

Seeing Triangles

Connecting the classroom with the real world using Google Maps and the Pythagorean Theorem.

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EDTC 635
Mini Map Project



Target Audience

- ◆ Lewis F. Cole Middle School – Fort Lee, NJ
- ◆ 8th Grade – Regular Algebra I Class
- ◆ About 24 students per class
- ◆ Class length: 42 minutes
- ◆ Project Time Line: 4 days

Goals/Objectives

Students will be able to:

- ◆ Find the distance between points on the map
- ◆ Calculate the distance of the hypotenuse of a right triangle using the Pythagorean Theorem.
- ◆ Compare the total distance of the sum of the legs versus the length of the hypotenuse.

Algebra Common Core Standards & Objective

- ◆ G.SRT.8 – Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

Procedures & Timeline

- ◆ Day One – The project will be described and assigned. Students are going to go on a trip to New York City to visit several local attractions. The city blocks are mostly set up like a grid. Using the right triangles and the distance tool, find the length of the hypotenuse if we could walk that way.
- ◆ Day Two – Continue to work with a partner to find the missing sides of the triangles and prove the measurements. Create their own triangle on the map and find all sides of the right triangle.
- ◆ Day Three – Wrap up and hand in written work.

Map Screenshot(s)

Overview of the New York City Pythagorean Theorem Map

← New York City Pythagorean... ✕

Practice using the Pythagorean theorem to find the distance of the hypotenuse when given the distance of each leg on a right triangle.

☒ Open in My Maps

☒ Our Trip

- American Museum of Natural History
- Applebee's
- The Plaza
- Madame Tussauds New York
- 1 MORE

