

**SPECIAL ED**

# **GEOMETRY TRIANGLES**



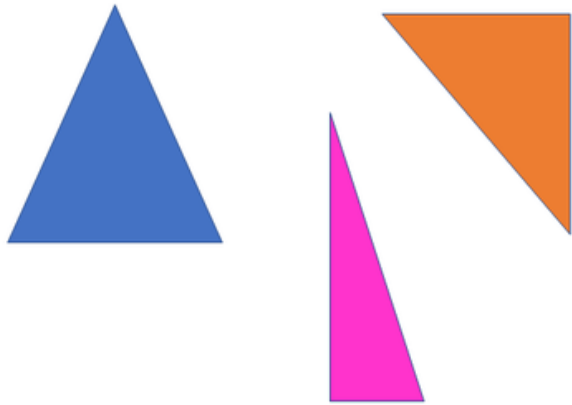
**INCLUDES GOOGLE SLIDES**

*This unit was created with this guy in mind. He has autism and an intellectual disability. He is a non-reader, has a very short attention span, and has a few foundational math skills. With some support, he is able to do this unit and enjoys the challenge. He is my tester!!*



# Triangles Unit

By  
Christa Joy  
Special Needs for Special Kids



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Also included in this resource as separate files:

- Lesson plans
- Links and directions to digital activities
- PowerPoint (this is the book in the lesson plan)
- Voice recorded PowerPoint
- Activities in black and white

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*This unit contains 17 days of material that is in both printable and digital formats. I have included a detailed lesson plan to help you make the most of everything in this unit including how to add some group activities.*

*It comes in 2 separate files. One in color and one in black and white.*

# Geometry: Triangles

## Lesson Plan

### Preparation

- Print out a vocabulary board for each student to use throughout unit
  - Laminate or place in page protector
- Book
  - Print out, laminate, and bind
  - OR your students can listen to the pre-recorded version
- Vocabulary cards
  - Print out a set of cards onto cardstock and laminate
  - Make one set for each student and also one for the teacher to use in I Spy games

### Preassessment (do day 1 before starting lesson)

- Choose the form of the assessment that best fits the learning level of your students
- Give the assessment to assess what your students may already know
- I cannot emphasize enough how important it is to do this preassessment so early in the unit

### Teaching Tips

1. *Color Coding:* this is a really easy activity. Outline or color in an error the corresponding picture symbols task.
  - a. For more info, read more here <https://specialneedsforspecialdifferentiation/>
  - b. I also have a blog post on color coding <https://specialneedsforspecialdifferentiation.com/2015/05/03/3-ways-easily-and-effectively-color-code/>
2. *Make you own copies of the activity yesterday.* For that reason:
  - a. I often complete the activity that I could use year after year
  - b. My copies were also helpful for more support or as a way to differentiate

### Quick Look

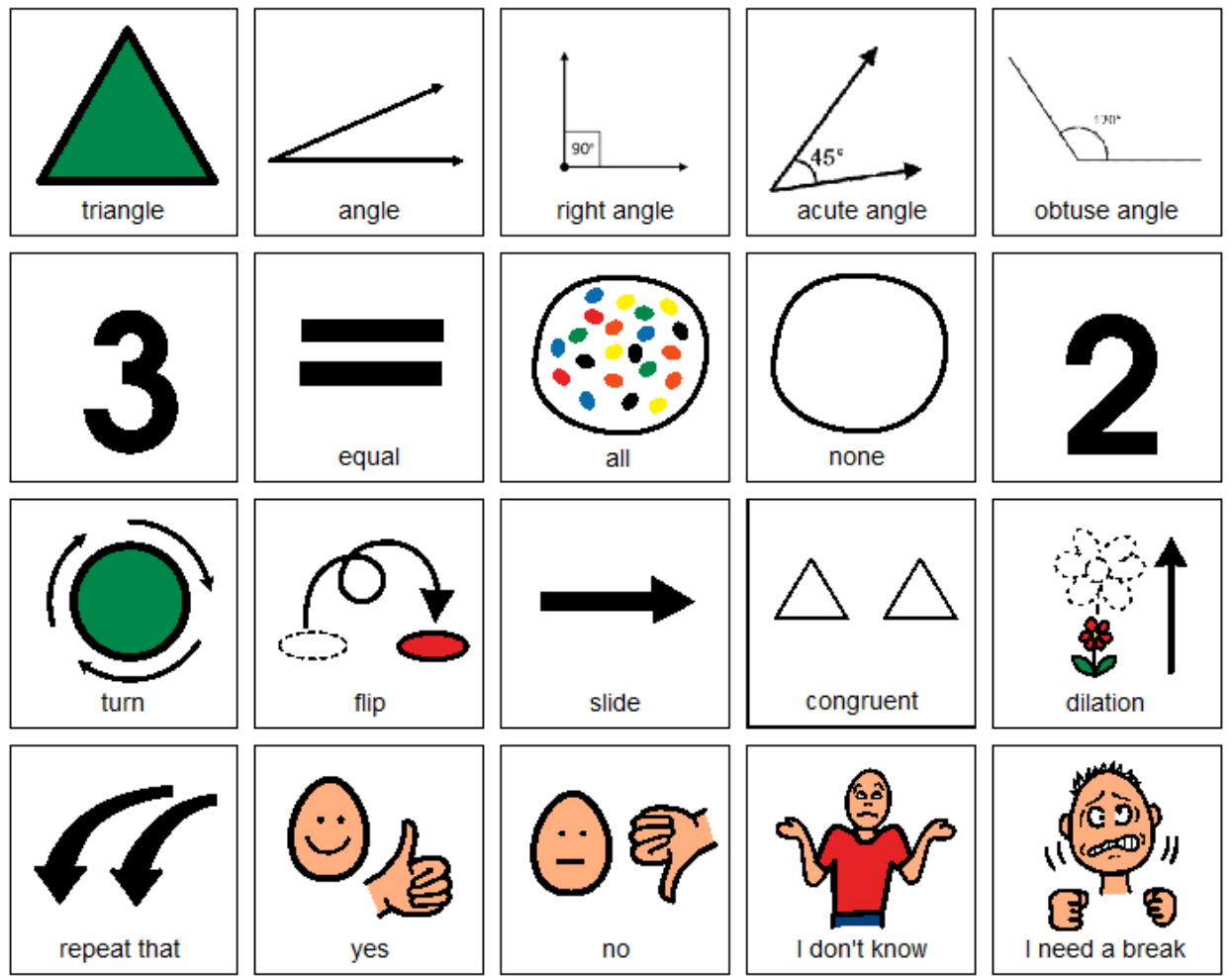
Day	Activity	Day	Activity	Day	Activity
1	<ul style="list-style-type: none"> <li>• Book</li> <li>• Vocab cards activity</li> <li>• Scavenger hunt</li> <li>• Circle map</li> </ul>	7	<ul style="list-style-type: none"> <li>• Book</li> <li>• Vocab cards activity</li> <li>• Matching triangles</li> </ul>	13	<ul style="list-style-type: none"> <li>• Book</li> <li>• Vocab cards activity</li> <li>• Triangle activity</li> <li>• Congruent or similar triangles</li> </ul>
2	<ul style="list-style-type: none"> <li>• Book</li> <li>• Vocab cards activity</li> <li>• Scavenger hunt</li> <li>• Sorting activity</li> </ul>	8	<ul style="list-style-type: none"> <li>• Book</li> <li>• Vocab cards activity</li> <li>• Matching triangles</li> </ul>	14	<ul style="list-style-type: none"> <li>• Book</li> <li>• Vocab cards cut and paste</li> <li>• Close worksheet</li> </ul>

