The Level Two Teacher Work Sample
of
Completed at
University of Northern Iowa

Level Two of the UNI Teacher Education Professional Sequence
EDPSYCH 3148: Learning and Instruction in Classroom Contexts
EDPSYCH 3128: Teacher as Change Agent

Subject Area	Geometry
Grade level	10th – 12th
Lesson Title(s)	Rigid Motion in a Plane, Reflections
Mentor Teacher	Emily Wheeler
UNI Field Experience Coordinator	Megan Balong
Section Number or Time and Day of Class	Section 88 4pm
Session	A
Semester	First Half of Spring
Year	2014

Supporting information about the L2TWS can be found at https://sites.google.com/site/level2atpls/

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Student Signature: Emily Herbst

Section 1: Planning Your Lesson

Contextual Factors

TCWS Standard
The teacher candidate uses information about the learning-teaching context and student individual difference to set learning goals, design instruction, and plan assessment.

Please note that in the student teaching teacher work sample, you will describe the community, district, and school factors. In this case we have provided this information for you.

Community, District, and School Factors Briefly describe important features of the school and district where you will be completing this experience. Address student demographics in the school including the socio-economic profile and race/ethnicity. You might also address any of the following if relevant to your unit of instruction: stability of the community, political climate, community support for education, school improvement initiatives, professional development priorities, environmental factors, school-wide programs in character education or citizenship, etc.	My Field Experience for this semester will be taking place at Cedar Falls High School. This high school includes grades 10 through 12. The Cedar Falls High School enrollment from the 2012-2013 academic year was roughly 1,135 students. Of the total district (K-12) 84.7% of the students are Caucasian. The rounded leftover 15% includes Hispanics, Asian, Native American, Pacific Islander, Black, and Multi-Racial. From the high school, there are 173 students that were eligible for free or reduced lunches during the 2012-2013 academic school year. That made up about 15.8% of the students in that building which is less than the percentage of eligible students in the district that ends up being close to 21%. I have learned that in 2013, grade 11 students from Cedar Falls High School had a math proficiency of 87.31%. This is greater than the district's 87.04% and the state's 80.74%. Cedar Falls High School has also organized study halls to help keep these proficiencies high. With parent approval, some students are able to have study hall in the cafeteria where there is talking. At the request of a teacher or a parent though, some students are required to attend an assigned study hall where they will receive assistance from a variety of instructors for a variety of academic areas.
How These Factors May Impact my Lessons Explain one way these community, district, and school-wide factors may impact your lesson topics, teaching strategies, assessment techniques, etc…	I think one of the most important characteristics that can be taken from this information is that the high school's proficiency is fairly high compared to the district and the state. This might allow me to create a lesson that covers more material or a lesson that digs deep by asking 'why can we do this?' I could have the lesson be more discussion based, allowing for all questions and ideas be brought to light.
A Characteristic of the Class Describe the most important characteristic you observed in the specific group of students in this class (e.g. gender, race/ethnicity, interests, student skill levels, etc.) that you believe might impact the way you teach this group. Please describe patterns you observe for multiple students or student groups and not those of an individual student unless the needs of an individual student would have the greatest impact on your teaching.	The seventh period class seemed more reserved and less interested. This could be because they were being taught almost lecture-like. The eighth period class, on the other hand, seemed more talkative and asked lots of questions. If I change up the types of teaching I do like lecture for ten minutes then have them do individual practice work then collaborate in groups or as a class, I might create more student involvement, interaction, and interest.

How This Characteristic Will Impact my Lessons Explain specifically how this aspect will impact how you teach these students and how you plan to adapt your instruction to maximize the learning of all students in this class.	I may design a lesson that involves discussion. In the seventh period class, I could ask that they talk in small groups. By having their discussion be in smaller groups, I am hoping that the students would feel more comfortable talking. Because the eighth period class is more comfortable with conversing with each other, I might have their discussion just be as a whole group.
A Physical Aspect of the Classroom Describe the most relevant physical aspect of the classroom you observed (e.g. desk arrangement, work space and resources, technology, etc.) that you believe will impact the way you teach in this environment.	Two Things: The desks are in rows. There are graphing calculators available, and each student has a Chromebook.
How This Physical Aspect of the Classroom Will Impact my Lessons Explain specifically how this aspect will impact how you will teach in this environment and how you plan to engineer the physical environment to maximize student learning.	When it comes to teaching math, I think the students would benefit more from doing activities and working together on problems rather than listening to me lecture about certain subject matter. I could create a lesson that allows them to work with the student next to them. The students are very privileged to be apart of a technologically advanced school. Because of this, I can create a lesson that uses different programs that the students can use.

Design for Instruction

TCWS Standards

The teacher candidate designs instruction for specific learning goals, individual student characteristics, and learning contexts.
The teacher candidate sets significant, challenging, varied, and appropriate Learning Goals.
The teacher candidate will recognize that there are multiple assessment approaches that must be aligned with the Learning Goals to assess student learning before, during, and after instruction. An attempt is made by the teacher candidate to design student assessments.

Lesson 1 Topic Title	Rigid Motion in a Plane (Transformations)
Lesson 2 Learning Goals Define what you expect students to know and be able to do at the end of the lessons. The learning goals should be specific, observable, challenging and varied. Learning goals should describe what your students will learn and be able to do by the end of the lesson, and not simply what activities they will do during the lesson. Add more learning goals as needed.	**Learning Goal 1** The students should be able to visually identify reflections, translations, and rotations and the differences between them.

Alignment of Learning Goals to State or National Curriculum Standards Describe how your learning goals align with the Iowa Core Curriculum and/or National Standards for your content area. Identify the general Subject area, grade level, and one or more specific standards in your response. The Iowa Core Curriculum can be found at http://educateiowa.gov/index.php?option=com_content&view=article&id=2485&Itemid=4602	In the Iowa Core Curriculum, I was able to find standards that match my lesson under the 'High Schools: Geometry' content area of 'Congruence.' **Standard for Learning Goal 1** By being able to visually identify the differences in transformations, the students should have an idea of how to define reflection, rotation, and translation in terms of angles, circles, perpendicular lines, parallel lines, and line segments (HSG-CO.A.4).
Justification of Learning Goals Explain how your learning goals are relevant, challenging, and appropriate. Consider their importance relative to previous and succeeding topics covered in the class, the students' future in the class and school, and to skills needed for success in the 21st century world.	My lesson is more of an overview of what transformations are. As we go deeper into the chapter, the students will learn more about each kind of transformation (including the textbook definition). I will present examples to show what exactly a reflection, rotation, and translation is. Here the students should be able to pinpoint the pre-image and image relations. The students have been working with congruent shapes, so in this lesson, I will discuss isometry. I will also show how transformations have been used in the real world by looking at logos.

Assessment Plan

Describe your plan for assessing your learning goals

Type of Assessments

Describe the method(s) you will use to check on student progress. Consider the following approaches

Selected Response
Multiple choice, matching, fill-in-the-blank questions, etc.

Writing Assessment
Essays, essay questions, journaling, etc.

Performance Based Assessment
Throwing a ball, presentation, etc.

