

## LESSON/UNIT PLAN

Lesson Title:	Geometry	Date:	
Name:		Subject:	Mathematics
		Grade:	2

Rationale:

Learning Outcome(s) Essential-Expected-Enrichment:

\*Students will develop visualization skills

\*Students will work with three-dimensional models and two-dimensional visual representations.

\*Building models from pictures allows students to visualize and interpret the two-dimensional representation.

Prerequisite Concepts, Vocabulary and Skills:

### Materials and Resources:

Teacher	Students
Students will use two-dimensional illustrations to create three-dimensional models.	Develop visualization skills
Students will use shapes to figure out the number of cubes used to create the object in the two-dimensional illustration.	Work with three-dimensional models and two-dimensional visual representations
Students will learn that not all cubes are visible in the two-dimensional illustrations that are used to build the three-dimensional model.	Building models from pictures to allow students to visualize and interpret the two-dimensional representation.

### Lesson Activities:

Teacher and Second Adult Activities	Student Activities	Time
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<p>Introduction (Anticipatory Set or Lesson Hook) Provide multiple means of engagement and representation: Distribute <i>Cubes</i>, Attachment A, to each student. Have students find the number of cubes it would take to build the model in each picture. Ask questions to reveal their thinking such as:</p> <ul style="list-style-type: none"> <li>How did you find the number of cubes?</li> <li>Are all of the cubes used visible?</li> <li>How did you know how many were not visible</li> </ul> <p>Body (Teaching Act, Strategies, and Guided Experience) Provide multiple means of action, expression, and representation:</p> <p>Assess student understanding: connecting two-dimensional representations and three-dimensional models.</p> <p>Students that find the correct number of cubes for eight or nine of the drawings have met grade-level expectations.</p> <p>Focus instruction on drawing the views and building models</p> <p>Closure - Provide multiple means of engagement and expression:</p>	<p>Introduction (Anticipatory Set or Lesson Hook) Provide multiple means of engagement and representation: How did you find the number of shapes?</p> <ul style="list-style-type: none"> <li>Are all of the cubes/ shapes used visible?</li> <li>How did you know how many were not visible?</li> </ul> <p>Body (Teaching Act, Strategies, and Guided Experience) Provide multiple means of action, expression, and representation:</p> <p>Closure - Provide multiple means of engagement and expression:</p>	
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Universal Design for Learning (UDL) and Differentiated Instruction (DI):

Organizational Strategies:

Behavioral Management Strategies: Have students work with manipulatives in small groups indicate what voice level they need to work at.

Assessment and Evaluation (Pre and Post): Students enjoyed working with manipulatives

Extensions:

Possible Barriers and Solutions:

Distribute sets of geometric shapes

Have students look at the first example Have students describe the dimensions of the shape Ask questions such as:

How many shapes are needed ?

What shapes are being used?

What is the shape that is being built?

What would this tower of shapes look like if you were viewing it from the top?

Students predict the number of shapes used to build the large shape(i.e Trapezoid, triangle etc) then build with the predicted number of cubes.

Students will share their shapes. Students who count only the cubes they see will find that their tower does not look like the tower in the picture. Ask questions such as:

How many cubes are being used?

Could you see all of the cubes/ shapes?

How did you figure the number of cubes that were missing?

students will complete additional shapes and will predict, build and share with a partner or in small groups. while being observed as they work.

the lesson will be summarized to make sure students understand that not all cubes are shown in the two-dimensional representation to make the three-dimensional model.

Homework:

**Rationale:** Why are you teaching this particular lesson/unit (e.g. is it part of a complex skill? Is it an essential prereading skill in reading? Is it important that the students hear good literature?) The rationale should be a brief sentence or two and stated in words that can be easily understood by the children in the classroom.

**Learning Outcomes (Instructional Objective(s)):** What are the specific things students will be able to do as a result of this lesson/unit? (e.g. the students will be able to identify the main idea in the story. The student will be able to describe the main idea in a paragraph of four sentences). You should ensure that the instructional objectives are measured by your assessment and evaluation strategies. You may want to include the MA Learning Standard. Your outcome may be focused on knowledge, understanding and/or performance. You may also want to differentiate between the Essential, Expected and Enrichment Learning Outcomes (Targets).

**Prerequisite Concepts and Skills:** This section is used to state the concepts/skills needed to participate/reviewed/previewed.

**Materials and Resources:** List all materials and resources that you/students will need. (e.g. prepare a chart, set out manipulatives)

### Lesson Activities

**Introduction:** How will you get students interested in the topic? How will you find out what they already know about the topic? Will you use an anticipatory set (link to their experience)? What preview ideas/content/concepts need to be addressed?

**Body:** What sequence of activities will the student experience? What will you do? How will they be organized (individual, groups, whole class)? What will they do? What will they do who finish early? How much time will each activity take? What about clean up?

**Essential Questions:**

How are you going to present your content so that it meets the needs of all students...is the information represented in different ways?  
How are you going to provide multiple pathways for students to actually learn the material presented? Practice, or active mental/physical engagement, is required by students to make real learning happen.  
How will students demonstrate what they have learned? Again, the creation of many paths is key.