### Day 14

Activity	Notes	Materials
Read or listen to a recording of the book (10 minutes)	<ul style="list-style-type: none"> <li>• It has likely been a week since you read the Functions Machine book, so you may opt to go back and read that one instead.</li> <li>• Continue to make connections between book and vocabulary board</li> </ul>	<ul style="list-style-type: none"> <li>• Book</li> <li>• Vocabulary board</li> </ul>
Vocabulary cards cut and paste (15 minutes)	<ul style="list-style-type: none"> <li>• This is the first time you are doing the activity, so I would choose the <b>easier option</b> of having students find the matching picture that goes with the definition</li> <li>• Great way to assess if your students are connecting the content to your visual supports, like the vocabulary board</li> <li>• Use color coding if needed</li> </ul>	<ul style="list-style-type: none"> <li>• Vocabulary cut and paste worksheets</li> <li>• Scissors</li> <li>• Glue</li> <li>• Vocabulary board</li> </ul>
Close worksheet (10 minutes)	<ul style="list-style-type: none"> <li>• Do one of the close worksheets.</li> <li>• Use color coding if needed (see note on page 1 for more information)</li> <li>• This is your first real chance to begin assessing if your students are making connections to the material.</li> </ul>	<ul style="list-style-type: none"> <li>• Book (if needed for students to find answers)</li> <li>• Vocabulary board</li> <li>• Close worksheet</li> <li>• Scissors, glue</li> </ul>
Sharing (10 minutes)	<ul style="list-style-type: none"> <li>• Each student shares their finished worksheet with the group using the communication method of their choice</li> </ul>	<ul style="list-style-type: none"> <li>• Completed worksheets</li> <li>• Communication devices</li> </ul>

## The lesson plans contain:

- Overall tips for teaching students with significant needs
- A quick look at what you will do each day
- Detailed instructions on how that day's lesson should run



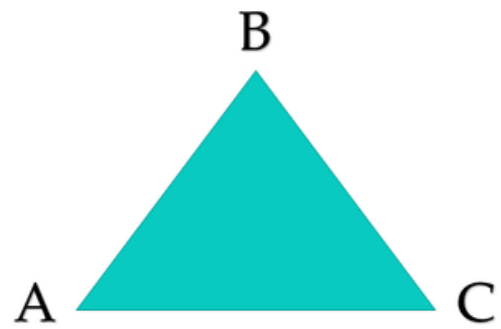
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This unit comes with a vocabulary board.

Vocabulary boards are great for ALL students to assist with participation and engagement in group discussions.

Tips on how to use in the unit!!

Naming triangles is really easy. Most are labeled with a letter at each vertex. So you simply name it using the letters in alphabetical order, using this symbol:  $\Delta$ . So this one would be  $\Delta ABC$ .



©Christa Joy, SNSK

The next type of triangle is called an isosceles triangle. An **isosceles triangle** has 2 sides that are the same.



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There is a 44-page book about quadrilaterals and polygons that students will use to complete the activities.

- pdf version
- voice-recorded PPT
- mp4 movie format

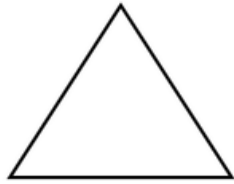
# Vocabulary

There are 16 vocabulary cards that come in color and black and white.

- Included are suggestions for group activities to do with these each day.
- There is also a cut-and-paste activity.

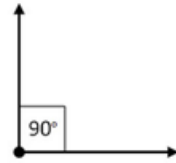
## triangle

A shape with 3 sides, 3 angles, and 3 vertices.



## right angle

The angle formed when 2 perpendicular lines cross and perfectly square or  $90^\circ$ .



## equilateral triangle

Triangle with 3 equal sides and 3 equal angles.



