Lesson B1: Reflections

Identify and draw lines of symmetry

Identify and draw reflections.

State standards

CCSC: G.CO.2, C.CO.4

National Technology standards

(ISTE 2.a)

Procedures (Over 2 days)

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| **Objective B1 Day 1:** I am able to identify lines of reflection, and lines of symmetry in order to draw reflections. * HW Day 1: Symmetric Name Project
* Motivation: Students will log on to Answer Garden to begin discussion on “

what is a Transformation’* + The Answer Garden allows students to quickly respond using their devices and instantly see other student responses.  The more that an answer is entered into Answer Garden the larger it will appear.  This allows students and the teacher to instantly see the most popular answer or answers.  This technology allows for quick collaboration and a way for students to see and discuss other students’ responses.  In terms of this lesson, the Answer Garden will be used to introduce a concept.  Students will be asked to enter what comes to mind when they hear the word “transformation.”  As answers pop up on the screen, the students can see everyone’s responses.  The teacher can then use the responses to begin a discussion and introduce the topic and vocabulary.  Using Answer Garden allows students to use a digital environment to work collaboratively to support individual learning and contribute to the learning of others by Interacting and collaborating.
* Project pictures showing reflections, introduce vocabulary
* Use Miras and Lines of Symmetry worksheet from guide.
* Patty Paper to complete reflections. Use bottom of page 604 as reference. Make conjecture that A and $A^{'}$ are equidistance from the line of reflection
* Use patty paper and Reflections in the Coordinate Plane worksheet to demonstrate mapping of points.
* Reflections of a Quadrilateral worksheet
* Include examples throughout the lesson that are similar to questions from learning ticket
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| **Objective B1 Day 2:** I can identify lines of reflection and lines of symmetry in order to draw reflections on the coordinate plane and discover patterns. HW Day 2: p. 608-609 #18, 27, 31-36, 38, 40, 41 (40 -41 sketch)* Students will go to Kahoot.it during the summary of the lesson to collaboratively answer formative questions.
	+ [https://play.kahoot.it/#/k/165ca1a0-0156-4d7a-b9b7-a1294c480770](https://email.bcps.org/owa/redir.aspx?SURL=O8aCcp8T0Qyn1C5nG9vApbjwrRHkrtygp1JW5Xc6XSrdQRMntuvSCGgAdAB0AHAAcwA6AC8ALwBwAGwAYQB5AC4AawBhAGgAbwBvAHQALgBpAHQALwAjAC8AawAvADEANgA1AGMAYQAxAGEAMAAtADAAMQA1ADYALQA0AGQANwBhAC0AYgA5AGIANwAtAGEAMQAyADkANABjADQAOAAwADcANwAwAA..&URL=https%3a%2f%2fplay.kahoot.it%2f%23%2fk%2f165ca1a0-0156-4d7a-b9b7-a1294c480770)
	+ This technology is being used as a summative assessment tool. Student engagement is increased as they are able to use smartphones in class. Teacher is able to quickly evaluate student progress in lieu of assigning a traditional exit ticket.
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State standards

CCSC: G.CO.2, G.CO.4

National Technology standards

Procedures

Lesson B2: Translations

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| Objective B2 Day 1: I can apply vectors in order to draw translations. HW: Translations Worksheet* Concept Attainment: Translations vs. Non translations
* Use patty paper on top of coordinate grid to discover mapping/notation/vector
* Define Vector, and also “Rigid Transformation” (pre-image and image are exactly the same shape and size)
* Translations in the Coordinate Plane
* Practice worksheet/examples
* Learning Ticket (aka Kahoot)
	+ [https://play.kahoot.it/#/k/e2266fa8-f394-4024-9a19-8bc48bd9d14e](https://email.bcps.org/owa/redir.aspx?SURL=fGi_6sayhaZwLKYLw8jAx1elkOwKSgL_WkIN2hvza90xZsNvuOvSCGgAdAB0AHAAcwA6AC8ALwBwAGwAYQB5AC4AawBhAGgAbwBvAHQALgBpAHQALwAjAC8AawAvAGUAMgAyADYANgBmAGEAOAAtAGYAMwA5ADQALQA0ADAAMgA0AC0AOQBhADEAOQAtADgAYgBjADQAOABiAGQAOQBkADEANABlAA..&URL=https%3a%2f%2fplay.kahoot.it%2f%23%2fk%2fe2266fa8-f394-4024-9a19-8bc48bd9d14e)
	+ This is going to be used as a formative assessment tool and provide immediate feedback to students to adjust/revise plans for next lesson
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Lesson B3: Rotations

State standards

CCSC: G.CO.2, G.CO.4

National Technology standards

3.a- Research and information fluency

Procedures

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| **Objective B3 Day 1:** I can apply the definition of rotation and rotational symmetry in order to draw rotations. HW Day 1: Rotations 9-3 Practice B (Due Friday)Day 1: Constructions* Patty paper –discovery activity where students explore rotational orientation
* Define Rotations
* Technology Sketchpad: Relationships in rotations. Students will discover the relationship between the x and y values.
* The use of technology allows for more precision in the rotations thus reducing human error.
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| **Objective B3 Day 2**: I can apply the definition of rotation and rotational symmetry in order to draw rotations. HW Day 2: p. 623-625 #27-30, 40, 42-44, Read 9-4 take notes. Day 2: Mapping of rotations.* Examples without grid
* [http://www.mathsisfun.com/geometry/symmetry-rotational.html](https://email.bcps.org/owa/redir.aspx?SURL=xQ6wnnA_47SHnsX1XNQ0ldWRbvBUKC2FXFdRvc5Gl_nAlqFDuevSCGgAdAB0AHAAOgAvAC8AdwB3AHcALgBtAGEAdABoAHMAaQBzAGYAdQBuAC4AYwBvAG0ALwBnAGUAbwBtAGUAdAByAHkALwBzAHkAbQBtAGUAdAByAHkALQByAG8AdABhAHQAaQBvAG4AYQBsAC4AaAB0AG0AbAA.&URL=http%3a%2f%2fwww.mathsisfun.com%2fgeometry%2fsymmetry-rotational.html)
* Students will use the website to investigate, develop, and discover the definitions of the given vocabulary.
* Practice worksheet
* Learning Ticket
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State standards

Lesson B4: Reflections

CCSC: G.CO.2, G.CO.4

National Technology Standards

Procedures

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| **Objective B4 Day 1**: I can identify and draw compositions of transformations in order to develop and apply theorems about isometries. HW Day 1: Transformation Puzzle WS* \*Repeat use of Sketchpad
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| **Objective B4 Day 2:** I can identify and draw compositions of transformations in order to develop and apply theorems about isometries. HW Day 2: 0-4 Problem-solving WS, Chapter Test EC p. 664 #1-11. QUIZ THURSDAY!!* Opener – review mapping of each transformation
* Go through “Compositions Sketchpad”
* Worksheet
* Exit ticket- PPT Quiz (\*see additional resources)
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**Summative Assessment following B4 Day 2**

* Students log in on final day of unit for assessment.
* BCPSOne test