☒ Right Triangle #1

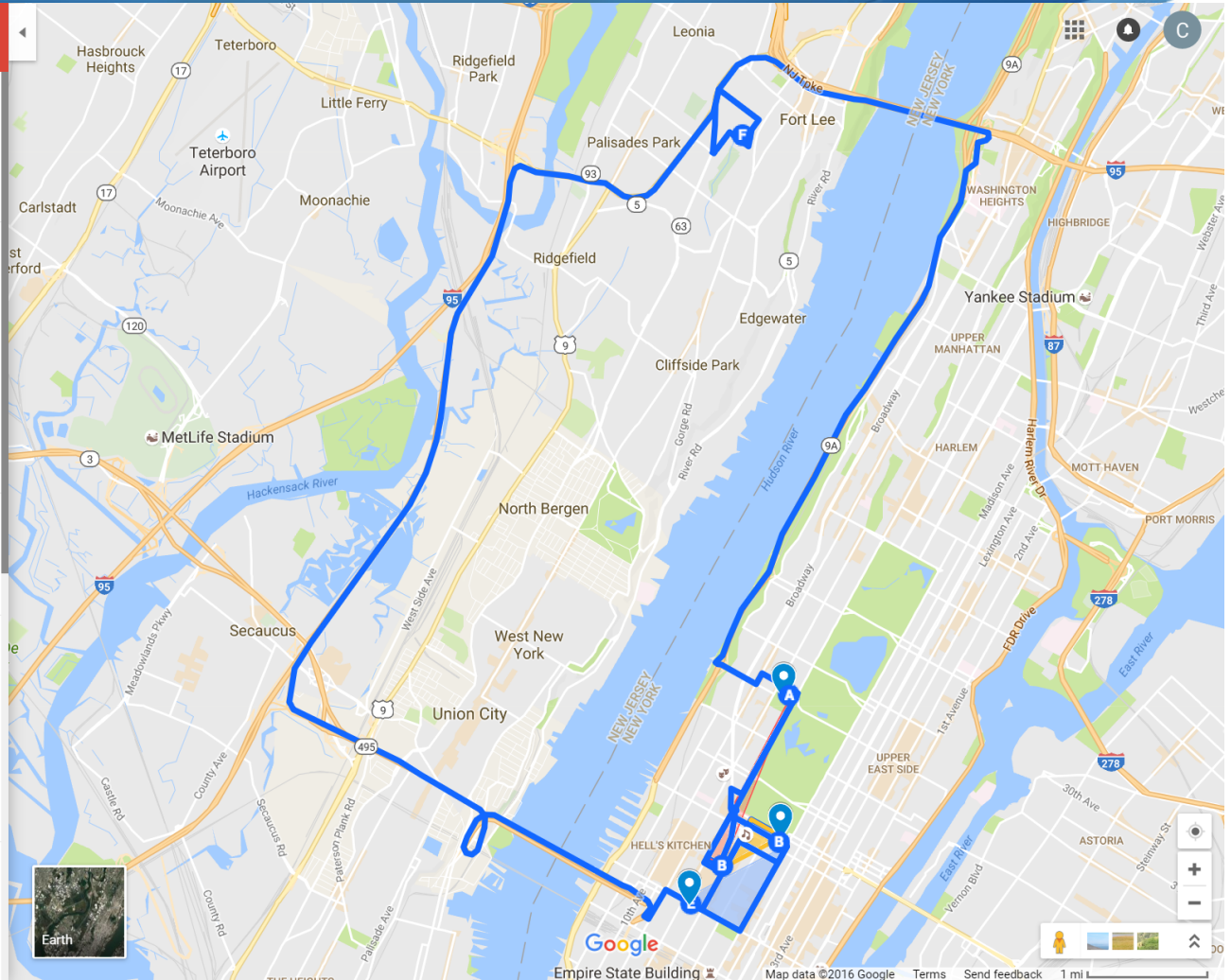
- Right Triangle #1

☒ Directions from New York, NY 10024, USA to Applebee's

- Directions from New York, NY 10024, USA to A...
- A New York, NY 10024, USA
- B Applebee's

☒ Right Triangle #2

- Right Triangle #2
- Right Triangle #3



Map Screenshot(s)

Five Map Points

Lewis F Cole Middle School

1 of 1

We will leave the middle school by 7am and back around 3:30. [www.filboe.com](http://www.films.filboe.com)

Details from Google Maps
467 Stillwell Ave, Fort Lee, NJ 07024
www.films.filboe.com
+1 201-585-4660
[View in Google Maps](#)

40.84897, -73.98049

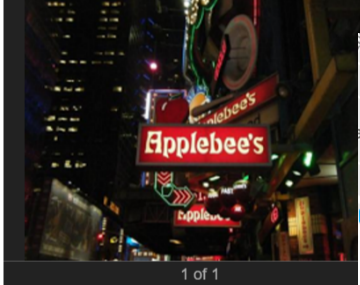
American Museum of Natural History

1 of 1

Our first stop on the New York City field trip will be to explore the American Museum of Natural History. <http://www.amnh.org/>

Details from Google Maps
Central Park West & 79th St, New York, NY 10024
www.amnh.org
+1 212-769-5100
4.5 ★★★★★ [View in Google Maps](#)

40.78132, -73.97398

Applebee's

1 of 1

This is where we will eat lunch. They have a variety of food. Menu: <http://www.applebees.com/menu>

Details from Google Maps
205 W 50th St, New York, NY 10019
restaurants.applebees.com
+1 212-262-2400
3.3 ★★★★★ [View in Google Maps](#)

40.76141, -73.98356

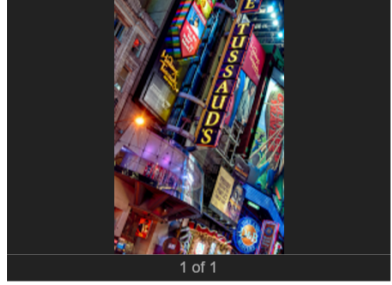
The Plaza

1 of 1

After lunch, we will visit one of the oldest and most stunning hotels in New York City. <http://www.theplazany.com/>

Details from Google Maps
768 5th Ave, New York, NY 10019
www.fairmont.com
+1 212-759-3000
4.5 ★★★★★ [View in Google Maps](#)

40.76446, -73.97448

Madame Tussauds New York

1 of 1

Our last stop at Madame Tussauds is where you will get to view an amazing wax sculpture exhibit. <https://www.madametussauds.com/new-york/en/>

