

Essential Elements Math Pacing Guide



March

Background

The Essential Elements Math Pacing Guide was inspired by realizing that there is a small amount of information found on the internet to help support educators who teach those who follow an alternate curriculum for our amazing 1% of the student population in education. I wanted to create something that could help serve as a guide, a support, an understanding of how to hold our students to high academic achievement, just like their regular education peers.

Regular education materials are abundant and come with pacing guides with how to implement the prescribed curriculum that the school decided to buy into. Within those curriculums, a good majority of publishers incorporated how to differentiate Instruction for struggling learners, for English Language Learners and/or English as a Second Language learners. However, there does not seem to be a supplementary curriculum that aligns to how to modify instruction and materials for those who follow the alternate curriculum so the 1% of students with disabilities aligned to the alternate curriculum could also learn a modified version of the same materials as their non-disabled peers in an inclusive setting.

Your partner in education,

Jeanette Nowak

Updated July 2022

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March Outline

Standards covered during February:

- [M.EE.6.G.2](#) - Solve real-world and mathematical problems about volume using unit cubes.
- [M.EE.6.NS.3](#) - Solve two-factor multiplication problems with products up to 50 using concrete objects and/or a calculator.
- [M.EE.7.G.2](#) - Recognize geometric shapes with given conditions.
- [M.EE.7.NS.2.a](#) - Solve multiplication problems with products to 100.
- [M.EE.8.G.5](#) - Compare any angle to a right angle, and describe the angle as greater than, less than, or congruent to a right angle.
- [M.EE.8.G.9](#) - Use the formulas for perimeter, area, and volume to solve real-world and mathematical problems (limited to perimeter and area of rectangles and volume of rectangular prisms).

According to the Dynamic Learning Maps (DLM) website, these are the commonly tested standards that are used for the DLM assessment.

How to Access Math Instruction and Materials from Unique

1. <https://www.n2y.com/unique-learning-system/>
2. Log in using the provided username and password you received
3. Click on Unique Learning System
4. Click on the three lines →
5. Select Monthly Lessons/Unit Lessons
6. Select Math
 - a. When selecting materials, select PDF icon to save and print



Understanding Differentiated Levels in Unique

- Level 3 Learners – can read text and can participate more independently in the lesson (Independent)
- Level 2 Learners- require pictorial support and require mild to moderate support to participate in the lesson (Supported)
- Level 1 Learners- require extensive supports to participate in the lesson (Participatory).

Measuring Success by the Essential Elements Standards

Students who take DLM assessments are instructed and assessed on *Essential Elements*. Essential Elements are grade-specific expectations about what students with the most significant cognitive disabilities should know and be able to do. The Essential Elements relate to college and career readiness standards for students in the general population.

March Math Pacing Guide 6th Grade

[M.EE.6.G.2](#) - Solve real-world and mathematical problems about volume using unit cubes.

Learning Goal:

- Level 2-3 – (2) Use a model to find the volume of a cube or rectangular prism. (3) Use a model or formula to find the volume of cubes and rectangular prisms.
- Level 1 – Count unit squares on a model to find the volume of a cube or rectangular prism using an active participation response.

Essential Questions:

- What is volume?
- How do I know when to use unit cubes or unit squares?
- What is the difference between area and volume?
- How can I organize the information to solve for volume?

Vocabulary:

- **Unit** – A general term meaning 1.
- **Volume** – The size of a surface.



Mini-Map for M.EE.6.G.2

Subject: Mathematics

Geometry (G)

Grade: 6

Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.6.G.2 Solve real-world and mathematical problems about volume using unit cubes.	M.6.G.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Linkage Level Descriptions

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate understanding of "separateness" by recognizing objects that are not joined together. Recognize enclosure as an enclosed space that lies within a boundary that distinguishes it from the space that lies outside the boundary.	Communicate understanding that volume is the space enclosed by a shape or an object, that a unit cube is a cube with edge lengths of one unit and a volume of one cubic unit, and that volume can be measured by counting the number of unit cubes needed to completely fill a container or space.	Calculate the volume of a solid figure by counting the total number of unit cubes in a solid figure. Calculate the volume of a rectangular prism by packing the box with unit cubes and counting them.	Solve word problems involving the volume of a rectangular prism by determining the volume of the prism. (The volume of a rectangular prism should be determined by packing the prism with unit cubes.)	Calculate volume of a rectangular prism using the volume formula (volume = height x length x width).

Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

How is the Initial Precursor related to the Target?

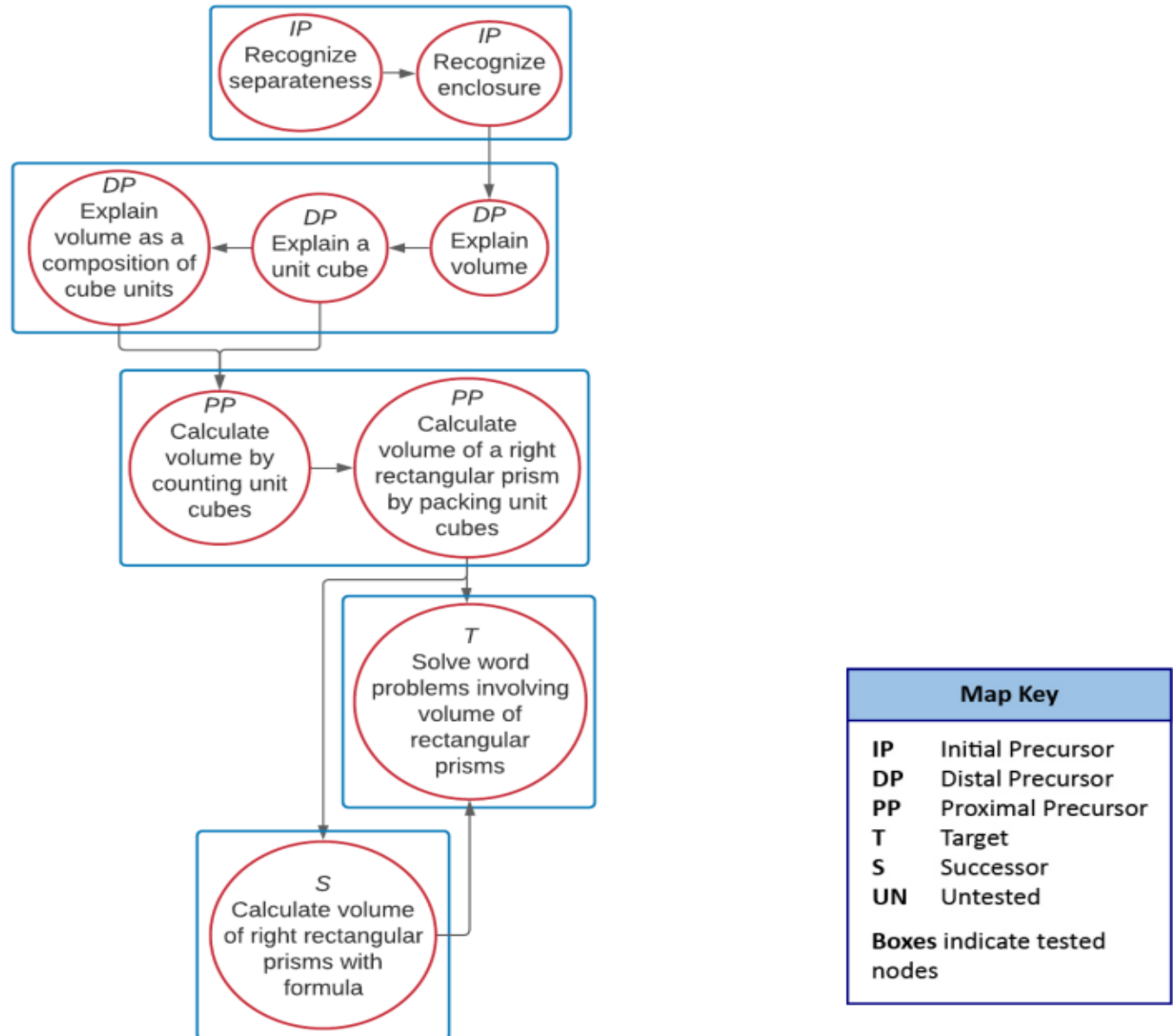
In order to solve problems using unit cubes, students at this level start by exploring objects and experiencing putting various materials into various containers. Educators demonstrate the language of in/out, more/less, big/little, longer/shorter, taller/smaller, wider/thinner, etc.

How is the Distal Precursor related to the Target?

As students learn about how various materials do or do not fit in a given space, educators provide opportunities to compare and order by length, area, and capacity. Educators may use non-standard measurement tools such as hands or fingers to estimate length, blocks or squares for area, and sand or water for capacity. Educators should take care to use the word “volume” while defining and demonstrating its meaning as students are filling enclosed shapes or objects. While students do not need to say the word “volume”, they do need to learn its meaning.

Jeanette Nowak @ msrk

M.EE.6.G.2 Solve real-world and mathematical problems about volume using unit cubes.



Rubric of Student Success

[M.EE.6.G.2](#) - Solve real-world and mathematical problems about volume using unit cubes.

<p>Level 3 Students will...</p> <p>Level 3</p> <ul style="list-style-type: none"> Use a model or formula to find the volume of cubes and rectangular prisms 	<p>Level 2 Students will...</p> <p>Level 2</p> <ul style="list-style-type: none"> Use a model to find the volume of a cube or rectangular prism 	<p>Level 1 Students will...</p> <p>Level 1</p> <ul style="list-style-type: none"> Count unit squares on a model to find the volume of a cube or rectangular prism using an active participation response
<p>Successor and Target Students will...</p> <p>Successor</p> <ul style="list-style-type: none"> Calculate volume of right rectangular prisms with formula <p>Target</p> <ul style="list-style-type: none"> Solve word problems involving volume of rectangular prisms 	<p>Proximal Precursor and Distal Precursor Students will...</p> <p>Proximal Precursor</p> <ul style="list-style-type: none"> Calculate volume by counting unit cubes Calculate volume of a right rectangular prism by packing unit cubes <p>Distal Precursor</p> <ul style="list-style-type: none"> Explain volume as a composition of cube units Explain a cube unit Explain volume 	<p>Initial Precursor Students will...</p> <p>Initial Precursor</p> <ul style="list-style-type: none"> Recognize separateness Recognize enclosure

Instructional Ideas

[M.EE.6.G.2](#) - Solve real-world and mathematical problems about volume using unit cubes.

Measurement involves a selected attribute of an object such as volume.

The big idea is that the use of standard measurement units simplifies communication about the size of objects.

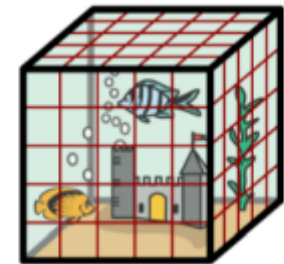
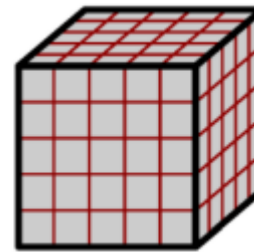
- Introduce by asking the essential questions.
- While modeling the scenarios, use tangible manipulatives for students to visualize concepts and practice with, such as stackable counting cubes or geoboards.
- Identify contexts for using unit cubes.
- Use unit cubes to count the total.
- Tell students, “Volume is the number of units it takes to fill the inside of a 3-D shape. I need to count the cubes in this shape.”
- Model by counting row by row, layer by layer.
- Apply the knowledge of repeated addition to solve for volume.
- Apply the knowledge of multiplication to solve for volume.
- Solve a real-world problem involving volume.
- Create a math word wall.
- Might have to make up your own worksheets but can use the ones provided as inspiration.
- Use manipulatives as needed.
- Students may use a calculator if needed.
- Provide students with their own anchor chart.
- Included worksheets are examples of what to look for when finding additional materials that best fits your student’s needs.

