3 DAY PROJECT OVERVIEW

Name of Project:	Design Your Own METSA Logo	**Teach Dates:** March 6th - 9th, 2018
Subject:	Pre-AP Geometry	**Teachers:** Ariel DeZeeuw, Erik Ringqvist, Keelie Kish
Driving Questions:	As a graphic design team, how can you and your team utilize geometric similarities to design a t-shirt with a unique logo for METSA to proudly promote your school and METSA?	
Summary and format of Entry Document – Submit a copy	The entry document is a letter to the class from METSA. The students will create a fresh, new logo for the METSA program to honor the 10th anniversary of METSA. They will design the logo for a t-shirt then dilate it to fit a large banner using geometric similarities. Students will then present the logos to the class and the best logo will be printed on a t-shirt.	
Anticipated "need to knows" from entry document – include logistics and content	What is "Block Format"? What software do we need to use for the "computer design"? How do we design a logo on a computer? How do we know how big to enlarge our t-shirt designs by? What is a scale factor? What is a mathematical presentation? What is geometrically similar (how do we calculate it)? What is a logo (examples)? How will we be graded? What tools will we be allowed to use? How do you measure angles? How do you use a protractor?	
Project Launch Summary of how you will launch the project – include anchor video link and purpose	We will show "The Journey of a Custom Shirt" to explain how custom shirts are made. This will used to excite the students into being their own designers and designing their own logo that could be printed on a t-shirt if their project gets chosen. https://www.youtube.com/watch?v=xl_PLDulJS4	
Student Products/Assessment:	Students will design a unique METSA logo and dilate their logo from a t-shirt to a large banner. They will share their mathematical findings with a 3-minute presentation to the class discussing their scale factor, how they enlarged their design, how the design appeals to students, and why their design promotes METSA pride.	

Objectives: SWBAT	SWBAT produce a dilation of several shapes by applying the definition of similarity. SWBAT calculate a scale factor and apply it to create similar figures.
Content Standards to be taught and assessed**:**	(7) Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems. The student is expected to: (A) Apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles.
Safety: Include any safety issues and *how* they will be addressed.	Students should be safe online and only use trusted sites and sources for their project. Students will be instructed to only use their computers for project related searches.

3 DAY PROJECT CALENDAR

Project: Design Your Own METSA Logo	**Teach Dates: March 6th - 9th, 2018**

DAY 1 Tuesday: 9:10-10:00 AM	DAY 2 Wednesday: 9:17 - 10:14 AM	DAY 3 Thursday: 9:10-10:00 AM	DAY 4 Friday: 9:17 - 10:14 AM
Introduce Project: (30 min) ● Entry Event Video (3 min) https://www.youtube.com/watch?v=xl_PLDulJS4 ● Entry Doc ○ Teacher will hand them out after the video ● Rubric ○ Students will pick up rubric as they walk through the door. ○ There will be 4 rubrics: content, presentation, collaboration, and peer presentation rubric. ● Knows/Need to Knows ○ Knows and Need to Knows will be done as a whole class with a Google doc projected at the front of the classroom. Group Contracts (7 min) ● Contract Worksheet ● Assign Jobs DIY Logo Inspiration (available all class) ● Characteristic WS for students to keep in group folder Start Working on Logo (rest of the class) ● Students will discuss what aspects of METSA they would like to include in the logo, design ideas, etc.	Start working on logo (5-10 minutes) Powerpoint Workshop - Grouping Shapes (10 min) ● Send "Graphic Designer" ● How-To Worksheet ● Video Links on ECHO Dilation GeoGebra Workshop (20 min) ● Whole class workshop ● Worksheet for each member to complete Solving Similar Shapes Workshop (5-10 min) ● Team tutors come to whiteboard and are shown a sample problem solved by instructor ● Team tutors receive worksheets to distribute to group ● Team tutor teaches the sample problem to group ● (Due by end of project) Each individual must complete the worksheet Finish working on project (rest of class)	Student work day: Finish Logo (First 10 min of class) ● Teacher will print logo when the logo is completed. ● Student teachers will not be present. This will be an opportunity for students to work on the poster for their presentations in addition to completing all necessary calculations. DIY Protractor (available all class) ● Loaded to Echo for individual reference. ● Not required Work on poster board (40 min) ● Should be 90% complete by end of day	Finish up poster boards/presentations (15 min) ● Delegate who is presenting which aspects of project (each member must present something) Presentations (35 min) ● 3 minute limit for each group ● Students will grade each others presentations: *Does the scale factor look accurate?* *Is the font in block format?* *Does the logo accurately represent METSA?* *Comments:* Students will need to turn in: ● Scaling "M" Calculations ● Solving Similar Shapes Worksheet ● Printed out Logo ● Poster ● Rubric

Supplies needed:	Supplies needed:	Supplies needed:	Supplies needed:
Entry Doc (one per student) Rubric (one per student) Contract Worksheet (one per group) Logo Examples (for DIY) Folders (one per group)	14 Protractors 14 Rulers 7 Poster 22'' x 24'' 14 Sets of Markers PowerPoint Workshop (one per group) Solving Similar Shapes Workshop Worksheet(1 per student)	14 Protractors 14 Rulers 7 Poster 22'' x 24'' 14 Sets of Markers Protractor DIY (1 hard copy per class)	Rubrics (one per student)

