Essential Elements
Math Pacing Guide

February

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

Jeanette Nowak @ mrsnowakhomeroom.com

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February Outline

Standards covered during February:

- M.EE.6.G.1 - Solve real-world and mathematical problems about area using unit squares.
- M.EE.6.NS.2 - Apply the concept of fair share and equal shares to divide.
- M.EE.7.G.4 - Determine the perimeter of a rectangle by adding the measures of the sides.
- M.EE.7.NS.2.b - Solve division problems with divisors up to five and also with a divisor of 10 without remainders.
- 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).

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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

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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.

February Math Pacing Guide
8th Grade

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.

Learning Goal:

- Level 2-3 – Students will recognize angles as acute, obtuse, and right as well as if an angle is less than or greater than a right angle.
- Level 1 – Students will recognize attribute values

Essential Questions:

- How does this angle compare to a right angle?

Vocabulary:

- **Right angle –** An angle which his equal to 90 degrees.
- **Acute angle –** An angle less than 90 degrees.
- **Obtuse angle –** An angle that is more than 90 degrees but less than 180 degrees.
- **Straight line –** An angle that is 180 degrees and does not curve.

Jeanette No

Mini-Map for M.EE.8.G.5

Subject: Mathematics
Geometry (G)
Grade: 8

Learning Outcome

DLM Essential Element	Grade-Level Standard
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.8.G.5** Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

Linkage Level Descriptions

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Recognize attributes or characteristics of an object, such as color, orientation, length, width, and weight.	Recognize an angle as a figure formed by two rays sharing one endpoint.	Recognize angles that are either acute, obtuse, or right.	Compare the measure of an angle to the measure of a right angle, and communicate whether the measure of the angle is greater than, less than, or congruent to the measure of the right angle.	Explain that complementary angles are pairs of angles with measures that add up to 90 degrees (e.g., a 40-degree angle and 50-degree angle).

Jeanet

Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

How is the Initial Precursor related to the Target?

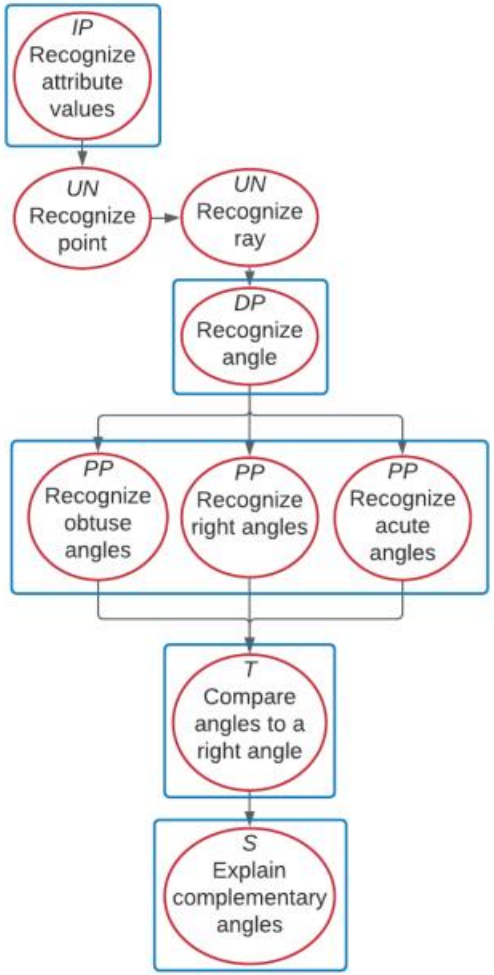
In order to recognize angles, students begin by learning to notice what is new. The educator draws the students' attention to new objects or stimuli, labels them (e.g., “this is a circle, and it does not have any sides,” “this is a rectangle, and it has four sides”) and the student observes, feels, or otherwise interacts with the shapes.

How is the Distal Precursor related to the Target?

At this level, educators are providing students with specific vocabulary (line, line segment, point, and ray) that are used to form an angle. These are all denoted by certain characteristics (a line has arrows on both ends; a line segment includes both endpoints; a point is a dot on a graph, a line, line segment, or a number line; a ray is a line that has a well-defined starting point). Educators should take care to use the names “line,” “line segment,” “point,” and “ray” while defining and describing the angles. While students do not need to say the names, they do need to learn their meaning. Educators should teach these attributes within the context of working with angles.

Jeanette Nowak @ msno

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.



Map Key	
IP	Initial Precursor
DP	Distal Precursor
PP	Proximal Precursor
T	Target
S	Successor
UN	Untested

Boxes indicate tested nodes

Jeanette

Rubric of Student Success

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.

Level 3 Students will… Level 3 •	Level 2 Students will… Level 2 •	Level 1 Students will… Level 1 •
Successor and Target Students will… Successor • Explain complementary angles Target • Compare angles to a right angle	Proximal Precursor and Distal Precursor Students will… Proximal Precursor • Recognize obtuse angles • Recognize right angles • Recognize acute angles Distal Precursor • Recognize angle	Initial Precursor Students will… Initial Precursor • Recognize attribute values

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Instructional Ideas

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.

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

The big idea is that shapes have attributes that do not change despite their orientation.