Additional Instructional Ideas

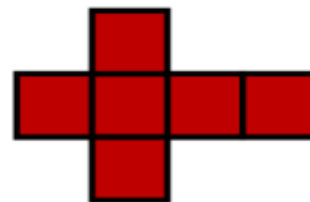
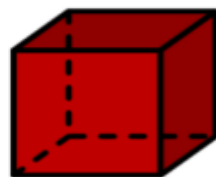
- Go to website for additional instructional resources, materials, and activities for lessons:

volume

- the space inside of a 3-dimensional or solid shape
- measured in units cubed
- count the unit cubes that fill the shape

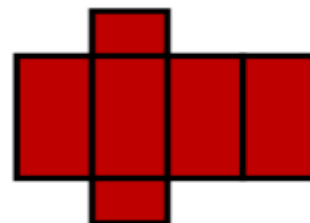


cube



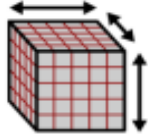
- 6 square faces

rectangular prism

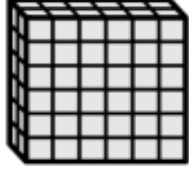


- 6 rectangle faces

Volume



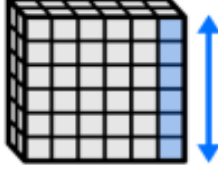
What is the volume of this solid shape?



1. How many units long is the bottom row?

This is the length of the shape.

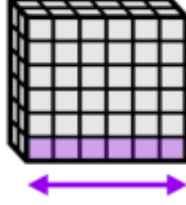
The **length** is _____ units.



2. How many units long is the first column?

This is the height of the shape.

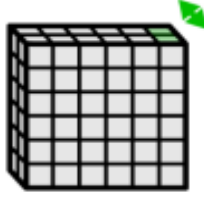
The **height** is _____ units.



3. How many units long is the side bottom row?

This is the width of the shape.

The **width** is _____ units.



4. Multiply the length times the height times the width.

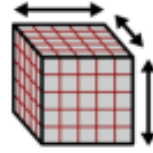
length	x	height	x
_____	x	_____	x
	=	_____	=
		_____	=
			volume

The **length** times the **height** times the **width** is _____.

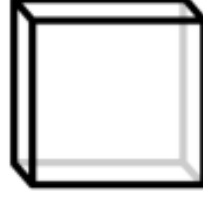


So, the volume of this solid shape is _____ units cubed.

Volume



How many cubes does it take to fill this solid shape?



<p>1. Make the first bottom row of cubes. How many cubes are in the shape now? _____</p> <p>Is the shape full? 😊 yes 😞 no</p> <p>If yes, this is the volume. If no, go to the next question.</p>	
<p>2. Make the other bottom rows of cubes. How many cubes are in the shape now? _____</p> <p>Is the shape full? 😊 yes 😞 no</p> <p>If yes, this is the volume. If no, go to the next question.</p>	
<p>3. Make the second layer of cubes. How many cubes are in the shape now? _____</p> <p>Is the shape full? 😊 yes 😞 no</p> <p>If yes, this is the volume. If no, go to the next question.</p>	
<p>4. Make the other layers of cubes until the shape is full. How many cubes are in the shape now? _____</p>	

🚩 It takes _____ cubes to fill up this solid shape.



So, the volume of this solid shape is _____ units cubed.

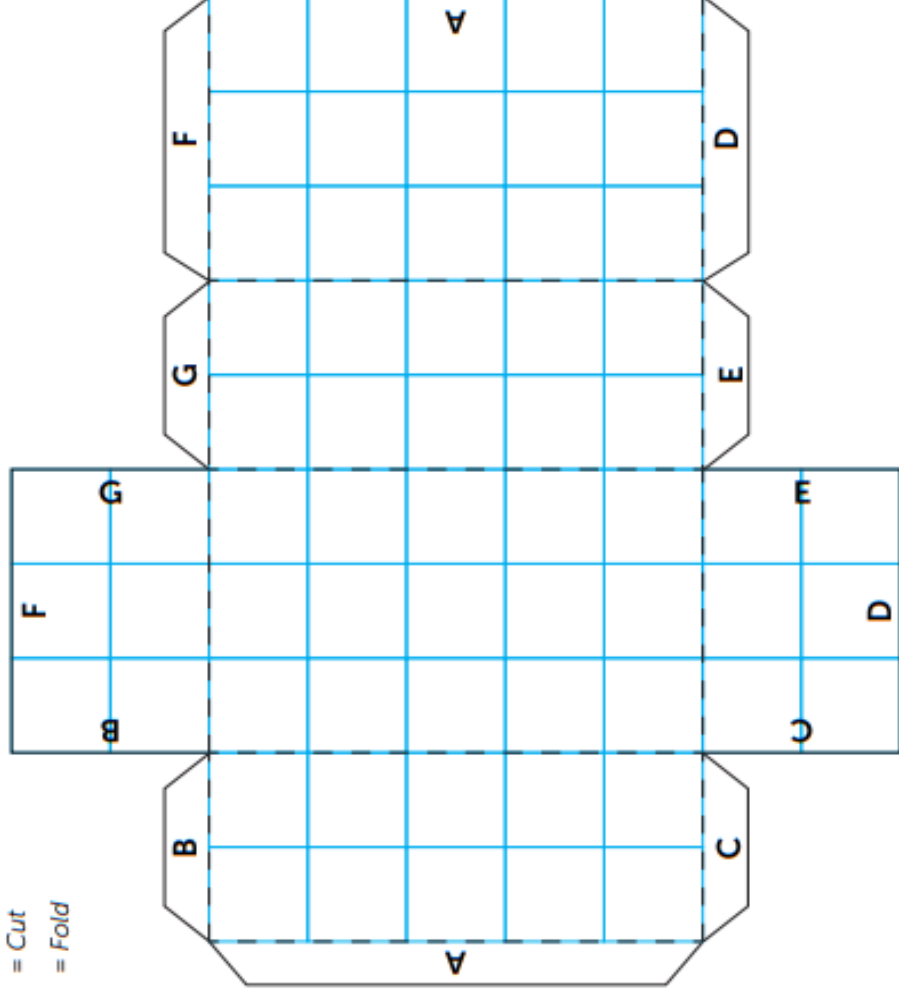
Name: _____

Date: _____

Create Shapes and Find the Volume Part 1

Directions: Cut out each net (an unfolded shape). Fold along the dotted lines, and glue the matching letters together. Once you have created each shape, find the volume.

— = Cut
- - - = Fold



Use the workspace below to figure out the volume of the shape.

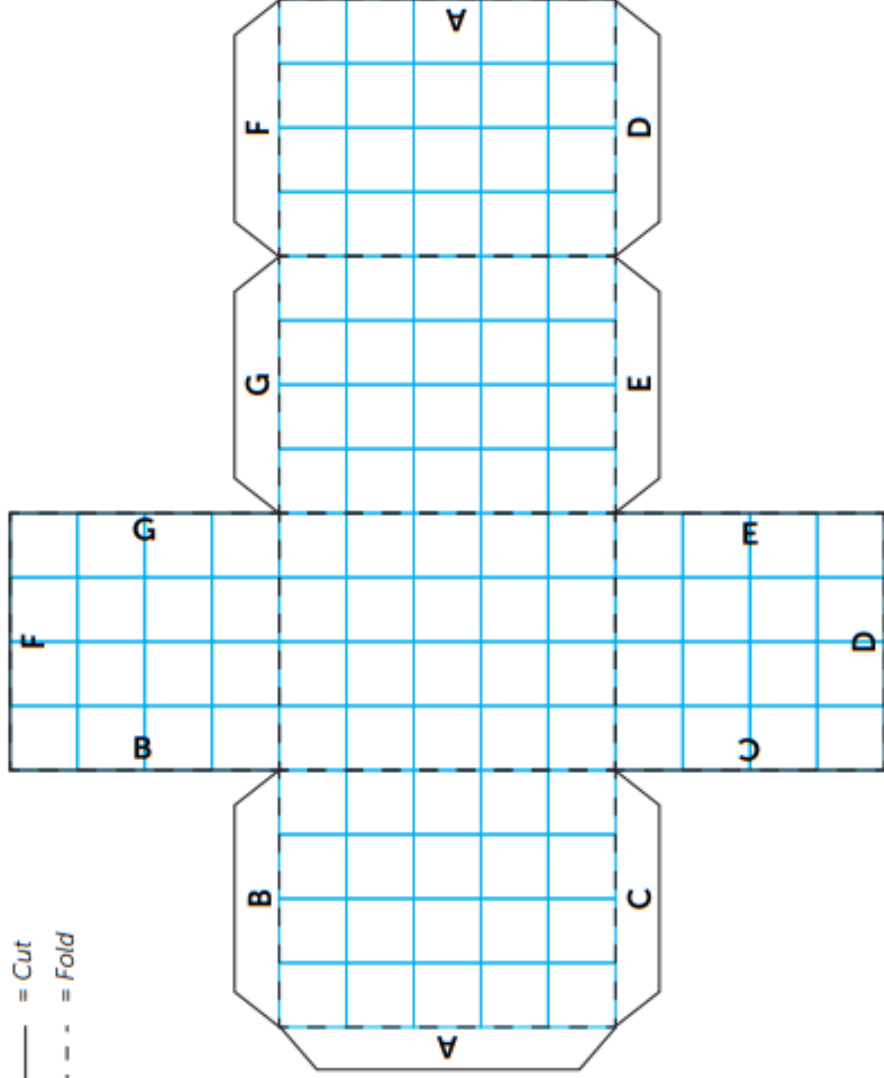
Name: _____

Date: _____

Create Shapes and Find the Volume Part 2

Directions: Cut out each net (an unfolded shape). Fold along the dotted lines, and glue the matching letters together. Once you have created each shape, find the volume.

— = Cut
- - - = Fold



Use the workspace below to figure out the volume of the shape.

Name: _____

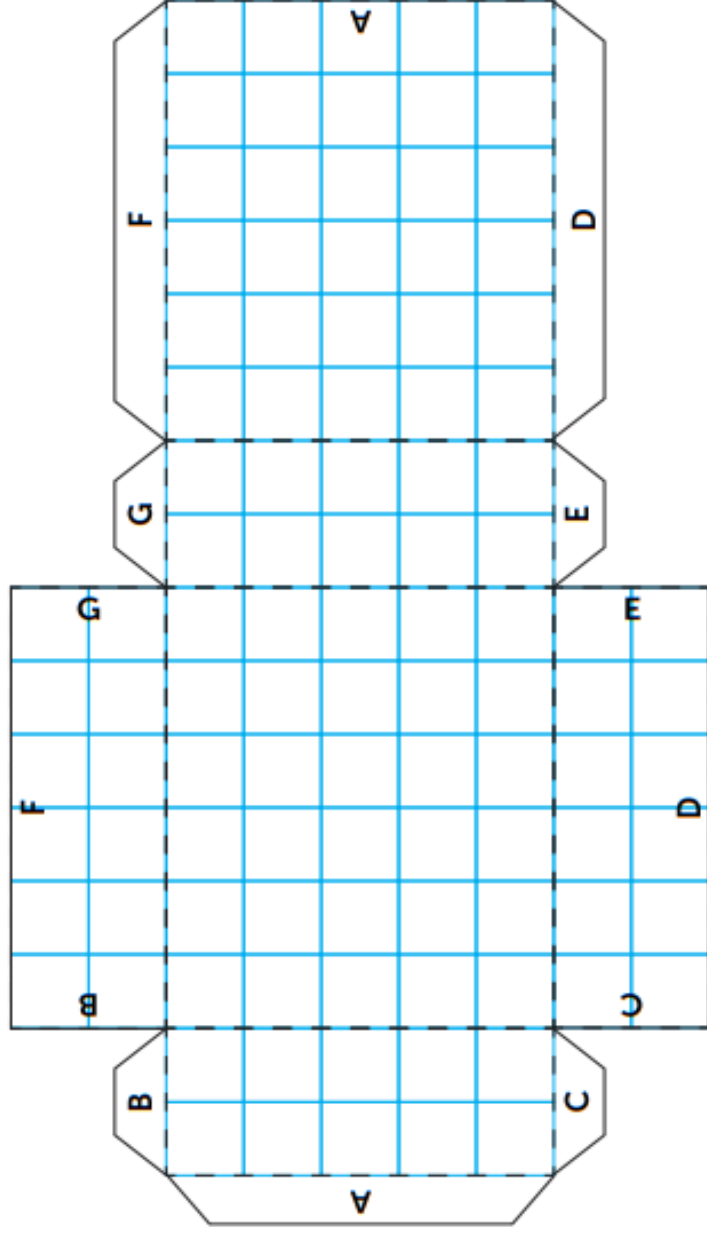
Date: _____

Create Shapes and Find the Volume Part 3

Directions: Cut out each net (an unfolded shape). Fold along the dotted lines, and glue the matching letters together. Once you have created each shape, find the volume.