REFLECTION QUESTIONS

What scaffolds, workshops, or learning support will you provide for students?	**How will you get to know your students and foster a sense of community?**	**What do you see as the biggest challenge in implementing this lesson and how do you plan to address that challenge?**
We will have several DIYs/Solo Stations available for students to utilize to improve their skills with math tools (protractors) and technology. We will have two workshops focused on content: one which will serve as an exploration/explanation of the TEKS being covered and another which will serve as an assessment/reinforcement of said material. Student teachers will be actively monitoring each groups' progress in order to ensure that students are learning and understanding the material being covered. Should students have questions, student teachers will utilize the art of probing questions as a scaffolding technique to lead students to the correct answer by making them analyze the information presented to them.	We will circle around to each group and have a mini group meetings to see what questions they might have about the project or material. We will do this 2-3 times per day to provide feedback on their project to provide the groups with confidence that they are heading in the right direction. We can also help guide them back on the right path if they are having trouble with the material.	Time will be a big factor in out project. It is important to make sure all students are engaged and stay on topic in order to complete this project in time. We will use an online timer so that the students can see how much time they have left for each step of the project. Students might also struggle with dilating their actual project. We have created a DIY station to provide extra information about using protractors and how to measure angles, but we will also make rounds to every group to let them ask questions if need be.

Make sure to attach the following to this planner:

Concept map, student sheets, workshop outlines, rubrics and other assessment tools, entry document.

Objectives: SWBAT	SWBAT produce a dilation of several shapes by applying the definition of similarity. SWBAT calculate a scale factor and apply it to create similar figures.
Content Standards to be taught and assessed**:**	(7) Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems. The student is expected to: (A) Apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles.
Safety: Include any safety issues and *how* they will be addressed.	Students should be safe online and only use trusted sites and sources for their project. Students will be instructed to only use their computers for project related searches.

LOADING...

METSA LOGO COMING SOON..!

(Design Experts Needed)

Dear Mrs. McDonald's Pre-AP Geometry Students,

Every year new students are accepted into the Math, Engineering, Technology, and Science Academy (METSA) here at Turner High School. With each new class, it's important that the sense of pride for the program is maintained. As METSA celebrates their 10th anniversary, the time has come to revamp their old logo to rebrand the academy with a fresh, new design that continues to promote METSA pride.

As a graphic design team, how can you and your team utilize geometric similarities to design a t-shirt with a new, unique logo for METSA to proudly promote your school and METSA?

Designing a unique logo that can be used on a t-shirt, flag, or other promotional items requires extensive knowledge of similarity and dilations. For this three-day project, you must:

- Design an original, unique logo to be used on the back of a t-shirt that promotes METSA pride.
  - Must be computer generated on 8½'' x11'' paper
  - "METSA" must be present in the logo
  - Font must be of a "Block" format
  - Logo must not contain any real life photographs
  - Logo is not limited to a square perimeter
- Enlarge your design so that it may be utilized on a flag or banner by making a poster board of the same design.
  - The t-shirt design and banner design must be geometrically similar
  - Must be hand drawn
  - Design must take up majority of space on a 22''x22'' poster board
  - METSA "M" calculations must be attached on the back of the poster
- Conduct a 3-minute mathematical presentation that describes your scale factor and how you enlarged your design, how your design appeals to students, and why your design promotes METSA pride.

We look forward to seeing your creations, honoring and promoting the METSA Program! Happy designing!

Sincerely,

METSA

Math, Engineering, Technology, and Science Academy

Solo Station Overview	
Solo Station Name: Characteristics of Great Logos	Solo Station Content/Objective(s): How to create a Great Logo
Learning Standard(s) Addressed (TEK): N/A	Needed Supplies and Quantities: One copy of each worksheet (Great Logo/Inspiration/Questions to Consider)
Rationale and Relevance of Solo Station: Students will be given the characteristics of great logos and see examples of a variety of company logos.	Anticipated Knows/Need to Knows: What should a logo look like? What should we consider when making our logo? What should our logo contain?
Student Take-Away Mechanism: Worksheets available on ECHO.	Additional Notes: While this is not required, we will highly suggest them to glance at it. We will also upload it to ECHO so they can review it anytime during the project.
Strategic selection of student attendees: Students will only need to visit the station if they are stuck on coming up with an idea for the logo.	Approximate Amount of Time to Complete: 5 minutes

Description of Solo Station Activity	Assessment of Student Learning
Students will be given characteristics of a great logo, see examples of already created logos, and a questions to consider chart to get them thinking about what might be important factors in their own logos.	Students will present their final logo based off of the 5 characteristics of great logos.

Characteristics of a Great Logo

SIMPLE

Simple logos are the ones people can recognize as soon as they see them. The simplest logos are the ones people remember the most.

SCALABLE

A great logo should be simple enough to be scaled down or up and still look good.

VERSATILE

A great logo should look equally good on any web device and on any kind of print material.

RELEVANT

A great logo should be relevant to your practice. It has to have meaning that relates to the work you do and clearly state who you are.

MEMORABLE/IMPACTFUL

A great logo should be impactful. You want to capture your viewer's attentions and leave a positive impression.