- Introduce by asking the essential questions.
- Compare angle to right angle.
- Identify parts of an angle: arm (the two straight sides), angle (the amount of turn between each arm), vertex (the corner point of an angle).
- A right angle can be in any orientation or rotation as long as the internal angle is 90 degrees.
- Teach how the box in the corner always identifies it as a right angle.
- Describe as greater than, less than, or congruent to right angle.
- 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:

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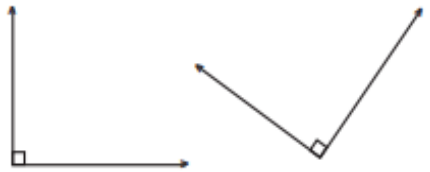
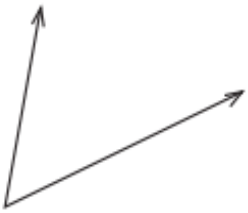
Math
Geometry

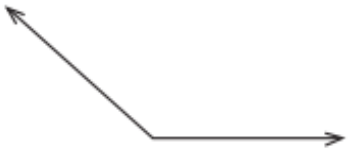
Right Angles: Less Or More?

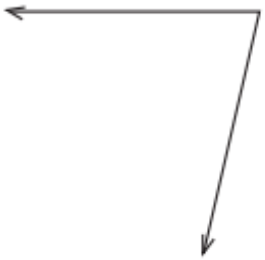
A right angle is an angle of 90 degrees.

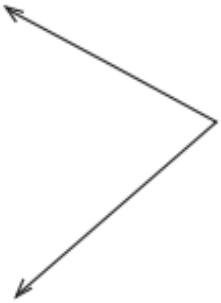


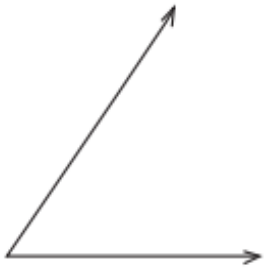
Look at the angles below. Write "less than" if the angle is smaller than a right angle and "more than" if the angle is larger than a right angle.

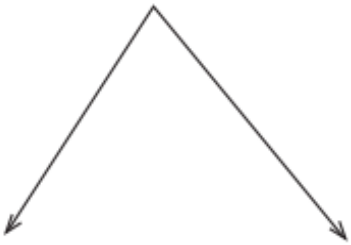


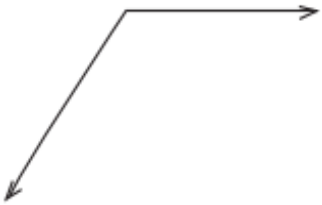












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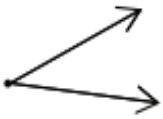
Name: _____

Date: _____

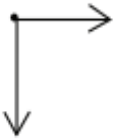
Basic Geometry:
Anatomy of an Angle

An **angle** is made up of two rays that share a common endpoint.
The **vertex** of an angle is the point where the two rays meet.



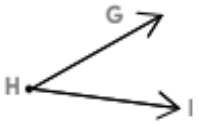
An **acute** angle is less than 90°

An **obtuse** angle is greater than 90°



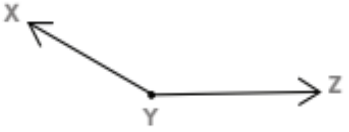
A **right** angle is 90°

Directions: Look at each angle and write whether it is acute, obtuse, or right.
Then write the letter that represents its vertex.



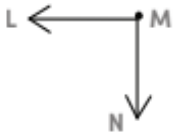
Angle: _____ **Vertex:** ____

Angle: _____ **Vertex:** ____

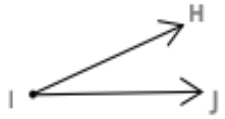


Angle: _____ **Vertex:** ____

Angle: _____ **Vertex:** ____

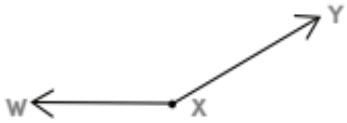


Angle: _____ **Vertex:** ____

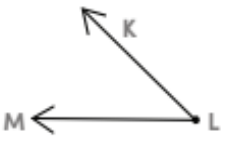


Angle: _____ **Vertex:** ____

Angle: _____ **Vertex:** ____



Angle: _____ **Vertex:** ____



Angle: _____ **Vertex:** ____

1. An angle measuring less than 90° is called a(n) _____ angle.
2. An angle measuring exactly 90° is called a(n) _____ angle.
3. An angle measuring more than 90° is called a(n) _____ angle.

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Name that Angle!

Identify the angles by writing **right**, **acute**, or **obtuse** on the line.

A right angle forms a square corner.

An acute angle is less than a right angle.

An obtuse angle is greater than a right angle.

_____

_____

_____

_____

_____

_____

_____

_____

_____

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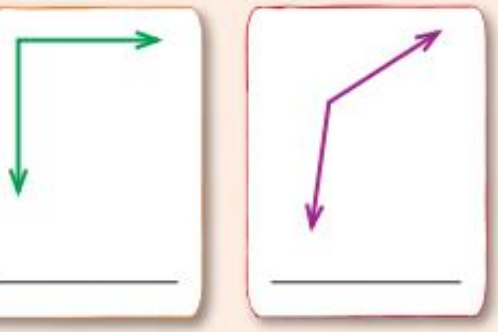
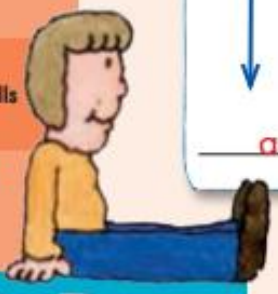
What's Your Angle?

