

Geometry Essential Project

Name:

Period:

Quarter 1 Summarizing Project

Topic list:

- 1) Point, lines, rays, line segments, planes, and their role in establishing the foundation for geometry.
- 2) Angles - acute, obtuse, right, complementary, supplementary, alternate interior angles, and their role in establishing the foundation for geometry.
- 3) Angle measurement, and congruence labeling - What is the tool for measuring angles in geometry, the list of symbols that associate with reading, measuring and identifying characteristics in geometry.
- 4) Isometry 1 - what is isometry (the 3 types of transformations), pre-image vs image, example of rotation and its rules on the coordinate plane.
- 5) Isometry 2 - what is isometry (the 3 types of transformations), pre-image vs image, example of transformation and its rules on the coordinate plane.
- 6) Isometry 3 - what is isometry (the 3 types of transformations), pre-image vs image, example of reflection and its rules on the coordinate plane.
- 7) Construction 1 - What is the fundamental tools for geometric construction? What about the constructions must be notoriously precise? Provide instruction and visual representation on duplicating line segments, and perpendicular bisectors.
- 8) Construction 2 - What is the fundamental tools for geometric construction? What about the constructions must be notoriously precise? Provide instruction and visual representation on duplicating angles, and perpendicular through a point NOT on a line.
- 9) Construction 3 -What is the fundamental tools for geometric construction? What about the constructions must be notoriously precise? Provide instruction and visual representation on bisecting angles, and parallel lines.

1) Point, lines, rays, line segments, planes, and their role in establishing the foundation for geometry.

What is the definition of a point?

What is the definition of a line?

What is the definition of a plane?

What is a line segment?

What is a ray?

Provide examples of each one, and clearly label them.

What is the notation used for each one mentioned above?

What is the difference between a line versus a ray versus a line segment?

In your group's opinion, why is it or is not important to establish these criteria PRIOR to more intricate areas of Geometry?

How did these fundamental parts of geometry establish themselves in other topics we have studied this year?

Create a Poster that has ALL the explanations and diagrams on it. This will be posted in the classroom.

2) Angles - acute, obtuse, right, complementary, supplementary, alternate interior angles, and their role in establishing the foundation for geometry.

What is the definition of acute angle?

What is the definition obtuse angle?

What is the definition complementary angle?

What is the definition supplementary angle?

What is the definition alternate interior angles?

What is the definition linear pair of angles?

Provide examples of each one, and clearly label them.

Are all linear pairs of angles supplementary angles? Provide examples for either answer (yes or no)

In your group, discuss and come up with a potential "trick" to associate complementary angles and supplementary angles, for students who mix them up often.

In your group's opinion, why is it or is not important to establish these criteria PRIOR to more intricate areas of Geometry?

How did these fundamental parts of geometry establish themselves in other topics we have studied this year?

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3) Angle measurement, and congruence labeling - What is the tool for measuring angles in geometry, the list of symbols that associate with reading, measuring and identifying characteristics in geometry.

What is the name of the tool for measuring angles in Geometry? What does it look like?

How does this tool assist you in measuring angles? Provide a quick instruction set for first time users.

What are the list of symbols that associate with reading, measuring and identifying parts in Geometry?

2 or more pairs of congruent lines, 2 or more pairs of congruent angles, parallel lines, perpendicular lines, the measure of angle ABC is 50 degrees (for example), and other ones we have worked with. Be as detailed as possible.

Provide an example of each one, and clearly label them.

As a group, why is it important to understand the above symbols when working with Geometry?

In your group's opinion, why is it or is not important to establish these criteria PRIOR to more intricate areas of Geometry?

How did these fundamental parts of geometry establish themselves in other topics we have studied this year?

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4) Isometry 1 - what is isometry (the 3 types of transformations), pre-image vs image, example of rotation and its rules on the coordinate plane.

What is the definition of isometry?

What are the 3 types of isometry we have seen in the class so far? what are they called?

Define carefully as a group the pre-image, and the image. What is the main similarity between the two? main difference?

What is rotation in isometry? Be very specific about the criteria that FULLY describes rotation .

Provide an example of rotation on a coordinate plane, clearly label the pre-image, and the image.

What is the rule for rotation for locating coordinates on a coordinate plane? How do you know that it will always work?

What if rotation was not done on graph paper, how will the process be different?