Logo Inspirations

Creating a Logo:
Questions to Consider

Simple	Scalable	Versatile	Relevant	Memorable
How many different elements am I using in my logo?	Would the symbols used in my logo be easy to scale?	How would this look on a t-shit?	What does the logo suggest my company does?	Why will customers remember the logo?
If the logo were smaller, would the logo be too jumbled?	Is the design complicated/would it require a lot of scaling?	How would this look on a business card?	Does the logo contain the company name?	Does the logo have an “eye-catching” feature?
Are the graphics very detailed or general outlines?	Are the graphics clear when the logo is made larger?	How would this look on a Website?	Is the company name clearly legible?	Is your logo creative or generic?
How many different fonts does the logo contain?	How would the graphics look if the logo were made smaller?	How would this look printed on a large banner?	Does it promote the company’s best qualities?	Will people be intrigued to learn more about your company?

Workshop Overview	
Workshop Name: PowerPoint Workshop	Workshop Content/Objective(s): PowerPoint Graphics (FreeForm Tool, Grouping, Beveling, Adding text, Changing shape color)
Learning Standard(s) Addressed (TEK): N/A	Needed Supplies and Quantities: Student computers for after the workshop, 8 worksheets (one per group)
Small Entry Event (like the 5e Engage): Graphic Designer Certification Introduction – “Get Certified”	Anticipated Knows/Need2Knows: How to add a shape? How to group shapes? How to bevel a shape? How to make my own shape? How to smooth lines on my shape? How to use the FreeForm Tool? How to add text?
Student Take-Away Mechanism: PowerPoint Worksheet	Additional Notes: Students will come to the front of the room and teacher will open PowerPoint on the computer and project it on the front whiteboard screen.
Strategic Selection of Student Attendees: Only the “Graphic Designers” of each group will attend.	Total Amount of Time: 10 minutes

PowerPoint Workshop

Graphic Designer Certification

Master of PowerPoint Graphics

Complete this training to become a Master of PowerPoint Design

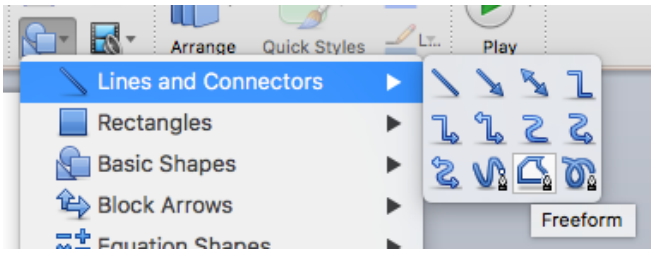
Name: _____

Learn the secrets behind PowerPoint's Graphic Design Elements to enhance your logo making skills!

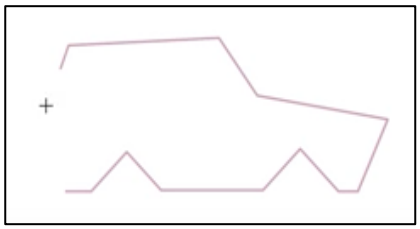
Start your Training Now!! >>

Mastering the FreeForm Tool

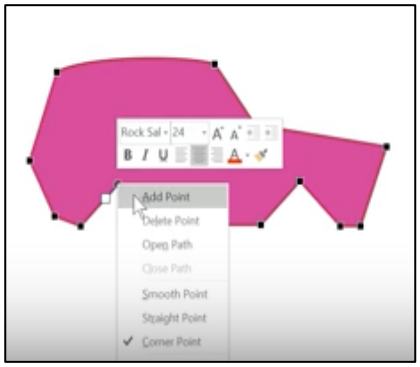
FreeForm Tool – Use to draw your own unique shapes



Click >> Insert/Lines and Connectors/Freeform

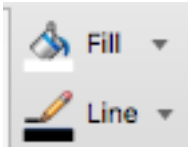


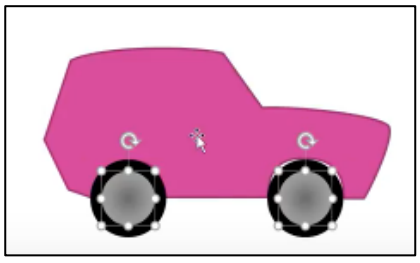
Use the Freeform tool to create your shape by clicking to drop points.
Click near the first point to finish your shape (or click enter).



Right Click on the points to Move points, Delete points, or Smooth the lines.

Click on the image: Go to >>Format/Fill or >>Format/Line to fill the shape with color and add a colorful boarder for your shape.