Teacher/Student Communication
Class discussion, interview, group work, etc.

Learning Goal 1 Assessment Method

During the class, I will ask urge discussion by asking questions throughout the period. If I get more discussion, then I will know that my students are actively engaged.

Although this will help me gage student progress through the period, I need another assessment method to help me see that the students learned from the lesson. For this reason, I chose to create a homework assignment for them. My assignment is a combination of questions that I have taken from the book and fill-in-the-blank questions that I took from one of Ms. Wheeler's old note sheets. These questions check their understanding of concepts ("The preimage and the image of a transformation are _____ congruent.") and their skill level ("Name and describe the transformation." "Name two angles that have the same measure."). Throughout the lesson I will ask the students to name different transformations and recall different relationships between figures, so I feel the assignment aligns well with the lesson that I am presenting.

At the end of the period, I will also have the students hand in a paper detailing their answer to a final problem and how they came to that conclusion. The students will have to identify which figure is the image and the preimage, whether the image is a reflection, rotation, or translation of the preimage, how they came to that conclusion, if the figures are isometric, and write the transformation in arrow notation. This will help me see if I need to go over the material again the following day before moving on to new material.

Assessment Sample Size

List your assessment sample size. An assessment sample refers to the amount of the student work you will assess. Teachers often make inferences about student learning based on a sample of only a few students' work.

Examples of assessment samples would include choral responses from the entire class, your observations of a small group performing a learning task, or an analysis of individual students writing, drawing, or other performances.

Learning Goal 1 Assessment Sample

My understanding of student learning while the lesson is going on will be by listening to students talking in their groups and taking note of student participation. By listening, I can learn of how students make sense the facts, fix any misconceptions, and ask questions to create discussion.

I will take a sample from each student, so I will have around 25 problems at the end of the day (one from each pair of students). I will be collecting one of the gallery activity responses. This will give me a nice hard copy of information about the students regarding this lesson.

Lesson 1 Plan

Describe your plan for achieving your learning goals. **These plans must include active learning (student-centered instruction)**. The lesson plan should include the following sections:

- Analysis of Pre-assessment date
- Plan for differentiation
- Plan to motivate learning and engage attentiveness
- Description of activities to achieve learning goals
- Description of materials needed to implement lesson plan.

You may insert your lesson 1 plan responses in the provided spaces below or attach as a separate document in Appendix A.

Analysis of Pre-Assessment Data Discuss what students already know and can do regarding your goals before you begin your lesson. Pre-assessments may include your instructor's description of past assessment and activities, and your own observations from previous class activities or student work samples.	I am actually opening up a chapter, so a lot of the material will be new to them. My section will be about transformations, which will include reflections, rotations, and translations. Last chapter the students learned about quadrilaterals. In my lesson I use different quadrilaterals that they should be able to identify with. First semester the students went over the idea of congruency with triangles. In the lesson that I will be teaching, I will be bringing up this concept again with the use of isometry in transformations.
Plan for Differentiation Describe at least one way you will differentiate the content, process, or product involved in your lesson in response to individual student needs, preferences, prior knowledge, or interests. Consider especially special needs of students with disabilities, students who are high achievers in some area, students with language needs, and students who are at risk for school failure. For more information see http://www.cast.org/publications/ncac/ncac_diffinstruc.html	Because my lesson is an introductory lesson, there is a lot of information that I have to get across to the students. However, in order for me to keep the students engaged and for me to meet individual student needs, I need to mix up my teaching style. For this reason, I plan on having the students work with a partner several times throughout the lesson. For example, I may be lecturing for awhile about how points can reflect across lines and then have them turn to a partner and have them discuss the relationships between the points, if they see any. This allows me to change the pace of my teaching, gives time for students to ask questions or help each other understand concepts, and lets me regroup my lesson. I am also finishing with an activity that will allow the students who want to learn through experience to have that chance.
Plan to Motivate Learning and Engage Attentiveness Describe how you will motivate student learning at the beginning of the lesson. Describe specifically what you will say to introduce the lesson and engage students' interest. Describe how you will maintain students' interest throughout the lesson.	As a teacher, I need to understand that some of the students in the classroom will want to learn and be there where as other students don't want to learn and are there because they have to be. For this reason, I see it fitting that I try to have a great attention-getter that makes them want to stay focused and learn more. To get my students excited about transformations, I will show a music remix of the popular pop song 'Gangnam Style.' This allows me to grasp their attention right away. As for keeping their attention throughout the period, by having them work with a partner, I am hoping that this will spark discussion about the material.

Description of Activities to Achieve Learning Goals Include descriptions of the activities you plan to use in the lesson. Your activities should be designed to support your learning goals and should be clearly described and carefully sequenced. Actively engaging students in learning also gives you the opportunity to assess their understanding. Make sure you take advantage of this opportunity by coordinating your activities with your assessment plan.	I will first lecture a little about the definitions of preimage and image while showing two slides on the powerpoint. I will then talk about isometry, show them several isometric figures, and have them work with a partner to determine if several problems consist of isometric or non-isometric figures. Then to start talking about reflections, I will first go through reflections of points over lines and ask the students to make a guess at what they think the relationship of the preimage and image are to the line of reflection. After talking about points in reflections, I will move on to discuss shapes. I will break this down to the point where I first show the preimage and the line the preimage will be reflected over, then the preimage with the line and the image, and finally the same picture but with lengths showing distances to the line of reflection. I will then discuss rotation by showing the same preimage rotated around the same point but with different degrees each time. I will have the students again try to come up with a relationship between the preimage, image, and the center point of rotation. For translations, I will show several examples of figures that were translated. Then I will go onto discuss the magnitude and direction of the vectors that match up the points. I then discuss notation for transformations. I have a small review where I have three problems and they will tell me which is a reflection, which is a rotation, and which is a translation. Finally, the students will participate in an activity where they will go around the room with their partner to each gallery piece and answer the following: • Identify which image is the preimage and the image • Is the image a reflection, rotation, or translation of the preimage - Explain • Are the figures isometric • Write the transformation in arrow notation
Description of Materials Needed to Implement Plan List of all the materials or technology you will need to implement the activities.	I will be using power point and having the students use paper and pencil.

Section 2: Reflection on Lesson 1 and Planning Lesson 2

Instructional Decision Making

TCWS Standard
The teacher analyzes student learning to make instructional decisions.

Students' Response to Lesson 1 Did the students respond in the ways you had predicted? Were you successful in accomplishing your learning goals for this lesson? Explain why you were or were not successful. Consider motivation, management, understanding of instructions, complexity of task, and differences in students' achievement levels when constructing your answer.	I had a very difficult time connecting with the first class. My lesson was designed for partner and group discussion, but the characteristics of the class don't really match this style. The majority of the class is very quiet. My lesson could be better matched up with the second class that I taught. They are a more active class in general, so they were much better about discussing the material openly with the others. I was able to see that my learning goal was met by observing the students during the gallery activity and by looking over the one problem I collected. Because this was an introductory lesson I didn't really go in-depth with the material, so I was very impressed that a majority of the class was able to visually identify the different transformations and elaborate on their answers when asked.
Adjustments for Lesson 2 Describe how you will adjust your second lesson in response to your analysis above. Consider instructional strategies, the organization and content of the lesson, motivational strategies, preventative management strategies, procedural changes, materials, activities and assessment. Explain why you believe these adjustments will improve students' learning.	I believe that by already having one lesson under my belt, I will be able to start off more comfortably. I've already made relationships with the students, so teaching again will just allow me another chance to expand on these relationships. In my first lesson, my assessment consisted of collecting group work from students. I think that this was ok for my introductory lesson because these concepts will be expanded on in the coming lessons. For my next lesson that will focus on a specific transformation, I will want to collect work from the students where it was not done in partnerships. This will allow me to conclude how much each student was able to understand individually.