Identify each of these angles by writing **right**, **acute**, or **obtuse** on the line below the angle.





Math Skills

Angles

Brain Box

When two lines meet at one point they form an **angle.**

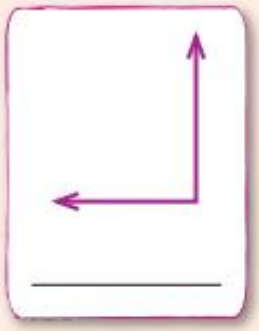
This is angle A. A

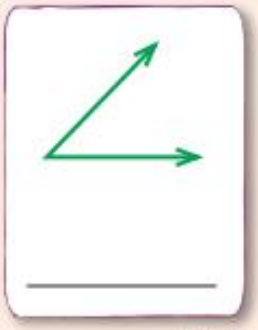
Angles can be different sizes. Some are wide and some are narrow.

A **right angle** forms a square corner.

An **acute angle** is less than a right angle.

An **obtuse angle** is greater than a right angle.





Find more worksheets at www.education.com/worksheets.

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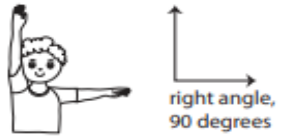
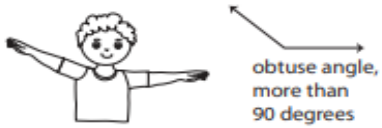
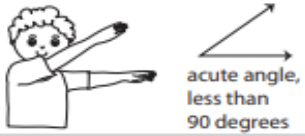
GLOSSARY FOR EL SUPPORT LESSON PLAN:

DESCRIBING ANGLES

Word	Definition	Visual	
right angle	the angle formed where two perpendicular lines meet; it measures 90 degrees		
obtuse angle	an angle greater than 90 degrees and less than 180 degrees		
acute angle	an angle of less than 90 degrees		
degrees	a measure for angles		

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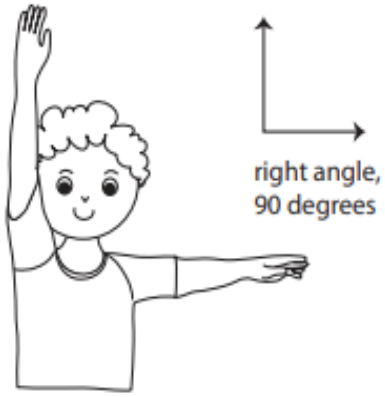
VOCABULARY CARDS

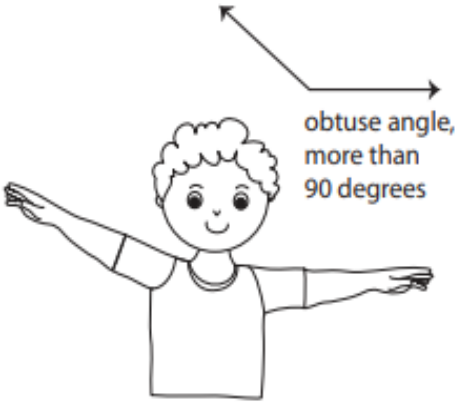
EL SUPPORT LESSON PLAN: DESCRIBING ANGLES

right angle



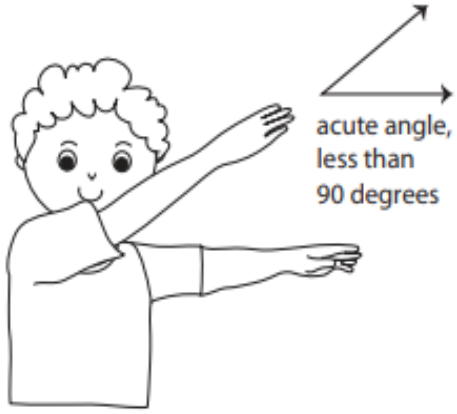
the angle formed where two perpendicular lines meet; it measures 90 degrees

obtuse angle



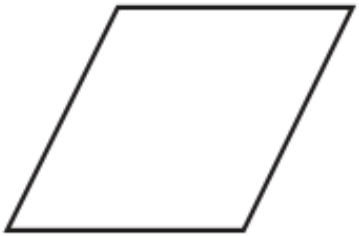
an angle greater than 90 degrees and less than 180 degrees

acute angle



an angle of less than 90 degrees

parallelogram



a flat, closed figure with four straight sides; the opposite sides are parallel and equal to each other