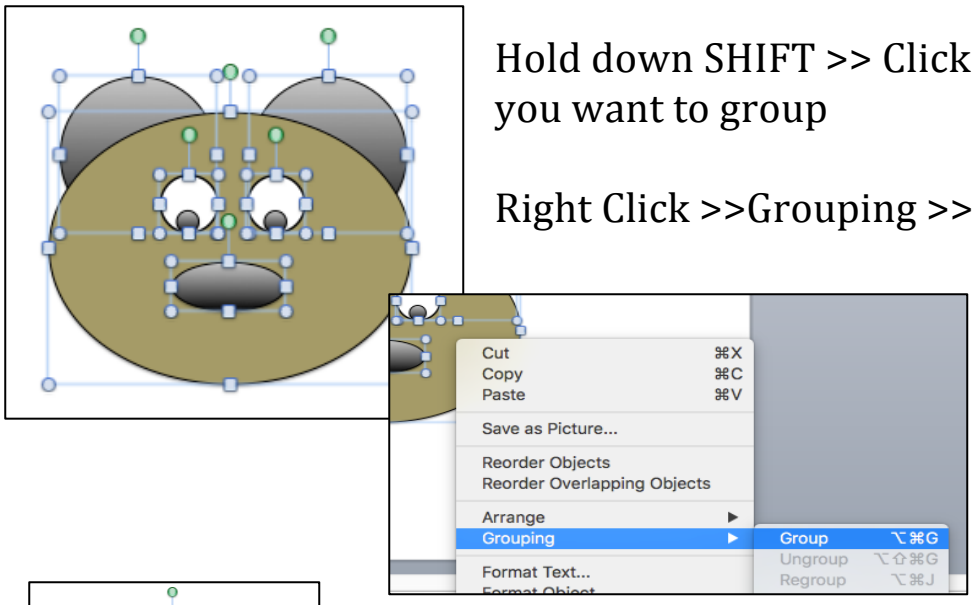


Enhance your design by adding new shapes to your creation!
(Click >>Insert/Shape/[*choose shape*])

Next Step: Master the Art of Grouping

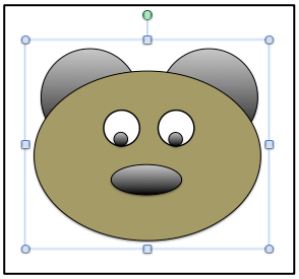
Mastering the Art of Grouping

Grouping Elements – Use the Grouping Command to combine multiple different shapes into one! This will make enlarging/shrinking all the items much easier as you can do it in one easy step!



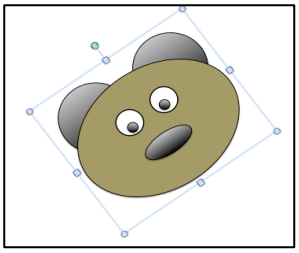
Hold down SHIFT >> Click all the items you want to group

Right Click >>Grouping >> Group



Now the shapes are combined together.

Click and Drag the white points to <u>enlarge, shirk, or stretch</u> your design.

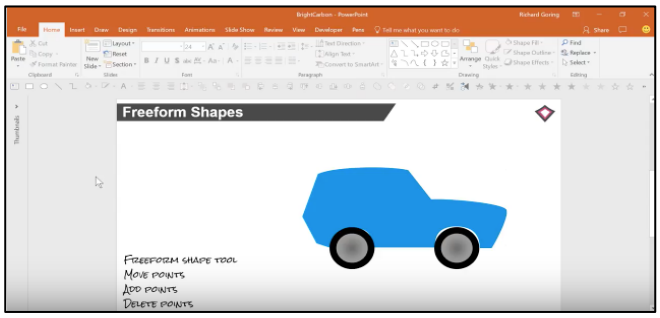


Click and Drag the Green Circle to <u>rotate</u> your image!

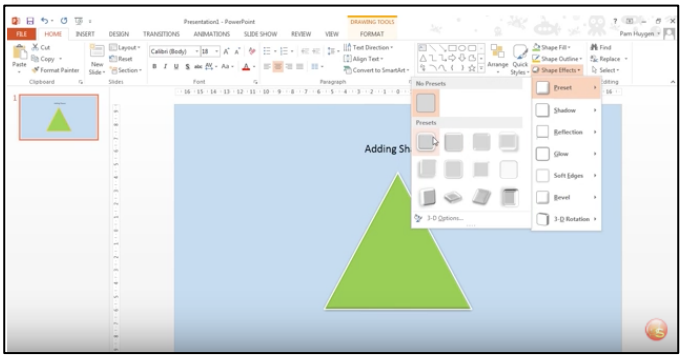
Extra Credit Material: Hold SHIFT before dragging the points to keep the dimensions the same when scaling your shape!

Congrats on completing your training!

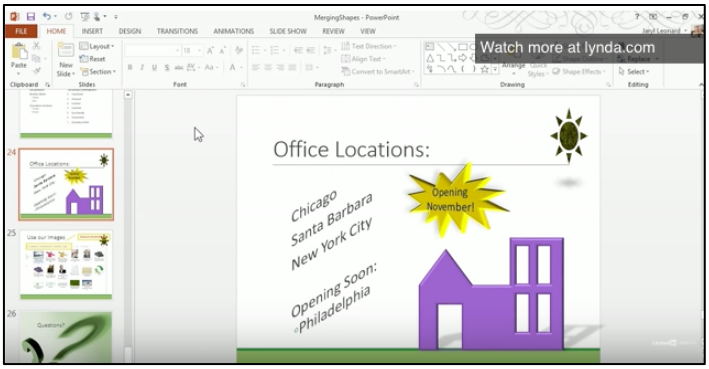
Check out these links to enhance your designing skills!