— = Cut

- - - = Fold



Use the workspace below to figure out the volume of the shape.

Name: _____ Date: _____

What Do Cubes Have to Do With Volume?

Volume: the amount of space occupied by a 3-D object, measured in cubic units. These units can be centimeters, inches, meters, or any other unit of distance.



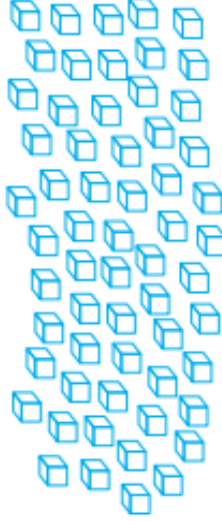
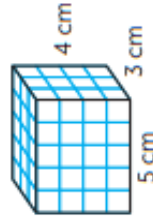
 = 1 cubic unit

For this object, the height is 3 units, the length is 3 units, and the width is 3 units.



Directions: Look at each 3-D figure. Next to each figure is the number of cubic units used to create the figure. Find the volume of each figure by counting up how many cubic units were used to make each figure.

Example:



60 cm³

1.



_____ units³



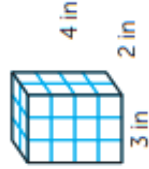
2.



_____ cm³



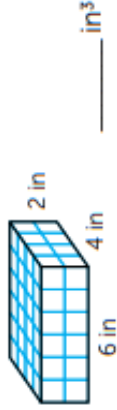
3.



_____ in³



4.



_____ in³



Name: _____ Date: _____

Model Volume for Yourself!

Directions: Use sugar cubes, ice cubes or blocks to build each cube or rectangular prism. Then, count up the cubes and write down the volume.

Example: Build a figure with a length of 2 cubes, a width of 3 cubes, and a height of 1 cube.



The volume of the figure is 6 units cubed.

1. Build a figure with a length of 1 cube, a width of 2 cubes, and a height of 4 cubes.

The volume of the figure is _____ units cubed.

2. Build a figure with a length of 3 cubes, a width of 2 cubes, and a height of 2 cubes.

The volume of the figure is _____ units cubed.

3. Build a figure with a length of 4 cubes, a width of 2 cubes, and a height of 1 cube.

The volume of the figure is _____ units cubed.

4. Build a figure with a length of 5 cubes, a width of 3 cubes, and a height of 2 cubes.

The volume of the figure is _____ units cubed.

5. Build a figure with a length of 2 cubes, a width of 1 cube, and a height of 5 cubes.

The volume of the figure is _____ units cubed.

March Math Pacing Guide 6th Grade

[M.EE.6.NS.3](#) - Solve two-factor multiplication problems with products up to 50 using concrete objects and/or a calculator.

Learning Goal:

- Level 2-3 – I will multiply to solve a math problem.
- Level 1 – I will count objects.

Essential Questions:

- How can I make equal groups from this one large group?
- How do I know this is a fair share?
- What is the product?
- How can I solve this multiplication problem using objects?
- How can I solve this multiplication problem using a calculator?

Vocabulary:

- **Multiply** – to add equal groups using repeated addition.



Mini-Map for M.EE.6.NS.3

Subject: Mathematics
The Number System (NS)
Grade: 6

Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.6.NS.3 Solve two-factor multiplication problems with products up to 50 using concrete objects and/or a calculator.	M.6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Linkage Level Descriptions

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate understanding of "separateness" by recognizing objects that are not joined together. Communicate understanding of set by recognizing a group of objects sharing an attribute. Communicate understanding of a subset by recognizing a subset as a set or group of objects within a larger set that share an attribute.	Represent repeated addition problems in the form of an equation, including displaying the addition of the same numeral more than twice (e.g., $3 + 3 + 3 + 3$) and finding the sum by adding the same number a certain number of times (e.g., $3 + 3 + 3 + 3 = 12$). Communicate understanding of repeated addition as adding the same addend a given number of times (e.g., in the repeated addition equation $3 + 3 + 3 + 3 =$	Demonstrate multiplication by combining multiple sets containing the same number of objects. Communicate understanding that the number of sets times the number of objects in each set equals the total number of objects.	Multiply numbers up to 12 by factors 1 to 5, using manipulatives or repeated addition (e.g., multiply 3×5 by adding $5 + 5 + 5 = 15$).	Divide a number (up to 12) by one, two, three, four, or five, and determine the quotient using diagrams or manipulatives. Communicate understanding that the number of groups times the number of objects in each group equals the total number of objects (multiplication) and that the total number of objects divided by the number of groups equals the number of objects in each group (division).

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
	12, the addend 3 is added four times).			

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Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

How is the Initial Precursor related to the Target?

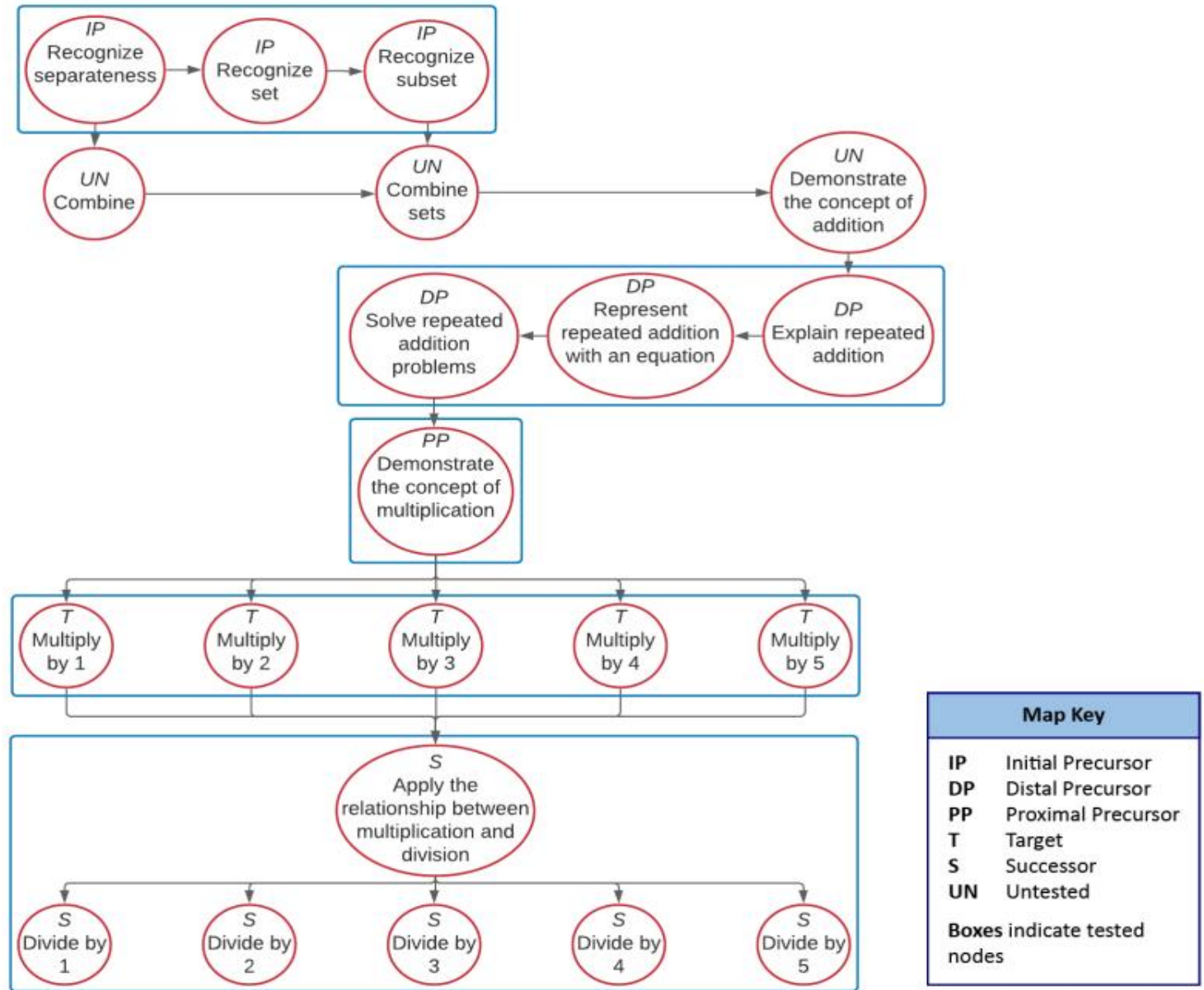
In order to solve multiplication problems, students must learn to organize items into groups/sets based on a common characteristic such as size, color, shape, or texture. Students learn how to sort items by separating a group of items into two groups (e.g., music I like/music I don't like; red fidgets/black fidgets). As students gain comfort sorting items into sets, they are encouraged to communicate their thought process by identifying and naming the characteristic that determines the set (e.g., color, length). Activities that require students to engage actively with the items will foster understanding of set, subsets, and separateness.

How is the Distal Precursor related to the Target?

As students' understanding of labeling and counting sets develops, they will begin working on adding items to a set and combining sets to create a new set. Additionally, students will work on developing an understanding of equal shares by actively participating in one-to-one distribution of objects to person, objects to objects, and objects to available space (e.g., giving each person in the group two pencils; given four counters, they would line up four more counters in front of or on top of the first set; given three chairs at a table, the student would place a cup on the table for each available chair). As students learn to work with sets and connect their understanding of equal shares to sets, educators will provide students experience with combining multiple sets (e.g., 3 sets with 4 counters each) and represent the problem (e.g., $4 + 4 + 4 = ?$). Students will also learn to represent the problem in writing (e.g., the student is shown 4 equal sets each with 2 counters. The student counts the first set and writes a 2 or indicates 2, then writes or indicates the plus sign. The student repeats for all 4 sets and then indicates the equal sign and solves the problem.).

Jeanette M.

M.EE.6.NS.3 Solve two-factor multiplication problems with products up to 50 using concrete objects and/or a calculator.



Rubric of Student Success

[M.EE.6.NS.3](#) - Solve two-factor multiplication problems with products up to 50 using concrete objects and/or a calculator.

Level 3 Students will...	Level 2 Students will...	Level 1 Students will...
<p>Level 3</p> <ul style="list-style-type: none"> I will multiply to solve a math problem. <p>Successor and Target Students will...</p> <p>Successor</p> <ul style="list-style-type: none"> Apply the relationship between multiplication and division Divide by 1, 2, 3, 4, and 5 <p>Target</p> <ul style="list-style-type: none"> Multiply by 1, 2, 3, 4, and 5 	<p>Level 2</p> <ul style="list-style-type: none"> I will multiply to solve a math problem. <p>Proximal Precursor and Distal Precursor Students will...</p> <p>Proximal Precursor</p> <ul style="list-style-type: none"> Demonstrate the concept of multiply <p>Distal Precursor</p> <ul style="list-style-type: none"> Solve repeated addition problems Represent repeated addition with an equation Explain repeated addition Demonstrate the concept of multiplication 	<p>Level 1</p> <ul style="list-style-type: none"> I will count objects. <p>Initial Precursor Students will...</p> <p>Initial Precursor</p> <ul style="list-style-type: none"> Recognize separateness Recognize set Recognize subset

Instructional Ideas

[M.EE.6.NS.3](#) - Solve two-factor multiplication problems with products up to 50 using concrete objects and/or a calculator.

Problems can be solved using various operations.

The big idea is that some problems involving joining equal groups can be solved using multiplication.

- Introduce by asking the essential questions.
- Solve multiplication problems using 2 values whose product is less than or equal to 50.
- Multiply by 1, 2, 3, 4, and 5.
- Teach repeated addition.
- Display the multiplication sign and ask, “When we see this sign what should we do?”
- Introduce and discuss symbols used in multiplication including the equal sign.
- Tell students that when they see a multiplication sign it means to add a certain number a certain about of times.
- Use concrete objects to prove the answer.
- Use a calculator to prove the answer.
- Use manipulatives as needed.
- Use graphic organizers as needed.
- Students may use a calculator if needed.
- Included worksheets are examples of what to look for when finding additional materials that best fits your student’s needs.