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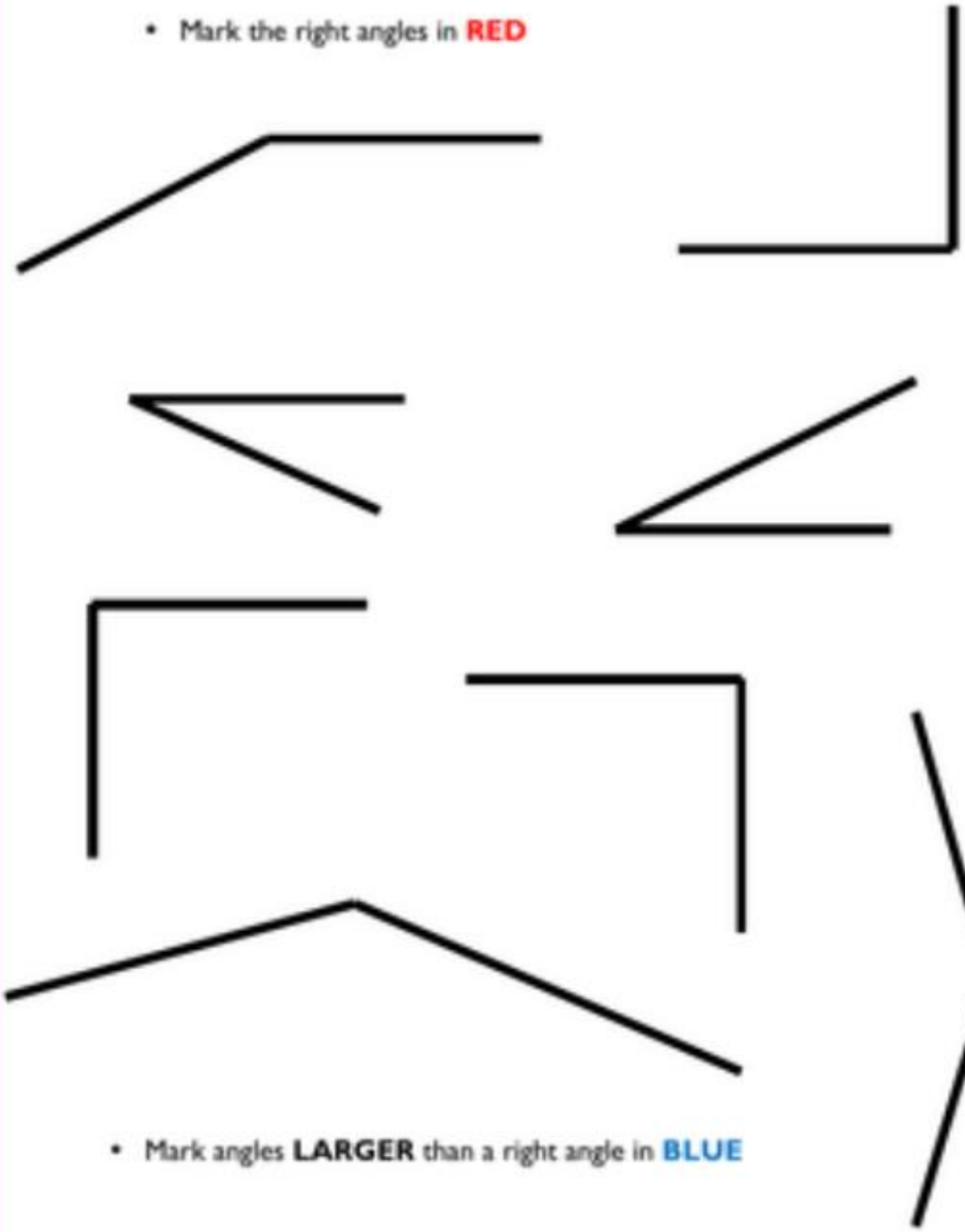
Name: _____ Date_____

RIGHT ANGLES

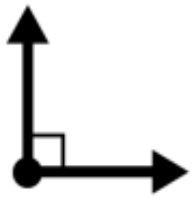
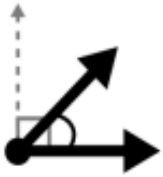
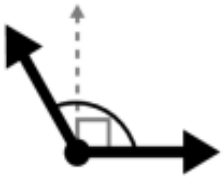
- Mark the right angles in **RED**



- Mark angles **LARGER** than a right angle in **BLUE**

- Mark angles **SMALLER** than a right angle in **GREEN**

Geometry Chart 1

Angles		
point	• a dot that represents a place	
ray	• part of a line that has one start point and goes on forever in the other way	
angle	• 2 rays that share a common endpoint	
right angle	• angle that has a square corner of 90º	
acute angle	• angle smaller than a right angle • angle that measures less than 90º and more than 0º	
obtuse angle	• angle bigger than a right angle • angle that measures more than 90º and less than 180º	
straight angle	• straight line • measures 180º	

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February Math Pacing Guide
8th Grade

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).

Learning Goal:

- Level 2-3 – Students will explain perimeter, length, area, and volume as well as calculate shapes with formulas.
- Level 1 – Students will recognize attribute values

Essential Questions:

- What is this problem asking me to find?
- What formula do I use to solve this problem?
- What makes each formula different?
- Where do I use the formula for perimeter in real life?
- Where do I use the formula for area in real life?
- Where do I use the formula for volume in real life?
- Why is knowing the perimeter, area, and/or volume important?

Vocabulary:

- **Length –** How for from end to end.
- **Perimeter –** The distance around a two-dimensional shape.
- **Area –** The size of a surface.
- **Volume –** The amount of 3-dimensional space something takes up.

Mini-Map for M.EE.8.G.9

Subject: Mathematics
Geometry (G)
Grade: 8

Learning Outcome

DLM Essential Element	Grade-Level Standard
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).	**M.8.G.9** Know the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.