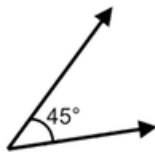
## Isosceles triangle

Triangle with 2 equal sides and 2 equal angles.



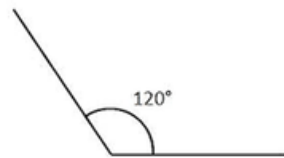
## acute angle

An angle that measures less than  $90^\circ$ .



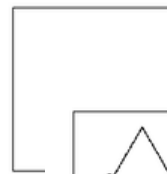
## obtuse angle

An angle that measures more than  $90^\circ$ .



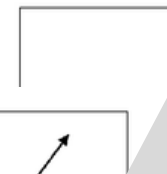
## scalene triangle

Triangle with no equal sides and no equal angles.

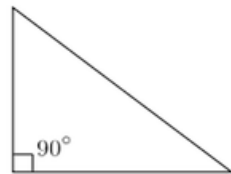


## acute triangle

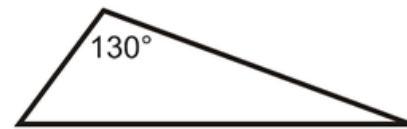
A triangle made up of 3 acute angles.



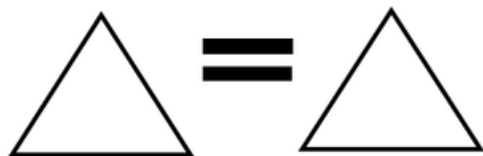
## right triangle



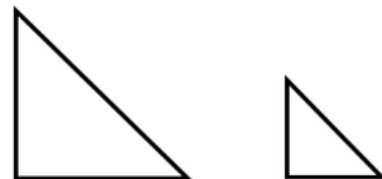
## obtuse triangle



## congruent



## similar



They have different sides but equal angles.

Triangle with 2 equal sides and 2 equal angles.

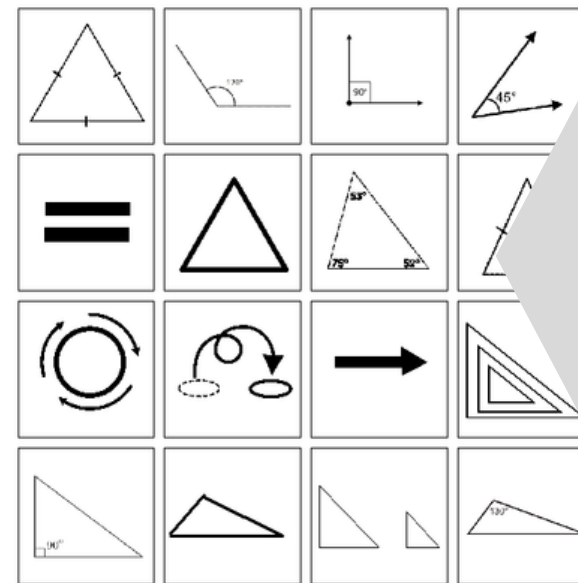
Triangle made up of 3 acute angles.

Angle that measures *less than*  $90^\circ$ .

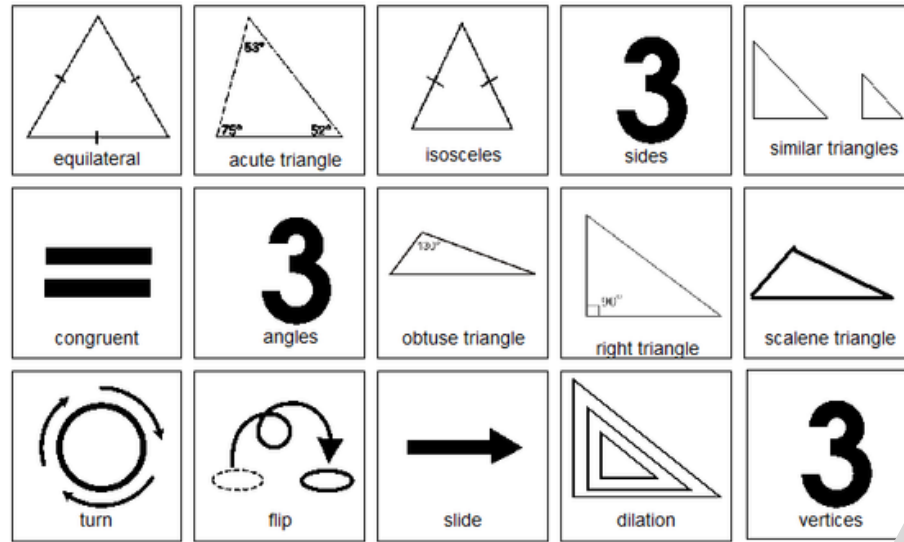
Moving a shape without turning or flipping it.

A shape with 3 sides, 3 angles, and 3 vertices.