Additional Instructional Ideas

- Go to website for additional instructional resources, materials, and activities for lessons:

Name: _____



Raj is putting pine cones he finds on his hike into boxes. There are 6 boxes. He puts 4 pine cones into each box. How many pine cones are there altogether?



6 boxes



4 pine cones



Number of boxes:

6



Number of pine cones in each box:

4

x

How many pine cones are there altogether?



Keisha is putting rocks she finds on her hike into rows. There are 5 rows. She puts 9 rocks in each row. How many rocks are there altogether?



5 rows



9 rocks



Number of rows:

5



Number of rocks in each row:

9

x



How many rocks are there altogether?

Multiplication Strategies

Repeated Addition

$$5 + 5 + 5 = 15$$

$$3 \times 5 = 15$$

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Name _____ Date _____

Introduction to Multiplication: Repeated Groups



Directions: Solve each equation.

Example: $2 + 2 + 2 + 2 = \frac{8}{8}$

$4 + 4 = \frac{8}{8}$

$2 \times 4 = \frac{8}{8}$

$4 \times 2 = \frac{8}{8}$

Question

What do you notice about the connection between multiplication and addition?

$3 + 3 + 3 + 3 = \underline{\quad}$

$5 + 5 + 5 = \underline{\quad}$

$5 \times 3 = \underline{\quad}$

$3 \times 5 = \underline{\quad}$

$3 + 3 + 3 + 3 = \underline{\quad}$

$4 + 4 + 4 = \underline{\quad}$

$3 \times 4 = \underline{\quad}$

$4 \times 3 = \underline{\quad}$

$2 + 2 + 2 + 2 + 2 = \underline{\quad}$

$6 + 6 = \underline{\quad}$

$2 \times 6 = \underline{\quad}$

$6 \times 2 = \underline{\quad}$

$4 + 4 + 4 + 4 + 4 = \underline{\quad}$

$5 + 5 + 5 + 5 = \underline{\quad}$

$5 \times 4 = \underline{\quad}$

$4 \times 5 = \underline{\quad}$

$2 + 2 + 2 + 2 + 2 + 2 = \underline{\quad}$

$7 + 7 = \underline{\quad}$

$2 \times 7 = \underline{\quad}$

$7 \times 2 = \underline{\quad}$

$3 + 3 + 3 + 3 + 3 + 3 = \underline{\quad}$

$6 + 6 + 6 = \underline{\quad}$

$3 \times 6 = \underline{\quad}$

$6 \times 3 = \underline{\quad}$

$5 + 5 + 5 + 5 + 5 = \underline{\quad}$

$5 \times 5 = \underline{\quad}$

$2 + 2 + 2 = \underline{\quad}$

$3 + 3 = \underline{\quad}$

$2 \times 3 = \underline{\quad}$

$3 \times 2 = \underline{\quad}$

$2 + 2 + 2 + 2 + 2 = \underline{\quad}$

$5 + 5 = \underline{\quad}$

$2 \times 5 = \underline{\quad}$

$5 \times 2 = \underline{\quad}$

$2 + 2 = \underline{\quad}$

$2 \times 2 = \underline{\quad}$

$3 + 3 + 3 = \underline{\quad}$

$3 \times 3 = \underline{\quad}$

$6 + 6 + 6 + 6 + 6 + 6 = \underline{\quad}$

$6 \times 6 = \underline{\quad}$

Name _____ Date _____

Introduction to Multiplication

Adding Groups

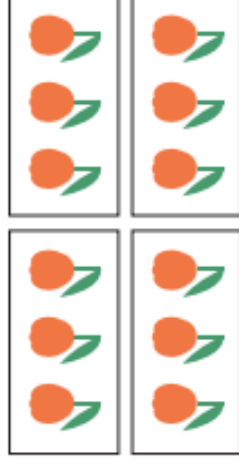


Learn how to multiply by thinking of numbers as groups.
Use the groups of tulips to help you answer each multiplication problem.

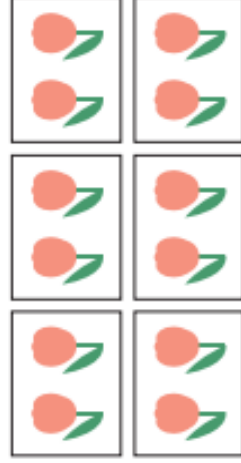
EXAMPLE:



2 groups with 3 tulips each.
There are 6 tulips in total.
 $2 \times 3 = 6$



___ groups with ___ tulips each.
There are ___ tulips in total.
___ \times ___ = ___



___ groups with ___ tulips each.
There are ___ tulips in total.
___ \times ___ = ___



___ groups with ___ tulips each.
There are ___ tulips in total.
___ \times ___ = ___



___ groups with ___ tulips each.
There are ___ tulips in total.
___ \times ___ = ___

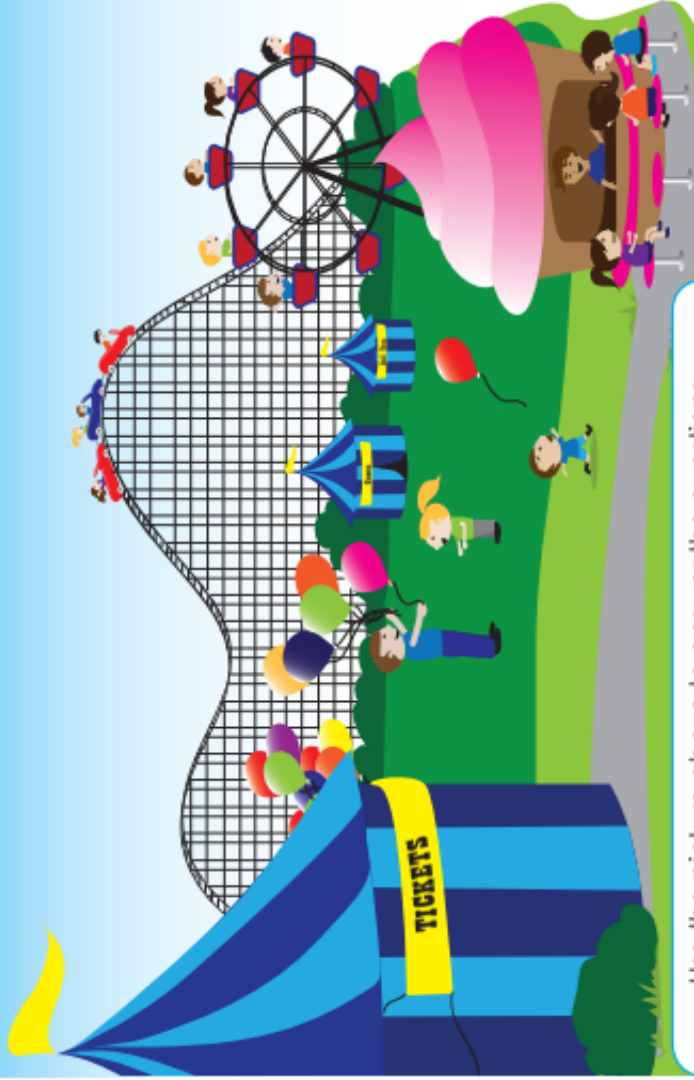


___ groups with ___ tulips each.
There are ___ tulips in total.
___ \times ___ = ___

Name _____

Date _____

Multiplication Word Problems



Use the picture above to answer the questions.
Write the answer in the form of a number sentence.

Example: $2 \times 5 = 10$



The Ferris wheel costs 5 tickets to ride. How many tickets does it cost for 5 people to ride?



An ice cream cone costs \$3. How much will 5 children spend buying ice cream cones?



The roller coaster cars hold 2 people each. How many can 10 roller coaster cars hold?



There are 4 people who play the ball toss. Each game costs 5 tickets. How many tickets are used?



There are 5 children who bought balloons. Each child bought 2 balloons. How many balloons in all did they buy?



There are 6 people who sell balloons in the park. If they each have 5 balloons, how many balloons are there in all?

Mammal Mystery

Multiply. Then fill in the boxes with the letters that go with the numbers to find the answer to the question!

$$\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 3 \\ \times 5 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 7 \\ \times 7 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 4 \\ \times 1 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 5 \\ \times 8 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 6 \\ \times 4 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 5 \\ \times 6 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 7 \\ \times 3 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 3 \\ \times 2 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 4 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 2 \\ \times 1 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 8 \\ \times 6 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 4 \\ \times 4 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{r} 9 \\ \times 6 \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array} \begin{array}{|c|} \hline \square \\ \hline \end{array}$$

What unusual mammal lays eggs instead of giving birth to live young?

$$\begin{array}{r} _ \\ 15 \end{array} \begin{array}{r} _ \\ 12 \end{array} \begin{array}{r} _ \\ 40 \end{array} \begin{array}{r} _ \\ 21 \end{array} \begin{array}{r} _ \\ 48 \end{array} \begin{array}{r} _ \\ 16 \end{array} \begin{array}{r} _ \\ 30 \end{array} \begin{array}{r} _ \\ 36 \end{array} \begin{array}{r} _ \\ 15 \end{array}$$

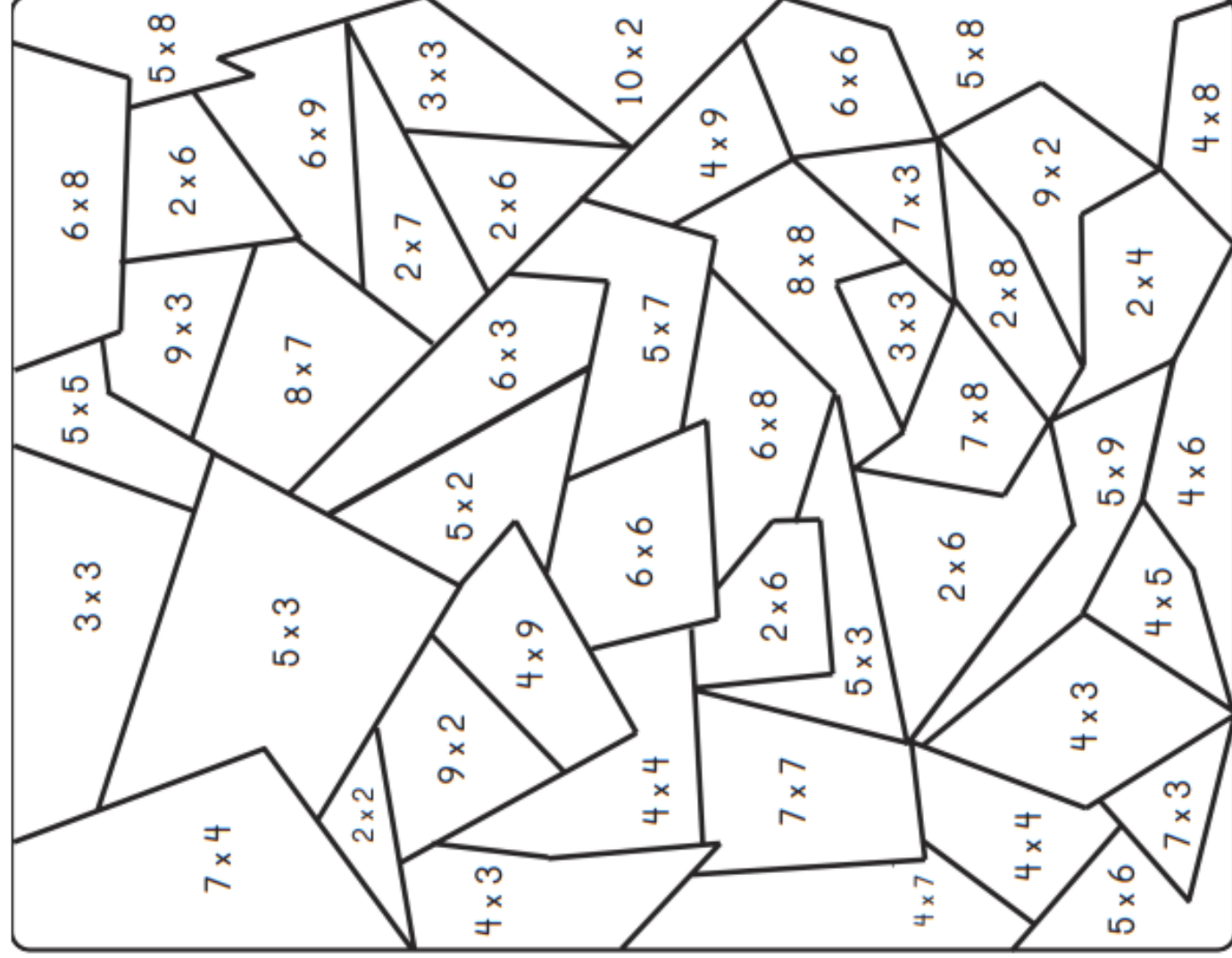
$$\begin{array}{r} _ \\ 54 \end{array} \begin{array}{r} _ \\ 30 \end{array} \begin{array}{r} _ \\ 24 \end{array} \begin{array}{r} _ \\ 6 \end{array} \begin{array}{r} _ \\ 2 \end{array} \begin{array}{r} _ \\ 54 \end{array} \begin{array}{r} _ \\ 12 \end{array} \begin{array}{r} _ \\ 4 \end{array}$$



Color by Multiplication

Do the multiplication calculation and color the shape in the correct color.