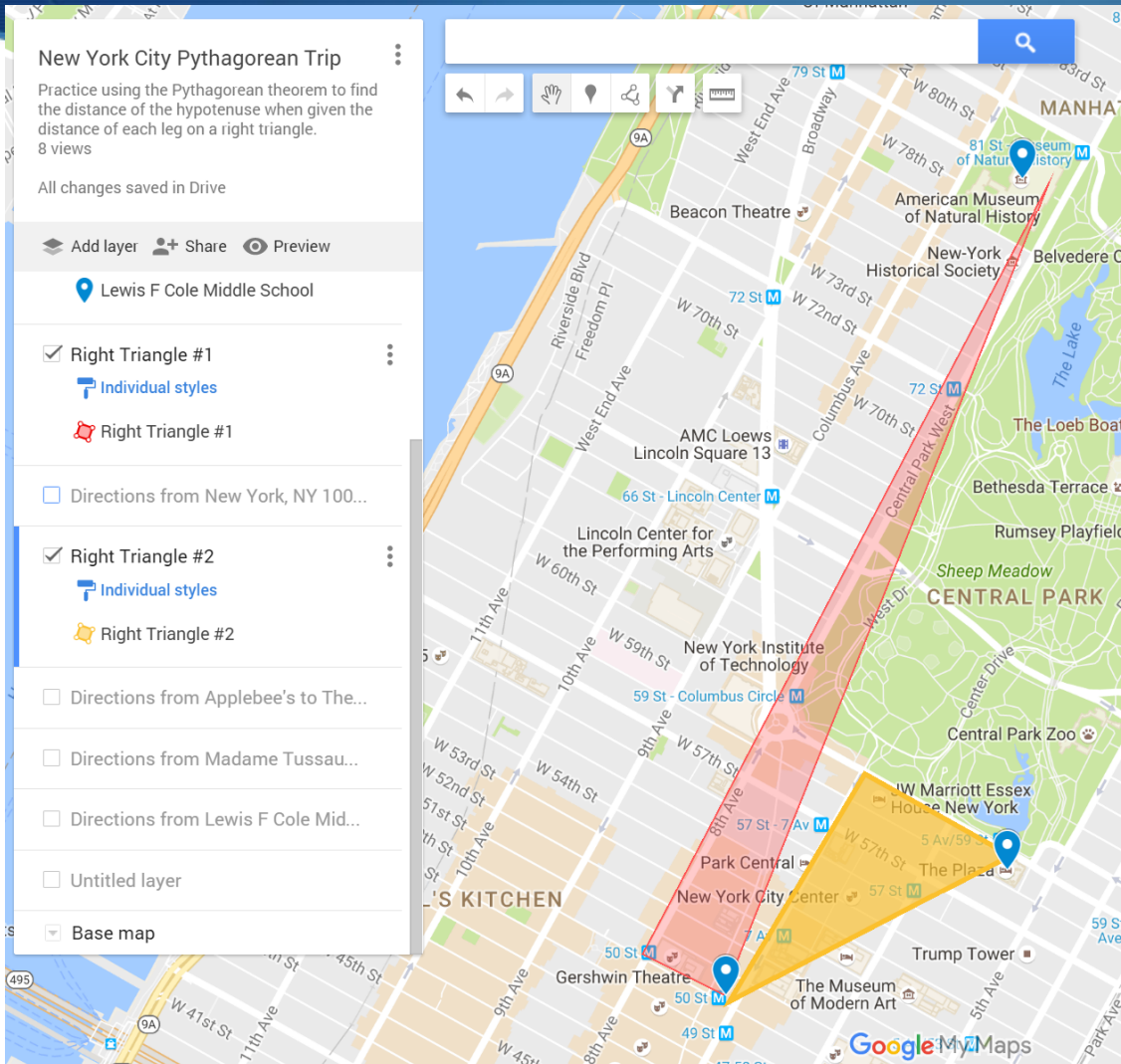
Details from Google Maps
234 W 42nd St, New York, NY 10036
www.madametussauds.com
+1 866-841-3505

40.75647, -73.98886

We will start at our middle school. Then we will visit the American Museum of Natural History, Applebees for lunch, the Plaza and lastly Madame Tussauds.