Design for Instruction

TCWS Standard
The teacher candidate designs instruction for specific learning goals, individual student characteristics, and learning contexts.
The teacher candidate sets significant, challenging, varied, and appropriate Learning Goals.
The teacher candidate will recognize that there are multiple assessment approaches that must be aligned with the Learning Goals to assess student learning before, during, and after instruction. An attempt is made by the teacher candidate to design student assessments.

Lesson 2 Topic Title	Reflections
Lesson 2 Learning Goals Define what you expect students to know and be able to do at the end of the lessons. The learning goals should be specific, observable, challenging and varied. Learning goals should describe what your students will learn and be able to do by the end of the lesson, and not simply what activities they will do during the lesson.	**Learning Goal 1** The students should have a deeper understanding of reflected figures and their properties. **Learning Goal 2** The students should be able to sketch a reflected image using pencil and paper.

Alignment of Learning Goals to State or National Curriculum Standards Describe how your learning goals align with the Iowa Core Curriculum and/or National Standards for your content area. Identify the general Subject area, grade level, and one or more specific standards in your response. The Iowa Core Curriculum can be found at http://educateiowa.gov/index.php?option=com_content&view=article&id=2485&Itemid=4602	In the Iowa Core Curriculum, I was able to find standards that match my lesson under the 'High Schools: Geometry' content area of 'Congruence.' **Standard for Learning Goal 1** In my first lesson, I covered the surface of transformations whereas in this lesson, I will be focusing directly on reflections and their properties (HSG-CO.A.4). **Standard for Learning Goal 2** By using pencil and paper to sketch an image of reflection, the students will have a deeper understanding of what a reflection is and how to identify a reflection (HSG-CO.A.5).
Justification of Learning Goals Explain how your learning goals are relevant, challenging, and appropriate. Consider their importance relative to previous and succeeding topics covered in the class, the students' future in the class and school, and to skills needed for success in the 21st century world.	This lesson specifically covers reflections. Seeing as I just introduced reflections to the class in my last lesson, this should be somewhat of a review, but I will also be adding more terms.

Assessment Plan

Describe your plan for assessing your learning goals

Type of Assessments	Learning Goal 1 Assessment Method
Describe the method(s) you will use to check on student progress. Consider the following approaches **Selected Response** Multiple choice, matching, fill-in-the-blank questions, etc. **Writing Assessment** Essays, essay questions, journaling, etc. **Performance Based Assessment** Throwing a ball, presentation, etc. **Teacher/Student Communication** Class discussion, interview, group work, etc.	I will be able to assess their deeper understanding of reflections by asking questions throughout the class period and walking around the room when I am having them work on graphing points. These different questions will include: can anyone recall the relationship between the preimage, the image, and the line of reflection, discuss with your neighbor what the image would look like if our preimage is on the line of reflection, what can you determine to be the relationship between coordinates after reflecting these points over the x-axis, etc. When I am walking around the room, I will be able to answer questions, assist individual students if they need help, and correct students if they are going in the wrong direction. **Learning Goal 2 Assessment Method** This can be done by having them do pencil-and-paper work throughout the lesson. When I walk around the classroom, I will be able to see that they are correctly or incorrectly reflecting figures. If a majority has incorrectly reflected the figures, then I may take the time to go through the reflections as a class, walking through each one, step-by-step. If I'm circulating the class and notice that only several students are incorrectly reflecting the figures, then I may stop at each student and help him or her understand the material better. For me to visually see how much each student is doing, I will collect a worksheet that will express their knowledge about reflections. This worksheet can be seen in Appendix C. The worksheet uses a variety of techniques to see that students are able to identify and understand reflections. These techniques include having the students reflect figures images over a certain line, plotting points and then reflecting them over certain lines, and describing where the line of reflection is for certain graphs.
Assessment Sample Size	**Learning Goal 1 Assessment Sample**
List your assessment sample size. An assessment sample refers to the amount of the student work you will assess. Teachers often make inferences about student learning based on a sample of only a few students' work. Examples of assessment samples would include choral responses from the entire class, your observations of a small group performing a learning task, or an analysis of individual students writing, drawing, or other performances.	Although the questions I will ask may only be answered by few, when I walk around the room I will be able to see the students at work and help when needed. Especially since the first class is quieter, by me walking around the room, the students may feel more comfortable asking questions. **Learning Goal 2 Assessment Sample** Although I will have the students keep their note sheet that they have written on, I will walk around and gage how well the students are doing are reflecting objects on paper. By collecting the worksheet though, I am able to see how well the students were able to pick up on concepts regarding reflections.

Lesson 2 Plan

Describe your plan for achieving your learning goals. **These plans must include active learning (student-centered instruction)**. The lesson plan should include the following sections

Analysis of Pre-assessment date
Plan for differentiation
Plan to motivate learning and engage attentiveness
Description of activities to achieve learning goals
Description of materials needed to implement lesson plan.

You may insert your lesson 2 plan responses in the provided spaces below or attach as a separate document in Appendix B.

Analysis of Pre-Assessment Data Discuss what students already know and can do regarding your goals before you begin your lesson. Pre-assessments may include your instructor's description of past assessment and activities, and your own observations from previous class activities or student work samples.	The students just received a lesson that gave an introduction to reflections, so I will tie into that by asking questions regarding the information they learned during that lesson. Some of those questions will include: Can anyone recall for me the three transformations that we went over? Can anyone recall the name of this blue point? How about the name of the red point? So if our preimage is labeled A, our image is labeled _____? We also determined a relationship between the preimage, the image, and the line of reflection. Can anyone remember what that was?
Plan for Differentiation Describe at least one way you will differentiate the content, process, or product involved in your lesson in response to individual student needs, preferences, prior knowledge, or interests. Consider especially special needs of students with disabilities, students who are high achievers in some area, students with language needs, and students who are at risk for school failure. For more information see http://www.cast.org/publications/ncac/ncac_diffinstruc.html	Like with my first lesson, I plan on mixing up my teaching style. I will be asking questions throughout the lesson. This time however, I will give the students the option to either talk with a partner or alone. With my first lesson, I had the students do an activity at the end. For this lesson, there are several places where I stop my lecture/discussion and have them work on small activities. I'm hoping that by changing the way I will be differentiating, I learn what is best. I may even learn that some methods are better for one class, while another method is better for a different class.
Plan to Motivate Learning and Engage Attentiveness Describe how you will motivate student learning at the beginning of the lesson. Describe specifically what you will say to introduce the lesson and engage students' interest. Describe how you will maintain students' interest throughout the lesson.	I will start by asking them questions to have them recall information that they learned yesterday. Can anyone recall for me the three transformations that we went over? Can anyone recall the name of this blue point? How about the name of the red point? So our preimage is labeled A and our image is labeled _____? We also determined a relationship between the preimage, the image, and the line of reflection. Can anyone remember what that was? By asking them questions, I hope to get their minds focused on the material they just learned. By creating this relationship between the lessons right away, I should have their attention. I will also bring up the video that we watched (Transformation Style) to grab their attention.