- 0-10
light blue
- 11-20
purple
- 21-30
pink
- 31-40
yellow
- 41-50
green
- 51-60
orange
- 61-70
dark blue



March Math Pacing Guide 7th Grade

[M.EE.7.G.2](#) - Recognize geometric shapes with given conditions.

Learning Goal:

- Level 2-3 – (2) Students can identify two and three-dimensional shapes by multiple attributes with support. (3) Students will independently identify two and three-dimensional shapes by multiple attributes.
- Level 1 – Students will select the named shape or its attributes from an errorless choice.

Essential Questions:

- How can I decide if two shapes are similar?
- What attributes do the shapes have?
- What attributes do these shapes have in common?

Vocabulary:

- **Attribute** – A property of an object such as size or color.
- **Side** – One of the line segments that make a flat shape (2-dimensional) or one of the faces that make a solid (3-dimensional) object.
- **Vertices** – A point where two or more line segments meet. A corner.
- **Square** – A flat shape with 4 straight sides where: all sides have equal length, and every interior angle is a right angle (90°)
- **Circle** – A 2-dimensional shape made by drawing a curve that is always the same distance from a center.
- **Triangle** – A 3-sided flat shape with straight sides.
- **Rectangle** - A 4-sided flat shape with straight sides where all interior angles are right angles (90°). Also opposite sides are parallel and of equal length.
- **Cube** – A box-shaped solid object that has six identical square faces.
- **Cone** – A solid (3-dimensional) object that has a circular base joined to a point by a curved side.
- **Cylinder** – two identical flat ends that are circular (or more generally have a curved boundary) and one curved side.
- **Sphere** - A 3-dimensional object shaped like a ball.



Mini-Map for M.EE.7.G.2

Subject: Mathematics

Geometry (G)

Grade: 7

Learning Outcome


DLM Essential Element	Grade-Level Standard
M.EE.7.G.2 Recognize geometric shapes with given conditions.	M.7.G.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

Linkage Level Descriptions

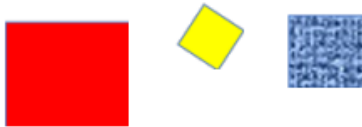
Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Recognize "same" as the object that shares all of the same attributes as other objects in a group. Recognize "different" as the object that shares some or none of the attributes as other objects in a group.	Recognize two-dimensional shapes such as square, circle, triangle, or rectangle or three-dimensional shapes such as cube, cone, cylinder, or sphere.	Communicate attribute values of a shape, such as number of sides or number of corners (e.g., a square has four sides).	Recognize shapes with specified attributes (e.g., number of sides, number of vertices).	Group together shapes with specified attributes (e.g., number of sides, number of vertices).

Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

How is the Initial Precursor related to the Target?

Being able to recognize shapes given certain conditions requires a student to recognize when basic objects and shapes are the same or different. Work on this understanding by providing students with a shape and naming it (e.g., “this is a square” ). Then provide multiple examples of the same shape so students can make comparisons (e.g., focusing student attention on the characteristics that make this a particular shape [e.g., a square has 4 sides that are the same size]). As students explore shapes, label them and describe them as same or different.

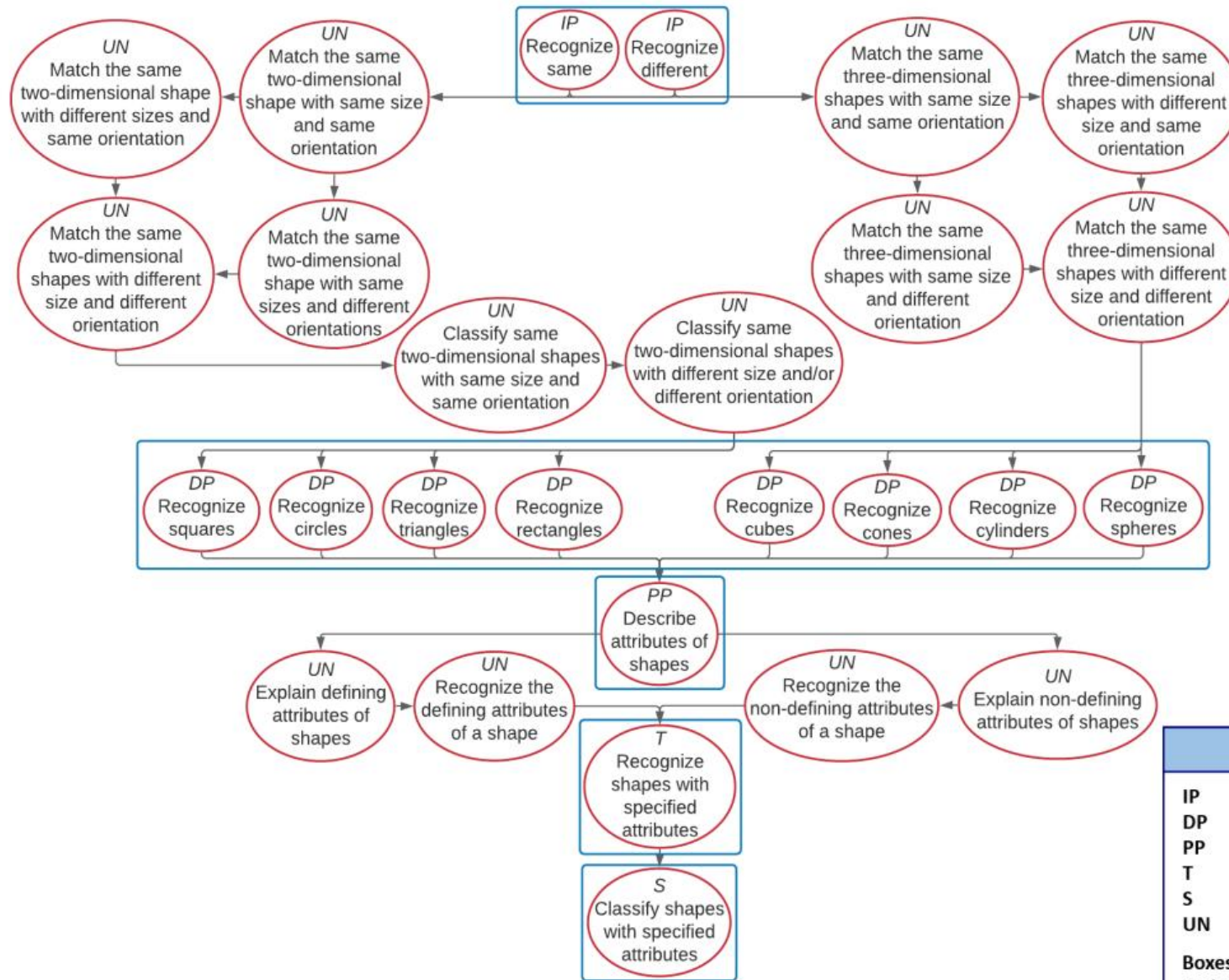
NOTE: When presenting the same shape for comparison, do use shapes with different colors, textures, sizes, and orientation so that students understand the attribute that makes it that shape (e.g., 4 sides that are the same size).



How is the Distal Precursor related to the Target?

Now that students have experience identifying shapes as “same” and “different”, provide instruction that focuses on the attribute of a given shape and making comparisons with other shapes. Educators should take care to use the names of the shapes while defining and describing the attributes. While students do not need to say the shape names, they do need to learn what makes a shape a shape (e.g., a square has four equal straight sides, a triangle has three straight sides, and a cone is an object that narrows from a circular base to a point).

M.EE.7.G.2 Recognize geometric shapes with given conditions.



Map Key	
IP	Initial Precursor
DP	Distal Precursor
PP	Proximal Precursor
T	Target
S	Successor
UN	Untested
Boxes indicate tested nodes	

Rubric of Student Success

[M.EE.7.G.2](#) - Recognize geometric shapes with given conditions.

<p>Level 3 Students will...</p> <p>Level 3</p> <ul style="list-style-type: none"> Independently identify two and three-dimensional shapes by multiple attributes. 	<p>Level 2 Students will...</p> <p>Level 2</p> <ul style="list-style-type: none"> Identify two and three-dimensional shapes by multiple attributes with support. 	<p>Level 1 Students will...</p> <p>Level 1</p> <ul style="list-style-type: none"> Select the named shape or its attributes from an errorless choice.
<p>Successor and Target Students will...</p> <p>Successor</p> <ul style="list-style-type: none"> Classify shapes with specified attributes <p>Target</p> <ul style="list-style-type: none"> Recognize shapes with specified attributes 	<p>Proximal Precursor and Distal Precursor Students will...</p> <p>Proximal Precursor</p> <ul style="list-style-type: none"> Describe attributes of shapes <p>Distal Precursor</p> <ul style="list-style-type: none"> Recognize the following: squares, circles, triangles, rectangles Recognize the following: cubes, cones, cylinders, spheres 	<p>Initial Precursor Students will...</p> <p>Initial Precursor</p> <ul style="list-style-type: none"> Recognize same Recognize different

Instructional Ideas

[M.EE.7.G.2](#) - Recognize geometric shapes with given conditions.

Shapes can be described, classified, and analyzed by their attributes.

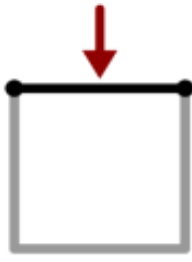
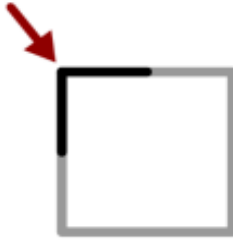
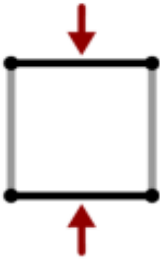
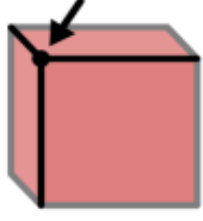
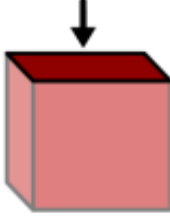
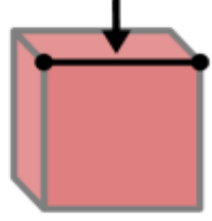
The big idea is that many two-dimensional shapes share attributes with three dimensional shapes.




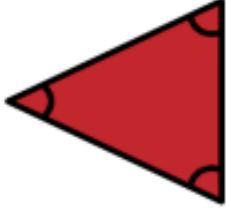


- Introduce by asking the essential questions.
- Match familiar shapes such as squares, rectangles, circles when presented with different size and same orientation.
- Match familiar solids such as spheres, rectangular prisms, cubes, pyramids when presented with different size and same orientation.
- Classify shapes with like attributes.
- Describe attributes of shapes.
- Match a two-dimensional shape with a three-dimensional shape that shares an attribute (identify a square in a cube, identify the circle in a cylinder).
- Model the difference between 2 and 3 dimensional shapes using classroom objects.
- A side is one of the line segments that make a flat shape. Let's count how many sides this shape has. Trace your finger over each side and count aloud.
- Use manipulatives as needed.
- Students may use a calculator if needed.
- Included worksheets are examples of what to look for when finding additional materials that best fits your student's needs.