**Closure:** How will you close the lesson? The closing should be linked to the learning outcomes.

**Universal Design for Learning (UDL) and Differentiated Instruction (DI): Meeting the Variability of Students** UDL includes: *Multiple means of representation; Multiple means of expression; and, Multiple means of engagement.* DI is the process of ensuring that a student's readiness level, interests, and preferred mode of learning are recognized. *Teachers can differentiate instruction in four ways: content, process, product, and, learning environment based on the individual learner.*

How will you accommodate for your diverse learners? Consider learning styles and multiple intelligences. What are the individual needs within this classroom and how will you accommodate them? What are the adaptations and modifications needed for students with Individual Education Plans (IEPs)?

**Organizational Strategies:** Carefully thought-out organizational management strategies facilitate proactive positive classroom management. For example, how will you: bring the class together at the start of the day/lesson?; utilize student helpers to facilitate the flow of lessons and the day in general?; distribute and collect materials?; separate the class into groups or levels? (In what situations should groups be assigned ahead of time?); coordinate different grade levels working on different assignments?

**Behavior Management Strategies:** Carefully thought-out behavior management strategies facilitate proactive positive classroom management. What strategies will be used?

**Assessment and Evaluation:** Do you require a pre-assessment? If so, can you review work samples or prior assessments? What is needed (knowledge/skills) to engage in the lesson based on pre-assessment? How will you accommodate for this? Did the students learn what you taught them? How will assess during the lesson? What essential questions will you use during guided/independent practice to check for understanding? The results of the assessment should be directly related to the learning outcomes. Your assessment will include a variety of tools depending on student need. How did you include a self-assessment for students to consider their engagement and learning? You may also want to differentiate between the Essential, Expected and Enrichment Learning Outcomes (Targets). How will you provide feedback to your students?

**Extensions:** How might this lesson link to previous and/or future lessons within the same curriculum area? How might knowledge, skills or attitudes from this lesson/unit be integrated/infused into lessons/units in other subject areas?

**Possible Barriers and Solutions:** Consider possible barriers (language, reading level, activity needs) of individual or groups of students. List and respond to how you will address these barriers. This will include any pre-teaching required to develop vocabulary, background knowledge and/or skills. It may also include preview to materials, images and lesson activities.

**Homework:** What differentiated homework should be provided that connects to this lesson/unit? What materials will they need?

<b>Lesson Activities: The What and HOW:</b> (Representation and Expression)
<p style="text-align: center;"><b><u>The Delivery MENU</u></b> Choose from the Reference Menus to help target the various learning options</p>

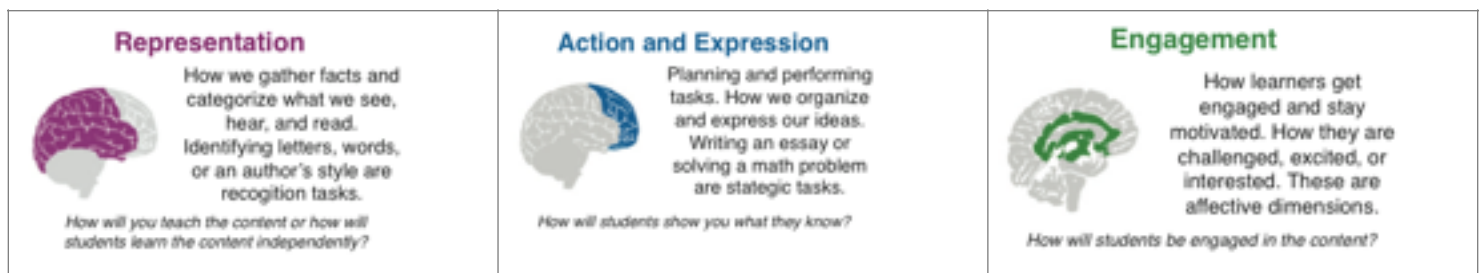
<b>Visual Representation</b> <ul style="list-style-type: none"> <li>- Video</li> <li>- Demonstration</li> <li>- A play/skit</li> <li>- Role Play</li> <li>- Drawing examples</li> <li>- Highlighting</li> <li>- Color coding</li> <li>- Reading</li> <li>- Graphics/charts/maps/comic</li> <li>- Use visu/text journals</li> <li>- Make a newspaper</li> <li>- Use concept maps/graphic organizer</li> <li>- Worksheet</li> <li>- Text (poster, book, workbook, handout, digitized)</li> <li>- Observing</li> <li>- Creating mental images</li> <li>- Video</li> </ul>	<b>Auditory Representation</b> <ul style="list-style-type: none"> <li>- Instructional Lecture</li> <li>- Discussion</li> <li>- Music</li> <li>- Singing</li> <li>- Background music</li> <li>- Quiet Space</li> <li>- Think, pair, and share</li> <li>- Sharing with a class</li> <li>- Use word associations</li> <li>- Mnemonic</li> <li>- Read aloud</li> <li>- Story Telling</li> <li>- Make an audiobook</li> <li>- Prepare a presentation</li> <li>- Write/Create a song</li> <li>- Listening to text reading</li> <li>- Oral Reading</li> <li>- Oral Presentation</li> <li>- Digital text with audio output</li> </ul>	<b>Kinesthetic Representation</b> <ul style="list-style-type: none"> <li>- Experiments</li> <li>- Model building/Diorama</li> <li>- Write (worksheet, organizer)</li> <li>- Act It Out/Skit</li> <li>- Practice Doing</li> <li>- Make a visual/graph/diagram</li> <li>- Create a comic</li> <li>- Do a 'chalk talk' with no or some words</li> <li>- 3D Object</li> <li>- Group Project</li> <li>- Problem Solving</li> <li>- Manipulative representation</li> </ul>
<b>Materials (Student/Presentation)</b> <ul style="list-style-type: none"> <li>- Textbook</li> <li>- Workbook</li> <li>- Trade book</li> <li>- Posters</li> <li>- Worksheets</li> <li>- Newspapers/magazines</li> <li>- Handout</li> <li>- Video</li> <li>- Images</li> <li>- Whiteboard</li> <li>- Manipulatives</li> <li>- Audio/CD</li> </ul>	<b>Student Configuration</b> <ul style="list-style-type: none"> <li>- Small Group</li> <li>- Individual</li> <li>- Whole Class</li> <li>- Interest Group/Leveled Group</li> <li>- Mixed ability Group</li> <li>- 1 to 1 Instruction</li> <li>-</li> </ul>	<b>Student Variability</b> <ul style="list-style-type: none"> <li>- Time for completion</li> <li>- Amount completed</li> <li>- Break schedule</li> <li>- Preview/Review Needs</li> <li>- Reading and Comprehension Levels</li> <li>- Visuals Provided</li> <li>- Movement needs</li> <li>- Individual vs. small group needs</li> <li>- Organization needs (checklist, breakdown)</li> <li>- Additional examples</li> <li>- Variety of tools, images, activities, performance</li> <li>-</li> </ul>

