

Geometry Treasure Hunt

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Grade Level: 2

Duration: 2 Hours

Overview:

Students will strengthen their understanding of plane shapes and solid figures attributes.

Standards Addressed:

Domain: Geometry

Reason with shapes and their attributes.

CCSS.Math.Content.2.G.A.1

Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.¹ Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

Mathematical Practices:

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others
- Use appropriate tools strategically
- Attend to precisions
- Look for and make use of structure
- Look for and express regularity in repeated reasoning

Essential Question:

How can plane shapes and solid figures be described, and compared?

Objectives:

Demonstrate understanding of plane shapes and solid figures.

Students will understand that plane shapes can be identified by the number of angles, vertices, or sides. Students will understand that solid figures can be identified by vertices, edges, and faces. Children will identify and draw polygons (triangles, quadrilaterals, pentagons, and hexagon) and solid figures (cube, sphere, cylinder, rectangular prism, and cone) and list their attributes.

Materials:

- ✓ MinecraftEdu
- ✓ Minecraft world with clues set up
- ✓ worksheet

Vocabulary

- polygon
- angle
- side
- vertices
- pentagon
- hexagon
- triangle
- square
- rectangle
- face
- edge
- cube
- rectangular prism
- cylinder
- sphere
- cone

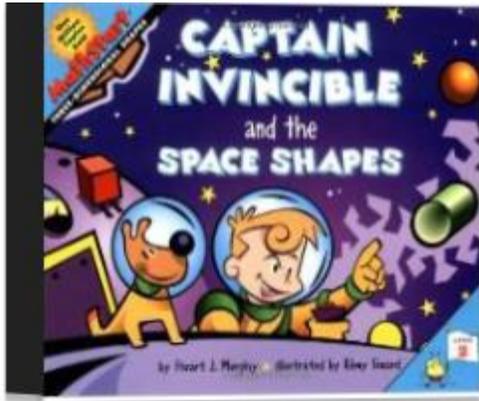
Connection:

How can we tell which shapes or figures are which? Are their certain attributes that are common to certain shapes or figures?

Set the Purpose:

Today you are going to go on a shape hunt but first let's review what we know about solid figures and plane shapes.

Opener:



Read Captain Invincible and the Space Shapes written by Stuart Murphy to the class.

Model:

In the story we learned about shapes. Let's talk some more about shapes. The more we know about shapes the better we will do on our Minecraft geometry shape hunt.

Guided Practice:

Think about shapes. We have three-dimensional shapes also called solid figures and we have two-dimensional shapes also called plane shapes. Let's start with plane shapes. We know that plane shapes are flat but what else do we know? Create a list of the students' ideas (vertices, angles, sides, etc.) Do all plain shapes look the

same? What does a triangle look like? How many vertices does a triangle have? How many sides does a triangle have? How many angles does a triangle have?

Create a chart (similar to the one below) on the board and have students help fill it in. Repeat with solid figures.

Plane Shape	Sides	Vertices	Angles
Triangle	3	3	3
Quadrilateral	4	4	4
Pentagon			
Hexagon			

Solid Figures	Flat surfaces	Vertices	Edges
Sphere			
Cube			
Etc.			

Now that we have reviewed some plane shapes and solid figures lets go on a special geometry shape math hunt for them in Minecraft. Students should log into Minecraft and have a pencil and worksheet ready. Let's look at the first problem. You need to solve both equations to find the coordinates for your first shape. Solve the x coordinate problem and then the z coordinate problem. Have students fly to that location in the special Minecraft World that you have created to match your worksheet. Now we that we found the first sign we need to read the clue and figure out what shape it is. Let's read the clue together. What do you all think? What shape has those attributes? A Triangle is right. Now you need to draw a triangle and label the attributes in the space provided.

Independent Practice:

Now you are ready to continue on your geometry shape hunt on your own.

Assessment:

Students will be assessed on their ability to successfully complete the shape hunt. Teacher will walk around and answer questions, and view student's work. The teacher will be checking for understanding and to see if there are any concerns, misinterpretations or questions while the students are finishing their worksheet.