FreeForm Tool
https://www.youtube.com/watch?v=-r6tsHSe8Y0



Add Shape/Color/Bevel
https://www.youtube.com/watch?v=qDWscQ6zOW8



Merge/Add/Subtract Objects
https://www.youtube.com/watch?v=ygsf5qpimU8

Workshop Activities and Anticipated Time Allotment (like the 5e Explore/Explain/Elaborate/Evaluate):	Probing Questions/Correct Answers
Explore: All Graphic Designers will be told they need to "Get Certified" and take the training to become a Master PowerPoint Graphic Designer.	1. Who needs to attend this Workshop? (Graphic Designers) 2. What software do you need to use to design your logo?
Explain: The teacher will demonstrate how to use tools such as the freeform tool and grouping command as well as inserting textboxes, shapes, and changing their colors. Teacher will create the Teddy Bear, also found in the worksheet, while students observe how each of these tools are utilized in design process.	1. How do create a unique shape? (Insert/ Lines and Connectors/FreeForm Tool) 2. How do you move and scale multiple shapes all at once? (Group shapes then use white boxes to make bigger or smaller) 3. How do you insert a shape? (Insert/Shape/[shape])
Elaborate: At the end of the PowerPoint worksheet, links are provided for videos that cover how to use the features covered in the workshop on a more in depth level as well as extra tips on creating shapes in PowerPoint.	1. Where can you go for extra help? (Online video links) 2. Where are the video links? (On the back page of worksheet and on ECHO)
Evaluate: Students will be evaluated on how well they utilize PowerPoint in their final logo design. Their designs should be unique and creative, showing they were able to use PowerPoint to infiltrate their design ideas.	1. What kind of font are you required to use in your logo? (Block font) 2. What must be present in your logo? (METSA)

Workshop Overview

Workshop Name: Exploring Similar Triangles	Workshop Content/Objective(s): • SWBAT deduce the definition of similarity in terms of dilation. • SWBAT identify which parts of a triangle must remain the same and which parts must be proportional in order for triangles to be similar. • SWBAT extend the information learned about similarity to other shapes and figures.
Learning Standard(s) Addressed (TEK): Geometry (7) Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems. The student is expected to: (A) Apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles.	Needed Supplies and Quantities: • 26 Exploring Similar Triangles Worksheets • Link to Geogebra simulation pre-loaded into Echo
Small Entry Event (like the 5e Engage): https://www.youtube.com/watch?v=kX5VN85p5M4 2-minute video covering dilations and scale factor.	Anticipated Knows/Need2Knows: Knows: • What a triangle is. • That all of the angles in a triangle add up to 180 degrees. • What congruency is. • What a corresponding angle is. Needs to Know: • What is a dilation? • What is similarity? • What is an angle? • What does it mean to be proportional? • What is a vertex? • What is a scale factor? • How do we calculate scale factor?
Student Take-Away Mechanism: • Students will "take away" a worksheet that will be used to guide the exploration using the Geogebra simulation. This worksheet will include definitions of key terms such as congruency, similarity, dilation, and scale factor. It will also include steps on how to calculate scale factor,	Additional Notes:

and it will require students to be able to identify corresponding sides and angles.	
Strategic Selection of Student Attendees: • Since this classroom has 1:1 technology and classroom management issues have been observed, this will be a whole class workshop. Having this be a whole class workshop will ensure that every student will learn the material and have a worksheet with notes to reference.	Total Amount of Time: • 15 minutes

Workshop Activities and Anticipated Time Allotment (like the 5e Explore/Explain/Elaborate/Evaluate):	Probing Questions/Correct Answers
Explore: Student will be directed to the GeoGebra "worksheet" for similar triangles: https://www.geogebra.org/m/Kcdmz6jk They will use the video in the "Engage" section as well as the simulation on GeoGebra to discover what it means for triangles to be similar. Throughout this workshop, they will be required to define several key terms, including similarity in terms of a dilation.	1. What do you notice about the corresponding angles of triangles ΔABC and ΔADE as you move vertex A around on the page? a. The corresponding angles are always identical/the same. 2. What do you notice about the lengths of the corresponding sides of the triangles? How can you justify your claim? a. They are proportional. We can justify our claim by calculating the scale factor between each corresponding side and showing that they are the same. 3. Calculate the ratio between side $\overline{AB}$ and $\overline{AD}$. a. Answers may vary, but simplification should be 1.46:1 4. Calculate the ratio from between $\overline{AE}$ and $\overline{AC}$. a. Answers may vary, but simplification should be 1.46:1 5. Calculate the ratio from between $\overline{DE}$ and $\overline{BC}$. a. Answers may vary, but simplification should be 1.46:1 6. What is the scale factor from ΔADE to ΔABC? a. 1.46
Explain: Students will have to state the scale factor between the two triangles and justify their answer by providing the calculations for the scale factor. Students will also have to explain the definition they developed for similarity and how it relates to dilations.	1. Similar polygons have the same _____ but not necessarily the same size. a. Shape 2. If two polygons are similar, then their corresponding ANGLES are _____. a. Identical 3. If two polygons are similar, then their corresponding SIDES are _____. a. Proportional 4. Given two polygons, if the corresponding ANGLES are congruent and the ratios of corresponding SIDES are proportional, then the polygons are _____. a. Similar

	5. The RATIO of the lengths of two corresponding sides of two similar polygons is called the _____. a. Scale Factor 6. How does similarity relate to dilations? a. A dilation of a figure is similar to the original figure since the sides are proportional and the angles are the same.
Elaborate: Students will be expected to identify other similar figures that are shapes different from triangles.	1. Are the following figures similar? Explain. a. Yes because their corresponding angles are the same and their sides are proportional. b. No because the angles are not the same/the sides are not proportional. 2. What is one figure that two of this figure are always similar? That is, the sides are always proportional and the angles are always the same. a. Square, equilateral triangle, and/or circle.
Evaluate: Students will be evaluated on the information they were expected to learn in this workshop through another workshop happening at a later date. They will also constantly be monitored throughout the course of the workshop to ensure that they understand the information before going back to their groups to work on their project.	