Map Screenshot(s)

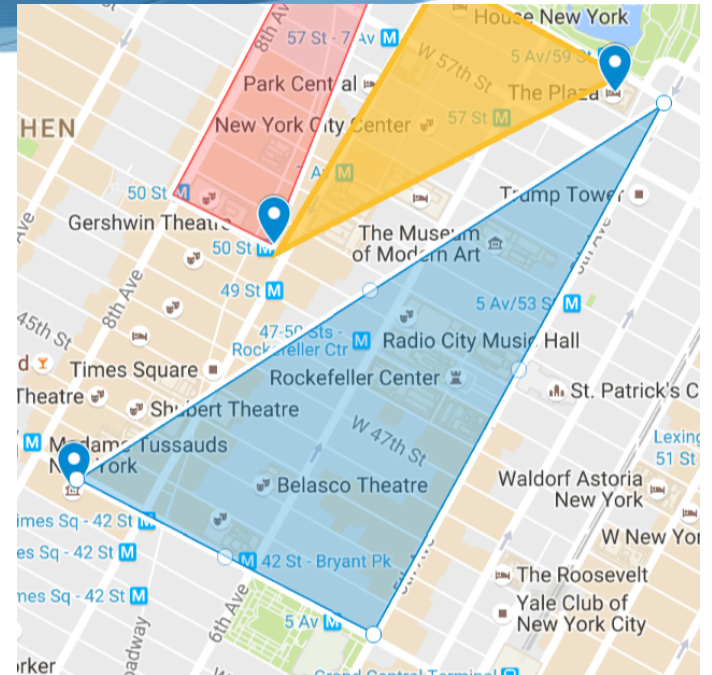
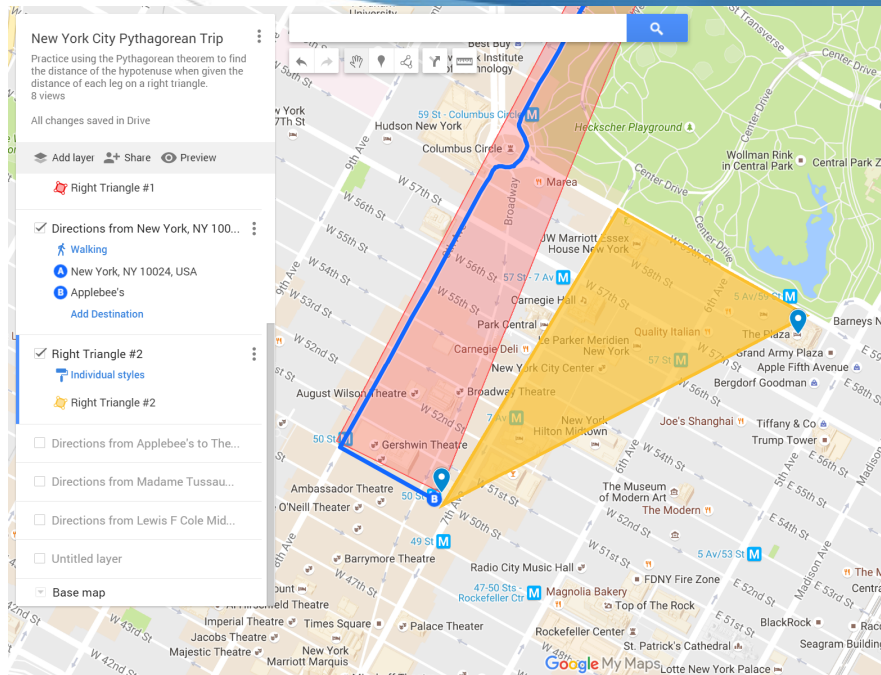
Right Triangle #1



Students will explore the distances of the sides of the first right triangle that is created by the walk from the American Museum of Natural History to Applebees as pictured by the red right triangle. They will use the distance tool on maps and use the Pythagorean Theorem to prove the measurements.