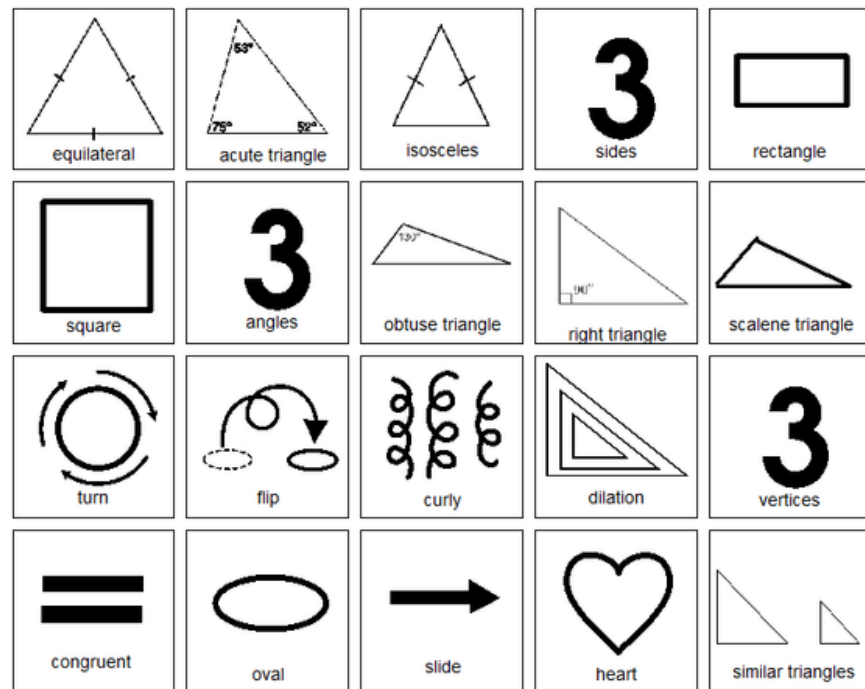
Changing the size of a shape (larger or smaller), but keeping the shape the same.



Cut apart pictures and place in circle map about angles.



Cut apart pictures and place in circle map **ONLY IF** they relate to angles.



# Circle maps

There is a circle map on triangles reviewing facts from the book.

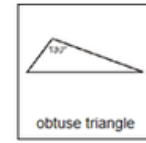
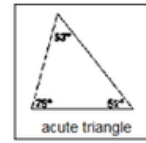
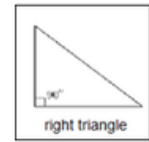
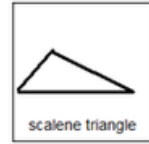
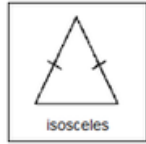
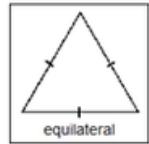
Circle maps are a great way for students to see the concept at a glance.

There are 2 versions:

- One is errorless
- One has wrong answers mixed in students will have to set aside.



# Sorting



Sorting activity cards for side classification:

- 3 = equal sides
- 2 = equal sides
- 0 = equal sides

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Sorting activity cards for angle classification:

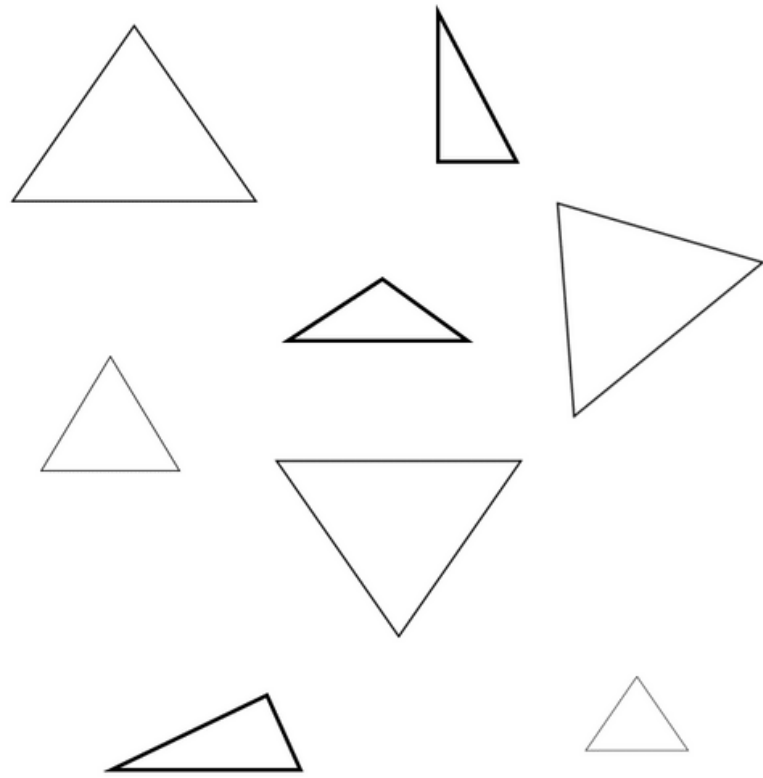
- 3 acute angles
- right angle
- obtuse angle

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There are 2 sorting activities.

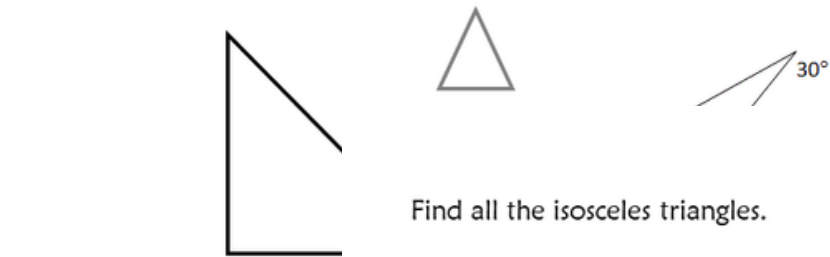
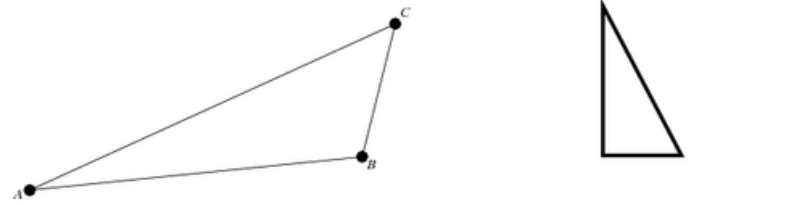
- triangles with different sides
- triangles with different angles

Find all the equilateral triangles.