Description of Activities to Achieve Learning Goals

Include descriptions of the activities you plan to use in the lesson. Your activities should be designed to support your learning goals and should be clearly described and carefully sequenced. Actively engaging students in learning also gives you the opportunity to assess their understanding.

Make sure you take advantage of this opportunity by coordinating your activities with your assessment plan.

*Note that this description is in a different format than the first description. This is because I learned how to better manage my time and organize my lessons.

Using a power point that I created using graphs from Geogebra, I will do/say:

*Will first go over homework that was assigned the night before.

Slide 1 - So yesterday we went over transformations. Can anyone recall for me the three transformations that we went over? – Reflections, rotations, translations. Well today we will be looking specifically at reflections. So yesterday, we defined that a reflection is a transformation that mirrors an object over a line of reflection.

Slide 3 – Here is a reflection of a point over a vertical line of reflection. Can anyone recall the name of this blue point? How about the name of the red point? So our preimage is labeled A and our image is labeled _____? We also determined a relationship between the preimage, the image, and the line of reflection. Can anyone remember what that was?

Slide 4 – You guys found that the line of reflection acts as a perpendicular bisector to the segment that connects to two points making each segment the same length. In this case, the segments are both equal to 2.

Slide 5 – Now what do you think would happen if our preimage was on the line of reflection? What would be the relationship between the preimage and the image? Talk with your neighbor.

Slide 6 – If the preimage is on the line of reflection, then the image will also be on the line of reflection. We can even take that a step further and say that A = A′.*Stop and have them do #1,2 on handout. Slide 7-10 are equivalent to their first three problems, use this to show answers.

Slide 7 – The preimage is being reflected over the x-axis. The coordinates of the preimage are (4,2) and of the image are (4,-2) What do you notice about the relationship between the coordinates?

Slide 8- The preimage is being reflected over the y-axis. The coordinates of the preimage are (-1,2) and of the image are (1,2). What do you notice about the relationship between the coordinates?

Slide 10 – Use pen to show that lines like y=3 are horizontal and x=2 are vertical before having them go on to do #3,4.

Slide 11 – The preimage is being reflected over the line y = 2. The coordinates of the preimage are (-3, 4) and of the image are (-3,0).

Slide 12 – The preimage is being reflected over the line x = 1. The coordinates of the preimage are (0,-1) and of the image are (2,-1).

Slide 13 – Now we shouldn't just look at points being reflected over a line. Let's also look at some polygons. Here is an example of a triangle being reflected over the y-axis. Which one is the preimage? The blue figure. Making the red figure, the image. *Write down the coordinates of each point. Also remember with reflections we have our perpendicular bisectors.

Slide 14 – Now let's look at an example of a triangle being reflected over the x-axis. *Write down the coordinates of each point and refer back to

Slide 16 – Now that we have talked about reflections in the coordinate plane, let's define a new term. A figure has a line of symmetry if the figure can be mapped onto itself by a reflection in the line. Here are some examples from your book. Can you think of something that has a line of symmetry?

Slide 17&18 – Here are some examples of figures that have lines of symmetry. *Draw in lines of symmetry.

Description of Materials Needed to Implement Plan List of all the materials or technology you will need to implement the activities.	I will be using power point and having the students use paper and pencil.

Section 3: Self-Evaluation of Teaching Effectiveness

Instructional Decision Making

TCWS Standard
The teacher candidate uses assessment date to profile student learning and communicate information about student progress and achievement.
The teacher candidate analyzes the relationship between his or her instruction and student learning in order to improve teaching practice.

Differentiation Plan Impact Discuss how well your plan for differentiation addressed the student need(s) you targeted. Use specific examples of the students' work including student writing, assessment results, specific student comments, or your observations to draw conclusions about the impact of your differentiation plan and the extent to which these students attained your learning goals.	My differentiation for my lessons was shown in my delivery. I understand that not all students can learn the best through one form of teaching. With this in mind, I thought it was best to mix up my style of teaching. For example, in my first lesson, I started with a video, moved into lecture style that allowed for discussion, asked the students to discuss concepts in pairs, and finished with an activity. For the classes that I taught, I believe this was very beneficial. My change in style also allowed a change in the speed of the information being taught. This left time for concepts to sink in and questions to be asked. Students who needed help, were able to bring up their questions during the discussion point of the lecture or during their paired group work. The group work gave students that were struggling with the concepts the chance to walk through problems with a student that understood the concepts. If both students didn't understand the concepts, then Ms. Wheeler, Ms. Bachmeier, or I would be there to help them get on the right path.
Student Learning Lesson 1 With respect to your lesson goals, identify what you believe to be the instructional strategies and activities that contributed most to student learning, how your teaching behaviors affected student learning, and the extent to which students learned important content and skills from your lessons. Refer to your assessments as evidence to support your claims about the amount and depth of learning that occurred during your lessons. Include feedback that you gave (would give) to students based on their work.	**Learning Goal 1** The students should be able to visually identify reflections, translations, and rotations and the differences between them. In this learning goal, I wanted students to be able to visually identify the different transformations. In this introductory lesson there was no definitions of rotations, reflections, and translations. Instead, it was just noted that these three were transformations. For this reason, I wanted them to *visually* identify. I showed different graphs representing the different transformations. With each figure shown, I would walk through in explaining it's characteristics and ask the students questions about each figure. There were even several slides where I asked students to talk with a partner to identify the transformation, and then discuss their answers with the class. The gallery activity even asked students to identify which transformation the figure was. In my collecting of one of their gallery answers, I was able to see that a majority of the groups were able to correctly identify the transformation.

Student Learning **Lesson 2** With respect to your lesson goals, identify what you believe to be the instructional strategies and activities that contributed most to student learning, how your teaching behaviors affected student learning, and the extent to which students learned important content and skills from your lessons. Refer to your assessments as evidence to support your claims about the amount and depth of learning that occurred during your lessons. Include feedback that you gave (would give) to students based on their work.	**Learning Goal 1** The students should have a deeper understanding of reflected figures and their properties. This lesson that involved a mixture of discussion, lecture, and student involvement allowed for students to determine relationships, learn formal definitions, and discuss the content. My variety of questions which included: can anyone recall the relationship between the preimage, the image, and the line of reflection, discuss with your neighbor what the image would look like if our preimage is on the line of reflection, what can you determine to be the relationship between coordinates after reflecting these points over the x-axis, etc, allowed me to see student understanding of the material. Through their time discussing with their partner, the students were able to elaborate on their explanation and come to conclusions. This lesson was digging deeper into the information learned in the prior introductory lesson. By going deeper into the lesson matter, students were forced to see relationships and gain a better understanding of reflections. **Learning Goal 2** The students should be able to sketch a reflected image using pencil and paper. In this lesson, I walked through many examples of reflections. During those examples, I would ask the class questions in order for them to help me create the image. After we would finish an example as a class, I would ask the students to do a reflection over a certain line of reflection where the preimage was provided. I would walk through the class during these periods of time to answer questions and check to make sure concepts were understood. I was also able to see their abilities of reflecting figures while they worked on their assignment. A majority of the class seemed to understand how to reflect, but some students were caught up on reflecting over the correct line.