What are some advantages and disadvantages of doing rotation on graph paper, and other paper. Explain each choice your group comes up with.

How is rotation different that the other 2 isometry?

How does isometry interacts with the other essential parts of geometry (lines, angles, labeling etc...)

How did these fundamental parts of geometry establish themselves in other topics we have studied this year?

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5) Isometry 2 -what is isometry (the 3 types of transformations), pre-image vs image, example of translation and its rules on the coordinate plane.

What is the definition of isometry?

What are the 3 types of isometry we have seen in the class so far? what are they called?

Define carefully as a group the pre-image, and the image. What is the main similarity between the two? main difference?

What is translation in isometry? Be very specific about the criteria that FULLY describes translation.

Provide an example of translation on a coordinate plane, clearly label the pre-image, and the image.

What is the rule for translation for locating coordinates on a coordinate plane? How do you know that it will always work?

What if translation was not done on graph paper, how will the process be different?

What are some advantages and disadvantages of doing translation on graph paper, and other paper. Explain each choice your group comes up with.

How is translation different that the other 2 isometry?

How does isometry interacts with the other essential parts of geometry (lines, angles, labeling etc...)

How did these fundamental parts of geometry establish themselves in other topics we have studied this year?

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6) Isometry 3 - what is isometry (the 3 types of transformations), pre-image vs image, example of reflection and its rules on the coordinate plane.

What is the definition of isometry?

What are the 3 types of isometry we have seen in the class so far? what are they called?

Define carefully as a group the pre-image, and the image. What is the main similarity between the two? main difference?

What is reflection in isometry? Be very specific about the criteria that FULLY describes translation.

Provide an example of reflection on a coordinate plane, clearly label the pre-image, and the image.

What is the rule for translation for locating coordinates on a coordinate plane? How do you know that it will always work?

What if reflection was not done on graph paper, how will the process be different?

What are some advantages and disadvantages of doing reflection on graph paper, and other paper. Explain each choice your group comes up with.

How is reflection different than the other 2 isometry?

How does isometry interact with the other essential parts of geometry (lines, angles, labeling etc...)

How did these fundamental parts of geometry establish themselves in other topics we have studied this year?

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7) Construction 1 - What is the fundamental tools for geometric construction? What about the constructions must be notoriously precise? Provide instruction and visual representation on duplicating line segments, and perpendicular bisectors.

What is the fundamental tools for geometric constructions?

How do these tools assist you in geometric constructions? Provide a quick instruction set for first time users.

What are characteristics of constructions that must be followed each and every time?

What are the list of fundamental constructions that associate with the tools?

Provide an example of duplicating line segments, and perpendicular bisectors. Be specific about the construction process and labeling.

Describe how each of the construction is related to PRIOR topics studied (geometry essentials, Isometry, etc...)?

Compare and contrast isometry and straightedge/ compass construction. Be as detailed as possible.

How did these fundamental parts of geometry establish themselves in other topics we have studied this year?

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8) Construction 2 - What is the fundamental tools for geometric construction? What about the constructions must be notoriously precise? Provide instruction and visual representation on duplicating angles, and perpendicular through a point NOT on a line.

What is the fundamental tools for geometric constructions?

How do these tools assist you in geometric constructions? Provide a quick instruction set for first time users.

What are characteristics of constructions that must be followed each and every time?

Provide an example of duplicating angles, and perpendicular through a point NOT on a line. Be specific about the construction process and labeling.

Describe how each of the construction is related to PRIOR topics studied (geometry essentials, Isometry, etc...)?

Compare and contrast isometry and straightedge/ compass construction. Be as detailed as possible.

How did these fundamental parts of geometry establish themselves in other topics we have studied this year?

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9) Construction 3 -What is the fundamental tools for geometric construction? What about the constructions must be notoriously precise? Provide instruction and visual representation on bisecting angles, and parallel lines.

What is the fundamental tools for geometric constructions?

How do these tools assist you in geometric constructions? Provide a quick instruction set for first time users.

What are characteristics of constructions that must be followed each and every time?

Provide an example of bisecting angles, and parallel lines. Be specific about the construction process and labeling.

Describe how each of the construction is related to PRIOR topics studied (geometry essentials, Isometry, etc...)?

Compare and contrast isometry and straightedge/ compass construction. Be as detailed as possible.

How did these fundamental parts of geometry establish themselves in other topics we have studied this year?

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