Notes and Reflections:

# Universal Design for Learning Guidelines



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## UDL Guidelines – Educator Worksheet

I. <u>Provide Multiple Means of Representation:</u>	Your notes
1. <u>Provide options for perception</u>	
1.1 <u>Offer ways of customizing the display of information</u>	
1.2 <u>Offer alternatives for auditory information</u>	
1.3 <u>Offer alternatives for visual information</u>	
1. <u>Provide options for language, mathematical expressions, and symbols</u>	
2.1 <u>Clarify vocabulary and symbols</u>	
2.2 <u>Clarify syntax and structure</u>	
2.3 <u>Support decoding of text, mathematical notation, and symbols</u>	
2.4 <u>Promote understanding across language</u>	
2.5 <u>Illustrate through multiple media</u>	
1. <u>Provide options for comprehension</u>	
3.1 <u>Activate or supply background knowledge</u>	
3.2 <u>Highlight patterns, critical features, big ideas, and relationships</u>	
3.3 <u>Guide information processing, visualization, and manipulation</u>	
3.4 <u>Maximize transfer and generalization</u>	
II. <u>Provide Multiple Means for Action and Expression:</u>	Your notes
1. <u>Provide options for physical action</u>	
4.1 <u>Vary the methods for response and navigation</u>	
4.2 <u>Optimize access to tools and assistive technologies</u>	
1. <u>Provide options for expression and communication</u>	
5.1 <u>Use multiple media for communication</u>	
5.2 <u>Use multiple tools for construction and composition</u>	
5.3 <u>Build fluencies with graduated levels of support for practice and performance</u>	
1. <u>Provide options for executive functions</u>	
6.1 <u>Guide appropriate goal setting</u>	
6.2 <u>Support planning and strategy development</u>	
6.3 <u>Facilitate managing information and resources</u>	
6.4 <u>Enhance capacity for monitoring progress</u>	
III. <u>Provide Multiple Means for Engagement:</u>	Your notes
1. <u>Provide options for recruiting interest</u>	
7.1 <u>Optimize individual choice and autonomy</u>	
7.2 <u>Optimize relevance, value, and authenticity</u>	

7.3	<a href="#">Minimize threats and distractions</a>	
1.	<a href="#">Provide options for sustaining effort and persistence</a>	
8.1	<a href="#">Heighten salience of goals and objectives</a>	
8.2	<a href="#">Vary demands and resources to optimize challenge</a>	
8.3	<a href="#">Foster collaboration and community</a>	
8.4	<a href="#">Increase mastery-oriented feedback</a>	
1.	<a href="#">Provide options for self-regulation</a>	
9.1	<a href="#">Promote expectations and beliefs that optimize motivation</a>	
9.2	<a href="#">Facilitate personal coping skills and strategies</a>	
9.3	<a href="#">Develop self-assessment and reflection</a>	