NAME:_____

EXPLORING SIMILAR TRIANGLES

1. Open the Exploring Similar Triangles document on ECHO.
2. Follow the link provided to the Geogebra Similar Triangles simulation.
3. Grab vertex A and move it around on the page.
   - What do you notice about the corresponding angles of triangles ΔABC and ΔADE as you move vertex A around on the page?

   - What do you notice about the lengths of the corresponding sides of the triangles? How can you justify your claim?

   - Calculate the ratio from between $\overline{AB}$ and $\overline{AD}$. Simplify: _____
   - Calculate the ratio from between $\overline{AE}$ and $\overline{AC}$. Simplify: _____
   - Calculate the ratio from between $\overline{DE}$ and $\overline{BC}$. Simplify: _____

WORD BANK:	Similar	Proportional	Identical	Shape	Scale Factor

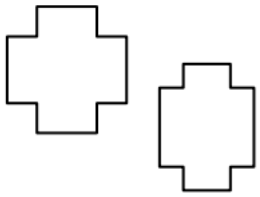
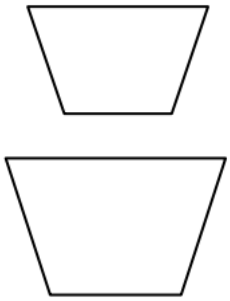
   - What is the scale factor from ΔADE to ΔABC? _____

4. Similar polygons have the same _____ but not necessarily the same size.
5. If two polygons are similar, then their corresponding ANGLES are _____.
6. If two polygons are similar, then their corresponding SIDES are _____.
7. Given two polygons, if the corresponding ANGLES are congruent and the ratios of corresponding SIDES are proportional, then the polygons are _____.

8. The RATIO of the lengths of two corresponding sides of two similar polygons is called the _____.

9. How does similarity relate to dilations?

10. Are the following figures similar? Why or why not?

    - 
    - 
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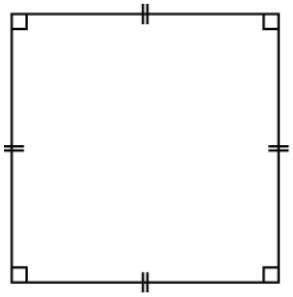


11. **BONUS:** What is one figure that two of this figure are always similar? That is, the sides are always proportional and the angles are always the same.

Solo Station Overview	
Solo Station Name: DIY: Protractor Review	Solo Station Content/Objective(s): Student will be able to use a protractor to measure and draw angles
Learning Standard(s) Addressed (TEK): N/A	Needed Supplies and Quantities: 14 protractors, 1 printed handout
Rationale and Relevance of Solo Station: Students will need to use protractors to measure the angle of their printed logo. They will then need to scale their logo to fit a poster, where they will use a protractor to draw the angles present in their design.	Anticipated Knows/Need to Knows: How do we position our protractor? Which numbers do we use? (Top or bottom?) How do we draw an angle if given the number of degrees in that angle?
Student Take-Away Mechanism: Students will be able to draw angles as well as measure them using a protractor.	Additional Notes: Students have already learned how to use protractors so this is merely a review for students if they need it.
Strategic selection of student attendees: Students will only visit station if they feel they need a review of how to use protractors.	Approximate Amount of Time to Complete: 5-10 minutes if students choose to complete the DIY

Description of Solo Station Activity	Assessment of Student Learning
Students will review a handout describing how to read angles using a protractor and they will have access to an online simulation through their ECHO system stepping them through how to use a protractor to draw an angle.	Students will be assessed on their final project on their ability to measure the angles from their t-shirt logo and reproduce them on their large poster.