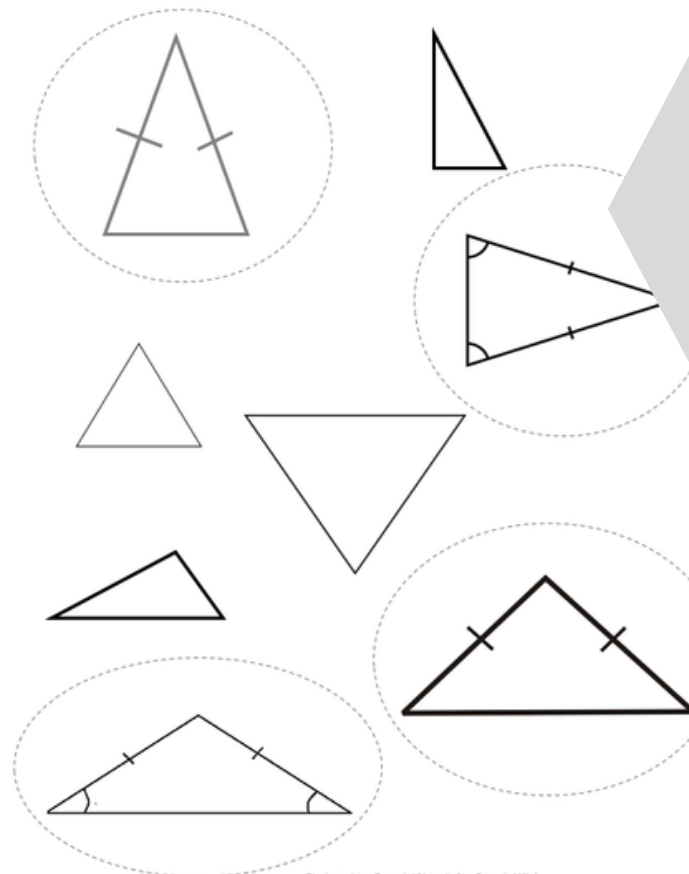
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Find all the obtuse triangles.



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Find all the isosceles triangles.



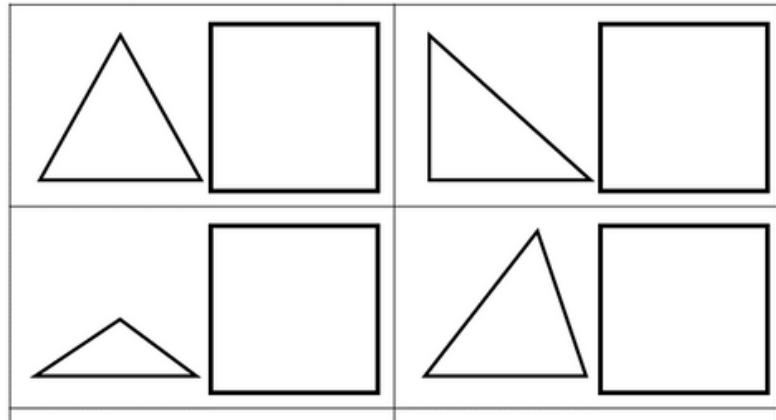
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## Circle triangles

Students will identify examples of different types of triangles. Each one comes with a differentiated version with the correct answers circled in dashed lines

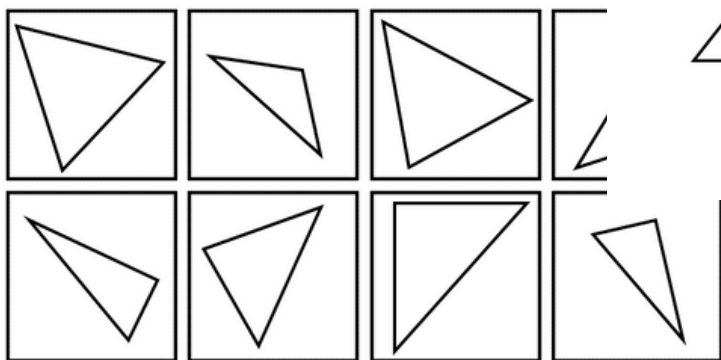
Differentiated versions are included.

Find the matching triangle.

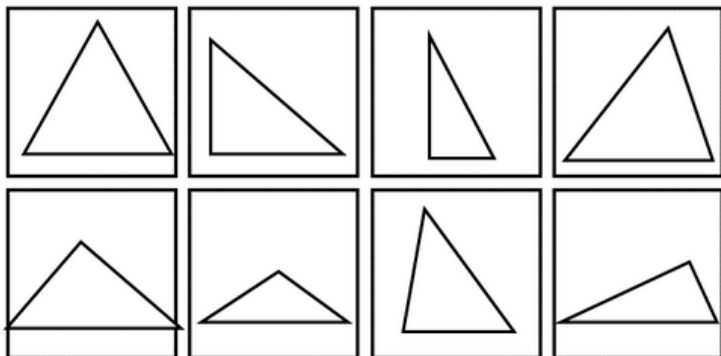


Match with the triangle on the previous page.

With rotation.



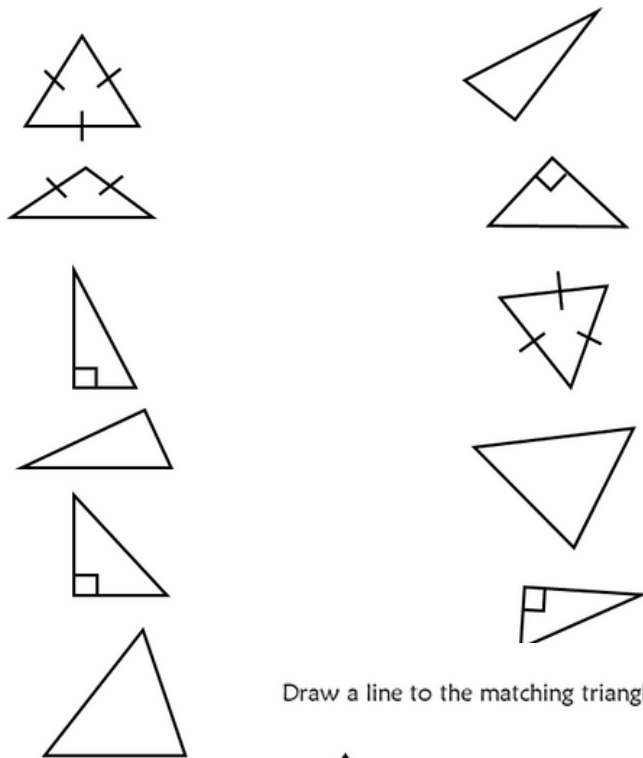
Without rotation.