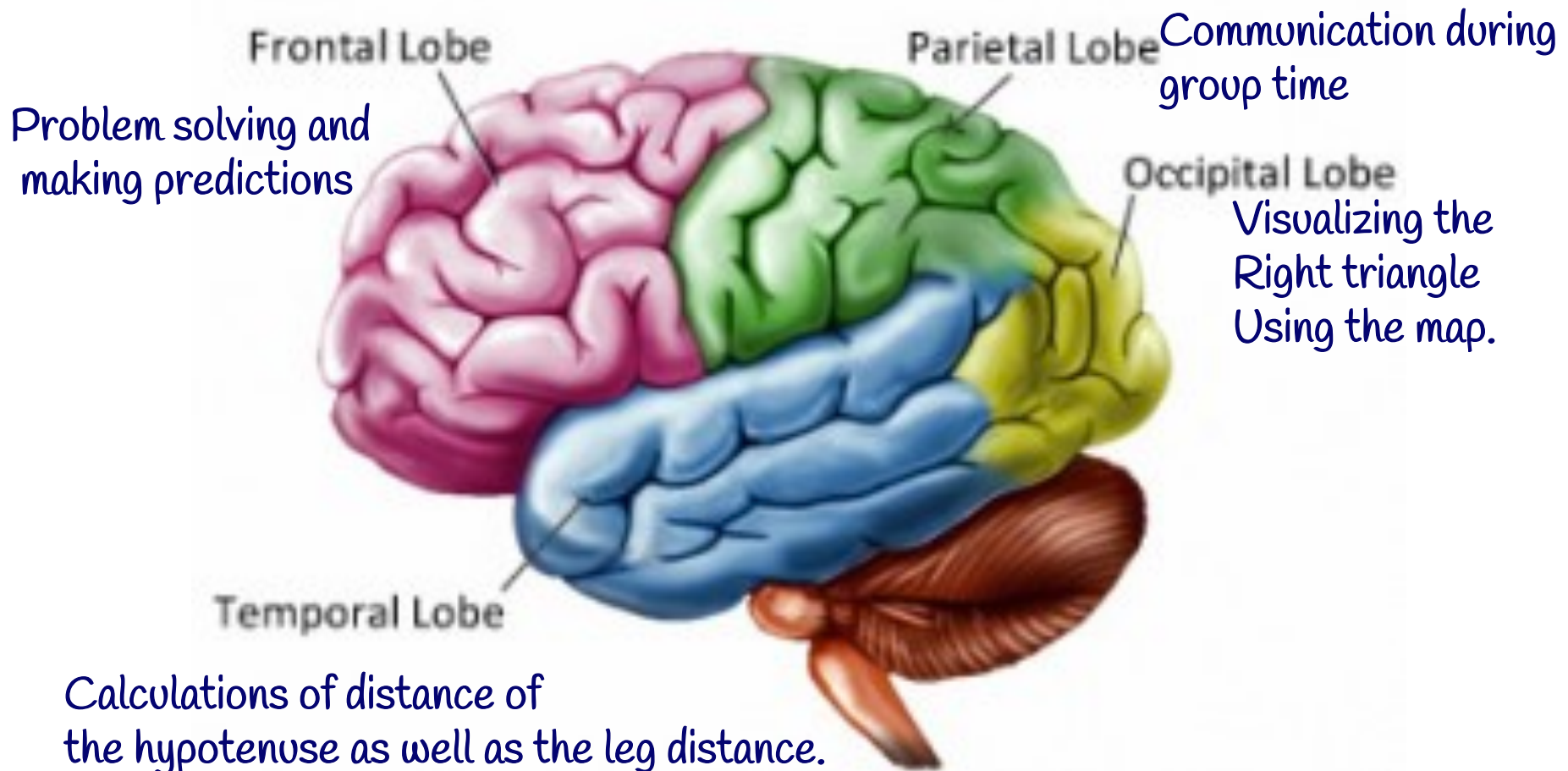
Map Screenshot(s)