Additional Instructional Ideas





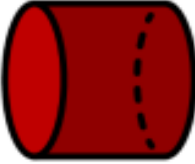

- Go to website for additional instructional resources, materials, and activities for lessons:

Parts of Shapes

<p>side</p>	<ul style="list-style-type: none"> • one of the line segments that makes a flat shape 	
<p>angle</p>	<ul style="list-style-type: none"> • a shape made when 2 or more sides or edges meet 	
<p>parallel sides</p>	<ul style="list-style-type: none"> • sides that are always the same distance apart and will never touch even if they are longer 	
<p>vertex</p>	<ul style="list-style-type: none"> • a point where 2 or more sides or edges meet 	
<p>face</p>	<ul style="list-style-type: none"> • a flat or curved side of a solid shape 	
<p>edge</p>	<ul style="list-style-type: none"> • a line segment where 2 faces meet 	

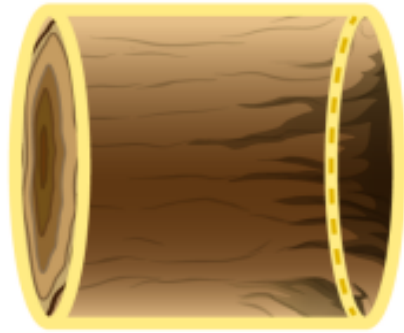
2-D Flat Shapes		
circle	<ul style="list-style-type: none"> • 1 curved side • no angles 	
square	<ul style="list-style-type: none"> • 4 equal sides • 2 sets of parallel sides • 4 right angles 	
rectangle	<ul style="list-style-type: none"> • 4 sides • 2 sets of equal sides • 2 sets of parallel sides • 4 right angles 	
triangle	<ul style="list-style-type: none"> • 3 sides • no parallel sides • 3 angles 	
right triangle	<ul style="list-style-type: none"> • 3 sides • no parallel sides • 1 right angle • 2 acute angles 	
rhombus	<ul style="list-style-type: none"> • 4 equal sides • 2 sets of parallel sides • 2 opposite equal acute angles • 2 opposite equal obtuse angles 	

3-D Solid Shapes

<p>sphere</p>	<ul style="list-style-type: none"> • no flat faces • no edges • no vertices 	
<p>cube</p>	<ul style="list-style-type: none"> • 6 flat square faces • 12 edges • 8 vertices 	
<p>rectangular prism</p>	<ul style="list-style-type: none"> • 6 flat rectangle faces • 12 edges • 8 vertices 	
<p>cone</p>	<ul style="list-style-type: none"> • 1 curved face • 1 flat circle face • 1 curved edge • 1 vertex 	
<p>cylinder</p>	<ul style="list-style-type: none"> • 2 flat circle faces • 1 curved face • 2 curved edges • no vertices 	
<p>pyramid</p>	<ul style="list-style-type: none"> • 4 triangle faces • 1 square or rectangle face • 8 edges • 5 vertices 	

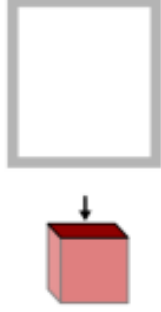
Look at the objects. Find the object that is shaped like a sphere.

Put the matching sphere shape over that object.

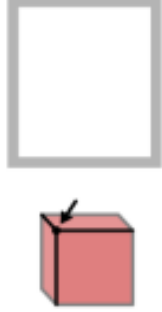


Answer the questions about the sphere.

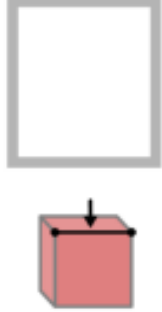
How many faces?



How many vertices?



How many edges?



The is a sphere.

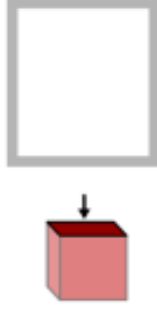
Look at the objects. Find the object that is shaped like a cylinder.

Put the matching cylinder shape over that object.

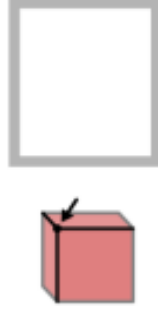


Answer the questions about the cylinder.

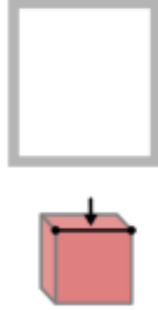
How many faces?



How many vertices?



How many edges?



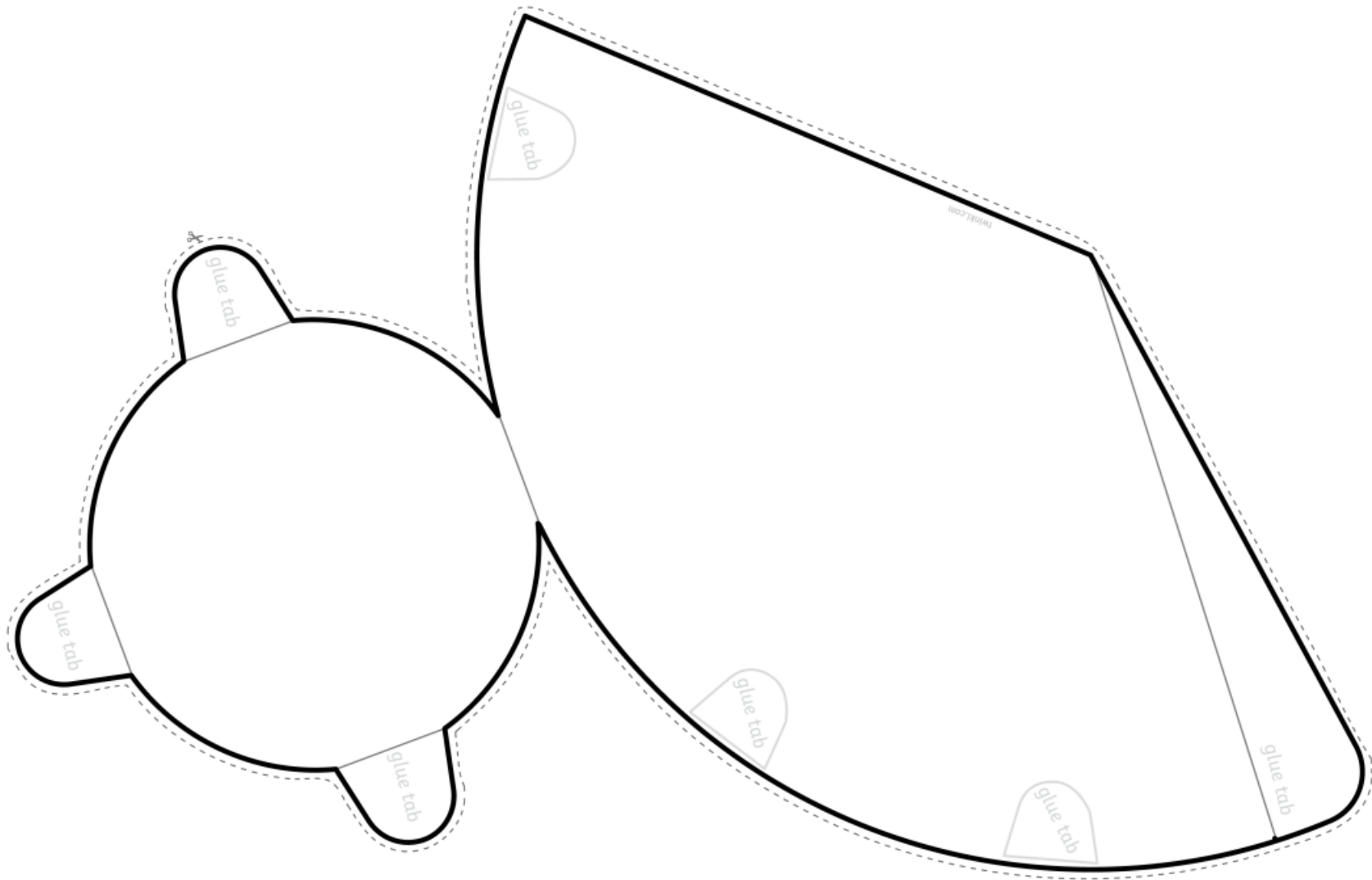
The



is a cylinder.

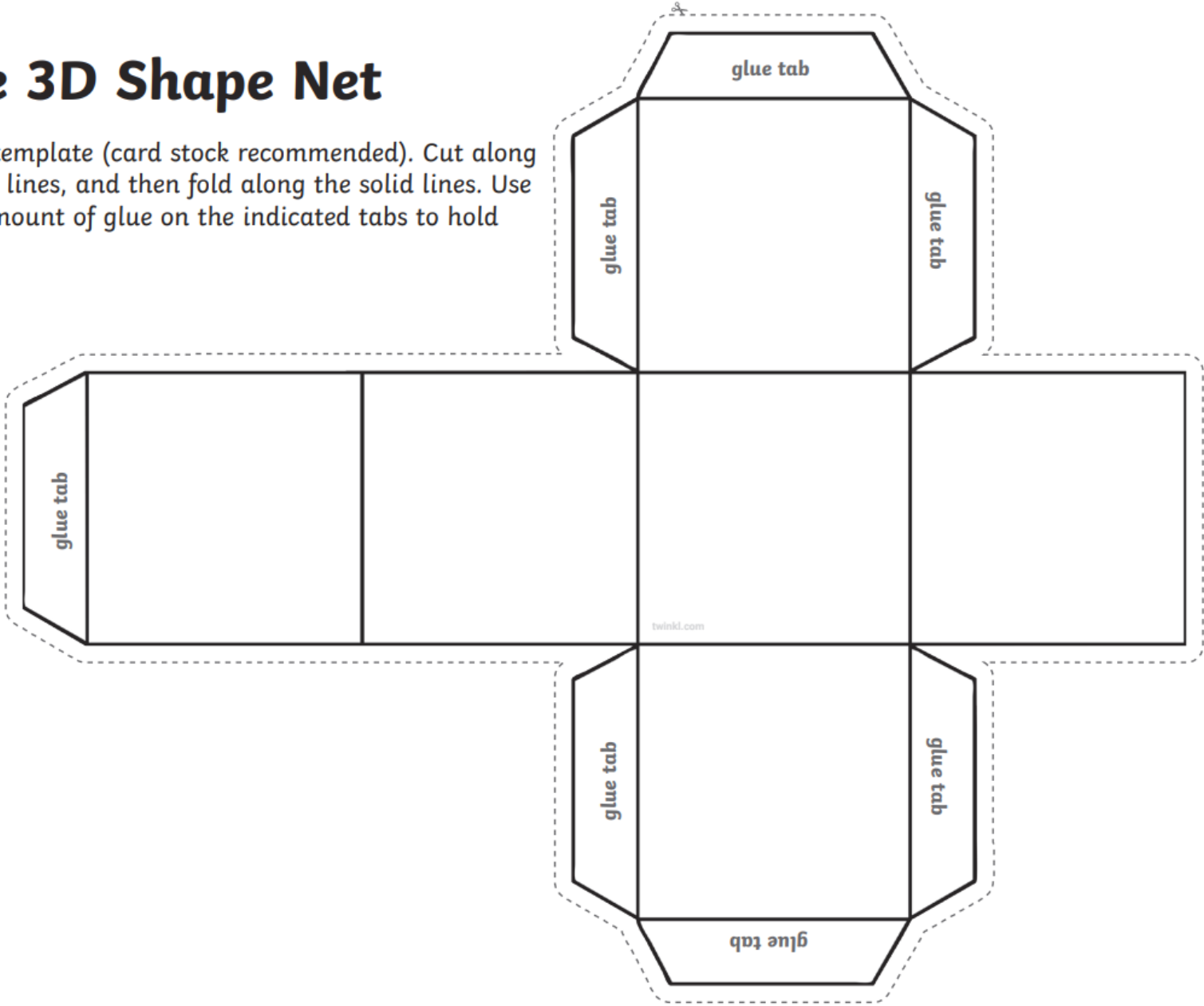
Cone 3D Shape Net

Print the template (card stock recommended). Cut along the dotted lines, and then fold along the solid lines.
Use a small amount of glue on the indicated tabs to hold the shape.