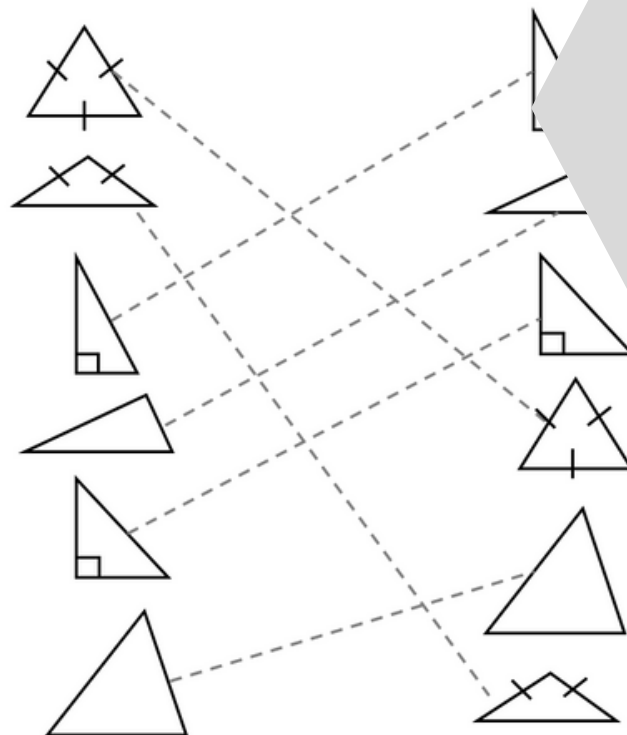
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Draw a line to the matching triangle. With rotation.



Draw a line to the matching triangle. Without rotation.

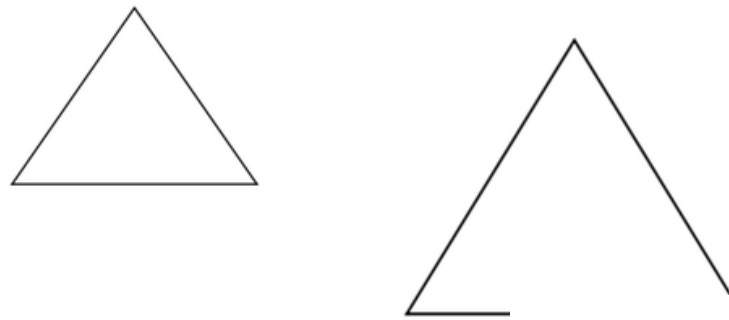


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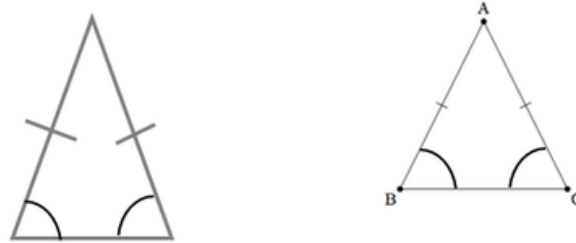
## Matching with and without rotation

Students will match triangles with and without rotation. There is a cut-and-paste version and one where students draw lines.

Highlight the *equal sides* of these **equilateral** triangles.

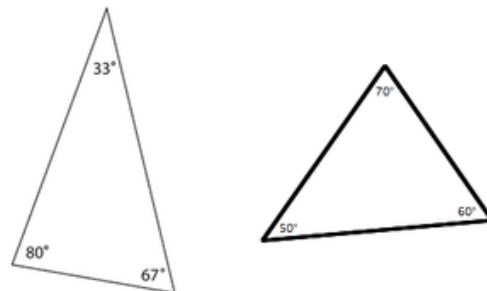
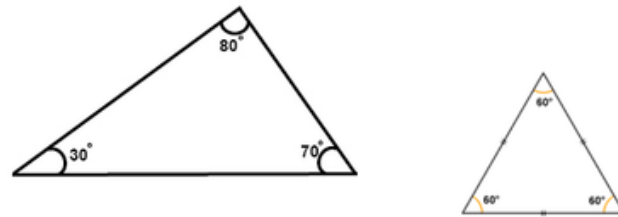
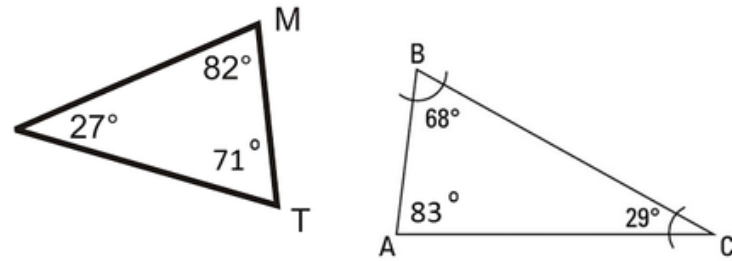
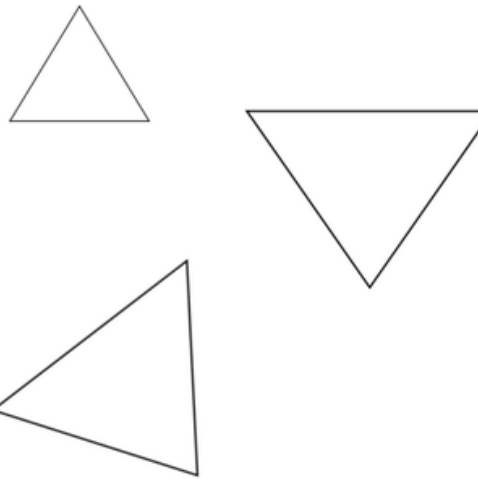


Highlight the *equal angles* of these **isosceles** triangles.