Linkage Level Descriptions

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Recognize attributes or characteristics of an object, such as color, orientation, length, width, and weight.	Recognize attributes or characteristics of an object that are measurable (e.g., length, weight, time).	Communicate understanding that length is the distance between the two points that define a line segment, perimeter is the distance that surrounds a plane area, area is the amount of space contained within the outline or boundary of a two-dimensional object or figure, and volume is the space enclosed by a shape or an object.	Calculate area of a rectangle using the area formula (area = length x width), perimeter of a parallelogram using the perimeter formula (perimeter = $2a + 2b$), and volume of a prism using the volume formula (volume = height x length x width).	Solve word problems where the unknown quantity is obtained using the volume of a rectangular prism, area of a rectangle, or perimeter of a polygon.

Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

How is the Initial Precursor related to the Target?

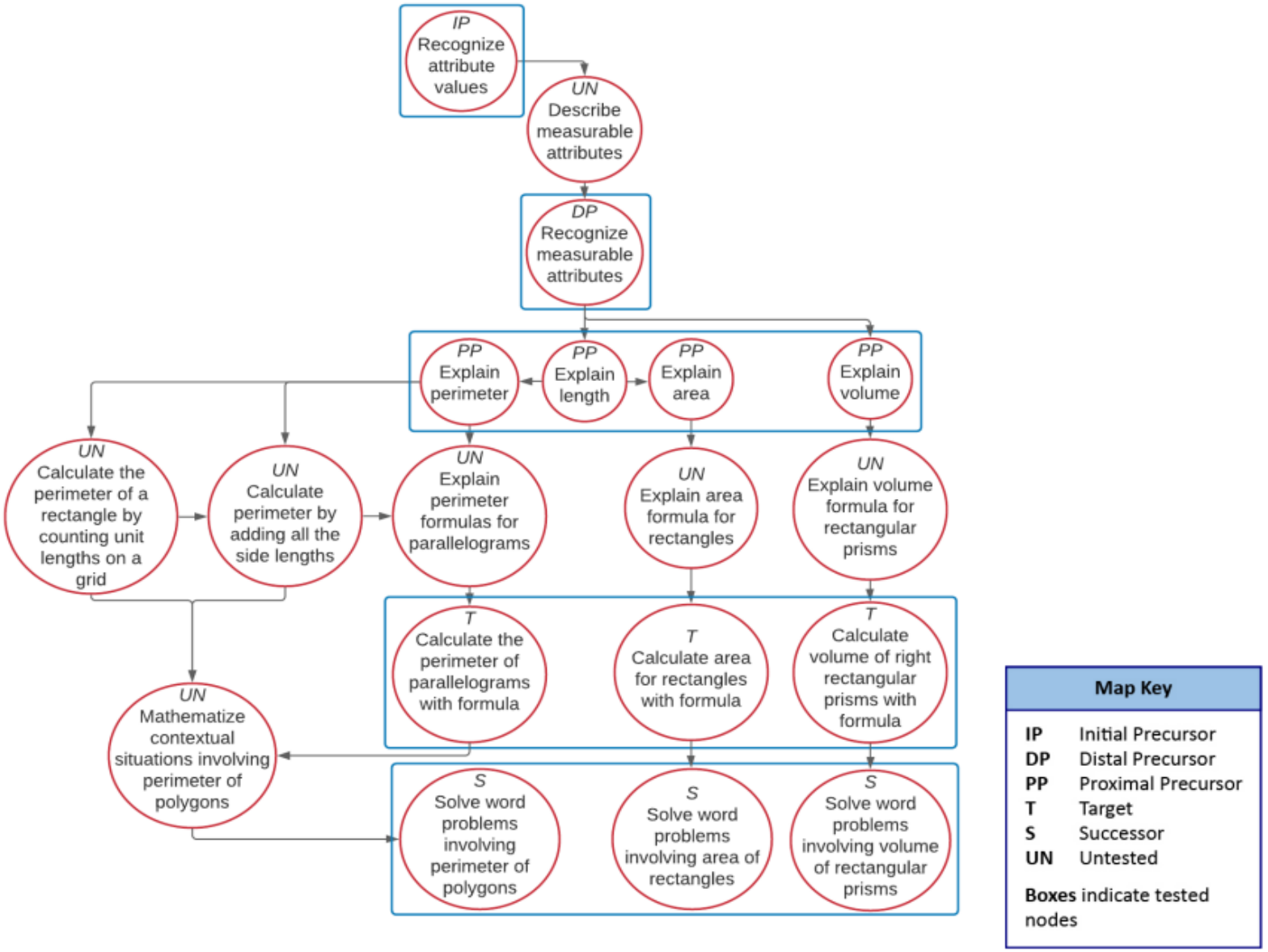
In order to calculate volume, area, and perimeter with formulas, students begin by learning to notice what is new. The educator draws the students' attention to new objects or stimuli, labels them (e.g., "this is a circle, which has no corners, so we can go all the way around without stopping," "this is a rectangle, which has four corners, two long sides, and two short sides") and the student observes, feels, or otherwise interacts with the shapes. Students also work on counting small units, recognizing 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 sets, they label them (e.g., two balls, one bear, three blocks), count the items, label them again, and encourage students to use numbers to label and count the separate sets.

How is the Distal Precursor related to the Target?

As students develop their attention to objects and notice the difference between objects, they will begin working on recognizing measurable attributes. Students need lots of experience making direct comparisons between objects. Educators should take care to use attribute words like "big"/"small," "tall"/"short," "longer"/"shorter" while defining and demonstrating their meaning. While students do not need to say these words, they do need to learn the meanings.