Right Triangles #2 and #3

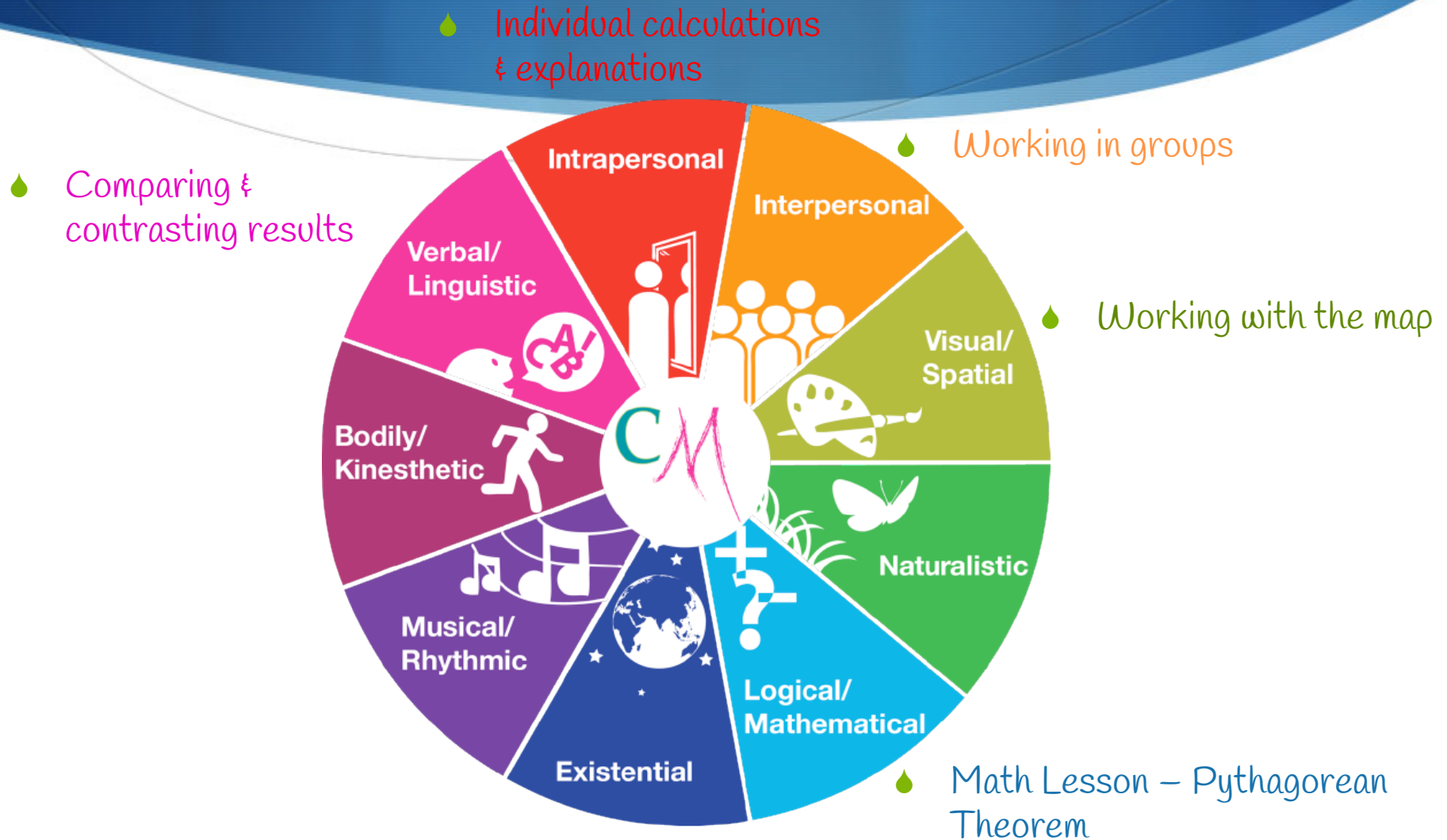


As with the first right triangle, the students will continue to use the Pythagorean theorem for the orange and blue triangles. As an extension activity, the students can create their own right triangle on the map and continue to demonstrate the Pythagorean Theorem.

Brainy Bits



Learning Styles



Citations

Gardner, H. (1983). *Frames of mind: The Theory of Multiple Intelligences*. New York: Basic Books

Sousa, D. (2011). *How the brain learns* (4th ed.). Thousand Oaks, Calif.: Corwin Press.

Picture Citations:

Gardner's Multiple Intelligences: <http://inopen.in/wp-content/uploads/2013/05/multiple-intelligence.png>

The Brain's Lobes: <http://nbia.ca/brain-structure-function/>