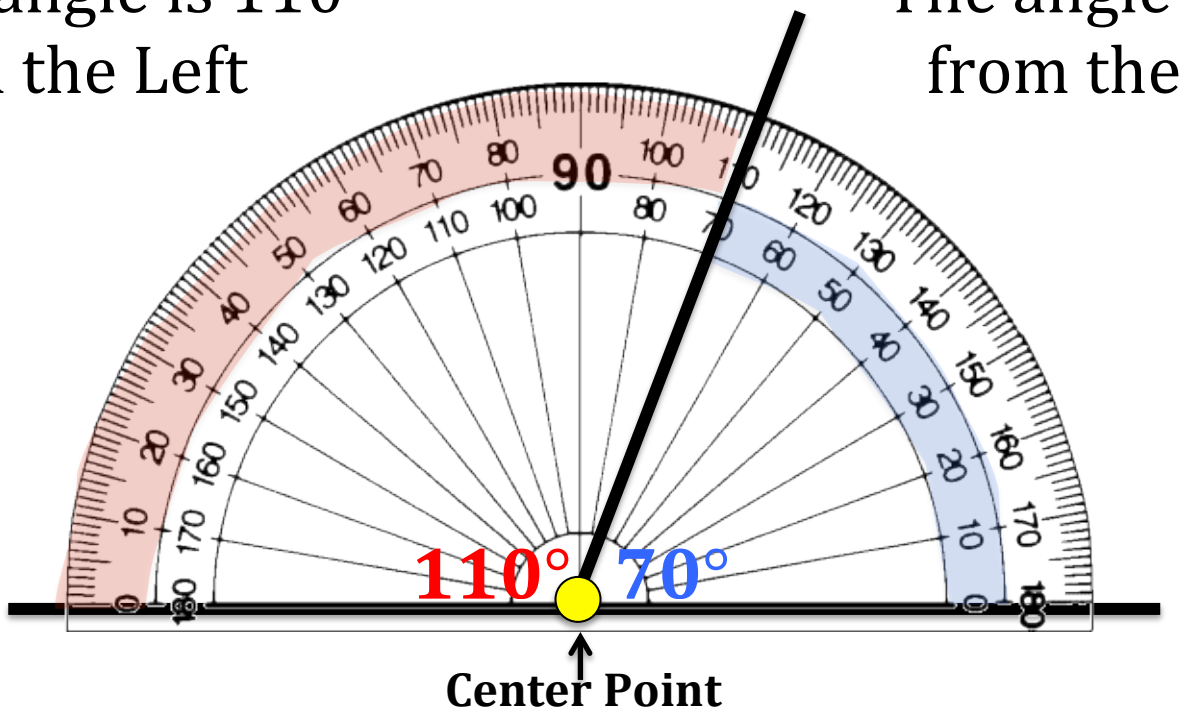
Protractor Review

A protractor is used to measure the number of degrees in an angle.

Degree is the unit of measure used for angles.
It is denoted using: °
Example: 45 degrees = 45°

The angle is 110° from the Left

The angle is 70° from the Right



If the angle is on this side, use the TOP numbers

If the angle is on this side, use the BOTTOM numbers

Steps to using your Protractor

1) Place the center of the protractor on the corner of the angle
2) Line up the bottom of the protractor with the bottom line of the angle
3) Look to see which number the angle line goes through on the protractor
4) Well Done! You have measured now your angle!

Content Rubric

1–Initiating Initial Steps Towards Expectations	2–Approaching Expectations	3–Met Expectations	4–Exceeded Expectations	Objectives
Student can ***recite*** the definition of similarity with regard to dilation. ***Or*** student can sometimes identify similar figures, and sometimes identify proportional sides and congruent corresponding angles on similar figures.	Student can ***fully apply*** the definition of similarity with regard to dilation by calculating the scale factor. ***Or*** student can identify similar figures, and identify proportional sides and congruent corresponding angles on similar figures.	Student can ***fully apply*** the definition of similarity with regard to dilation by calculating the scale factor. They can relate similarity to the scaling of logos and determine if logos are similar figures. ***And*** student can identify similar figures, their proportional sides, and the congruent corresponding angles.	Student can ***fully apply*** the definition of similarity with regard to dilation by calculating scale factor and explain how it relates to the scaling of logos. They can relate similarity to the scaling of logos and general models, and prove if two different figures are similar. ***And*** student can identify similar figures, their proportional sides, and the congruent corresponding angles.	**TEKS:** Geometry (7) Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems. The student is expected to: (A) apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles

C O L L A B O R A T I O N R U B R I C f o r P B L

(for grades 6-12)

Individual Performance	**Below Standard**	**Approaching Standard**	**At Standard**	**Above Standard** ✓
Takes Responsibility for Oneself	• is not prepared, informed, and ready to work with the team • does not use technology tools as agreed upon by the team to communicate and manage project tasks • does not do project tasks • does not complete tasks on time • does not use feedback from others to improve work	• is usually prepared, informed, and ready to work with the team • uses technology tools as agreed upon by the team to communicate and manage project tasks, but not consistently • does some project tasks, but needs to be reminded • completes most tasks on time • sometimes uses feedback from others to improve work	• is prepared and ready to work; is well informed on the project topic and cites evidence to probe and reflect on ideas with the team • consistently uses technology tools as agreed upon by the team to communicate and manage project tasks • does tasks without having to be reminded • completes tasks on time • uses feedback from others to improve work	
Helps the Team	• does not help the team solve problems; may cause problems • does not ask probing questions, express ideas, or elaborate in response to questions in discussions • does not give useful feedback to others • does not offer to help others if they need it	• cooperates with the team but may not actively help it solve problems • sometimes expresses ideas clearly, asks probing questions, and elaborates in response to questions in discussions • gives feedback to others, but it may not always be useful • sometimes offers to help others if they need it	• helps the team solve problems and manage conflicts • makes discussions effective by clearly expressing ideas, asking probing questions, making sure everyone is heard, responding thoughtfully to new information and perspectives • gives useful feedback (specific, feasible, supportive) to others so they can improve their work • offers to help others do their work if needed	
Respects Others	• is impolite or unkind to teammates (may interrupt, ignore ideas, hurt feelings) • does not acknowledge or respect other perspectives	• is usually polite and kind to teammates • usually acknowledges and respects other perspectives and disagrees diplomatically	• is polite and kind to teammates • acknowledges and respects other perspectives; disagrees diplomatically	