Jeanette Now

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).



Rubric of Student Success

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).

Level 3 Students will… Level 3 •	Level 2 Students will… Level 2 •	Level 1 Students will… Level 1 •
Successor and Target Students will… Successor • Solve word problems involving perimeter of polygons • Solve word problems involving area of rectangles • Solve word problems involving volume of rectangular prisms Target • Calculate the perimeter of parallelograms with formula • Calculate area for rectangles with formula • Calculate volume of right rectangular prisms with formula	Proximal Precursor and Distal Precursor Students will… Proximal Precursor • Explain perimeter • Explain length • Explain area • Explain volume Distal Precursor • Recognize measurable attributes	Initial Precursor Students will… Initial Precursor • Recognize attribute values

Instructional Ideas

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).

Measurement can be applied to solve real world problems.

The big idea is that measurement involves a selected attribute of an object (area, perimeter, volume) and calculating the attribute based on the measurements and formula.

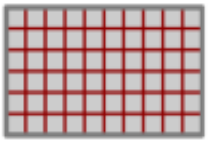
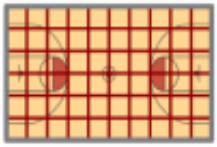
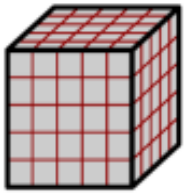
- Introduce by asking the essential questions.
- Identify formula for area.
- Identify formula for perimeter.
- Identify formula for volume.
- Calculate the area of a shape.
- Calculate perimeter of a shape.
- Calculate volume of a shape.
- Use formulas for area, perimeter, and volume to solve real-world problems.
- 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:

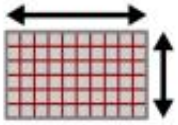
Jeanette

Geometry Chart 8

Perimeter, Area and Volume			
perimeter	• the distance around the outside of a shape • add all side lengths		
area	• the space inside of a 2-dimensional or flat shape • measured in units squared • count the unit squares inside shape		
volume	• the space inside of a 3-dimensional or solid shape • measured in units cubed • count the unit cubes that fill the shape		

Area: Formula
Level 3

Area

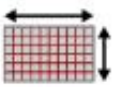


Find the area of the recycling bin.
The area is the space inside a 2-dimensional or flat shape.

length = 6 units

width = 4 units

_____ units x _____ units = _____ units squared (units ^{2}) .
length **width**



Area of the recycling bin = _____ units squared (units ^{2}) .

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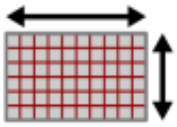
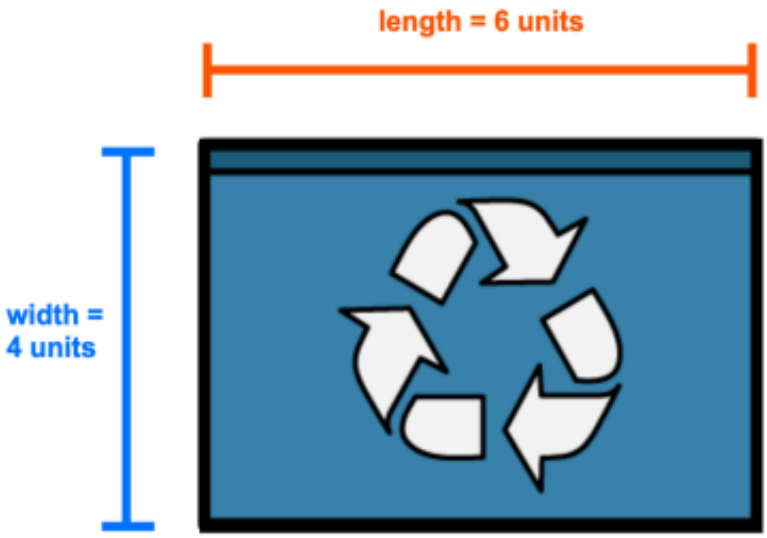
Area: Formula
Level 2

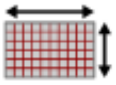
Area



Find the area of the recycling bin.
The area is the space inside a 2-dimensional or flat shape.



_____ units x _____ units = _____ units squared (units ^{2}) .
length width



Area of the recycling bin = _____ units squared (units ^{2}) .

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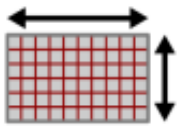
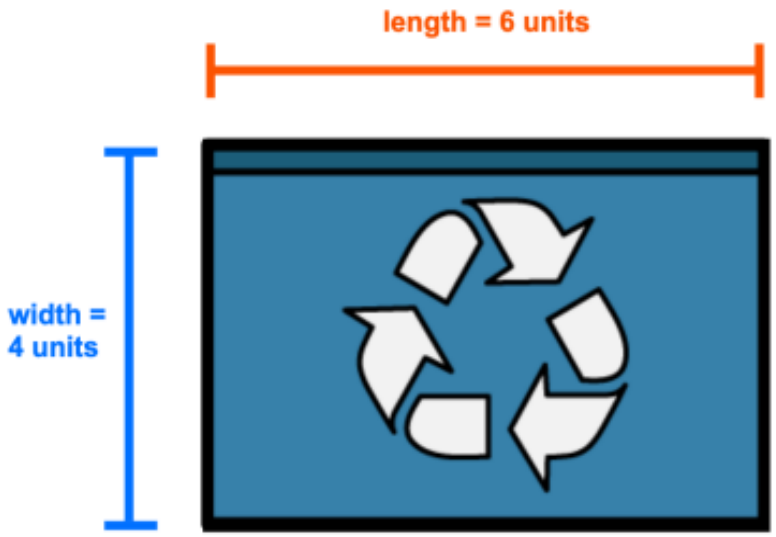
Area: Formula
Level 1

Area

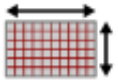


Find the area of the recycling bin.
The area is the space inside a 2-dimensional or flat shape.