# Highlight parts of a triangle






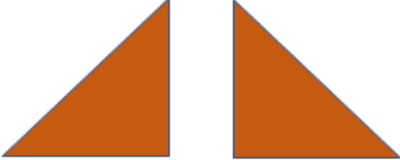



















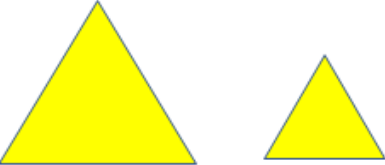




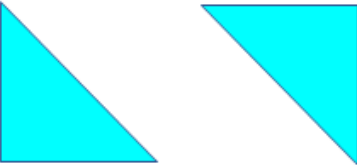









Highlight all the **acute** angles.



Students will parts (sides and angles) of different triangles.

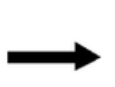






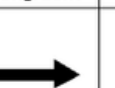
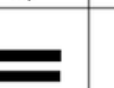

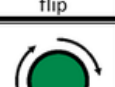

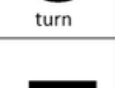

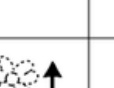
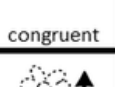
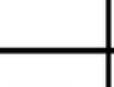
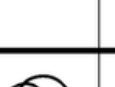
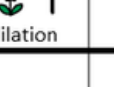


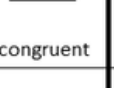

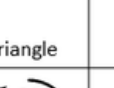
# Congruent or similar

Circle the type of triangles they are.








  congruent	  similar	 neither
  congruent	  similar	 neither
  congruent	  similar	 neither
  congruent	  similar	 neither
  congruent	  similar	 neither
  congruent	  similar	 neither
  congruent	  similar	 neither
  congruent	  similar	 neither

Students look at a set of triangles and decide if they are congruent or similar.

# Triangle Sudoku

 slide		 turn	 congruent	 flip	 dilation
 flip		 dilation	 slide	 Congruent	 turn
 turn	 dilation				
 congruent	 Slide			 dilation	
 dilation	 Turn	 congruent	 flip	 triangle	
 triangle	 flip	 slide		 turn	






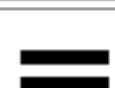
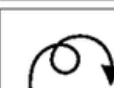
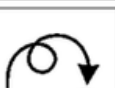


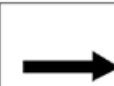

# Triangle Sudoku

	 turn	 congruent	
			 triangle
 turn		 triangle	
	 triangle	 dilation	

There is a Sudoku puzzle in this unit as well. This is a great way to work with the new vocabulary!!

There are 2 versions plus answer keys.

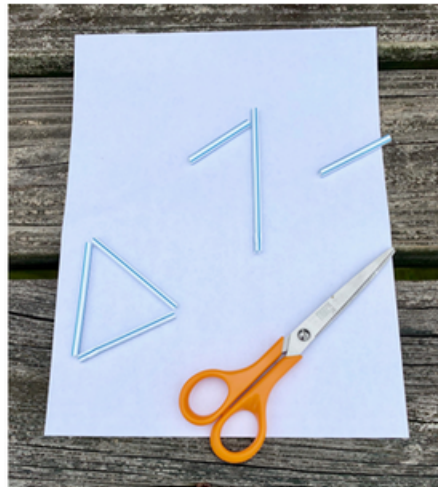
Place the following images in the empty squares on the previous page, completing the sudoku puzzle.

 triangle	 triangle	 triangle	 congruent
 congruent	 congruent	 flip	 flip
 turn	 slide	 slide	 dilation

# Hands on activities for triangles

## 1. Make your own triangle

- Need
  - straws
  - Scissors
  - ruler
- Have students cut straws into 3 pieces. Don't worry about if they are different lengths.
- Using a ruler, students measure each piece they cut.
- Record the lengths.
- Predict if they will make a:
  - Equilateral triangle
  - Isosceles triangles
  - Scalene triangle



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# Hands on activities for triangles

## 2. Making a paper airplane

- Watch the YouTube video at:  
<http://youtu.be/F8jm9kqQNoo>
- First watch through without paper
- Then watch again helping students create their airplane (pausing video in between steps)
- Take them outside to practice flying.

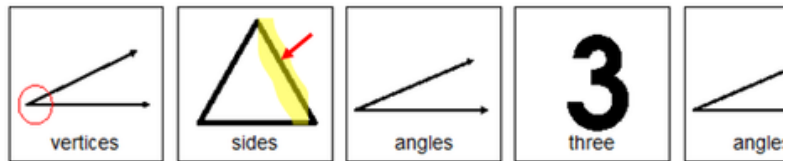


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There are 2 hands-on activities working with triangles.

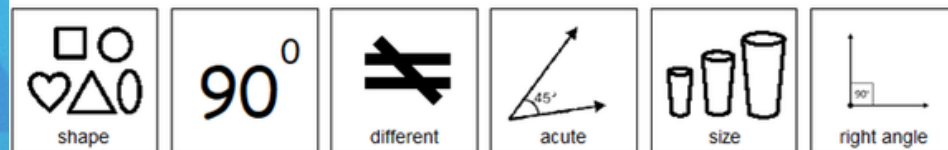
## Triangles

- All triangles have  sides.
- All triangles have 3 .
- All triangles have 3 .
- You can categorize triangles based on their .
- You can categorize triangles based on their .