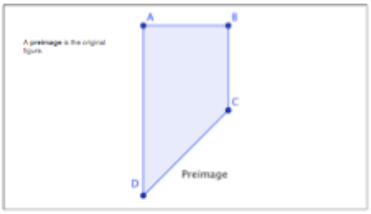
Motivation Were the strategies you identified in the Motivation for Learning section in your lesson plans (see instructions for motivation section in Appendix A and B) successful in engaging and maintaining students' interest and motivation at the beginning and throughout your lessons? If so, describe how. If not, explain why and what you would change if you were teaching this lesson again.	**Lesson 1** By starting off a lesson with a fun video, I think I grasped student attention right away. Not only did I try to connect with the students through a fun medium, but also this was a good introduction to the material. This lesson was molded to push students to engage in conversation about certain concepts and relationships. This conversation either caused students to talk about their ideas or to bring students who were off track back up to speed. The gallery activity at the end also asked for student involvement. This allowed the students to get up and be active and talk with a partner. Most of the students seemed to be engaged throughout the period. **Lesson 2** For my second lesson, I was able to spark student interest by connecting the new concepts to concepts just learned in the previous lesson. Because I was able to connect the ideas, I made my lesson seem kind of like an extension of the information from the day before. This motivated students to want to learn more because they already knew some of the material. I asked more questions in this lesson revolving information learned the day more and still asked students to converse with a partner. In this lesson, I also connected real life objects to the concepts being taught. I pulled up several logos that were familiar to them and showed their lines of symmetry. By making the connection between these logos and math definitions, students gained interest in the material.
Management Identify at least one classroom management strategy that you used successfully or needed to use more effectively and describe the impact of its use on student behavior and learning.	The students of Cedar Falls High School, I feel, are very well behaved. The way that I carried myself in the front of the classroom allowed for the best behavior. I provided them with respect, and I expected that same respect in return. There were several times where the classroom became too loud during discussion portion of my lessons, but this was brought under control by loudly asking them to "Please quiet down." There was a student that wanted to sleep during my lesson, and I took care of this by tapping his desk while I was walking around, listening to group discussion. To my surprise, this student became more engaged than others and participated several times throughout the period.
Future Growth Describe two specific areas of professional growth (e.g., instructional strategies, content knowledge, classroom management, motivation, etc.) that you need to learn more about or improve in the future and explain why you have selected these areas. In other words, what areas do you still need to improve on in order to become a highly effective teacher?	I want to experiment with different teaching techniques. For both of these lessons, I used a power point. I think it is wrong for teachers to limit themselves to only teaching a certain way. By mixing up the techniques, I can find a style that is best suited for a certain classroom dynamic. Though this experimentation might be to help benefit my learning of the class, this will also help keep the students engaged and on their toes. They won't know what to expect for the next class! Another aspect of my teaching that I would like to work on, would be to individually note concept understanding throughout the class period. Although a variety of students answered questions during the lessons that I taught, not every student answered. By making a conscious effort to either look at student notes during the period or asking specific people questions, I hope to gain better knowledge that the information taught is sinking in.

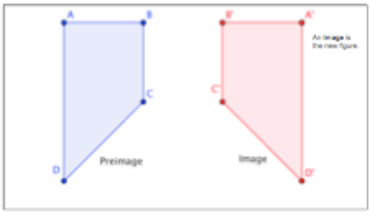
References and Credits If you referred to other person's ideas or material in your narrative, you should reference these in this section. You may use any standard form for references; however, the American Psychological Association (APA) style is a recommended format explained in the APA manual entitled "Publication Manual of the American Psychological Association".	*McDougal Littell High School Math: Student Edition Geometry*. (2001). Boston: Houghton Mifflin Harcourt. Retrieved: http://www.nexuslearning.net/books/ML-Geometry/

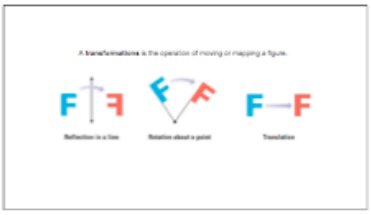
* TWS Redesigned by UNI Art Major, Erin Trampel 10/2012

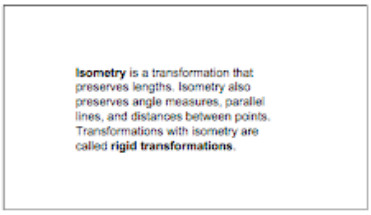
Appendix A:

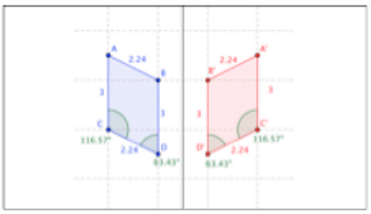
Attach a lesson plan for lesson one here.