Team Performance	**Below Standard**	**Approaching Standard**	**At Standard**	**Above Standard** ✓
Makes and Follows Agreements	• does not discuss how the team will work together • does not follow rules for collegial discussions, decision-making and conflict resolution • does not discuss how well agreements are being followed • allows breakdowns in team work to happen; needs teacher to intervene	• discusses how the team will work together, but not in detail; may just "go through the motions" when creating an agreement • usually follows rules for collegial discussions, decision-making, and conflict resolution • discusses how well agreements are being followed, but not in depth; may ignore subtle issues • notices when norms are not being followed but asks the teacher for help to resolve issues	• makes detailed agreements about how the team will work together, including the use of technology tools • follows rules for collegial discussions, decision-making, and conflict resolution • honestly and accurately discusses how well agreements are being followed • takes appropriate action when norms are not being followed; attempts to resolve issues without asking the teacher for help	
Organizes Work	• does project work without creating a task list • does not set a schedule and track progress toward goals and deadlines • does not assign roles or share leadership; one person may do too much, or all members may do random tasks • wastes time and does not run meetings well; materials, drafts, notes are not organized (may be misplaced or inaccessible)	• creates a task list that divides project work among the team, but it may not be in detail or followed closely • sets a schedule for doing tasks but does not follow it closely • assigns roles but does not follow them, or selects only one "leader" who makes most decisions • usually uses time and runs meetings well, but may occasionally waste time; keeps materials, drafts, notes, but not always organized	• creates a detailed task list that divides project work reasonably among the team • sets a schedule and tracks progress toward goals and deadlines • assigns roles if and as needed, based on team members' strengths • uses time and runs meetings efficiently; keeps materials, drafts, notes organized	
Works as a Whole Team	• does not recognize or use special talents of team members • does project tasks separately and does not put them together; it is a collection of individual work	• makes some attempt to use special talents of team members • does most project tasks separately and puts them together at the end	• recognizes and uses special talents of each team member • develops ideas and creates products with involvement of all team members; tasks done separately are brought to the team for critique and revision	

PRESENTATION RUBRIC for PBL

(for grades 9-12)

	Below Standard	Approaching Standard	At Standard	Above Standard ✔
Explanation of Ideas & Information	• does not present information, arguments, ideas, or findings clearly, concisely, and logically; argument lacks supporting evidence; audience cannot follow the line of reasoning • selects information, develops ideas and uses a style inappropriate to the purpose, task, and audience (may be too much or too little information, or the wrong approach) • does not address alternative or opposing perspectives	• presents information, findings, arguments and supporting evidence in a way that is not always clear, concise, and logical; line of reasoning is sometimes hard to follow • attempts to select information, develop ideas and use a style appropriate to the purpose, task, and audience but does not fully succeed • attempts to address alternative or opposing perspectives, but not clearly or completely	• presents information, findings, arguments and supporting evidence clearly, concisely, and logically; audience can easily follow the line of reasoning • selects information, develops ideas and uses a style appropriate to the purpose, task, and audience • clearly and completely addresses alternative or opposing perspectives	
Organization	• does not meet requirements for what should be included in the presentation • does not have an introduction and/or conclusion • uses time poorly; the whole presentation, or a part of it, is too short or too long	• meets most requirements for what should be included in the presentation • has an introduction and conclusion, but they are not clear or interesting • generally times presentation well, but may spend too much or too little time on a topic, a/v aid, or idea	• meets all requirements for what should be included in the presentation • has a clear and interesting introduction and conclusion • organizes time well; no part of the presentation is too short or too long	
Eyes & Body	• does not look at audience; reads notes or slides • does not use gestures or movements • lacks poise and confidence (fidgets, slouches, appears nervous) • wears clothing inappropriate for the occasion	• makes infrequent eye contact; reads notes or slides most of the time • uses a few gestures or movements but they do not look natural • shows some poise and confidence, (only a little fidgeting or nervous movement) • makes some attempt to wear clothing appropriate for the occasion	• keeps eye contact with audience most of the time; only glances at notes or slides • uses natural gestures and movements • looks poised and confident • wears clothing appropriate for the occasion	

	Below Standard	Approaching Standard	At Standard	Above Standard ✔
Voice	• mumbles or speaks too quickly or slowly • speaks too softly to be understood • frequently uses "filler" words ("uh, um, so, and, like, etc.") • does not adapt speech for the context and task	• speaks clearly most of the time • speaks loudly enough for the audience to hear most of the time, but may speak in a monotone • occasionally uses filler words • attempts to adapt speech for the context and task but is unsuccessful or inconsistent	• speaks clearly; not too quickly or slowly • speaks loudly enough for everyone to hear; changes tone and pace to maintain interest • rarely uses filler words • adapts speech for the context and task, demonstrating command of formal English when appropriate	
Presentation Aids	• does not use audio/visual aids or media • attempts to use one or a few audio/visual aids or media, but they do not add to or may distract from the presentation	• uses audio/visual aids or media, but they may sometimes distract from or not add to the presentation • sometimes has trouble bringing audio/visual aids or media smoothly into the presentation	• uses well-produced audio/visual aids or media to enhance understanding of findings, reasoning, and evidence, and to add interest • smoothly brings audio/visual aids or media into the presentation	
Response to Audience Questions	• does not address audience questions (goes off topic or misunderstands without seeking clarification)	• answers audience questions, but not always clearly or completely	• answers audience questions clearly and completely • seeks clarification, admits "I don't know" or explains how the answer might be found when unable to answer a question	
Participation in Team Presentations	• Not all team members participate; only one or two speak	• All team members participate, but not equally	• All team members participate for about the same length of time • All team members are able to answer questions about the topic as a whole, not just their part of it	

Similarity Content Map