## Types of Triangles: angles

- All right triangles have one .
- Acute triangles have angles that are all .
- Obtuse triangles have an angle that is more than .
- Congruent triangles have the same  and .
- Similar triangles are the same shape but  sizes.



## Quiz

Close worksheets are a great informal assessment. This unit has 3 that review triangles, sides, and angles.

Answer key included.

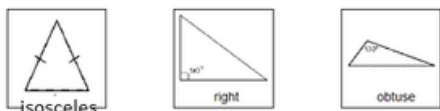


Version 1

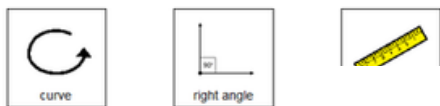
1. All triangles have \_\_\_\_\_ sides, angles and vertices.



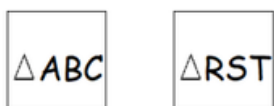
2. This type of triangle has 2 equal sides and 2 equal angles:



3. A right triangle has a:



4. What would be the name of this triangle?



5. When dilation occurs, the shape stays the same, but this changes:



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1. All triangles have \_\_\_\_\_ sides, angles and vertices.

- A. 2
- B. 4
- C. 3

2. This type of triangle has 2 equal sides and 2 equal angles:

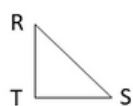
- A. Isosceles
- B. Right
- C. obtuse

3. A right triangle has a:

- A. Curve
- B. Right angle
- C. ruler

4. What would be the name of this triangle?

- A.  $\Delta ABC$
- B.  $\Delta RST$
- C.  $\Delta 123$



5. When dilation occurs, the shape stays the same, but this changes:

- A. Color
- B. Smell
- C. Size

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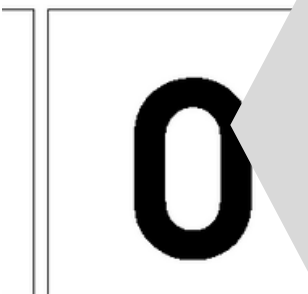
Version 2

Print onto cardstock or mount on index cards. Cut pictures apart and show student answer choices for each question.

Q 5



Version 3



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## Assessment

FINALLY the assessment!! There are 3 versions.

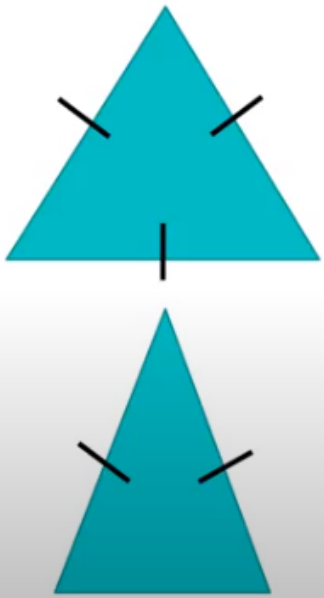
- 10 questions with 3 picture choices for each question
- cut out the answer choices and glue them on index cards
- traditional multiple choice

Answer key included.

## Digital Activities

Watch the video on triangles.

One other thing to know about naming triangles is that we can use a special mark to show that sides are equal.























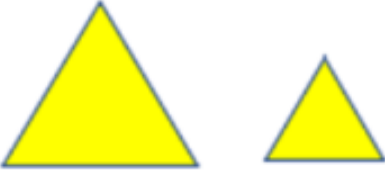











In this triangle, all 3 sides are the same length, or equal.

In this triangle, only 2 sides are the same length, or equal.

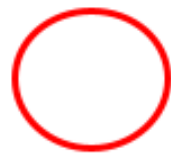
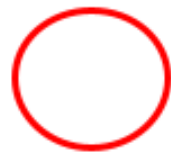
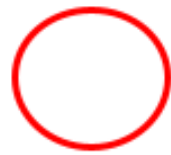
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2:36 / 9:16

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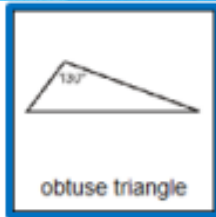
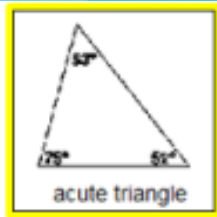
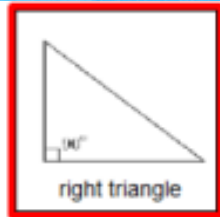
This unit also has digital activities. There is a movie version of the book students can listen to read aloud.

  congruent  similar  I don't know	  congruent  similar  I don't know
  congruent  similar  I don't know	  congruent  similar  I don't know
  congruent  similar  I don't know	  congruent  similar  I don't know
  congruent  similar  I don't know	  congruent  similar  I don't know

Circle if the triangles are congruent or similar or neither.



The digital activities have students mainly click and drag their answers. There is some typing involved in the set without differentiation.



Sort the pictures into the correct column depending on the triangle it describes. If you are not sure place it on one of the middle lines.


The second set of slides is differentiated using color. There is no typing in this set of slides.

*This resource comes in a zipped folder. You will need to unzip the folder to access all the contents which include:*

- *17 days of lesson plans*
- *Triangle activities in color*
- *Triangle activities in black and white*
- *Voice-recorded PowerPoint show*
- *All About Triangles book (PowerPoint) to use with activities*
- *Links and directions to digital activities*

*Save money by getting this unit as part of the  
Geometry Bundle*

*Geometry Bundle*