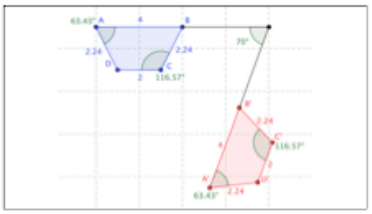


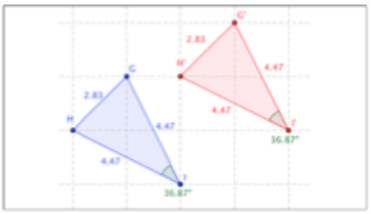


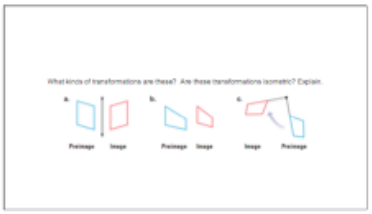


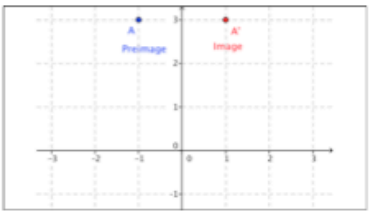


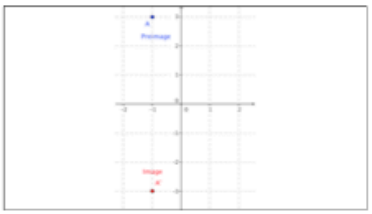

A
2.24
B
3
3
C
116.57°
2.24
D
63.43°
A'
2.24
B'
3
3
C'
D'
2.24
116.57°
63.43°

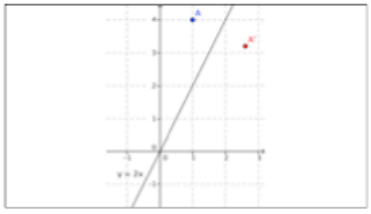

63.43°
A
4
B
70°
2.24
2.24
D
C
2
116.57°
B'
2.24
C'
116.57°
4
3
A'
D'
63.43°
2.24

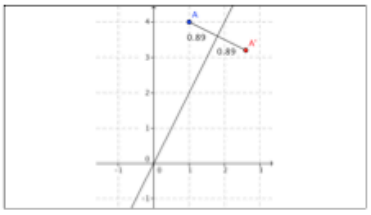

G'
2.83
H'
4.47
4.47
F'
36.87°
G
2.83
H
4.47
4.47
F
36.87°

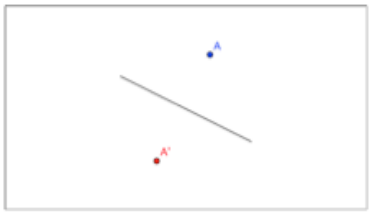

What kinds of transformations are these? Are these transformations isometric? Explain.
a.
Preimage
Image
b.
Preimage
Image
c.
Image
Preimage

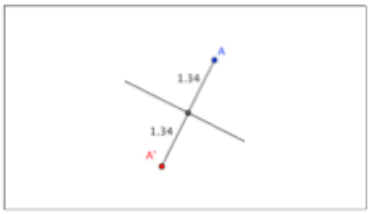

A
Preimage
A'
Image

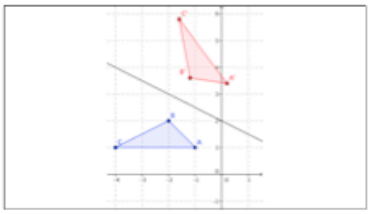

A
Preimage
Image
A'


A
A'
y = 2x

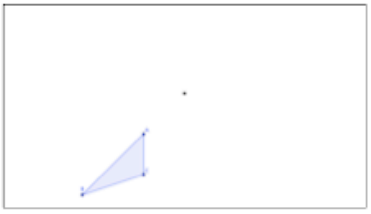

A
A'
0.89
0.89

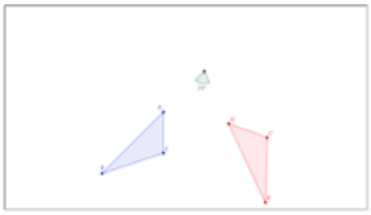

A
A'

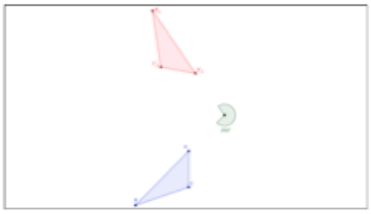

A
1.34
1.34
A'

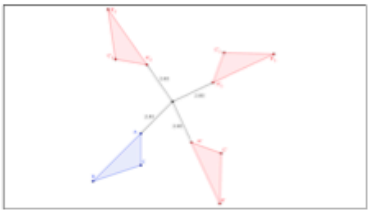


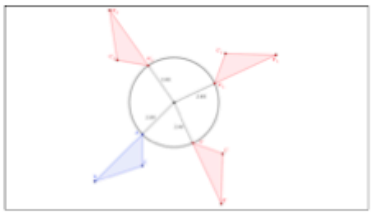

2.68
0.89
2.68
0.89
1.34
1.34

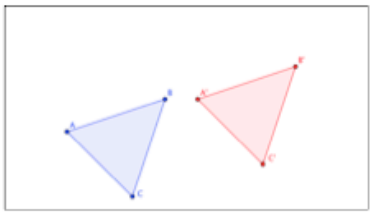


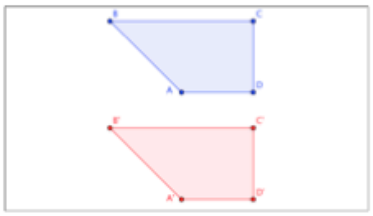


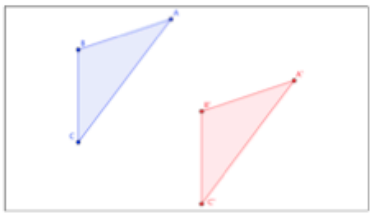


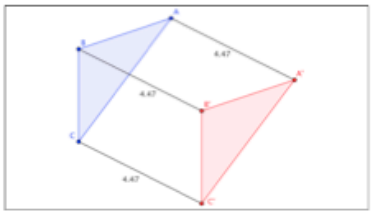


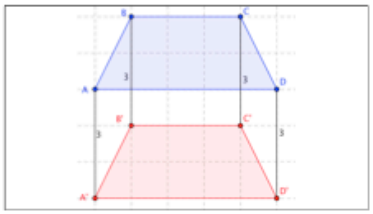


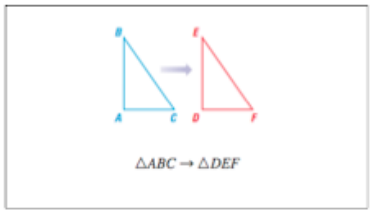












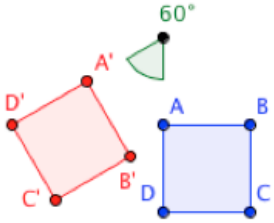
Gallery Activity

With your partner, go around the room to each gallery piece and answer the following:

- Identify which image is the preimage and the image
- Is the image a reflection, rotation, or translation of the preimage - Explain
- Are the figures isometric
- Write the transformation in arrow notation

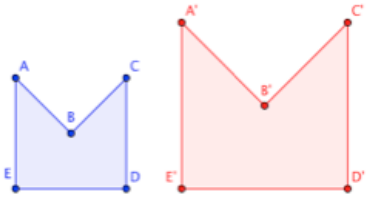
Do #10 on a separate sheet of paper, and turn it in before the end of class.

GALLERY #1

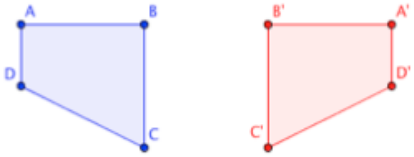


1. The preimage is blue, and the image is red.
2. The image is **rotated** 60 degrees clockwise.
3. The figures are isometric.
4. Square ABCD → Square A'B'C'D'

GALLERY #2

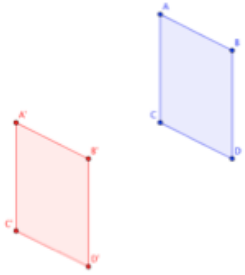


1. The preimage is blue, and the image is red.
2. None
3. The figures are not isometric.
4. Pentagon ABCDE → Pentagon A'B'C'D'E'



1. The preimage is blue, and the image is red.
2. The image is a **reflection** of the preimage.
3. The figures are isometric.
4. Trapezoid ABCD → Trapezoid A'B'C'D'