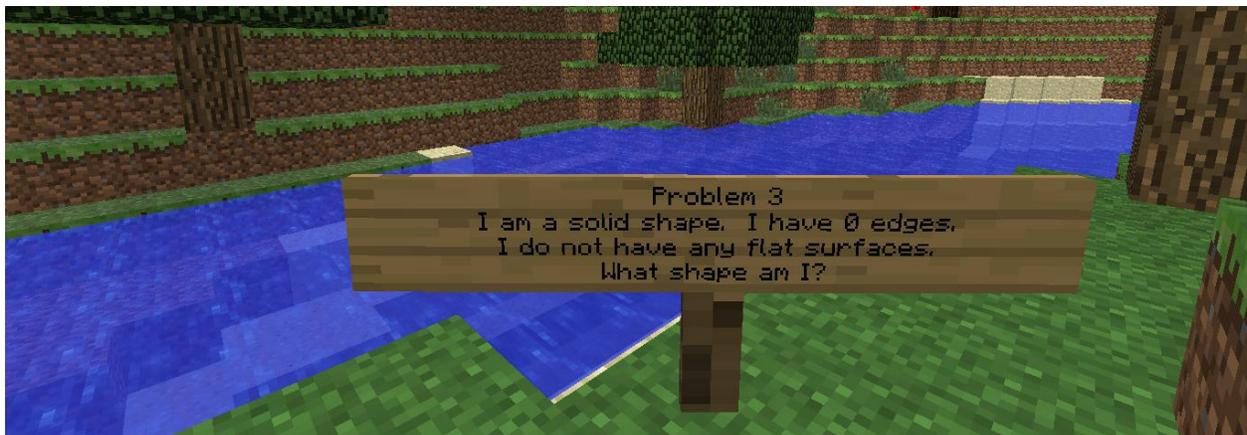
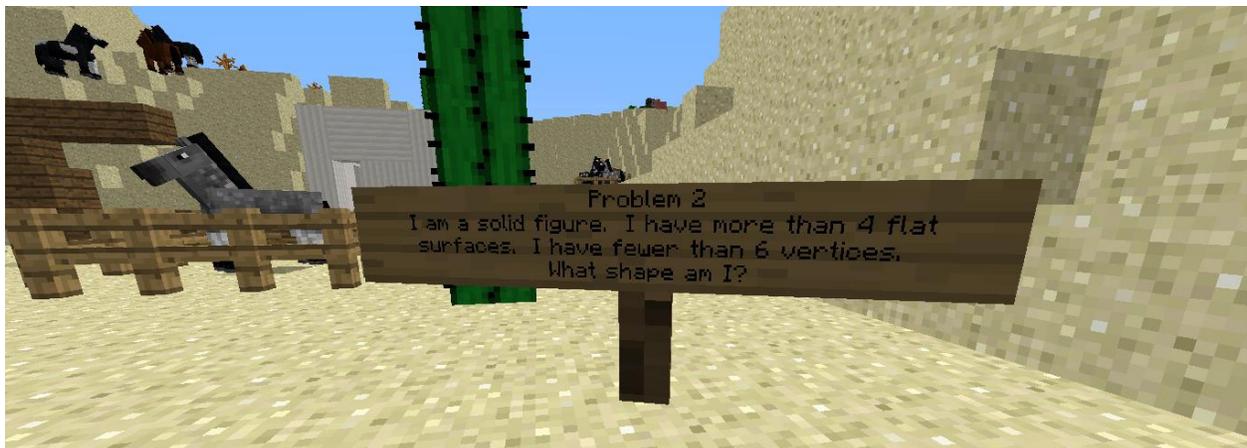
Closure:

Once students have completed their shape hunt & worksheets gather the class for a discussion. Review each problem and allow students to share with the class their reflections regarding the process and their drawings.

Continuation:

If time allows have students create their own shape clue to hide in the game. Students must write down their clue in the Minecraft sign and hide it in the Minecraft world. They must document the coordinates so others will be able to search for it.

Samples & References:



Name _____



MINECRAFT GEOMETRY FIND

Problem 1

X Coordinate

$$350 - 280 = \underline{\hspace{2cm}}$$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
<hr/>		
<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

$$551 - 475 = \underline{\hspace{2cm}}$$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
<hr/>		
<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

Problem 2

X Coordinate

$$983 - 795 = \underline{\hspace{2cm}}$$

Hundreds	Tens	Ones
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<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

$$312 - 134 = \underline{\hspace{2cm}}$$

Hundreds	Tens	Ones
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<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

Problem 3

X Coordinate

$136 + 332 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-	+	
<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

$348 + 486 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

Problem 4

X Coordinate

$555 - 354 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
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-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

$893 + 115 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
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-	+	
<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

Problem 5

X Coordinate

$783 - 561 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

$33 + 596 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
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-	+	
<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

Problem 6

X Coordinate

$840 - 818 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
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-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

$705 + 139 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

Problem 7

X Coordinate

$333 - 325 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

$264 + 999 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
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-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

Problem 8

X Coordinate

$145 + 184 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

$529 + 462 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

Problem 9

X Coordinate

$501 + 258 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

$756 - 220 = \underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

Last Problem

X Coordinate

Sum of 67 and 53

$\underline{\hspace{2cm}}$

Hundreds	Tens	Ones
<input type="text"/>	<input type="text"/>	<input type="text"/>
-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

Z Coordinate

Difference of 542 & 379

Hundreds	Tens	Ones
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-		
<input type="text"/>	<input type="text"/>	<input type="text"/>

What am I? Draw and label.

1,263	468	120	844	188
834	70	178	222	1,008
22	201	329	759	163
1,091	536	8	629	76