_____ units x _____ units = **24** units squared (units ^{2}) .

length width



Area of the recycling bin = **24** units squared (units ^{2}) .

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Name:_____

Work out the perimeter

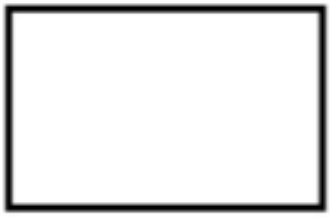
Work out the perimeter of the following rectangles

3cm

2cm

_____

6cm



8cm

_____

4cm

6cm

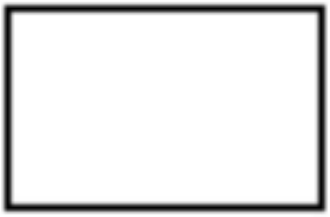
_____

5cm

4cm

_____

1cm



4cm

_____

8cm

5cm

_____

2cm

4cm

_____

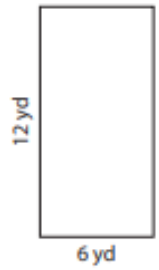
Name : _____

Perimeter of a Rectangle

T1L1S1

Find the perimeter of each rectangle.

1)

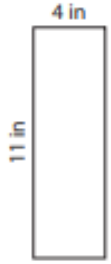


Perimeter = ⬚

2)

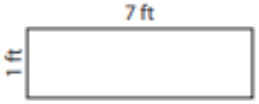
Perimeter = ⬚

3)



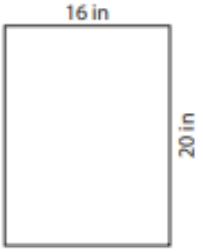
Perimeter = ⬚

4)



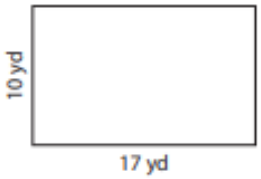
Perimeter = ⬚

5)



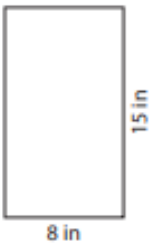
Perimeter = ⬚

6)



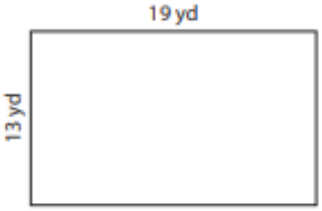
Perimeter = ⬚

7)



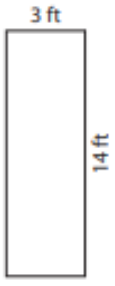
Perimeter = ⬚

8)



Perimeter = ⬚

9)

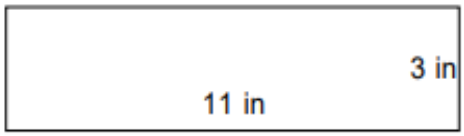


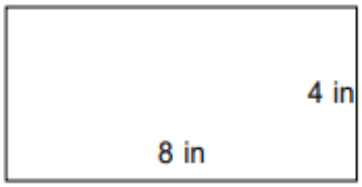
Perimeter = ⬚

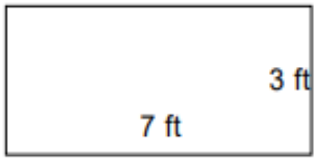
Perimeter of rectangles

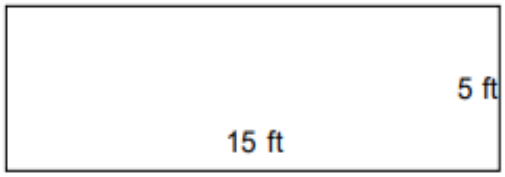
Grade 3 Geometry Worksheet

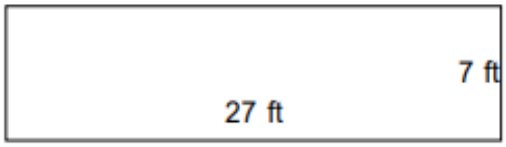
Find the perimeter of each rectangle.

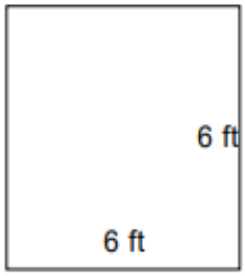
1. 

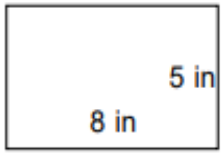
2. 

3. 

4. 

5. 

6. 

7. 

8.

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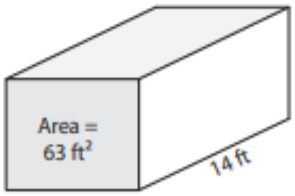
Volume - Rectangular Prism

Integers: S1

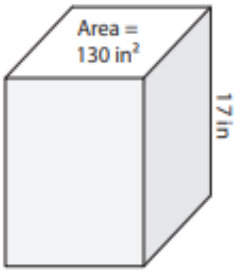
Find the volume of each rectangular prism.

