing the work and also for those who have to be the "boss." In the end, the class shared that they really liked working together to learn about quadrilaterals and exploring with different manipulatives and technology tools that was implemented into the lesson.

Closure: Anything else you would like to reflect upon regarding lessons learned and/or your experience with implementing this lesson. What advice would you give others if they were to implement the lesson?

This was a great learning experience for both the students and I. I have enjoyed challenging myself to integrate technology more into lessons and my students are always excited to try new tools. If I could share any advice it would be to make sure you have carefully explored every tool that you introduce to your students so that you can prepare for any hiccups along the way. Learning about troubleshooting skills for each tool will be beneficial and save a lot of time. Always make sure to discuss expectations before starting any activity and remind students the meaning of being responsible digital learners.