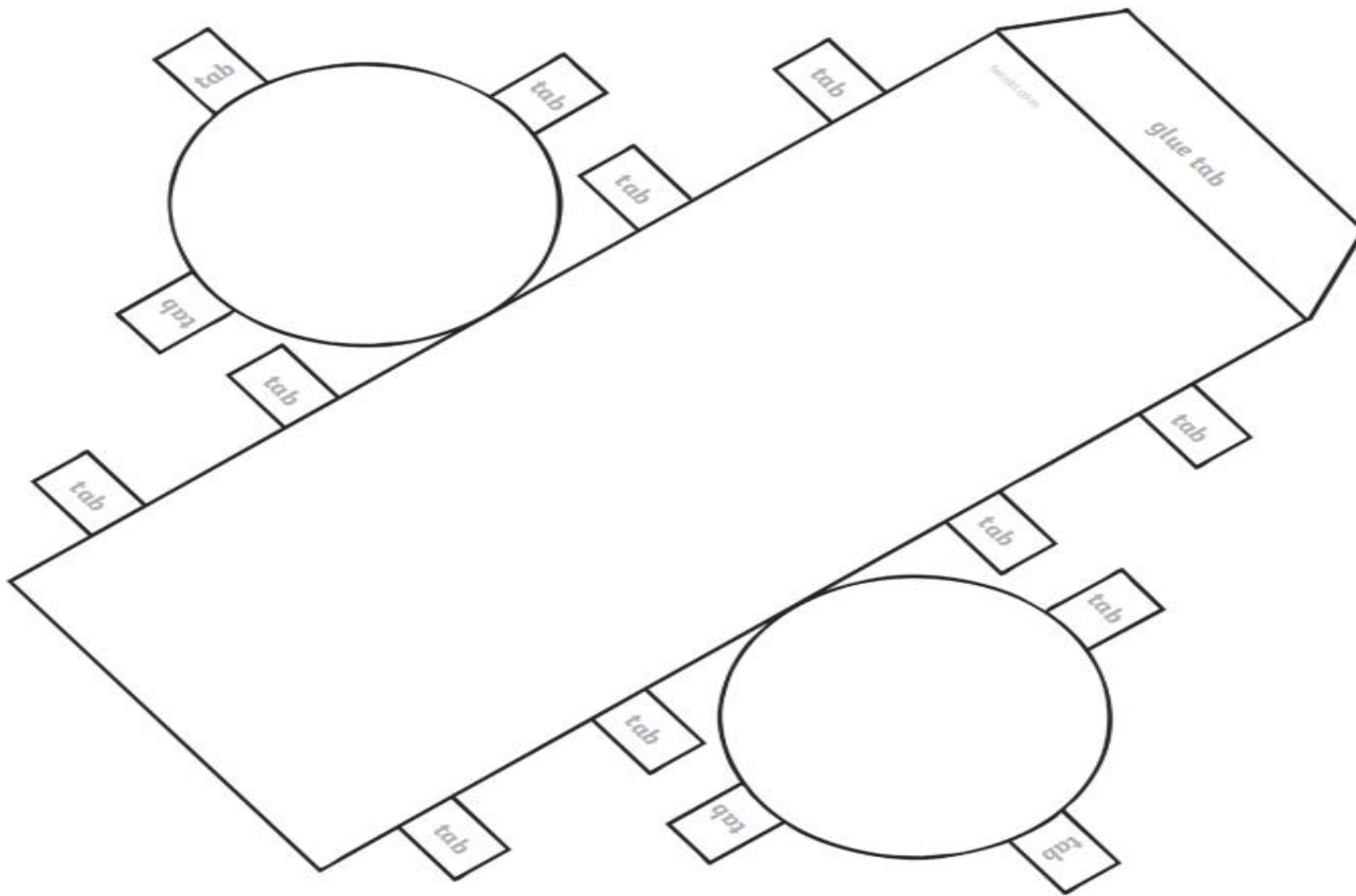
Cube 3D Shape Net

Print the template (card stock recommended). Cut along the dotted lines, and then fold along the solid lines. Use a small amount of glue on the indicated tabs to hold the shape.



Cylinder 3D Shape Net

Print the template (card stock recommended). Cut along the exterior lines, then carefully fold to form the cylinder. Use a small amount of glue on the indicated tabs to stick the shape together.



Key:

□ = red

○ = blue

▭ = yellow






△ = green

Color by 2D Shapes

Color the shapes to complete the picture.

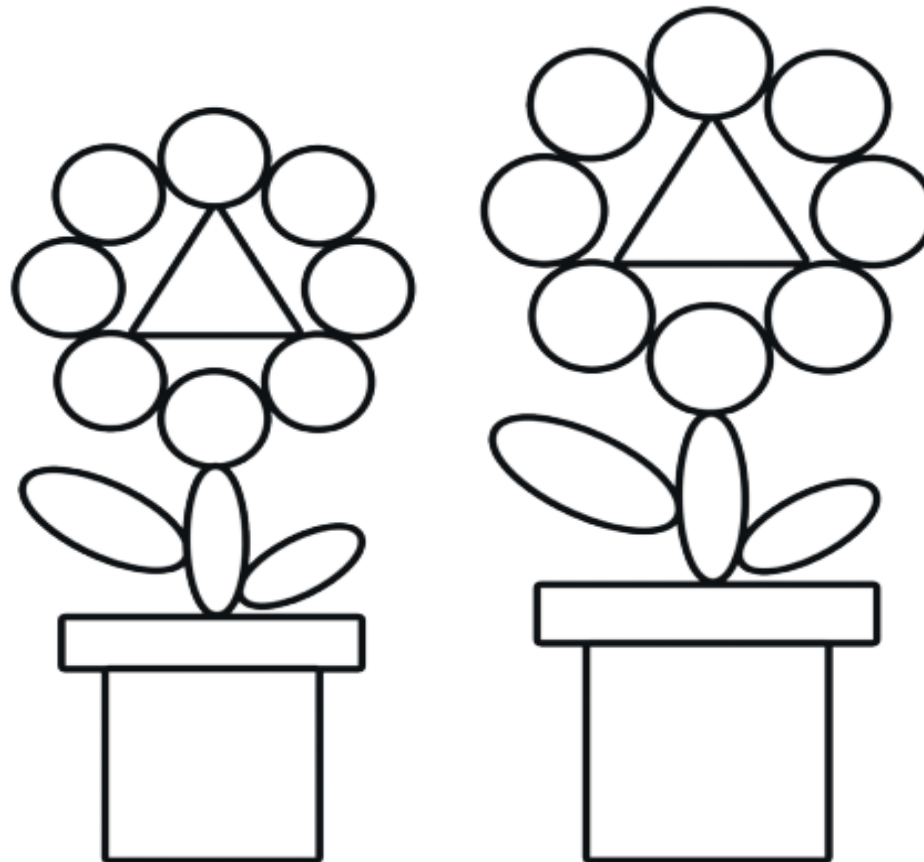


Key:

-  = red
-  = blue
-  = yellow
-  = green
-  = purple

Color by 2D Shapes

Color the shapes to complete the picture.



visit [twinkl.com](https://www.twinkl.com)



Key:

□ = green

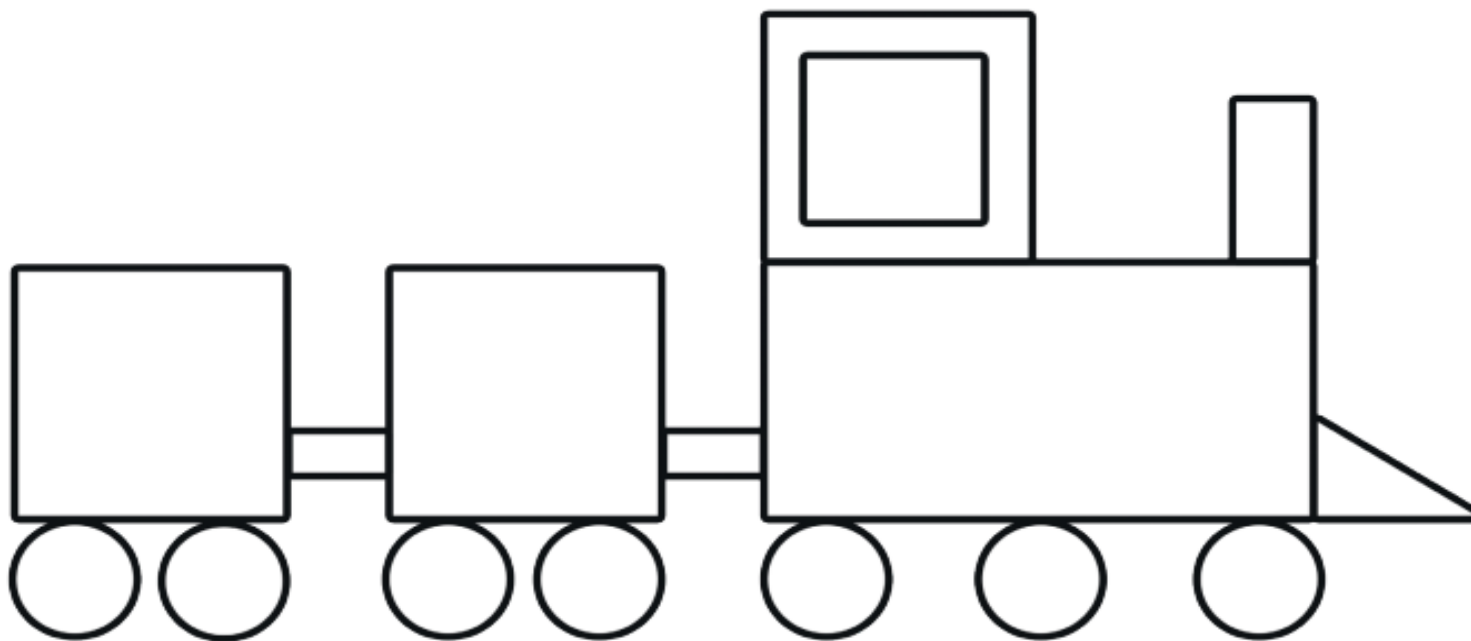
○ = brown

▭ = blue

△ = yellow

Color by 2D Shapes

Color the shapes to complete the picture.



visit [twinkl.com](https://www.twinkl.com)



3D Shape Hunt













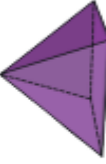







Use a tally to count the shapes you see.

Shape	Tally
	
	
	
	
	
	
	

Which shape did you see the most?

Which shape did you see least?

2D and 3D Shapes

 <p>circle</p>	 <p>triangle</p>	 <p>square</p>	 <p>rectangle</p>
 <p>pentagon</p>	 <p>hexagon</p>	 <p>octagon</p>	 <p>oval</p>
 <p>rhombus</p>	 <p>semicircle</p>	 <p>parallelogram</p>	 <p>trapezoid</p>
 <p>square-based pyramid</p>	 <p>cylinder</p>	 <p>hexagonal prism</p>	 <p>cube</p>
 <p>cone</p>	 <p>triangular prism</p>	 <p>sphere</p>	 <p>rectangular prism</p>

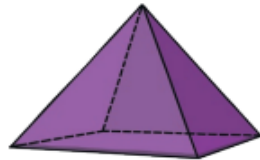


3D Shape Properties

sphere



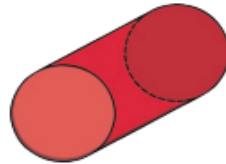
pyramid



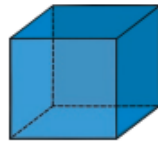
cone



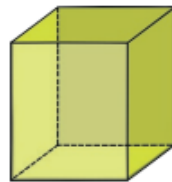
cylinder



cube



rectangular
prism



Cut out the flap book. Cut along the dashed line on each flap of the title page.
Put glue here and place under the title page.

edges vertices faces

A **real-world example** of this shape is a _____.

edges vertices faces

A **real-world example** of this shape is a _____.

edges vertices faces

A **real-world example** of this shape is a _____.

edges vertices faces

A **real-world example** of this shape is a _____.