GALLERY #4

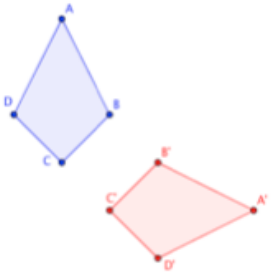


1. The preimage is blue, and the image is red.
2. The image is a **translation** of the preimage.
3. The figures are isometric.
4. Parallelogram ABCD → Parallelogram A'B'C'D'

GALLERY #5

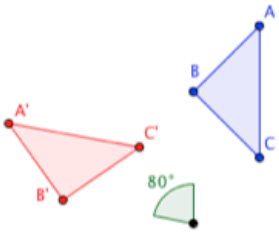
1. The preimage is A, and the image is A'.
2. The image is a **reflection** of the preimage.
3. No! These are points, not figures.
4. A → A'

GALLERY #7



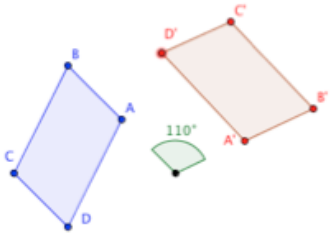
1. The preimage is blue, and the image is red.
2. The image is a **reflection** of the preimage.
3. The figures are isometric.
4. Kite ABCD → Kita A'B'C'D'

GALLERY #6



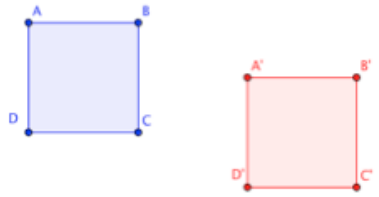
1. The preimage is blue, and the image is red.
2. The image **rotates** 80 degrees counter-clockwise.
3. The figures are isometric.
4. Triangle ABC → Triangle A'B'C'

GALLERY #8



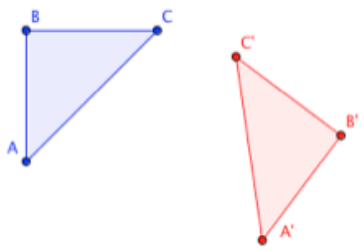
1. The preimage is blue, and the image is red.
2. The image is **rotated** 110 degrees clockwise.
3. The figures are isometric.
4. Parallelogram ABCD → Parallelogram A'B'C'D'

GALLERY #9



1. The preimage is blue, and the image is red.
2. The image is a **translation** of the preimage.
3. The figures are isometric.
4. Square ABCD → Square A'B'C'D'

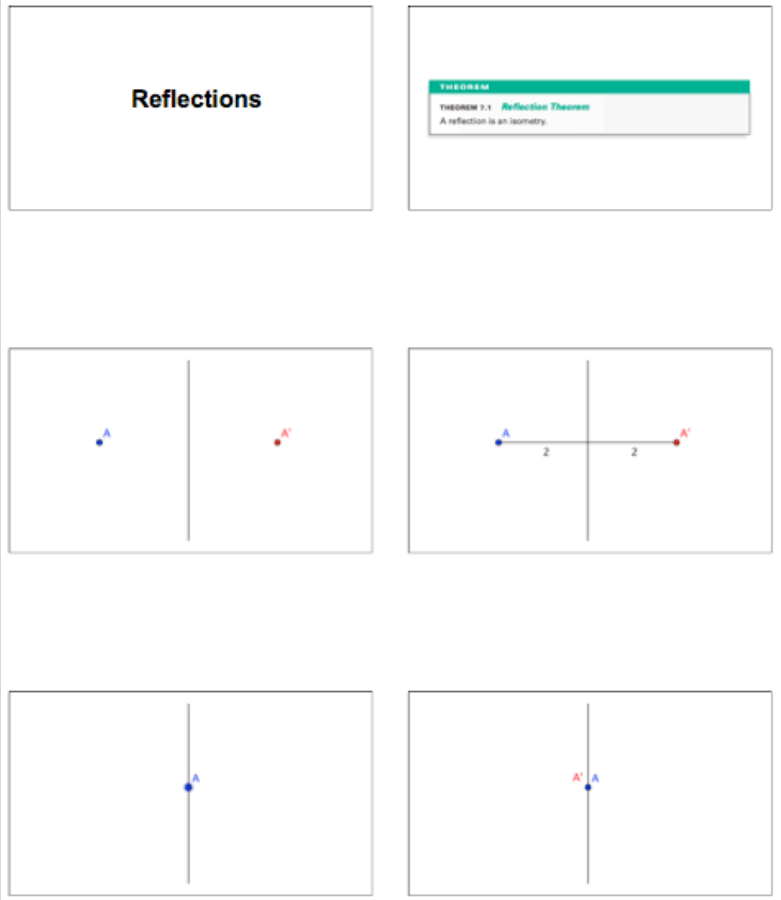
GALLERY #10

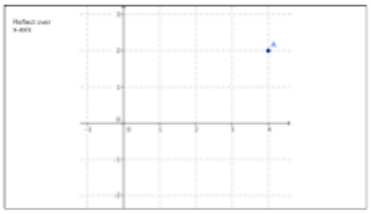


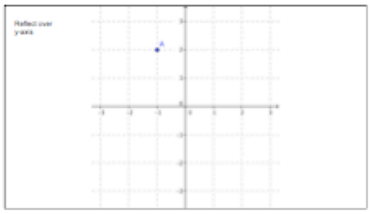
1. The preimage is blue, and the image is red.
2. The image is a **reflection** of the preimage.
3. The figures are isometric.
4. Triangle ABC → Triangle A'B'C'

Appendix B:

Attach a lesson plan for lesson two here.

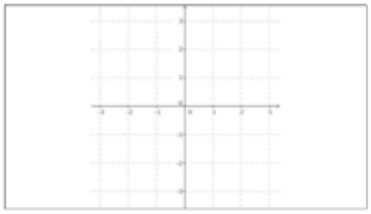


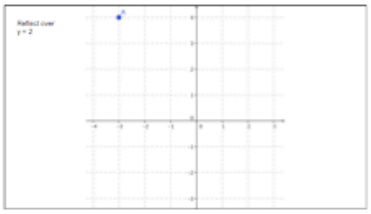


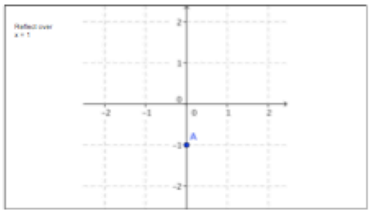


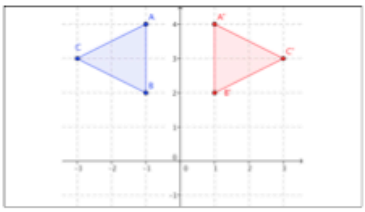
Reflections in the coordinate axes have the following properties:

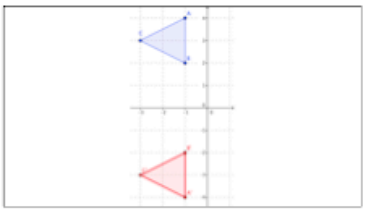
1. If (x, y) is reflected in the x-axis, its image is the point $(x, -y)$.
2. If (x, y) is reflected in the y-axis, its image is the point $(-x, y)$.