1)



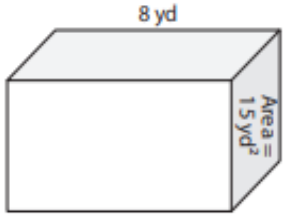
Volume = _____

2)



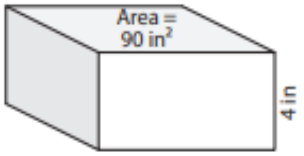
Volume = _____

3)



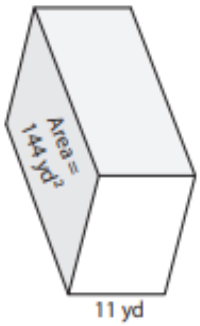
Volume = _____

4)



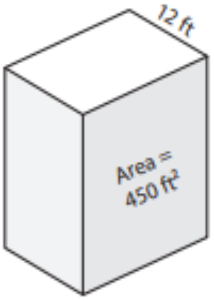
Volume = _____

5)



Volume = _____

6)



Volume = _____

7) A rectangular prism has a height of 22 yards and a base with area of 152 square yards. What is its volume?

_____

8) Find the volume of the rectangular prism with a base area of 13 square feet and a height of 7 feet.

_____

Volume of rectangular prisms (customary units)

Grade 5 Word Problems Worksheet

1. A cube is a rectangular prism with the same measurement for length, width, and height. If a cube is 4 inches tall, what is its volume?

2. A desk is 1.5 feet wide and 5 feet long. It is 3 feet above the floor. What is the volume of space under the desk?

3. A drawer is 5 feet wide, 4 feet deep and 2 feet tall. What is the volume of the drawer?

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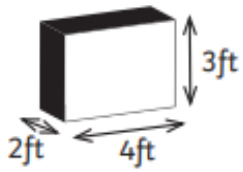
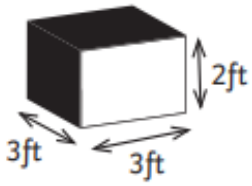
Volume Word Problems

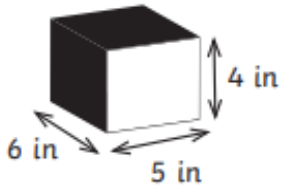
1. James is packing a box. The box is 3 feet high, 4 feet long, and 2 feet wide. What is the volume of the box?



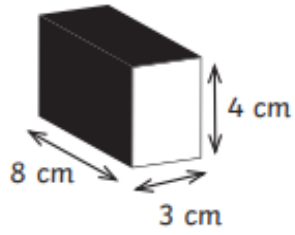
2. Margaux bought a suitcase online. The suitcase is 2 feet tall, 3 feet wide, and 3 feet deep. What is the volume of her suitcase?



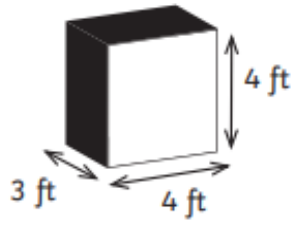
3. Tilda received a jewelry box for her birthday. The box is 5 inches wide, 4 inches tall, and 6 inches long. What is the volume of the jewelry box?



4. Enzo wants to buy a block of cream cheese that is 4cm tall, 8cm long, and 3cm wide. What is the volume of the block?



5. Viv has a safe in her basement. The safe is 4 feet high, 3 feet deep, and 4 feet wide. What is the volume of the safe?



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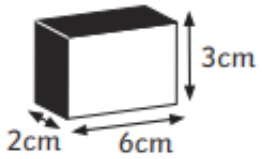
Volume Word Problems

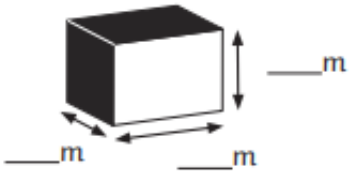
To calculate the volume of a cuboid, multiply the width by the height by the depth,
e.g. **6 × 3 × 2 = 36cm³**

Remember to give the answer in cm^3 or m^3.



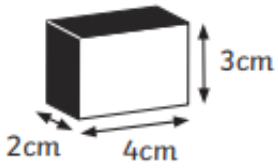
1. a) Label the box with the following dimensions:

   - 5m wide
   - 4m high
   - 3m deep

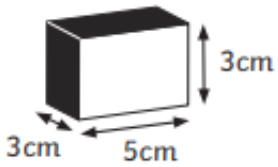


   b) Calculate the volume of the box above using the instructions above to help you.

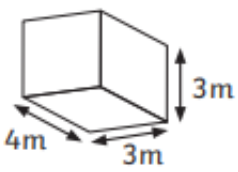
2. James is building a cuboid out of building bricks. It is 4cm wide, 3cm high and 2cm deep. What is the volume of the cuboid?



3. Mohammed bought a small trinket box online. The box is 5cm wide, 3cm high and 3cm deep. What is the volume of the box?



4. Timothy's bedroom is 3m wide, 4m long and 3m from floor to ceiling. What is the volume of Timothy's bedroom?



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- 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

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- https://dynamiclearningmaps.org

Unique Learning System

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

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