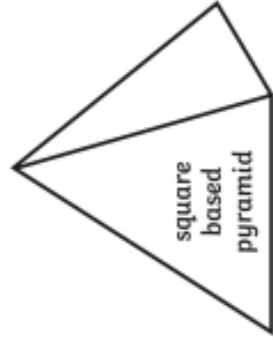
edges vertices faces

A **real-world example** of this shape is a _____.

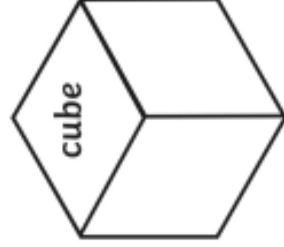
edges vertices faces

A **real-world example** of this shape is a _____.

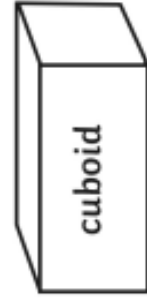
3D Shapes



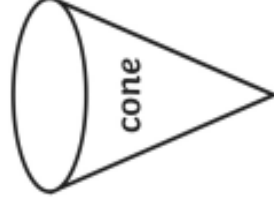
edges _____
faces/surfaces _____
vertices _____



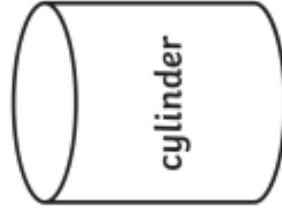
edges _____
faces/surfaces _____
vertices _____



edges _____
faces/surfaces _____
vertices _____



edges _____
faces/surfaces _____
vertices _____



edges _____
faces/surfaces _____
vertices _____



edges _____
faces/surfaces _____
vertices _____

March Math Pacing Guide 7th Grade

[M.EE.7.NS.2.a](#) - Solve multiplication problems with products to 100.

Learning Goal:

- Level 2-3 – I will multiply to solve a math problem.
- Level 1 – I will count objects.

Essential Questions:

- How can I make equal groups from this one large group?
- How do I know this is a fair share?
- What is the product?
- How can I solve this multiplication problem using objects?
- How can I solve this multiplication problem using a calculator?

Vocabulary:

- **Multiply** - to add equal groups using repeated addition.



Mini-Map for M.EE.7.NS.2.a

Subject: Mathematics

The Number System (NS)

Grade: 7

Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.7.NS.2.a Solve multiplication problems with products to 100.	M.7.NS.2.a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

Linkage Level Descriptions

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate understanding of "separateness" by recognizing objects that are not joined together. Communicate understanding of a set by recognizing a group of objects sharing an attribute.	Communicate understanding that in repeated addition problems, a single numerical value is added repeatedly (e.g., $6 + 6 + 6$) and that one way to add a number a given number of times is by using skip-counting as a strategy (e.g., $6 + 6 + 6$ can be added as 6, 12, 18). Represent repeated addition problems using an equation showing the addition of the same	Demonstrate multiplication by combining multiple sets containing the same number of objects. Communicate understanding that the number of sets times the number of objects in each set equals the total number of objects.	Multiply a number up to 20 by a number 1 to 10 to determine the product, using manipulatives as needed.	Divide a number by a divisor from 1 to 10 to determine the quotient, using manipulatives if needed. Quotients will not exceed 12. Communicate understanding of multiplication as the number of groups times the number of objects in each group (with the understanding that each group contains an equal number of objects) and that the total number of objects

	numeral the required number of times, and find the correct sum using an addition strategy (e.g., $5 + 5 + 5 = 15$).			(i.e., the product) can then be divided by the number of groups to equal the number of objects in each group, and vice versa.
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Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

How is the Initial Precursor related to the Target?

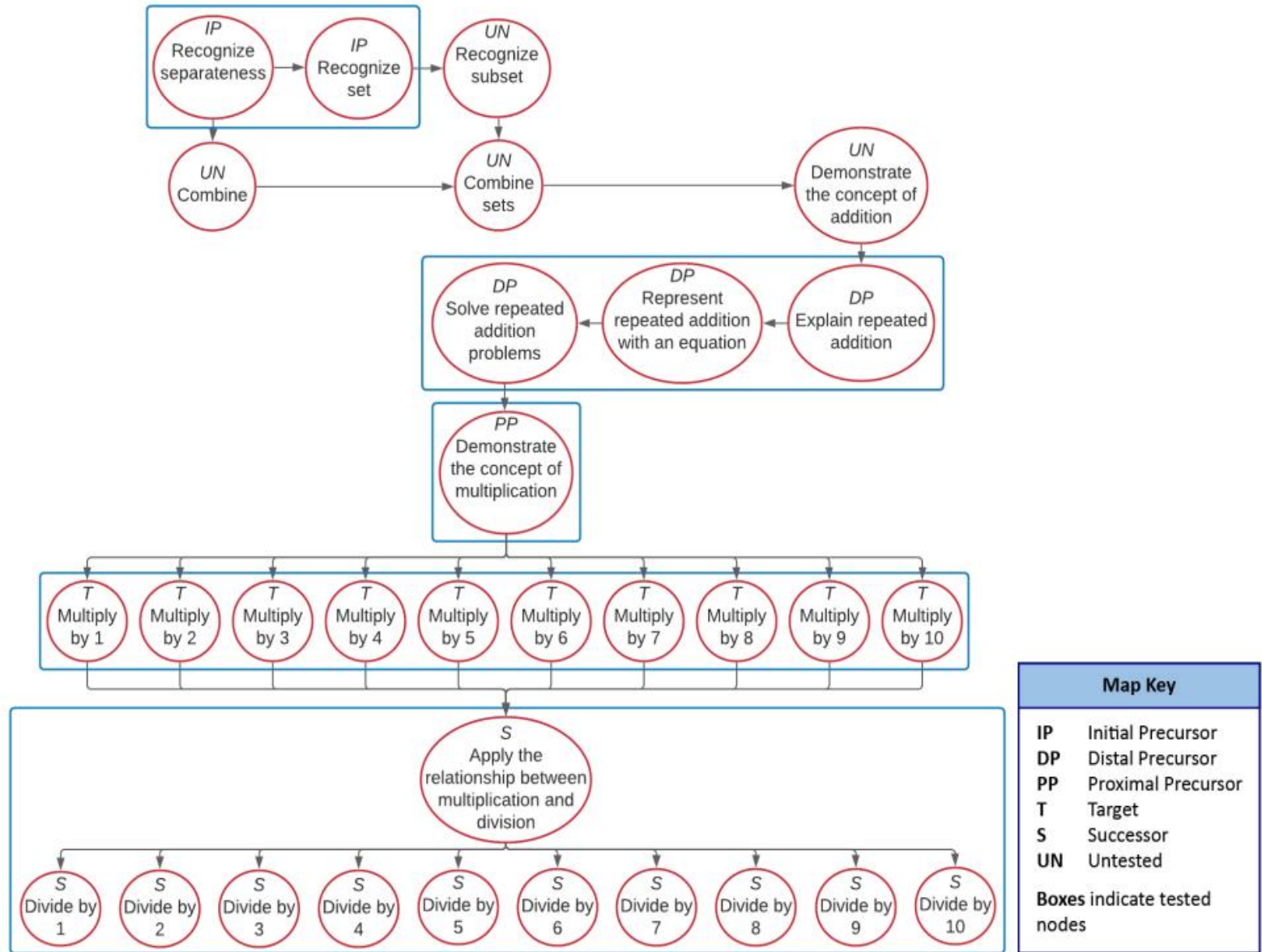
Solving multiplication problems requires a student to be able to recognize that two or more sets or groups of items exist. Work on this skill using a variety of sets. Help students recognize when items are grouped together into a set or separated out. As educators present a set, they label it (e.g., two balls, one marker, three CDs), count the items, label it again, and encourage students to use numerals to label and count the separate sets. Use tools like the ten-frame to point out whole and parts (e.g., a row of 5 dots and a row of 4 dots are parts or subsets of 9).



How is the Distal Precursor related to the Target?

As students' understanding of labeling and counting sets develops, they will begin working on adding items to a set and combining sets to create a new set. Additionally, students will work on developing an understanding of equal shares by actively participating in one-to-one distribution of objects to person, objects to objects, and objects to available space (e.g., giving each person in the group two pencils; given four counters, they would line up four more counters in front of or on top of the first set; given three chairs at a table, the student would place a cup on the table for each available chair). As students learn to work with sets and connect their understanding of equal shares to sets, educators will provide students experience with combining multiple sets (e.g., 3 sets with 4 counters each) and represent the problem (e.g., $4 + 4 + 4 = ?$). Students will also learn to represent the problem using a pencil or their communication system (e.g., the student is shown 4 equal sets each with 2 counters. The student counts the first set and writes a 2 or indicates 2, then writes or indicates the plus sign. The student repeats for all 4 sets and then indicates the equal sign and solves the problem.).

M.EE.7.NS.2.a Solve multiplication problems with products to 100.



Rubric of Student Success

[M.EE.7.NS.2.a](#) - Solve multiplication problems with products to 100.

<p>Level 3 Students will...</p> <p>Level 3</p> <ul style="list-style-type: none"> I will multiply to solve a problem 	<p>Level 2 Students will...</p> <p>Level 2</p> <ul style="list-style-type: none"> I will multiply to solve a problem 	<p>Level 1 Students will...</p> <p>Level 1</p> <ul style="list-style-type: none"> I will count items
<p>Successor and Target Students will...</p> <p>Successor</p> <ul style="list-style-type: none"> Apply the relationship between multiplication and division Divide by 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 <p>Target</p> <ul style="list-style-type: none"> Multiply by 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 	<p>Proximal Precursor and Distal Precursor Students will...</p> <p>Proximal Precursor</p> <ul style="list-style-type: none"> Demonstrate the concept of multiplication <p>Distal Precursor</p> <ul style="list-style-type: none"> Solve repeated addition problems Represent repeated addition with an equation Explain repeated addition 	<p>Initial Precursor Students will...</p> <p>Initial Precursor</p> <ul style="list-style-type: none"> Recognize separateness Recognize subset

Instructional Ideas

[M.EE.7.NS.2.a](#) - Solve multiplication problems with products to 100.

Numbers can be represented, displayed, and compared.

The big idea is that concepts and properties of multiplication are the same when using whole numbers.

- Introduce by asking the essential questions.
- **See the 6th grade standard above for additional worksheets if needed as this is the same but goes to 100 instead of 50.**
- Demonstrate repeated addition.
- Solve multiplication problems up to 100.
- Allow students to have their own anchor charts.
- Use manipulatives as needed.
- Students may use a calculator if needed.
- Included worksheets are examples of what to look for when finding additional materials that best fits your student's needs.

Additional Instructional Ideas

- Go to website for additional instructional resources, materials, and activities for lessons:

Jeanette Nowak

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

March Math Pacing Guide 7th Grade

*** See February 8th Grade Pacing Guide for the following standards to be reviewed again or you can focus on other topics that need additional review with students before administering the DLM to 8th graders.

- [M.EE.8.G.5](#) - Compare any angle to a right angle, and describe the angle as greater than, less than, or congruent to a right angle.
- [M.EE.8.G.9](#) - Use the formulas for perimeter, area, and volume to solve real-world and mathematical problems (limited to perimeter and area of rectangles and volume of rectangular prisms).

Credits

Websites Used for Worksheets and Lesson Ideas:

- <https://www.education.com>
- <https://www.twinkl.com>
- <https://www.superteacherworksheets.com>
- <https://www.easyteacherworksheets.com>
- <https://www.mathworksheets4kids.com>
- <https://www.math-salamanders.com>
- <https://www.math-drills.com>
- <https://www.mathsisfun.com/definitions/index.html>

Resources Used to Help Create the Pacing Guide:

DLM Essential Elements Unpacking

- <https://www.dlmpd.com/dlm-essential-elements-unpacking>

Instructional Resources for YE Model States

- <https://dynamiclearningmaps.org/instructional-resources-ye/mathematics>

Dynamic Learning Maps

- <https://dynamiclearningmaps.org>

Unique Learning System

- <https://www.n2y.com/unique-learning-system>

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