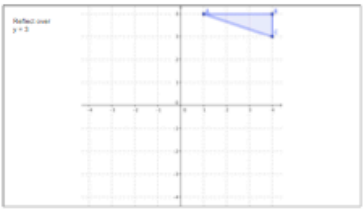


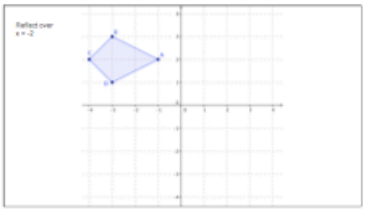


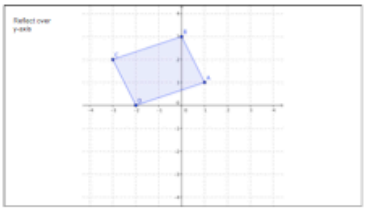


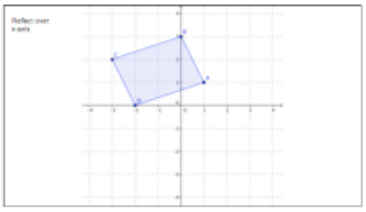




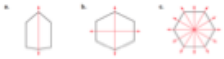


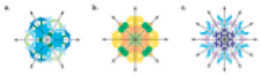






A figure in the plane has a **line of symmetry** if the figure can be mapped onto itself by a reflection in the line.





Homework:
Page 407 #2-14, 18-21 (show each on a graph),
22-29, 50-51, 57-62

Appendix C:

List other materials you will be attaching to this work sample (e.g. visual representations of student learning, copies of assessments, lesson materials, or examples of student work). Make sure you have copies of all student work that you turn in.

Kuta Software - Infinite Pre-Algebra

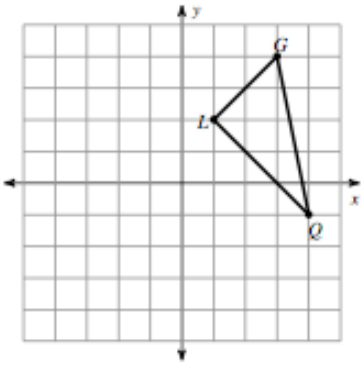
Name_____

Reflections of Shapes

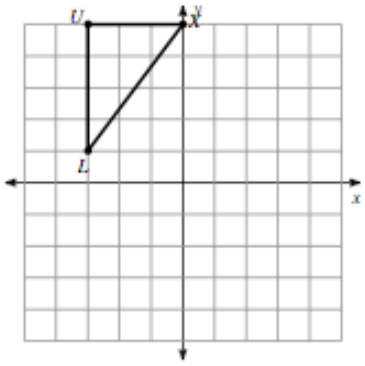
Date_____ Period____

Graph the image of the figure using the transformation given.

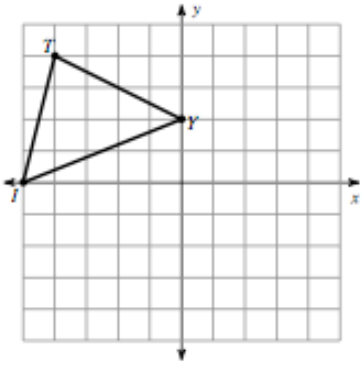
1) reflection across the x-axis



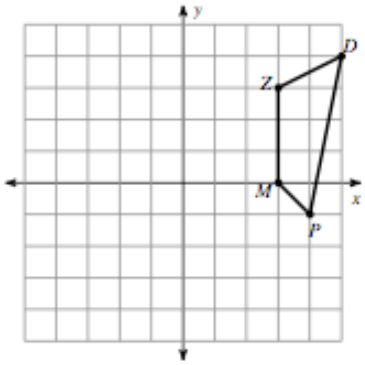
2) reflection across $y = 3$



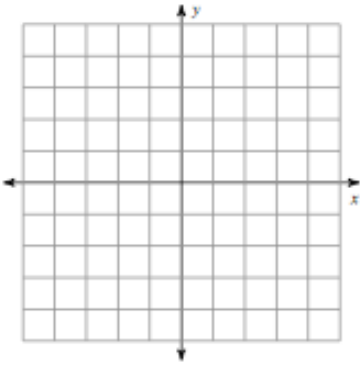
3) reflection across $y = 1$



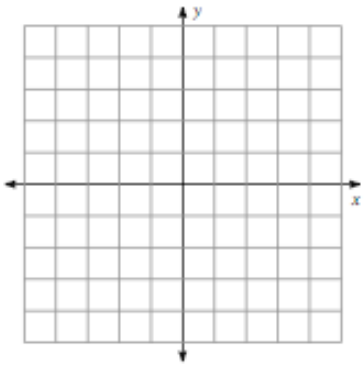
4) reflection across the x-axis



5) reflection across the x-axis
$T(2, 2)$, $C(2, 5)$, $Z(5, 4)$, $F(5, 0)$



6) reflection across $y = -2$
$H(-1, -5)$, $M(-1, -4)$, $B(1, -2)$, $C(3, -3)$



Find the coordinates of the vertices of each figure after the given transformation.

7) reflection across the x-axis
$K(1, -1)$, $N(4, 0)$, $Q(4, -4)$

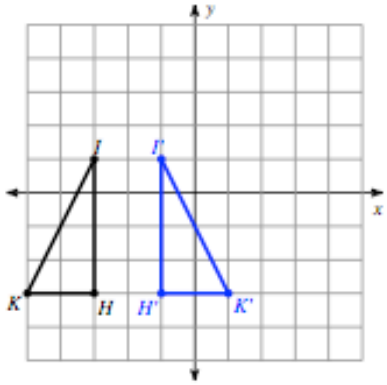
8) reflection across $y = -1$
$R(-3, -5)$, $N(-4, 0)$, $V(-2, -1)$, $E(0, -4)$

9) reflection across $x = 3$
$F(2, 2)$, $W(2, 5)$, $K(3, 2)$

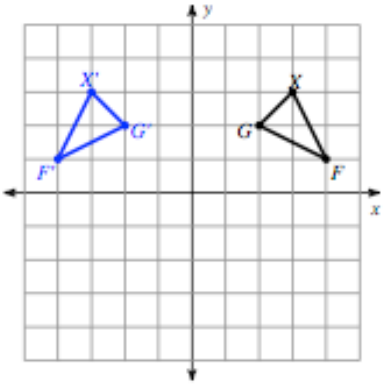
10) reflection across $x = -1$
$V(-3, -1)$, $Z(-3, 2)$, $G(-1, 3)$, $M(1, 1)$

Write a rule to describe each transformation.

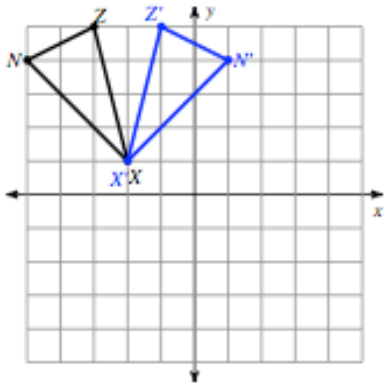
11)



12)



13)



14)